Ms5104/4-6. Eötvös Loránd végső jegyzetei: Mágnesség

0.0001. C. S. 5 gömbfüggvény Bauer T. M. IV 421.

$\varphi = -60$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
0	+1786	+111	1897	−596	−142	−738	−5249	+1547	−3702
20	1597	−46	1551	−640	−292	−932	−5467	+1401	−4066
40	1407	−97	1310	−607	−388	−995	−5686	+1187	−4499
60	1238	−155	1083	−501	−515	−1016	−5882	+973	−4909
80	1110	−265	845	−334	−673	−1007	−6029	+635	−5394
100	1040	−273	767	−128	−619	−747	−6110	+93	−6017
120	1035	−320	715	+95	−420	−325	−6116	−335	−6451
140	1096	−301	795	+306	−280	+26	−6046	−508	−6554
160	1216	−209	1007	+479	−112	+367	−5905	−386	−6391
180	1380	−85	1295	+596	−64	+532	−5718	−668	−6386
200	1568	−11	1557	+640	−78	+562	−5500	−828	−6328
220	1760	−23	1737	+607	+34	+641	−5280	−965	−6245
240	1928	−28	1900	+501	+345	+846	−5085	−979	−6064
260	2056	+39	2095	+334	+795	+1129	−4938	−670	−5608
280	2126	+213	2339	+128	+1097	+1225	−4856	+93	−4763
300	2131	+451	2582	−95	+917	+822	−4850	+1046	−3804
320	2070	+472	2542	−306	+509	+203	−4921	+1512	−3409
340	1950	+324	2274	−479	+119	−360	−5059	+1564	−3495

$\varphi = -40°$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m	λ
0	2576	−733	1843	−596	−354	−950	−3711	+1128	−2583	0
20	2436	−802	1634	−640	−368	−1008	−4044	+870	−3174	20
40	2294	−720	1574	−607	−342	−949	−4381	+599	−3782	40
60	2169	−544	1625	−501	−327	−828	−4680	+330	−4350	60
80	2074	−351	1723	−334	−397	−731	−4906	+121	−4785	80
100	2022	−151	1871	−128	−433	−561	−5031	−156	−5187	100
120	2018	+14	2032	+95	−272	−177	−5040	−616	−5656	120
140	2064	+114	2178	+306	−86	+220	−4931	−921	−5852	14
160	2152	+130	2282	+479	+37	+516	−4719	−684	−5403	16
180	2274	+182	2456	+596	+36	+632	−4429	−584	−5013	18
200	2414	+185	2599	+640	−56	+584	−4095	−534	−4629	20
220	2556	+65	2621	+607	−46	+561	−3758	−525	−4283	22
240	2681	−64	2617	+501	+137	+638	−3459	−585	−4044	24
260	2776	−130	2646	+334	+525	+859	−3234	−370	−3604	26
280	2828	−118	2710	+128	+832	+960	−3109	+267	−2842	28
300	2832	−162	2670	−95	+626	+531	−3100	+1152	−1948	30
320	2786	−284	2502	−306	+171	−135	−3208	+1529	−1679	32
340	2698	−519	2179	−479	−195	−674	−3420	+1401	−2019	34

$\varphi = -20$

m	λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
83	0	3055	−965	2090	−596	−468	−1064	−1725	+ 21	−1704
74	20	2980	− 890	2090	−640	− 218	−858	− 2134	− 329	−2463
82	40	2905	− 692	2213	−607	− 42	−649	− 2547	− 624	−3171
50	60	2838	− 413	2425	− 501	+ 88	−413	− 2914	− 567	−3481
85	80	2788	− 91	2697	− 334	+ 49	−285	− 3191	− 430	−3621
87	100	2760	+266	3026	−128	− 18	−146	− 3344	− 409	−3753
56	120	2758	+541	3299	+ 95	− 47	+48	− 3355	− 520	−3875
52	140	2782	+663	3445	+306	− 10	+296	− 3222	− 618	−3840
03	160	2830	+623	3453	+479	+ 74	+553	− 2962	− 388	−3350
73	180	2895	+527	3422	+596	− 2	+594	− 2606	− 266	−2872
29	200	2969	+383	3352	+640	−121	+519	− 2197	− 268	−2465
83	220	3044	+193	3237	+607	− 161	+446	− 1784	− 484	−2268
44	240	3111	+ 45	3156	+501	− 15	+486	− 1416	− 631	−2047
04	260	3161	− 82	3079	+334	+ 309	+643	− 1140	− 486	−1626
42	280	3189	− 297	2892	+128	+ 546	+674	− 987	− 94	−1081
48	300	3191	− 452	2739	− 95	+ 376	+281	− 976	+ 453	− 523
79	320	3167	− 601	2566	−306	− 59	−365	− 1108	+ 760	− 348
9	340	3120	− 811	2309	− 479	− 412	−891	− 1369	+ 612	− 757
										43245

$\varphi = 0$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_n
0	3166	-351	2815	-596	-384	-980	+469	-874	-405
20		-235	2931	-640	- 55	-695	+ 33	-1235	-1202
40		- 68	3098	-607	+185	-422	- 406	- 964	-1370
60		+129	3295	- 501	+320	-181	- 797	- 564	-1361
80		+366	3532	- 334	+336	+ 2	-1091	- 217	-1308
100		+591	3757	-128	+283	+155	-1254	+ 93	-1161
120		+692	3858	+ 95	+ 51	+146	-1266	+ 353	- 913
140		+653	3819	+306	- 94	+212	-1125	+ 300	- 825
160		+475	3641	+479	- 13	+466	- 848	+ 217	- 631
180		+476	3642	+596	- 30	+566	- 469	+ 260	-209
200		+400	3566	+640	-223	+417	- 33	+ 86	+ 53
220		+283	3449	+607	-322	+285	+ 406	- 270	+136
240		+365	3531	+501	-182	+319	+ 797	- 549	+248
260		+361	3527	+433	+149	+582	+1091	- 575	+516
280		+211	3377	+128	+312	+440	+1254	- 299	+955
300		-118	3048	- 95	+201	+106	+1266	+ 66	+1332
320		- 239	2927	-306	-182	-488	+1125	+ 280	+1405
340		- 405	2761	-479	- 584	-1067	+ 848	- 178	+ 670

$\varphi = +20$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
0	2895	− 48	2847	− 596	−172	−768	+2606	− 864	+1742
20	2969	+ 161	3130	− 640	+121	−519	2197	− 952	+ 1245
40	3044	+ 339	3383	− 607	+ 362	−245	1784	− 527	+ 1257
60	3111	+ 497	3608	− 501	+ 480	− 21	1416	− 50	+ 1366
80	3161	+ 639	3800	− 334	+ 476	+143	1140	+ 462	+ 1602
100	3189	+ 538	3727	− 128	+ 345	+217	987	+ 882	+ 1869
120	3191	+ 419	3610	+ 95	− 84	+11	976	+ 1012	+ 1988
140	3167	+ 263	3430	+ 306	− 300	+ 6	1108	+ 683	+ 1791
160	3120	+ 128	3248	+ 479	− 169	+310	1369	+ 235	+ 1604
180	3055	+ 62	3117	+ 596	− 74	+522	1725	+ 136	+ 1861
200	2980	+ 105	3085	+ 640	− 170	+470	2134	+ 174	+ 2308
220	2905	+ 240	3145	+ 607	− 135	+ 472	2547	+ 98	+ 2645
240	2838	+ 458	3296	+ 501	+ 26	+ 527	2914	+ 65	+ 2979
260	2788	+ 541	3329	+ 334	+ 122	+ 456	3191	+ 208	+ 3399
280	2760	+ 454	3214	+ 128	+ 60	+ 188	3344	+ 360	+ 3704
300	2758	+ 155	2913	− 95	− 77	−172	3355	+ 402	+ 3757
320	2782	− 151	2631	− 306	− 354	−660	3222	+ 250	+ 3472
340	2830	− 214	2616	− 479	− 451	−930	2962	− 281	+ 2681

$\varphi = +40$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
0	2274	− 75	2199	−596	− 18	−614	4429	−679	3750
20	2414	+ 26	2440	−640	+292	− 348	4095	−607	3488
40	2556	+ 86	2642	−607	+ 576	− 31	3758	−199	3559
60	2681	+ 82	2763	− 501	+ 726	+225	3459	+ 344	3799
80	2776	+ 49	2825	− 334	+ 660	+326	3234	+877	4101
100	2828	+ 26	2854	−128	+ 284	+156	3109	+1278	4387
120	2832	+ 1	2838	+ 95	− 272	−177	3100	+1270	4370
140	2786	+ 24	2810	+306	− 568	−262	3208	+ 701	3909
160	2698	+ 26	2724	+479	− 359	+120	3420	+ 58	3478
180	2576	− 68	2508	+596	− 91	+505	3711	− 201	3510
200	2436	− 24	2412	+640	− 1	+639	4044	− 165	3879
220	2294	+ 95	2389	+607	+ 138	+745	4381	+ 58	4439
240	2169	+119	2288	+501	+ 224	+725	4680	+ 390	5070
260	2074	+ 60	2134	+334	+ 136	+470	4906	+ 762	5668
280	2022	− 53	1969	+128	− 190	− 62	5031	+ 829	5860
300	2018	− 286	1732	− 95	− 457	−552	5040	+ 301	5341
320	2064	− 408	1656	−306	− 479	−785	4931	− 359	4572
340	2152	− 282	1870	−479	− 335	−814	4719	− 613	4106

$\varphi = +60$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_m	Z_r	Z_m
0	1380	+ 23	+1403	−596	+83	−513	5718	−1061	4657
20	1568	+ 28	1596	−640	+437	−203	5500	− 862	4638
40	1759	− 85	1674	−607	+748	+141	5280	− 378	4902
60	1928	− 291	1637	−501	+880	+379	5085	+ 148	5233
80	2056	− 518	1538	−334	+738	+404	4938	+ 518	5456
100	2126	− 595	1531	−128	+297	+169	4856	+ 748	5604
120	2131	− 544	1587	+ 95	−160	− 65	4850	+ 749	5599
140	2070	− 390	1680	+ 306	−487	−181	4921	+ 466	5387
160	1950	− 182	1768	+ 479	− 439	+ 40	5059	− 110	4949
180	1786	− 54	1732	+ 596	− 209	+387	5249	− 239	5010
200	1597	− 31	1566	+ 640	− 52	+588	5467	− 62	5405
220	1407	− 160	1247	+ 607	+113	+720	5686	+ 125	5811
240	1238	− 347	891	+ 501	+ 110	+611	5882	+ 436	6318
260	1110	− 528	582	+ 334	− 122	+212	6029	+ 257	6286
280	1040	− 639	401	+ 128	− 388	−260	6110	−?647	?5463?
300	1035	−471	564	− 95	− 627	−722	6116	− 222	5894
320	1096	− 307	789	− 306	− 565	−871	6046	− 709	5337
340	1216	−106	1110	− 479	− 307	−786	5905	− 919	~~4986~~

$$U = \int dv\, \alpha X + \int dv\, \beta Y + \int dv\, \gamma Z$$

~~$X = \frac{a}{r}$~~

~~$X = \frac{a}{(a^2+b^2+c^2)^{\frac{3}{2}}}$ $Y = \frac{b}{(a^2+b^2+c^2)^{\frac{3}{2}}}$ $Z = \frac{c}{(a \dots)^{\frac{3}{2}}}$~~

$$X = \frac{\xi}{(\xi^2+\eta^2+\zeta^2)^{\frac{3}{2}}} \qquad Y = \frac{\eta}{(\xi^2+\eta^2+\zeta^2)^{\frac{3}{2}}} \qquad Z = \frac{\zeta}{(\xi^2+\eta^2+\zeta^2)^{\frac{3}{2}}}$$

$\xi^2+\eta^2+\zeta^2$.

$$X = \frac{\xi}{(r^2+N)^{\frac{3}{2}}} \qquad Y = \frac{\eta}{(r^2+N)^{\frac{3}{2}}} \qquad Z = \frac{\zeta}{(r^2+N)^{\frac{3}{2}}}$$

~~$X = \dots$~~

$$\left\{ \begin{aligned} X &= \frac{1}{r^3}(c \sin\varphi \cos\lambda - b \sin\varphi \sin\lambda + a \cos\varphi) \\ Y &= \frac{1}{r^3}(b \cos\lambda + c \sin\lambda) \\ Z &= \frac{1}{r^2} - \frac{2}{r^3}(c \cos\lambda \cos\varphi - b \sin\lambda \cos\varphi - a \sin\varphi) \end{aligned} \right.$$

~~$\frac{2}{r} \dots$~~

$$\begin{aligned} U = {} & \alpha' \frac{V}{r^3}(c \sin\varphi \cos\lambda - b \sin\varphi \sin\lambda + a \cos\varphi) \\ & + \beta' \frac{V}{r^3}(b \cos\lambda + c \sin\lambda) \\ & + \gamma' \frac{V}{r^2} - 2\gamma' \frac{V}{r^3}(c \cos\lambda \cos\varphi - b \sin\lambda \cos\varphi - a \sin\varphi) \end{aligned}$$

$$\begin{aligned} \alpha' &= \alpha \cos\varphi - \beta \sin\lambda \sin\varphi + \gamma \cos\lambda \sin\varphi \\ \beta' &= \beta \cos\lambda + \gamma \sin\lambda \\ \gamma' &= -\alpha \sin\varphi - \beta \sin\lambda \cos\varphi + \gamma \cos\lambda \cos\varphi \end{aligned}$$

$$\frac{U}{r} = -\alpha\frac{V}{r^3}\sin\varphi - \beta\frac{V}{r^3}\sin\lambda\cos\varphi + \gamma\frac{V}{r^3}\cos\lambda\cos\varphi$$

$$+\frac{3}{2}(\alpha c+\gamma a)\frac{V}{r^4}\sin 2\varphi\cos\lambda - \frac{3}{2}(\alpha b+\beta a)\frac{V}{r^4}\sin 2\varphi\sin\lambda$$

$$+\frac{V^3}{r^2}(\beta c+\gamma b)\cos^2\varphi\sin 2\lambda + \frac{V^3}{r^2}(\beta b-\gamma c)\cos^2\varphi\cos 2\lambda$$

$$-2(\alpha a-\beta b)\frac{V}{r^4}\left(1-\frac{3}{2}\cos^2\varphi\right) - \frac{V}{r^4}(\beta b-\gamma c)\left(1-\frac{3}{2}\cos^2\varphi\right)$$

$$e = 3\frac{V}{r^4}(\beta a_0+\alpha b_0) \qquad \alpha\frac{V}{r^3} = \mu_a$$

$$f = 3\frac{V}{r^4}(\gamma b_0+\beta c_0) \qquad \beta\frac{V}{r^3} = \mu_b$$

$$g = 3\frac{V}{r^4}(\alpha c_0+\gamma a_0) \qquad \gamma\frac{V}{r^3} = \mu_c$$

$$h = 3\frac{V}{r^4}(\alpha a_0-\beta b_0)$$

$$i = 3\frac{V}{r^4}(\beta b_0-\gamma c_0) \qquad \frac{2h+i}{2} = k.$$

$$\frac{U}{r} = -\mu_a\sin\varphi - \mu_b\cos\varphi\sin\lambda + \mu_c\cos\varphi\cos\lambda - \frac{2}{3}k\left(1-\frac{3}{2}\cos^2\varphi\right)$$

$$-\frac{1}{2}e\sin 2\varphi\sin\lambda + \frac{1}{2}f\cos^2\varphi\sin 2\lambda + \frac{1}{2}g\sin 2\varphi\cos\lambda + \frac{1}{2}i\cos^2\varphi\cos 2\lambda$$

$$\frac{1}{n}\sum\frac{U}{r} = -\mu_a\sin\varphi - \frac{2}{3}k\left(1-\frac{3}{2}\cos^2\varphi\right)$$

$$\frac{1}{n}\sum\frac{U}{r}\sin\lambda = -\frac{1}{2}\mu_b\cos\varphi - \frac{1}{4}e\sin 2\varphi$$

$$\frac{1}{n}\sum\frac{U}{r}\cos\lambda = +\frac{1}{2}\mu_c\cos\varphi + \frac{1}{4}g\sin 2\varphi$$

$$\frac{1}{n}\sum\frac{U}{r}\sin 2\lambda = +\frac{1}{4}f\cos^2\varphi$$

$$\frac{1}{n}\sum\frac{U}{r}\cos 2\lambda = +\frac{1}{4}i\cos^2\varphi$$

l	$\varphi=-60$	-40	-20	0	$+20$	$+40$	$+60$	$(\frac{u}{r})_+ - (\frac{u}{r})_s$
0	+24	+12	−4	−11	−7	−4	−10	
10	+23	+9	−9	−13	−9	−3	−10	
20	+20	+9	−8	−16	−7	−2	−10	
30	+22	+7	−10	−17	−3	0	−8	
40	+19	+5	−14	−17	−2	+5	−7	
50	+15	+6	−14	−15	−1	+9	−3	
60	+13	+4	−15	−15	+1	+12	−1	
70	+12	+2	−13	−15	+5	+14	0	
80	+10	−1	−13	−10	+9	+13	0	
90	+5	−3	−12	−9	+10	+15	+1	
100	+1	−7	−11	−6	+11	+14	+1	
110	+2	−6	−11	−3	+10	+12	0	
120	−5	−5	−9	−1	+8	+8	−6	
130	−5	−5	−5	+2	+6	+3	−10	
140	−6	−1	+2	+5	+3	−2	−12	
150	−3	+3	+8	+9	+3	−5	−15	
160	−3	+8	+14	+12	+3	−8	−18	
170	−2	+12	+20	+17	+4	−9	−19	
180	−2	+15	+26	+21	+4	−11	−20	
190	−3	+17	+28	+24	+9	−8	−17	
200	−3	+16	+25	+24	+12	−5	−17	
210	0	+13	+22	+21	+13	−2	−11	
220	−1	+8	+12	+14	+11	+2	−10	
230	−3	−1	+2	+6	+8	+5	−7	
240	−5	−7	−8	−5	+5	+8	−6	
250	−6	−13	−17	−11	+2	+11	−1	
260	−6	−14	−17	−13	+3	+13	−1	
270	−2	−13	−18	−14	+2	+13	−1	
280	+1	−7	−15	−12	+3	+12	−2	
290	+3	−3	−10	−5	+4	+12	−1	
300	+8	+3	−7	−3	+4	+9	−4	
310	+12	+6	−3	+2	+5	+7	−6	
320	+17	+10	0	+2	+6	+4	−6	
330	+18	+11	+2	0	+3	+2	−7	
340	+20	+14	+1	−4	−1	+1	−9	
350	+24	+14	−2	−8	−4	−2	−9	

$\frac{u}{r}$.

φ	$+319,5\sin\varphi+5,9(1-\frac{3}{2}\cos^2\varphi)$	$(-59,4\cos\varphi+6,6\sin 2\varphi)\sin\lambda$			
-60					
-40					
-20					
0					
+20					
+40					
+60					

$\frac{u}{r}$

φ	$+319,5\sin\varphi+5,9(1-\frac{3}{2}\cos^2\varphi)$	$(-59,4\cos\varphi+6,6\sin 2\varphi)\sin\lambda$	$(+29,8\cos\varphi-25,3\sin 2\varphi)\cos\lambda$	$-11,2\cos^2\varphi\sin 2\lambda$	$-10,5\cos^2\varphi\cos 2\lambda$
-60	-273,0	$-35\sin\lambda$	$+37\cos\lambda$	$-3\sin 2\lambda$	$-3\cos 2\lambda$
-40	-203,6	$-52\sin\lambda$	$+48\cos\lambda$	$-7\sin 2\lambda$	$-6\cos 2\lambda$
-20	-111,2	$-60\sin\lambda$	$+44\cos\lambda$	$-10\sin 2\lambda$	$-9\cos 2\lambda$
0	-3,0	$-59\sin\lambda$	$+30\cos\lambda$	$-11\sin 2\lambda$	$-11\cos 2\lambda$
+20	+107,4	$-52\sin\lambda$	$+12\cos\lambda$	$-10\sin 2\lambda$	$-9\cos 2\lambda$
+40	+206,0	$-39\sin\lambda$	$-2\cos\lambda$	$-7\sin 2\lambda$	$-6\cos 2\lambda$
+60	+280,4	$-24\sin\lambda$	$-7\cos\lambda$	$-3\sin 2\lambda$	$-3\cos 2\lambda$

λ	-273	$\varphi=-60$				$\varphi=-40$					$\varphi=-20$					$\varphi=0$				
0	-239	0	+37	0	-3	-232	+28 0	+48	0	-6	-190	+28 -111	0	+44	0	-9	-76	-3	0	+30	0	
10	-247	-6	+36	-1	-3		-9	+47	-2	-6	-202		-10	+43	-3	-8	-89		-10	+30	-4	
20	-252	-12	+35	-2	-2		-18	+45	-4	-5	-214		-21	+41	-6	-7	-104		-20	+28	-7	
30	-264	-18	+32	-3	-2		-26	+42	-6	-3	-225		-30	+38	-9	-5	-117		-30	+26	-10	
40	-271	-22	+28	-3	-1		-33	+37	-7	-1	-236		-39	+34	-10	-2	-128		-38	+23	-11	
50	-278	-27	+24	-3	+1		-40	+31	-7	+1	-247		-46	+28	-10	+2	-137		-45	+19	-11	
60	-285	-30	+19	-3	+2		-45	+24	-6	+3	-256		-52	+22	-9	+5	-145		-51	+15	-10	
70	-293	-33	+13	-2	+2		-49	+16	-4	+5	-264		-56	+15	-6	+7	-151		-55	+10	-7	
80	-299	-34	+6	-1	+3		-51	+8	-2	+6	-271		-59	+8	-3	+8	-157		-58	+5	-4	
90	-305	-35	0	0	+3		-52	0	0	+6	-278		-60	0	0	+9	-162		-59	0	0	
100	-309	-34	-6	+1	+3		-51	-8	+2	+6	-283		-59	-8	+3	+8	-167		-58	-5	+4	
110	-315	-33	-13	+2	+2		-49	-16	+4	+5	-288		-56	-15	+6	+7	-169		-55	-10	+7	
120	-317	-30	-19	+3	+2		-45	-24	+6	+3	-292		-52	-22	+9	+5	-171		-51	-15	+10	
130	-320	-27	-24	+3	+1		-40	-31	+7	+1	-295		-46	-28	+10	+2	-173		-45	-19	+11	
140	-321	-22	-28	+3	-1		-33	-37	+7	-1	-296		-39	-34	+10	-2	-176		-38	-23	+11	
150	-322	-18	-32	+3	-2		-26	-42	+6	-3	-297		-30	-38	+9	-5	-175		-30	-26	+10	
160	-320	-12	-35	+2	-2		-18	-45	+4	-5	-296		-21	-41	+6	-7	-174		-20	-28	+7	
170	-317	-6	-36	+1	-3		-9	-47	+2	-6	-292		-10	-43	+3	-8	-169		-10	-30	+4	
180	-313	0	-37	0	-3		0	-48	0	-6	-286		0	-44	0	-9	-164		0	-30	0	
190	-307	+6	-36	-1	-3		+9	-47	-2	-6	-278		+10	-43	-3	-8	-155		+10	-30	-4	
200	-300	+12	-35	-2	-2		+18	-45	-4	-5	-268		+21	-41	-6	-7	-144		+20	-28	-7	
210	-292	+18	-32	+3	-2		+26	-42	-6	-3	-257		+30	-38	-9	-5	-133		+30	-26	-10	
220	-283	+22	-28	-3	-1		+33	-37	-7	-1	-244		+39	-34	-10	-2	-118		+38	-23	-11	
230	-274	+27	-24	-3	+1		+40	-31	-7	+1	-229		+46	-28	-10	+2	-101		+45	-19	-11	
240	-263	+30	-19	-3	+2		+45	-24	-6	+3	-214		+52	-22	-9	+5	-85		+57	-15	-10	
250	-253	+33	-13	-2	+2		+49	-16	-4	+5	-198		+56	-15	-6	+7	-69		+55	-10	-7	
260	-243	+34	-6	-1	+3		+51	-8	-2	+6	-185		+59	-8	-3	+8	-55		+58	-5	-4	
270	-235	+35	0	0	+3		+52	0	0	+6	-174		+60	0	0	+9	-42		+59	0	0	
280	-229	+34	+6	+1	+3		+51	+8	+2	+6	-165		+59	+8	+3	+8	-33		+58	+5	+4	
290	-223	+33	+13	+2	+2		+49	+16	+4	+5	-158		+56	+15	+6	+7	-27		+55	+10	+7	
300	-219	+30	+19	+3	+2		+45	+24	+6	+3	-154		+52	+22	+9	+5	-23		+57	+15	+10	
310	-218	+27	+24	+3	+1		+40	+31	+7	+1	-153		+46	+28	+10	+2	-25		+45	+19	+11	
320	-221	+22	+28	+3	-1		+33	+37	+7	-1	-156		+39	+34	+10	-2	-30		+38	+23	+11	
330	-222	+18	+32	+3	-2		+26	+42	+6	-3	-161		+30	+38	+9	-5	-39		+30	+26	+10	
340	-226	+12	+35	+2	-2		+18	+45	+4	-5	-170		+21	+41	+6	-7	-50		+20	+28	+7	
350	-233	+6	+36	+1	-3		+9	+47	+2	-6	-180		+10	+43	+3	-8	-63		+10	+30	+4	

$\varphi=0$	$\varphi=+20$	$\varphi=+40$	$\varphi=+60$
+30 0 −11 +16	+107 0 +12 0 −9 +110	+206 0 −2 0 −6 +198	+228 0 −7 0 −3 +210
+30 −4 −10 +3	−9 +12 −3 −8 +99	−7 −2 −2 −6 +189	−4 −7 −1 −3 +265
+28 −7 −8 −10	−18 +11 −6 −7 +81	−13 −2 −4 −5 +182	−8 −7 −2 −2 +261
+28 −7 −8 −52	−18 −11 +6 −7 +72	−13 +2 +4 −5 +192	−8 +7 −2 −2 +238
−30 +4 −10 −49	−9 −12 +3 −8 +81	−7 +2 +2 −6 +193	−4 +7 +1 −3 +281
−30 0 −11 −44	0 −12 0 −9 +86	0 +2 0 −6 +202	0 +7 0 −3 +284
−30 −4 −10 −37	+9 −12 −3 −8 +93	+7 +2 −2 −6 +207	+4 +7 −1 −3 +287
−28 −7 −8 −26	+18 −11 −6 −7 +101	+13 +2 −4 −5 +212	+8 +7 −2 −2 +291
−26 −10 −6 −15	+26 −10 −9 −5 +109	+20 +2 −6 −3 +219	+12 +6 −3 −2 +293
−23 −11 −2 −7	+33 −9 −10 −2 +119	+25 +2 −7 −1 +225	+15 +5 −3 −1 +296
−19 −11 +2 +14	+40 −8 −10 +2 +137	+30 +1 −7 +1 +231	+18 +5 −3 +1 +299
−15 −10 +6 +29	+46 −6 −9 +5 +142	+34 +1 −6 +3 +238	+21 +4 −3 +2 +304
−10 −7 +8 +43	+49 −4 −6 +7 +153	+37 +1 −4 +5 +248	+23 +2 −2 +2 +305
−5 −4 +10 +56	+51 −2 −3 +8 +161	+38 0 −2 +6 +248	+24 +1 −1 +3 +307
0 0 +11 +67	+52 0 0 +9 +168	+39 0 0 +6 +251	+24 0 0 +3 +307
+5 +4 +10 +74	+51 +2 +3 +8 +171	+38 0 +2 +6 +252	+24 −1 +1 +3 +307
+10 +7 +8 +77	+49 +4 +6 +7 +173	+37 −1 +4 +5 +251	+23 −2 +2 +2 +305
+15 +10 +6 +79	+45 +6 +9 +5 +172	+34 −1 +6 +3 +248	+21 −4 +3 +2 +302
+19 +11 +2 +74	+40 +8 +10 +2 +167	+30 −1 +7 +1 +243	+18 −5 +3 +1 +297
+23 +11 −2 +67	+33 +9 +10 −2 +152	+25 −2 +7 −1 +236	+15 −5 +3 −1 +292
+26 +10 −6 +57	+26 +10 +9 −5 +143	+20 −2 +6 −3 +227	+12 −6 +3 −2 +287
+28 +7 −8 +44	+18 +11 +6 −7 +135	+13 −2 +4 −5 +216	+8 −7 +2 −2 +281
+30 +4 −10 +31	+9 +12 +3 −8 +123	+7 −2 +2 −6 +207	+4 −7 +1 −3 +275

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λ	$\frac{u}{r}$	$\varphi = -60$ $\frac{u}{r}\sin 2\lambda$	$\frac{u}{r}\cos 2\lambda$	$\frac{u}{r}\sin 2\lambda$	$\frac{u}{r}\cos 2\lambda$	$\frac{u}{r}$	$\varphi = -40$ $\frac{u}{r}\sin 2\lambda$	$\frac{u}{r}\cos 2\lambda$	$\frac{u}{r}\sin 2\lambda$	$\frac{u}{r}\cos 2\lambda$
0	−215	0	−215	0	−215	−150	0	−150	0	−150
10	−224					−165				
20	−232	−79	−218	−149	−178	−177	−61	−166	−114	−136
30	−242					−190				
40	−252	−162	−193	−248	−44	−203	−130	−155	−200	−35
50	−263					−213				
60	−272	−236	−136	−236	+136	−224	−194	−112	−194	+112
70	−281					−234				
80	−289	−285	−50	−99	+272	−244	−240	−42	−83	+229
90	−300					−253				
100	−308	−304	+53	+105	+289	−262	−258	+45	+90	+246
110	−313					−266				
120	−322	−279	+161	+279	+161	−269	−233	+135	+233	+135
130	−325					−272				
140	−327	−210	+250	+322	−57	−269	−173	+206	+265	−47
150	−325					−266				
160	−323	−110	+304	+208	−247	−260	−89	+244	+167	−199
170	−319					−252				
180	−315	0	+315	0	−315	−243	0	+243	0	−243
190	−310					−233				
200	−303	+104	+285	−195	−232	−224	+77	+210	−144	−172
210	−292					−216				
220	−284	+183	+218	−280	−49	−208	+134	+159	−205	−36
230	−277					−202				
240	−268	+232	+134	−232	+134	−193	+167	+97	−167	+97
250	−259					−183				
260	−249	+245	+43	−85	+234	−171	+168	+30	−58	+161
270	−237					−159				
280	−228	+224	−40	+78	+214	−144	+142	−25	+49	+135
290	−220					−133				
300	−211	+183	−106	+183	+106	−123	+107	−62	+107	+62
310	−206					−119				
320	−204	+131	−156	+201	−35	−118	+76	−90	+116	−20
330	−204					−122				
340	−206	+70	−194	+132	−158	−128	+44	−120	+82	−98
350	−209					−138				

$\frac{u}{r}\cos\varphi$	$\frac{u}{r}$	$\varphi=-20$ $\frac{u}{r}\sin\varphi$	$\frac{u}{r}\cos\varphi$	$\frac{u}{r}\sin\varphi$	$\frac{u}{r}\cos\varphi$	$\frac{u}{r}$	$\varphi=0$ $\frac{u}{r}\sin\varphi$	$\frac{u}{r}\cos\varphi$	$\frac{u}{r}\sin\varphi$	$\frac{u}{r}\cos\varphi$
−150	−80	0	−80	0	−80	+5	0	+5	0	+5
	−98					−10				
−136	−112	−38	−105	−72	−86	−26	−9	−24	−17	−20
	−127					−40				
−35	−142	−91	−109	−140	−25	−48	−31	−37	−47	−8
	−151					−53				
+112	−160	−139	−80	−139	+80	−58	−50	−29	−50	+29
	−164					−60				
+229	−170	−167	−30	−58	+160	−60	−59	−10	−21	+56
	−174					−60				
+246	−178	−175	+31	+61	+167	−58	−57	+10	+20	+55
	−180					−56				
+135	−180	−156	+90	+156	+90	−54	−47	+27	+47	+27
	−178					−52				
−47	−174	−112	+133	+171	−30	−50	−32	+38	+49	−9
	−167					−46				
−199	−160	−55	+150	+103	−123	−40	−14	+38	+26	−31
	−149					−32				
−243	−138	0	+138	0	−138	−23	0	+23	0	−23
	−127					−13				
−172	−119	+41	+112	−76	−91	−2	+1	+2	−1	−2
	−111					+6				
−36	−106	+68	+81	−104	−18	+13	−8	−10	+13	+2
	−99					+20				
+97	−93	+81	+47	−81	+47	+24	−21	−12	+21	−12
	−86					+32				
+161	−72	+71	+12	−25	+68	+43	−42	−7	+15	−40
	−60					+53				
+135	−48	+47	−8	+16	+45	+62	−61	+11	−21	−58
	−37					+72				
+62	−30	+26	−15	+26	+15	+76	−66	+38	−66	−38
	−28					+76				
−20	−30	+19	−23	+30	−5	+69	−44	+53	−68	+12
	−37					+57				
−98	−49	+17	−46	+31	−38	+40	−14	+38	−26	+31
	−65					+28				

$$\mathcal{E} = \left(\alpha(A^2-B^2) - 2\beta AB\right)\frac{V}{r^5}\frac{3}{2}$$

$$\mathcal{F} = \left(\beta(B^2-C^2) - 2\gamma BC\right)\frac{V}{r^5}\frac{3}{2}$$

$$\mathcal{G} = \left(\gamma(B^2-C^2) + 2\beta BC\right)\frac{V}{r^5}\frac{3}{2}$$

$$\mathcal{K} = \left(\gamma(A^2-B^2) - 2\beta BC + 2\alpha CA\right)\frac{V}{r^5}\frac{3}{2}$$

$$\mathcal{H} = \left(\alpha(B^2-C^2) + 2\beta AB - 2\gamma CA\right)\frac{V}{r^5}\frac{3}{2}$$

$$\mathcal{J} = \left(\beta(C^2-A^2) - 2\alpha AB + 2\gamma BC\right)\frac{V}{r^5}\frac{3}{2}$$

$$\mathcal{L} = \left(\gamma AB + \alpha BC + \beta CA\right)\frac{V}{r^5}\frac{3}{2}$$

$$\frac{V\alpha}{r^3} = \mu_a \qquad \frac{V\beta}{r^3} = \mu_b \qquad \frac{V\gamma}{r^3} = \mu_c$$

$$e = 3\frac{V}{r^4}(\beta a_0 + \alpha b_0)$$

$$f = 3\frac{V}{r^4}(\gamma b_0 + \beta c_0)$$

$$g = 3\frac{V}{r^4}(\alpha c_0 + \gamma a_0)$$

$$h = 3\frac{V}{r^4}(\alpha a_0 - \beta b_0)$$

$$i = 3\frac{V}{r^4}(\beta b_0 - \gamma c_0)$$

q ssecint rendezve

$$X = \left(\frac{V_\beta}{r^3}\sin\lambda - \frac{V_\lambda}{r^3}\cos\lambda\right)\sin\varphi - \frac{V_\alpha}{r^3}\cos\varphi$$

$$-3\frac{V_\alpha}{r^4}a_0\sin 2\varphi - \left(3\frac{V_\beta}{r^4}a_0\sin\lambda - 3\frac{V_\lambda}{r^4}a_0\cos\lambda\right)\cos 2\varphi$$

$$+\left(3\frac{V_\beta}{r^4}b_0\sin^2\lambda - \frac{3}{2}\frac{V_\lambda}{r^4}b_0\sin 2\lambda\right)\sin 2\varphi - 3\frac{V_\alpha}{r^4}b_0\sin\lambda\cos 2\varphi$$

$$-\left(\frac{3}{2}\frac{V_\beta}{r^4}c_0\sin 2\lambda - 3\frac{V_\lambda}{r^4}c_0\cos^2\lambda\right)\sin 2\varphi + 3\frac{V_\alpha}{r^4}c_0\cos\lambda\cos 2\varphi$$

$$+\left(-\frac{33}{2}\frac{V_\beta}{r^5}A^2\sin\lambda + \frac{33}{2}\frac{V_\lambda}{r^5}A^2\cos\lambda\right)\sin\varphi - 18\frac{V_\alpha}{r^5}A^2\cos\varphi + \left(\frac{45}{2}\frac{V_\beta}{r^5}A^2\sin\lambda -\right.$$

$$\left.-\frac{45}{2}\frac{V_\lambda}{r^5}A^2\cos\lambda\right)\sin^3\varphi + \frac{45}{2}\frac{V_\alpha}{r^5}A^2\cos^3\varphi$$

$$+\left(\frac{3}{2}\frac{V_\lambda}{r^5}B^2\cos\lambda - \frac{9}{2}\frac{V_\beta}{r^5}B^2\sin\lambda - \frac{45}{2}\frac{V_\lambda}{r^5}B^2\sin^2\lambda\cos\lambda + \frac{45}{2}\frac{V_\beta}{r^5}B^2\sin^3\lambda\right)\sin\varphi$$

$$+\left(\frac{3}{2}\frac{V_\alpha}{r^5}B^2 + 15\frac{V_\alpha}{r^5}B^2\sin^2\lambda\right)\cos\varphi + \left(-\frac{45}{2}\frac{V_\beta}{r^5}B^2\sin^2\lambda + \frac{45}{2}\frac{V_\lambda}{r^5}B^2\sin^2\lambda\cos\lambda\right)\sin^3\varphi$$

$$-\frac{45}{2}\frac{V_\alpha}{r^5}B^2\sin^2\lambda\cos^3\varphi$$

$$+\left(-\frac{3}{2}\frac{V_\beta}{r^5}C^2\sin\lambda + \frac{45}{2}\frac{V_\beta}{r^5}C^2\cos^2\lambda\sin\lambda + \frac{9}{2}\frac{V_\lambda}{r^5}C^2\cos\lambda - \frac{45}{2}\frac{V_\lambda}{r^5}C^2\cos^3\lambda\right)\sin\varphi +$$

$$+\left(\frac{3}{2}\frac{V_\alpha}{r^5}C^2 + 15\frac{V_\alpha}{r^5}C^2\cos^2\lambda\right)\cos\varphi + \left(-\frac{45}{2}\frac{V_\beta}{r^5}C^2\cos^2\lambda\sin\lambda + \frac{45}{2}\frac{V_\lambda}{r^5}C^2\cos^3\lambda\right)\sin^3\varphi$$

$$-\frac{45}{2}\frac{V_\alpha}{r^5}C^2\cos^2\lambda\cos^3\varphi$$

$$-33\frac{V_\alpha}{r^5}AB\sin\lambda\sin\varphi + \left(33\frac{V_\beta}{r^5}AB\sin^2\lambda + 3\frac{V_\beta}{r^5}AB\cos^2\lambda - 15\frac{V_\lambda}{r^5}AB\sin 2\lambda\right)\times$$

$$+45\frac{V_\alpha}{r^5}AB\sin\lambda\sin^3\varphi + \left(-45\frac{V_\beta}{r^5}AB\sin^2\lambda + \frac{45}{2}\frac{V_\lambda}{r^5}AB\sin 2\lambda\right)\cos^3\varphi \qquad \times\cos\varphi$$

$$+\left(-\frac{39}{2}\frac{V_\beta}{r^5}BC\sin 2\lambda\sin\lambda + \frac{6}{2}\frac{V_\beta}{r^5}B\ell\cos 2\lambda\cos\lambda + \frac{39}{2}\frac{V_\lambda}{r^5}B\ell\sin 2\lambda\cos\lambda +\right.$$

$$\left.+\frac{6}{2}\frac{V_\lambda}{r^5}B\ell\sin\lambda\cos 2\lambda\right)\sin\varphi - 15\frac{V_\alpha}{r^5}B\ell\sin 2\lambda\cos\varphi + \left(\frac{45}{2}\frac{V_\beta}{r^5}B\ell\sin 2\lambda\sin\lambda\right.$$

$$\left.-\frac{45}{2}\frac{V_\lambda}{r^5}B\ell\sin 2\lambda\cos\lambda\right)\sin^3\varphi + \frac{45}{2}\frac{V_\alpha}{r^5}\overline{(BC)}\sin 2\lambda\cos^3\varphi$$

$$+33\frac{V_\alpha}{r^5}A\ell\cos\lambda\sin\varphi + \left(3\frac{V_\lambda}{r^5}A\ell + 30\frac{V_\lambda}{r^5}A\ell\cos^2\lambda - 15\frac{V_\beta}{r^5}A\ell\sin 2\lambda\right)\cos\varphi$$

$$-45\frac{V_\alpha}{r^5}A\ell\cos\lambda\sin^3\varphi + \left(\frac{45}{2}\frac{V_\beta}{r^5}A\ell\sin 2\lambda - 45\frac{V_\lambda}{r^5}A\ell\cos^2\lambda\right)\cos^3\varphi$$

λ szerint rendezve

$$X = -\frac{V_\alpha}{r^3}\cos\varphi + \frac{V_\beta}{r^3}\sin\varphi\,\underline{\sin\lambda} - \frac{V_\gamma}{r^3}\sin\varphi\,\underline{\cos\lambda} + -$$

$$-\frac{3V_\alpha}{r^4}a_0\sin 2\varphi - \frac{3V_\beta}{r^4}a_0\cos 2\varphi\,\underline{\sin\lambda} + 3\frac{V_\gamma}{r^4}a_0\cos 2\varphi\,\underline{\cos\lambda} -$$

$$-3\frac{V_\alpha}{r^4}b_0\cos 2\varphi\,\underline{\sin\lambda} - \frac{3}{2}\frac{V_\gamma}{r^4}b_0\sin 2\varphi\,\underline{\sin 2\lambda} + 3\frac{V_\beta}{r^4}b_0\sin 2\varphi\,\underline{\sin^2\lambda} +$$

$$+3\frac{V_\alpha}{r^4}c_0\cos 2\varphi\,\underline{\cos\lambda} - \frac{3}{2}\frac{V_\beta}{r^4}c_0\sin 2\varphi\,\underline{\sin 2\lambda} + 3\frac{V_\gamma}{r^4}c_0\sin 2\varphi\,\underline{\cos^2\lambda} +$$

$$+\frac{9}{2}\frac{V_\alpha}{r^5}A^2\cos\varphi - \frac{45}{2}\frac{V_\alpha}{r^5}A^2\sin^2\varphi\cos\varphi + \left(-\frac{33}{2}\frac{V_\beta}{r^5}A^2\sin\varphi + \frac{45}{2}\frac{V_\beta}{r^5}A^2\sin^3\varphi\right)\underline{\sin\lambda} +$$

$$+\left(\frac{33}{2}\frac{V_\gamma}{r^5}A^2\sin\varphi - \frac{45}{2}\frac{V_\gamma}{r^5}A^2\sin^3\varphi\right)\underline{\cos\lambda} +$$

$$+\frac{3}{2}\frac{V_\alpha}{r^5}B^2\cos\varphi - \frac{9}{2}\frac{V_\beta}{r^5}B^2\sin\varphi\,\underline{\sin\lambda} + \left(-21\frac{V_\gamma}{r^5}B^2\sin\varphi + \frac{45}{2}\frac{V_\gamma}{r^5}B^2\sin^3\varphi\right)\underline{\cos\lambda} +$$

$$+\left(15\frac{V_\alpha}{r^5}B^2\cos\varphi - \frac{45}{2}\frac{V_\alpha}{r^5}B^2\cos^3\varphi\right)\underline{\sin^2\lambda} + \left(\frac{45}{2}\frac{V_\beta}{r^5}B^2\sin\varphi - \frac{45}{2}\frac{V_\beta}{r^5}B^2\sin^3\varphi\right)\underline{\sin^3\lambda}$$

$$+\left(\frac{45}{2}\frac{V_\gamma}{r^5}B^2\sin\varphi - \frac{45}{2}\frac{V_\gamma}{r^5}B^2\sin^3\varphi\right)\underline{\cos^3\lambda} +$$

$$+\frac{3}{2}\frac{V_\alpha}{r^5}C^2\cos\varphi + \left(21\frac{V_\beta}{r^5}C^2\sin\varphi - \frac{45}{2}\frac{V_\beta}{r^5}C^2\sin^3\varphi\right)\underline{\sin\lambda} +$$

$$+\frac{9}{2}\frac{V_\gamma}{r^5}C^2\sin\varphi\,\underline{\cos\lambda} + \left(-\frac{45}{2}\frac{V_\alpha}{r^5}C^2\cos^3\varphi + 15\frac{V_\alpha}{r^5}C^2\cos\varphi\right)\underline{\cos^2\lambda} +$$

$$+\left(-\frac{45}{2}\frac{V_\beta}{r^5}C^2\sin\varphi + \frac{45}{2}\frac{V_\beta}{r^5}C^2\sin^3\varphi\right)\underline{\sin^3\lambda} + \left(-\frac{45}{2}\frac{V_\gamma}{r^5}C^2\sin\varphi + \frac{45}{2}\frac{V_\gamma}{r^5}C^2\sin^3\varphi\right)\underline{\cos^3\lambda}$$

$$-\left(33\frac{V_\alpha}{r^5}AB\sin\varphi - 45\frac{V_\alpha}{r^5}AB\sin^3\varphi\right)\underline{\sin\lambda} + \left(-15\frac{V_\gamma}{r^5}AB\cos\varphi + \frac{45}{2}\frac{V_\gamma}{r^5}AB\cos^3\varphi\right)\times$$

$$\times\underline{\sin 2\lambda} +$$

$$+\left(33\frac{V_\beta}{r^5}AB\cos\varphi - 45\frac{V_\beta}{r^5}AB\cos^3\varphi\right)\underline{\sin^2\lambda} + 3\frac{V_\beta}{r^5}AB\cos\varphi\,\underline{\cos^2\lambda} +$$

$$+\left(42\frac{V_\gamma}{r^5}BC\sin\varphi - 45\frac{V_\gamma}{r^5}BC\sin^3\varphi\right)\underline{\sin\lambda} + \left(-42\frac{V_\beta}{r^5}BC\sin\varphi + 45\frac{V_\beta}{r^5}BC\sin^3\varphi\right)\underline{\cos\lambda}$$

$$+\left(-15\frac{V_\alpha}{r^5}BC\cos\varphi + \frac{45}{2}\frac{V_\alpha}{r^5}BC\cos^3\varphi\right)\underline{\sin 2\lambda} + \left(-45\frac{V_\gamma}{r^5}BC\sin\varphi + 45\frac{V_\gamma}{r^5}BC\sin^3\varphi\right)\underline{\sin^3\lambda}$$

$$+\left(45\frac{V_\beta}{r^5}BC\sin\varphi - 45\frac{V_\beta}{r^5}BC\sin^3\varphi\right)\underline{\cos^3\lambda} +$$

$$+\left(33\frac{V_\alpha}{r^5}AC\sin\varphi - 45\frac{V_\alpha}{r^5}AC\sin^3\varphi\right)\underline{\cos\lambda} + \left(-15\frac{V_\beta}{r^5}AC\cos\varphi + \frac{45}{2}\frac{V_\beta}{r^5}AC\cos^3\varphi\right)\underline{\sin 2\lambda}$$

$$+3\frac{V_\gamma}{r^5}AC\cos\varphi\,\underline{\sin^2\lambda} + \left(33\frac{V_\gamma}{r^5}AC\cos\varphi - 45\frac{V_\gamma}{r^5}AC\cos^3\varphi\right)\underline{\cos^2\lambda}$$

$$Z = -2\frac{V_\alpha}{r^3}\sin\varphi + \left(-2\frac{V_\beta}{r^3}\sin\lambda + 2\frac{V_t}{r^3}\cos\lambda\right)\cos\varphi +$$

$$+3\frac{V_\alpha}{r^4}a_0 + \left(-\frac{g}{2}\frac{V_\beta}{r^4}a_0\sin\lambda + \frac{g}{2}\frac{V_t}{r^4}a_0\cos\lambda\right)\sin 2\varphi - g\frac{V_\alpha}{r^4}a_0\sin^2\varphi$$

$$+3\frac{V_\beta}{r^4}b_0 - \frac{g}{2}\frac{V_\alpha}{r^4}b_0\sin\lambda\sin 2\varphi + \left(-g\frac{V_\beta}{r^4}b_0\sin^2\lambda + \frac{g}{2}\frac{V_t}{r^4}b_0\sin 2\lambda\right)\cos^2\varphi$$

$$+3\frac{V_t}{r^4}c_0 + \frac{g}{2}\frac{V_\alpha}{r^4}c_0\cos\lambda\sin 2\varphi + \left(\frac{g}{2}\frac{V_\beta}{r^4}c_0\sin 2\lambda - g\frac{V_t}{r^4}c\cos^2\lambda\right).\cos^2\varphi$$

$$+18\frac{V_\alpha}{r^5}A^2\sin\varphi + \left(-24\frac{V_\beta}{r^5}A^2\sin\lambda + 24\frac{V_t}{r^5}A^2\cos\lambda\right)\cos\varphi - 30\frac{V_\alpha}{r^5}A^2\sin^3\varphi +$$

$$+\left(30\frac{V_\beta}{r^5}A^2\sin\lambda - 30\frac{V_t}{r^5}A^2\cos\lambda\right)\cos^3\varphi +$$

$$+\left(6\frac{V_\alpha}{r^5}B^2 - 30\frac{V_\alpha}{r^5}B^2\sin^2\lambda\right)\sin\varphi + \left(18\frac{V_\beta}{r^5}B^2\sin\lambda - 6\frac{V_t}{r^5}B^2\cos\lambda\right)\cos\varphi$$

$$+30\frac{V_\alpha}{r^5}B^2\sin^2\lambda\sin^3\varphi + \left(-30\frac{V_\beta}{r^5}B^2\sin^3\lambda + 30\frac{V_t}{r^5}B^2\cos\lambda - 30\frac{V_t}{r^5}B^2\cos^3\lambda\right)\cos^3\varphi$$

$$+\left(6\frac{V_\alpha}{r^5}C^2 - 30\frac{V_\alpha}{r^5}C^2\cos^2\lambda\right)\sin\varphi + \left(6\frac{V_\beta}{r^5}C^2\sin\lambda - 18\frac{V_t}{r^5}C^2\cos\lambda\right)\cos\varphi +$$

$$+30\frac{V_\alpha}{r^5}C^2\cos^2\lambda\sin^3\varphi + \left(-30\frac{V_\beta}{r^5}C^2\sin\lambda + 30\frac{V_\beta}{r^5}C^2\sin^3\lambda + 30\frac{V_t}{r^5}C^2\cos^3\lambda\right)\cos^3\varphi$$

$$+\left(12\frac{V_\beta}{r^5}AB - 60\frac{V_\beta}{r^5}AB\sin^2\lambda + 30\frac{V_t}{r^5}AB\sin 2\lambda\right)\sin\varphi - 48\frac{V_\alpha}{r^5}AB\sin\lambda\cos\varphi$$

$$+\left(60\frac{V_\beta}{r^5}AB\sin^2\lambda - 30\frac{V_t}{r^5}AB\sin 2\lambda\right)\sin^3\varphi + 60\frac{V_\alpha}{r^5}AB\sin\lambda\cos^3\varphi$$

$$+30\frac{V_\alpha}{r^5}B\ell\sin 2\lambda\sin\varphi + \left(-12\frac{V_\beta}{r^5}B\ell\cos\lambda + 12\frac{V_t}{r^5}B\ell\sin\lambda\right)\cos\varphi$$

$$-30\frac{V_\alpha}{r^5}B\ell\sin 2\lambda\sin^3\varphi + \left(60\frac{V_\beta}{r^5}B\ell\cos\lambda - 60\frac{V_\beta}{r^5}B\ell\cos^3\lambda - 60\frac{V_t}{r^5}B\ell\sin\lambda +\right.$$

$$\left.+60\frac{V_t}{r^5}B\ell\sin^3\lambda\right)\cos^3\varphi +$$

$$+\left(30\frac{V_\beta}{r^5}A\ell\sin 2\lambda + 12\frac{V_t}{r^5}A\ell - 60\frac{V_t}{r^5}A\ell\cos^2\lambda\right)\sin\varphi + 48\frac{V_\alpha}{r^5}A\ell\cos\lambda\cos\varphi$$

$$+\left(-30\frac{V_\beta}{r^5}A\ell\sin 2\lambda + 60\frac{V_t}{r^5}A\ell\cos^2\lambda\right)\sin^3\varphi - 60\frac{V_\alpha}{r^5}A\ell\cos\lambda\cos^3\varphi$$

φ neprint:

$$X = \left(\frac{V_\beta}{r^2}\sin\lambda - \frac{V_\gamma}{r^2}\cos\lambda\right)\sin\varphi - \frac{V_\alpha}{r^2}\cos\varphi$$

$$- 3\frac{V_\alpha}{r^4}a_0\sin 2\varphi - \left(\frac{3V_\beta}{r^4}a_0\sin\lambda - 3\frac{V_\gamma}{r^4}a_0\cos\lambda\right)\cos 2\varphi$$

$$+\left(3\frac{V_\beta}{r^4}b_0\sin^2\lambda - \frac{3}{2}\frac{V_\gamma}{r^4}b_0\sin 2\lambda\right)\sin 2\varphi - 3\frac{V_\alpha}{r^4}b_0\sin\lambda\cos 2\varphi$$

$$-\left(\frac{3}{2}\frac{V_\beta}{r^4}c_0\sin 2\lambda - 3\frac{V_\gamma}{r^4}c_0\cos^2\lambda\right)\sin 2\varphi + 3\frac{V_\alpha}{r^4}c_0\cos\lambda\cos 2\varphi$$

$$\left(-\frac{33}{2}\frac{V_\beta}{r^5}A^2\sin\lambda + \frac{33}{2}\frac{V_\gamma}{r^5}A^2\cos\lambda\right)\sin\varphi - 18\frac{V_\alpha}{r^5}A^2\cos\varphi +$$

$$+\left(\frac{45}{2}\frac{V_\beta}{r^5}A^2\sin\lambda - \frac{45}{2}\frac{V_\gamma}{r^5}A^2\cos\lambda\right)\sin^3\varphi + \frac{45}{2}\frac{V_\alpha}{r^5}A^2\cos^3\varphi$$

$$+\left(\frac{3}{2}\frac{V_\gamma}{r^5}B^2\cos\lambda - \frac{9}{2}\frac{V_\beta}{r^5}B^2\sin\lambda - \frac{45}{2}\frac{V_\gamma}{r^5}B^2\sin^2\lambda\cos\lambda + \frac{45}{2}\frac{V_\beta}{r^5}B^2\sin^3\lambda\right)\sin\varphi$$

$$+\left(\frac{3}{2}\frac{V_\alpha}{r^5}B^2 + 15\frac{V_\alpha}{r^5}B^2\sin^2\lambda\right)\cos\varphi + \left(-\frac{45}{2}\frac{V_\beta}{r^5}B^2\sin^3\lambda + \frac{45}{2}\frac{V_\gamma}{r^5}B^2\sin^2\lambda\cos\lambda\right)\sin^3\varphi$$

$$- \frac{45}{2}\frac{V_\alpha}{r^5}B^2\sin^2\lambda\cos^3\varphi$$

$$+\left(-\frac{3}{2}\frac{V_\beta}{r^5}C^2\sin\lambda + \frac{45}{2}\frac{V_\beta}{r^5}C^2\cos^2\lambda\sin\lambda + \frac{9}{2}\frac{V_\gamma}{r^5}C^2\cos\lambda - \frac{45}{2}\frac{V_\gamma}{r^5}C^2\cos^3\lambda\right)\sin\varphi$$

$$+\left(\frac{3}{2}\frac{V_\alpha}{r^5}C^2 + 15\frac{V_\alpha}{r^5}C^2\cos^2\lambda\right)\cos\varphi + \left(-\frac{45}{2}\frac{V_\beta}{r^5}C^2\cos^2\lambda\sin\lambda + \frac{45}{2}\frac{V_\gamma}{r^5}C^2\cos^3\lambda\right)\sin^3\varphi$$

$$- \frac{45}{2}\frac{V_\alpha}{r^5}C^2\cos^2\lambda\cos^3\varphi$$

$$-33\frac{V_\alpha}{r^5}AB\sin\lambda\sin\varphi + \left(33\frac{V_\beta}{r^5}AB\sin^2\lambda + 3\frac{V_\beta}{r^5}AB\cos^2\lambda - 15\frac{V_\gamma}{r^5}AB\sin 2\lambda\right)\cos\varphi$$

$$+45\frac{V_\alpha}{r^5}AB\sin\lambda\sin^3\varphi + \left(-45\frac{V_\beta}{r^5}AB\sin^2\lambda + \frac{45}{2}\frac{V_\gamma}{r^5}AB\sin 2\lambda\right)\cos^3\varphi$$

$$\left(-\frac{39}{2}\frac{V_\beta}{r^5}BC\sin 2\lambda\sin\lambda + \frac{6}{2}\frac{V_\beta}{r^5}BC\cos 2\lambda\cos\lambda + \frac{39}{2}\frac{V_\gamma}{r^5}BC\sin 2\lambda\cos\lambda + \frac{6}{2}\frac{V_\gamma}{r^5}BC\sin\lambda\cos 2\lambda\right)\sin\varphi$$

$$-15\frac{V_\alpha}{r^5}BC\sin 2\lambda\cos\varphi + \left(\frac{45}{2}\frac{V_\beta}{r^5}BC\sin 2\lambda\sin\lambda - \frac{45}{2}\frac{V_\gamma}{r^5}BC\sin 2\lambda\cos\lambda\right)\sin^3\varphi$$

$$+ \frac{45}{2}\frac{V_\alpha}{r^5}BC\sin 2\lambda\cos^3\varphi$$

$$+33\frac{V_\alpha}{r^5}AC\cos\lambda\sin\varphi + \left(3\frac{V_\gamma}{r^5}AC + 30\frac{V_\gamma}{r^5}AC\cos^2\lambda - 15\frac{V_\beta}{r^5}AC\sin 2\lambda\right)\cos\varphi$$

$$-45\frac{V_\alpha}{r^5}AC\cos\lambda\sin^3\varphi + \left(\frac{45}{2}\frac{V_\beta}{r^5}AC\sin 2\lambda - 45\frac{V_\gamma}{r^5}AC\cos^2\lambda\right)\cos^3\varphi$$

φ neint:

$$Z = -2\frac{V_\alpha}{r^3}\sin\varphi + \left(-2\frac{V_\beta}{r^3}\sin\lambda + 2\frac{V_\gamma}{r^3}\cos\lambda\right)\cos\varphi$$

$$+ 3\frac{V_\alpha}{r^4}a_0 + \left(-\frac{9}{2}\frac{V_\beta}{r^4}a_0\sin\lambda + \frac{9}{2}\frac{V_\gamma}{r^4}a_0\cos\lambda\right)\sin 2\varphi - 9\frac{V_\alpha}{r^4}a_0\sin^2\varphi$$

$$+ 3\frac{V_\beta}{r^4}b_0 - \frac{9}{2}\frac{V_\alpha}{r^4}b_0\sin\lambda\sin 2\varphi + \left(-9\frac{V_\beta}{r^4}b_0\sin^2\lambda + \frac{9}{2}\frac{V_\gamma}{r^4}b_0\sin 2\lambda\right)\cos^2\varphi$$

$$+ 3\frac{V_\gamma}{r^4}c_0 + \frac{9}{2}\frac{V_\alpha}{r^4}c_0\cos\lambda\sin 2\varphi + \left(\frac{9}{2}\frac{V_\beta}{r^4}c_0\sin 2\lambda - 9\frac{V_\gamma}{r^4}c_0\cos^2\lambda\right)\cos^2\varphi$$

$$+ 18\frac{V_\alpha}{r^5}A^2\sin\varphi + \left(-24\frac{V_\beta}{r^5}A^2\sin\lambda + 24\frac{V_\gamma}{r^5}A^2\cos\lambda\right)\cos\varphi - 30\frac{V_\alpha}{r^5}A^2\sin^2\varphi$$

$$+ \left(30\frac{V_\beta}{r^5}A^2\sin\lambda - 30\frac{V_\gamma}{r^5}A^2\cos\lambda\right)\cos^3\varphi$$

$$+ \left(6\frac{V_\alpha}{r^5}B^2 - 30\frac{V_\alpha}{r^5}B^2\sin^2\lambda\right)\sin\varphi + \left(18\frac{V_\beta}{r^5}B^2\sin\lambda - 6\frac{V_\gamma}{r^5}B^2\cos\lambda\right)\cos\varphi$$

$$+ 30\frac{V_\alpha}{r^5}B^2\sin^2\lambda\sin^3\varphi + \left(-30\frac{V_\beta}{r^5}B^2\sin^3\lambda + 30\frac{V_\gamma}{r^5}B^2\cos\lambda - 30\frac{V_\gamma}{r^5}B^2\cos^2\lambda\right)\cos^3\varphi$$

$$+ \left(6\frac{V_\alpha}{r^5}C^2 - 30\frac{V_\alpha}{r^5}C^2\cos^2\lambda\right)\sin\varphi + \left(6\frac{V_\beta}{r^5}C^2\sin\lambda - 18\frac{V_\gamma}{r^5}C^2\cos\lambda\right)\cos\varphi + 30\frac{V_\alpha}{r^5}C^2\cos^2\lambda\sin^3\varphi$$

$$+ \left(-30\frac{V_\beta}{r^5}C^2\sin\lambda + 30\frac{V_\beta}{r^5}C^2\sin^2\lambda + 30\frac{V_\gamma}{r^5}C^2\cos^2\lambda\right)\cos^3\varphi$$

$$+ \left(12\frac{V_\beta}{r^5}AB - 60\frac{V_\beta}{r^5}AB\sin^2\lambda + 30\frac{V_\gamma}{r^5}AB\sin 2\lambda\right)\sin\varphi - 48\frac{V_\alpha}{r^5}AB\sin\lambda\cos\varphi$$

$$+ \left(60\frac{V_\beta}{r^5}AB\sin^2\lambda - 30\frac{V_\gamma}{r^5}AB\sin 2\lambda\right)\sin^3\varphi + 60\frac{V_\alpha}{r^5}AB\sin\lambda\cos^3\varphi$$

$$+ 30\frac{V_\alpha}{r^5}BC\sin 2\lambda\sin\varphi + \left(-12\frac{V_\beta}{r^5}BC\cos\lambda + 12\frac{V_\gamma}{r^5}BC\sin\lambda\right)\cos\varphi - 30\frac{V_\alpha}{r^5}BC\sin 2\lambda\sin^3\varphi$$

$$+ \left(60\frac{V_\beta}{r^5}BC\cos\lambda - 60\frac{V_\beta}{r^5}BC\cos^2\lambda - 60\frac{V_\gamma}{r^5}BC\sin\lambda + 60\frac{V_\gamma}{r^5}BC\sin^2\lambda\right)\cos^3\varphi$$

$$+ \left(30\frac{V_\beta}{r^5}AC\sin 2\lambda + 12\frac{V_\gamma}{r^5}AC - 60\frac{V_\gamma}{r^5}AC\cos^2\lambda\right)\sin\varphi + 48\frac{V_\alpha}{r^5}AC\cos\lambda\cos\varphi$$

$$+ \left(-30\frac{V_\beta}{r^5}AC\sin 2\lambda + 60\frac{V_\gamma}{r^5}AC\cos^2\lambda\right)\sin^3\varphi - 60\frac{V_\alpha}{r^5}AC\cos\lambda\cos^3\varphi$$

$$y = -\left(\frac{V_\chi}{r^3}\sin\lambda + \frac{V_\beta}{r^3}\cos\lambda\right)$$

$$-\left(3\frac{V_\chi}{r^4}a_0\sin\lambda + 3\frac{V_\beta}{r^4}a_0\cos\lambda\right)\sin\varphi$$

$$-3\frac{V_\alpha}{r^4}b_0\cos\lambda\sin\varphi + \left(-3\frac{V_\beta}{r^4}b_0\sin 2\lambda + 3\frac{V_\chi}{r^4}\cos 2\lambda\right)\cos\varphi$$

$$-3\frac{V_\alpha}{r^4}c_0\sin\lambda\sin\varphi + \left(3\frac{V_\beta}{r^4}c_0\cos 2\lambda + 3\frac{V_\chi}{r^4}c_0\sin 2\lambda\right)\cos\varphi$$

$$+\left(\frac{3}{2}\frac{V_\beta}{r^5}A^2\cos\lambda + \frac{3}{2}\frac{V_\chi}{r^5}A^2\sin\lambda\right) - \left(\frac{15}{2}\frac{V_\beta}{r^5}A^2\cos\lambda + \frac{15}{2}\frac{V_\chi}{r^5}A^2\sin\lambda\right)\sin^2\varphi$$

$$+\left(\frac{9}{2}\frac{V_\beta}{r^5}B^2\cos\lambda + \frac{3}{2}\frac{V_\chi}{r^5}B^2\sin\lambda - \frac{3}{2}\frac{V_\chi}{r^5}B^2\sin\lambda\right) - \frac{15}{4}\frac{V_\alpha}{r^5}B^2\sin 2\lambda\sin 2\varphi$$

$$+\left(-\frac{45}{2}\frac{V_\beta}{r^5}B^2\cos\lambda + \frac{45}{2}\frac{V_\beta}{r^5}B^2\cos^3\lambda + 15\frac{V_\chi}{r^5}B^2\sin\lambda - \frac{45}{2}\frac{V_\chi}{r^5}B^2\sin^3\lambda\right)\cos^2\varphi$$

$$+\left(\frac{3}{2}\frac{V_\beta}{r^5}C^2\cos\lambda + \frac{9}{2}\frac{V_\chi}{r^5}C^2\sin\lambda\right) + \frac{15}{4}\frac{V_\alpha}{r^5}C^2\sin 2\lambda\sin 2\varphi$$

$$+\left(15\frac{V_\beta}{r^5}C^2\cos\lambda - \frac{45}{2}\frac{V_\beta}{r^5}C^2\cos^3\lambda - \frac{45}{2}\frac{V_\chi}{r^5}C^2\sin\lambda + \frac{45}{2}\frac{V_\chi}{r^5}C^2\sin^3\lambda\right)\cos^2\varphi$$

$$+3\frac{V_\alpha}{r^5}AB\cos\lambda + \left(-\frac{15}{2}\frac{V_\beta}{r^5}AB\sin 2\lambda + \frac{15}{2}\frac{V_\chi}{r^5}AB\cos 2\lambda\right)\sin 2\varphi - 15\frac{V_\alpha}{r^5}AB\cos\lambda\sin^2\varphi$$

$$+\left(3\frac{V_\beta}{r^5}BC\sin\lambda + 3\frac{V_\chi}{r^5}BC\cos\lambda\right) + \frac{15}{2}\frac{V_\alpha}{r^5}BC\cos 2\lambda\sin 2\varphi$$

$$+\left(30\frac{V_\beta}{r^5}BC\sin\lambda - 45\frac{V_\beta}{r^5}BC\sin^3\lambda + 30\frac{V_\chi}{r^5}BC\cos\lambda - 45\frac{V_\chi}{r^5}BC\cos^3\lambda\right)\cos^2\varphi$$

$$+3\frac{V_\alpha}{r^5}AC\sin\lambda + \left(\frac{15}{2}\frac{V_\beta}{r^5}AC\cos 2\lambda + \frac{15}{2}\frac{V_\chi}{r^5}AC\sin 2\lambda\right)\sin 2\varphi$$

$$-15\frac{V_\alpha}{r^5}AC\sin\lambda\sin^2\varphi$$

$$
\begin{aligned}
y = &-\left(\frac{V_T}{r^3}\sin\lambda + \frac{V_B}{r^3}\cos\lambda\right) - \\
&-\left(3\frac{V_T}{r^4}a_0\sin\lambda + 3\frac{V_B}{r^4}a_0\cos\lambda\right)\sin\varphi - \\
&-3\frac{V_\alpha}{r^4}b_0\cos\lambda\sin\varphi + \left(-3\frac{V_B}{r^4}b_0\sin 2\lambda + 3\frac{V_T}{r^4}b_0\cos 2\lambda\right)\cos\varphi - \\
&-3\frac{V_\alpha}{r^4}c_0\sin\lambda\sin\varphi + \left(3\frac{V_B}{r^4}c_0\cos 2\lambda + 3\frac{V_T}{r^4}c_0\sin 2\lambda\right)\cos\varphi + \\
&+\left(\frac{3}{2}\frac{V_B}{r^5}A^2\cos\lambda + \frac{3}{2}\frac{V_T}{r^5}A^2\sin\lambda\right) - \left(\frac{15}{2}\frac{V_B}{r^5}A^2\cos\lambda + \frac{15}{2}\frac{V_T}{r^5}A^2\sin\lambda\right)\sin^2\varphi \\
&+\left(\frac{9}{2}\frac{V_B}{r^5}B^2\cos\lambda + \frac{3}{2}\frac{V_T}{r^5}B^2\sin\lambda - \right. \qquad \left. - \frac{15}{4}\frac{V_\alpha}{r^5}B^2\sin 2\lambda\sin 2\varphi + \right. \\
&+\left(-\frac{45}{2}\frac{V_B}{r^5}B^2\cos\lambda + \frac{45}{2}\frac{V_B}{r^5}B^2\cos^3\lambda + 15\frac{V_T}{r^5}B^2\sin\lambda - \frac{45}{2}\frac{V_T}{r^5}B^2\sin^3\lambda\right)\cos^2\varphi \\
&+\left(\frac{3}{2}\frac{V_B}{r^5}C^2\cos\lambda + \frac{9}{2}\frac{V_T}{r^5}C^2\sin\lambda\right) + \frac{15}{4}\frac{V_\alpha}{r^5}C^2\sin 2\lambda\sin 2\varphi + \\
&+\left(15\frac{V_B}{r^5}C^2\cos\lambda - \frac{45}{2}\frac{V_B}{r^5}C^2\cos^3\lambda - \frac{45}{2}\frac{V_T}{r^5}C^2\sin\lambda + \frac{45}{2}\frac{V_T}{r^5}C^2\sin^3\lambda\right)\cos^2\varphi \\
&+3\frac{V_\alpha}{r^5}AB\cos\lambda + \left(-\frac{15}{2}\frac{V_B}{r^5}AB\sin 2\lambda + \frac{15}{2}\frac{V_T}{r^5}AB\cos 2\lambda\right)\sin 2\varphi - 15\frac{V_\alpha}{r^5}AB\cos\lambda\sin^2\varphi \\
&+\left(3\frac{V_B}{r^5}B\ell\sin\lambda + 3\frac{V_T}{r^5}B\ell\cos\lambda\right) + \frac{15}{2}\frac{V_\alpha}{r^5}B\ell\cos 2\lambda\sin 2\varphi + \\
&+\left(30\frac{V_B}{r^5}B\ell\sin\lambda - 45\frac{V_B}{r^5}B\ell\sin^3\lambda + 30\frac{V_T}{r^5}B\ell\cos\lambda - 45\frac{V_T}{r^5}B\ell\cos^2\lambda\right)\cos^2\varphi \\
&+3\frac{V_\alpha}{r^5}A\ell\sin\lambda + \left(\frac{15}{2}\frac{V_B}{r^5}A\ell\cos 2\lambda + \frac{15}{2}\frac{V_T}{r^5}A\ell\sin 2\lambda\right)\sin 2\varphi - \\
&-15\frac{V_\alpha}{r^5}A\ell\sin\lambda\sin^2\varphi
\end{aligned}
$$

$$\frac{\partial^2 U}{\partial x^2} = -\frac{V}{r^3} - 3\frac{V}{r^4} a_0 \sin\varphi - 3\frac{V}{r^4} b_0 \sin\lambda\cos\varphi + 3\frac{V}{r^4} c_0 \cos\lambda\cos\varphi$$

$$+\frac{V}{r^5} A^2\left(\frac{9}{2} - \frac{21}{2}\sin^2\varphi\right) + \frac{V}{r^5} B^2\left(\frac{9}{2} - \frac{21}{2}\sin^2\lambda\cos^2\varphi - 3\cos^2\lambda\right) + \frac{V}{r^5} C^2\left(\frac{9}{2} - \frac{21}{2}\cos^2\lambda\cos^2\varphi - 3\sin^2\lambda\right)$$

$$-\frac{V}{r^5} AB\frac{21}{2}\sin\lambda\sin 2\varphi + \frac{V}{r^5} BC\left(\frac{21}{2}\sin 2\lambda\cos^2\varphi - 3\sin 2\lambda\right) + \frac{V}{r^5} AC\frac{21}{2}\cos\lambda\sin 2\varphi$$

$$\frac{\partial^2 U}{\partial y^2} = -\frac{V}{r^3} - 3\frac{V}{r^4} a_0 \sin\varphi - 3\frac{V}{r^4} b_0 \sin\lambda\cos\varphi + 3\frac{V}{r^4} c_0 \cos\lambda\cos\varphi$$

$$+\frac{V}{r^5} A^2\left(\frac{3}{2} - \frac{15}{2}\sin^2\varphi\right) + \frac{V}{r^5} B^2\left(\frac{3}{2} - \frac{15}{2}\sin^2\lambda\cos^2\varphi + 3\cos^2\lambda\right) + \frac{V}{r^5} C^2\left(\frac{3}{2} - \frac{15}{2}\cos^2\lambda\cos^2\varphi + 3\sin^2\lambda\right)$$

$$-\frac{V}{r^5} AB\frac{15}{2}\sin\lambda\sin 2\varphi + \frac{V}{r^5} BC\left(\frac{15}{2}\sin 2\lambda\cos^2\varphi + 3\sin 2\lambda\right) + \frac{V}{r^5} AC\frac{15}{2}\cos\lambda\sin 2\varphi$$

$$\frac{\partial^2 U}{\partial z^2} = +2\frac{V}{r^3} + 6\frac{V}{r^4} a_0 \sin\varphi + 6\frac{V}{r^4} b_0 \sin\lambda\cos\varphi - 6\frac{V}{r^4} c_0 \cos\lambda\cos\varphi$$

$$-\frac{V}{r^5} A^2(6 - 18\sin^2\varphi) - \frac{V}{r^5} B^2(6 - 18\sin^2\lambda\cos^2\varphi) - \frac{V}{r^5} C^2(6 - 18\cos^2\lambda\cos^2\varphi)$$

$$+\frac{V}{r^5} AB\,18\sin\lambda\sin 2\varphi - \frac{V}{r^5} BC\,18\sin 2\lambda\cos^2\varphi - \frac{V}{r^5} AC\,18\cos\lambda\sin 2\varphi$$

$$\frac{\partial^2 U}{\partial x\,\partial y} = -\frac{3}{2}\frac{V}{r^5} B^2\sin 2\lambda\sin\varphi + \frac{3}{2}\frac{V}{r^5} C^2\sin 2\lambda\sin\varphi$$

$$+3\frac{V}{r^5} AB\cos\lambda\cos\varphi + 3\frac{V}{r^5} BC\cos 2\lambda\sin\varphi + 3\frac{V}{r^5} AC\sin\lambda\cos\varphi$$

$$\frac{\partial^2 U}{\partial x\,\partial z} = +3\frac{V}{r^4} a_0\cos\varphi - 3\frac{V}{r^4} b_0\sin\lambda\sin\varphi + 3\frac{V}{r^4} c_0\cos\lambda\sin\varphi$$

$$+6\frac{V}{r^5} A^2\sin 2\varphi - 6\frac{V}{r^5} B^2\sin^2\lambda\sin 2\varphi - 6\frac{V}{r^5} C^2\cos^2\lambda\sin 2\varphi$$

$$+12\frac{V}{r^5} AB\sin\lambda\cos 2\varphi + 6\frac{V}{r^5} BC\sin 2\lambda\sin 2\varphi - 12\frac{V}{r^5} AC\cos\lambda\cos 2\varphi$$

$$\frac{\partial^2 U}{\partial y\,\partial z} = +3\frac{V}{r^4} b_0\cos\lambda + 3\frac{V}{r^4} c_0\sin\lambda$$

$$+6\frac{V}{r^5} B^2\sin 2\lambda\cos\varphi - 6\frac{V}{r^5} C^2\sin 2\lambda\cos\varphi$$

$$+12\frac{V}{r^5} AB\cos\lambda\sin\varphi - 12\frac{V}{r^5} BC\cos 2\lambda\cos\varphi + 12\frac{V}{r^5} AC\sin\lambda\sin\varphi$$

$$\frac{\partial^2 U}{\partial x^2} = -\frac{v}{r^3} - 3\frac{v}{r^4} a_0 \sin\varphi - 3\frac{v}{r^4} b_0 \sin\lambda\cos\varphi + 3\frac{v}{r^4} c_0 \cos\lambda\cos\varphi +$$

$$+ \frac{v}{r^5} A^2\left(\frac{9}{2} - \frac{21}{2}\sin^2\varphi\right) + \frac{v}{r^5} B^2\left(\frac{9}{2} - \frac{21}{2}\sin^2\lambda\cos^2\varphi - 3\cos^2\lambda\right) + \frac{v}{r^5} C^2\left(\frac{9}{2} - \frac{21}{2}\cos^2\lambda\cos^2\varphi - 3\sin^2\lambda\right)$$

$$- \frac{v}{r^5} AB\,\frac{21}{2}\sin\lambda\sin 2\varphi + \frac{v}{r^5} BC\left(\frac{21}{2}\sin 2\lambda\cos^2\varphi - 3\sin 2\lambda\right) + \frac{v}{r^5} AC\,\frac{21}{2}\cos\lambda\sin 2\varphi$$

$$\frac{\partial^2 U}{\partial y^2} = -\frac{v}{r^3} - 3\frac{v}{r^4} a_0\sin\varphi - 3\frac{v}{r^4} b_0\sin\lambda\cos\varphi + 3\frac{v}{r^4} c_0\cos\lambda\cos\varphi +$$

$$+ \frac{v}{r^5} A^2\left(\frac{3}{2} - \frac{15}{2}\sin^2\varphi\right) + \frac{v}{r^5} B^2\left(\frac{3}{2} - \frac{15}{2}\sin^2\lambda\cos^2\varphi + 3\cos^2\lambda\right) + \frac{v}{r^5} C^2\left(\frac{3}{2} - \frac{15}{2}\cos^2\lambda\cos^2\varphi + 3\sin^2\lambda\right) -$$

$$- \frac{v}{r^5} AB\,\frac{15}{2}\sin\lambda\sin 2\varphi + \frac{v}{r^5} BC\left(\frac{15}{2}\sin 2\lambda\cos^2\varphi + 3\sin 2\lambda\right) + \frac{v}{r^5} AC\,\frac{15}{2}\cos\lambda\sin 2\varphi$$

$$\frac{\partial^2 U}{\partial z^2} = +2\frac{v}{r^3} + 6\frac{v}{r^4} a_0\sin\varphi + 6\frac{v}{r^4} b_0\sin\lambda\cos\varphi - 6\frac{v}{r^4} c_0\cos\lambda\cos\varphi -$$

$$- \frac{v}{r^5} A^2\left(6 - 18\sin^2\varphi\right) - \frac{v}{r^5} B^2\left(6 - 18\sin^2\lambda\cos^2\varphi\right) - \frac{v}{r^5} C^2\left(6 - 18\cos^2\lambda\cos^2\varphi\right) +$$

$$+ \frac{v}{r^5} AB\,18\sin\lambda\sin 2\varphi - \frac{v}{r^5} BC\,18\sin 2\lambda\cos^2\varphi - \frac{v}{r^5} AC\,18\cos\lambda\sin 2\varphi$$

$$\frac{\partial^2 U}{\partial x\partial y} = -\frac{3}{2}\frac{v}{r^5} B^2\sin 2\lambda\sin\varphi + \frac{3}{2}\frac{v}{r^5} C^2\sin 2\lambda\sin\varphi +$$

$$+ 3\frac{v}{r^5} AB\cos\lambda\cos\varphi + 3\frac{v}{r^5} BC\cos 2\lambda\sin\varphi + 3\frac{v}{r^5} AC\sin\lambda\cos\varphi$$

$$\frac{\partial^2 U}{\partial x\partial z} = +3\frac{v}{r^4} a_0\cos\varphi - 3\frac{v}{r^4} b_0\sin\lambda\sin\varphi + 3\frac{v}{r^4} c_0\cos\lambda\sin\varphi +$$

$$+ 6\frac{v}{r^5} A^2\sin 2\varphi - 6\frac{v}{r^5} B^2\sin^2\lambda\sin 2\varphi - 6\frac{v}{r^5} C^2\cos^2\lambda\sin 2\varphi +$$

$$+ 12\frac{v}{r^5} AB\sin\lambda\cos 2\varphi + 6\frac{v}{r^5} BC\sin 2\lambda\sin 2\varphi - 12\frac{v}{r^5} AC\cos\lambda\cos 2\varphi$$

$$\frac{\partial^2 U}{\partial y\partial z} = +3\frac{v}{r^4} b_0\cos\lambda + 3\frac{v}{r^4} c_0\sin\lambda +$$

$$+ 6\frac{v}{r^5} B^2\sin 2\lambda\cos\varphi - 6\frac{v}{r^5} C^2\sin 2\lambda\cos\varphi +$$

$$+ 12\frac{v}{r^5} AB\cos\lambda\sin\varphi - 12\frac{v}{r^5} BC\cos 2\lambda\cos\varphi + 12\frac{v}{r^5} AC\sin\lambda\sin\varphi$$

~~$U = a\cos\varphi$~~

$$U = \alpha' \frac{v}{r^3}(a\cos\varphi - b\sin\varphi\sin\lambda + c\sin\varphi\cos\lambda) +$$
$$+ \beta' \frac{v}{r^3}(b\cos\lambda + c\sin\lambda) +$$
$$+ \gamma' \frac{v}{r^2} - 2\gamma' \frac{v}{r^3}(c\cos\lambda\cos\varphi - b\sin\lambda\cos\varphi - a\sin\varphi)$$

$\alpha c \sin\varphi\cos\varphi\cos\lambda - \alpha b \sin\varphi\cos\varphi\sin\lambda + \alpha a\cos^2\varphi$

$-\beta c\sin^2\varphi\sin\lambda\cos\lambda + \beta b\sin^2\varphi\sin^2\lambda - \alpha\beta\sin^2\varphi\cos\varphi\sin\lambda$

$+\gamma c\sin^2\varphi\cos^2\lambda - \gamma b\sin^2\varphi\sin\lambda\cos\lambda + \gamma a\sin\varphi\cos\varphi\cos\lambda$

$+\beta b\cos^2\lambda + \beta c\sin\lambda\cos\lambda + \gamma b\sin\lambda\cos\lambda + \gamma c\sin^2\lambda$

$+ 2\alpha c\sin\varphi\cos\varphi\cos\lambda - 2\alpha b\sin\varphi\cos\varphi\sin\lambda - 2\alpha a\sin^2\varphi +$

$+ 2\beta c\cos^2\varphi\sin\lambda\cos\lambda - 2\beta b\cos^2\varphi\sin^2\lambda - 2\beta a\sin\varphi\cos\varphi\sin\lambda$

$- 2\gamma c\cos^2\varphi\cos^2\lambda + 2\gamma b\cos^2\varphi\sin\lambda\cos\lambda + 2\gamma a\sin\varphi\cos\varphi\cos\lambda$

$+ 3(\alpha c + \gamma a)\sin\varphi\cos\varphi\cos\lambda - 3(\alpha b + \beta a)\sin\varphi\cos\varphi\sin\lambda +$

$+ 3(\beta c + \gamma b)\cos^2\varphi\sin\lambda\cos\lambda + a\alpha(\cos^2\varphi - 2\sin^2\varphi)$

$+ \beta b(\sin^2\varphi\sin^2\lambda + \cos^2\lambda - 2\cos^2\varphi\sin^2\lambda) + \gamma c(\sin^2\varphi\cos^2\lambda + \sin^2\lambda -$

$- 2\cos^2\varphi\cos^2\lambda)$

$1-\cos^2\varphi-2\sin^2\varphi \qquad 1-3\sin^2\varphi \qquad \cos\varphi$

$\sin^2\varphi - \sin^2\varphi\cos^2\lambda + \cos^2\lambda - 2\cos^2\varphi + 2\sin^2\varphi\sin^2\lambda$

$\cos^2\varphi - 2\sin^2\varphi =$ ~~$\cos^2\varphi - 2\sin^2\varphi = -\sin^2\varphi + 2\cos^2\varphi$~~

$+(\alpha a - \beta b)(\cos^2\varphi - 2\sin^2\varphi) +$

$2\cos^2\varphi - 2\cos^2\varphi\sin^2\lambda$
$-\sin^2\varphi + \sin^2\varphi\sin^2\lambda - \sin^2\lambda$

$+(\beta b - \gamma c)(2\cos^2\varphi\cos^2\lambda - \sin^2\varphi\cos^2\lambda - \sin^2\lambda)$

$2\cos^2\varphi\cos^2\lambda - \cos^2\lambda$
$+\cos^2\varphi\cos^2\lambda - \sin^2\lambda$

$3\cos^2\varphi\cos^2\lambda - 1$
$3\cos^2\varphi - 3\cos^2\varphi\sin^2\lambda - 1$

$-(\alpha a - \beta b)(2(1 - \frac{3}{2}\cos^2\varphi) \qquad -\cos^2\lambda - \sin^2\lambda$

$2\cos^2\varphi\cos^2\lambda - \cos^2\lambda + \cos^2\varphi\cos^2\lambda$

$\cos^2\lambda - 2\sin^2\lambda - 1$
$\cos^2\lambda - \frac{1}{2}\sin^2\lambda + \frac{1}{2}$

$$\frac{1}{26}\left(\Sigma\Sigma + \Sigma\Sigma'\right) = -2\left((2h+i)\left(1-\frac{3}{2}\cos^2\varphi\right)\right)$$

$\varphi = 30°$ -ra $2(1-\frac{3}{2}\cos^2\varphi) = -0{,}250$

$50°$ -ra $2(1-\frac{3}{2}\cos^2\varphi) = +0{,}760$

0,750
375
1125

0,413
207
620
38285

1285

12335
11678
+ 657

17993
16680
1313

587
294
881
119
238

		$2(1-\frac{3}{2}\cos^2\varphi)$
30°	+ 73,00	−0,250
40°	−150,01	+ 0,238
50°	− 47,99	+ 0,760

40°-ra − ~~138,35~~

40°-ra − 150,01

Észak $\underline{\underline{a}}$ 1908 (III)

Tengerparti értékek.

		a	
1)	$187,8 = -0,6997a$	213,67	−31,9
3)	$163,0 = -0,4987a$	152,11	+10,9
4)	$206,8 = -0,8219a$	250,98	−44,2
5)	$215,4 = -0,8255a$	255,14	−39,7
6)	$297,3 = -0,7849a$	239,69	+57,6
7)	$202,2 = -0,6001a$	183,25	+18,9
8)	$293,0 = -0,8438a$	257,67	+35,3

~~9)~~

Normálegyenlet:

$$+3{,}7995a + 1160{,}2558 = 0$$

$$a = -305{,}3706$$

1908 (III)

$a = -305,3706$

$b = 0$

$c = 0$

$\zeta = -2a \sin\varphi$

φ	ζ
-60	$-528,90$
-40	$-392,58$
-20	$-208,87$
0	0
$+20$	$+208,87$
$+40$	$+392,58$
$+60$	$+528,90$

	φ = -60°	φ = -40°	φ = -20°	φ = 0°	φ = +20°	φ = +40°	φ = +60°
0°	-52g +159	-39g +135	-20g +3g	0 -41	+20g -35	+39g -18	+52g -63
10°	+139	+105	-3	-87	-70	-31	-71
20°	+122	+76	-37	-120	-85	-44	-65
30°	+101	+46	-76	-133	-87	-46	-54
40°	+79	+15	-108	-127	-83	-37	-39
50°	+60	-14	-127	-138	-78	-27	-20
60°	+38	-42	-139	-136	-72	-13	-6
70°	+15	-66	-148	-134	-62	+4	+6
80°	-10	-86	-153	-131	-49	+18	+17
90°	-46	-105	-160	-126	-36	+32	+22
100°	-73	-126	-166	-116	-22	+46	+31
110°	-103	-149	-174	-101	-11	+50	+34
120°	-118	-173	-179	-90	-10	+44	+31
130°	-121	-198	-180	-86	-16	+25	+33
140°	-126	-192	-175	-82	-30	-2	+10
150°	-99	-172	-154	-77	-43	-28	-17
160°	-100	-147	-126	-63	-49	-45	-34
170°	-109	-132	-102	-43	-42	-49	-33
180°	-110	-108	-78	-21	-23	-42	-28
190°	-107	-89	-54	-4	-1	-26	-11
200°	-104	-70	-37	+5	+22	-5	+11
210°	-101	-50	-25	+10	+29	+21	+34
220°	-96	-35	-18	+14	+35	+57	+52
230°	-94	-23	-8	+18	+71	+81	+75
240°	-77	-11	+4	+25	+89	+114	+103
250°	-59	+6	+22	+38	+111	+148	+109
260°	-32	+33	+46	+52	+131	+174	+100
270°	+7	+69	+73	+73	+146	+183	+45
280°	+53	+109	+101	+95	+161	+192	+17
290°	+104	+158	+132	+115	+165	+174	+63
300°	+149	+198	+157	+133	+167	+141	+60
310°	+176	+220	+173	+148	+160	+107	+32
320°	+188	+225	+174	+140	+138	+64	+5
330°	+185	+213	+161	+114	+105	+28	-16
340°	+179	+191	+133	+67	+59	+18	-30
350°	+170	+163	+88	+10	+11	-2	-47

Z hez.

Az $\mathcal{E}, \mathcal{F}, \mathcal{G}, \mathcal{H}, \mathcal{J}, \mathcal{K}, \mathcal{L}$ -től függő tagok

$\varphi = 0 \quad \varphi = \pm 20 \quad \varphi = \pm 40$ értékekből vett középértékek:

$\mu_a = -315{,}15 \quad \mu_b = +62{,}13 \quad \mu_c = +26{,}06$

$2\mathcal{E} + \mathcal{H} = +7{,}85$	$\mathcal{F} = -1{,}44$	$e = -17{,}6$
$4\mathcal{J} + 3\mathcal{F} = +1{,}66$	$\mathcal{G} = +0{,}02$	$f = -24{,}1$
$4\mathcal{K} + 3\mathcal{G} = +23{,}01$	$\mathcal{H} = -9{,}90$	$g = -42{,}8$
	$\mathcal{L} = -0{,}06$	$i = -12{,}7$
tisztán $4\mathcal{J} + 3\mathcal{F} = 0$	$\mathcal{G} = 0$ és $\mathcal{L} = 0$	$2h + i = -26{,}0$

$$T = +7{,}9(6\sin\varphi - 10\sin^3\varphi) + 23{,}0(4\cos\varphi - 5\cos^3\varphi)\underline{\cos\lambda} - 99{,}0(\sin\varphi - \sin^3\varphi)\underline{\cos 2\lambda} - 9{,}7\cos^2\varphi(3 - 4\sin^2\lambda)\sin\lambda$$

φ	T =			
-60	$+10{,}3$	$+31{,}6 \cos\lambda$	$+21{,}5 \cos 2\lambda$	$-0{,}9(3-4\sin^2\lambda)\sin\lambda$
-40	$-9{,}5$	$+18{,}8 \cos\lambda$	$+37{,}3 \cos 2\lambda$	$-3{,}3(\quad)\sin\lambda$
-20	$-13{,}1$	$-9{,}1 \cos\lambda$	$+29{,}9 \cos 2\lambda$	$-6{,}1(\quad)\sin\lambda$
0	0	$-23{,}0 \cos\lambda$	0	$-7{,}2(\quad)\sin\lambda$
$+20$	$+13{,}1$	$-9{,}1 \cos\lambda$	$-29{,}9 \cos 2\lambda$	$-6{,}1(\quad)\sin\lambda$
$+40$	$+9{,}5$	$+18{,}8 \cos\lambda$	$-37{,}3 \cos 2\lambda$	$-3{,}3(\quad)\sin\lambda$
$+60$	$-10{,}3$	$+31{,}6 \cos\lambda$	$-21{,}5 \cos 2\lambda$	$-0{,}9(\quad)\sin\lambda$

φ	$6\sin\varphi - 10\sin^3\varphi$	$4\cos\varphi - 5\cos^3\varphi$	$\sin\varphi - \sin^3\varphi$
-60	$+1{,}299$	$+1{,}375$	$-0{,}217$
-40	$-1{,}200$	$+0{,}816$	$-0{,}377$
-20	$-1{,}652$	$-0{,}395$	$-0{,}302$
0	0	$-1{,}000$	0
$+20$	$+1{,}652$	$-0{,}395$	$+0{,}302$
$+40$	$+1{,}200$	$+0{,}816$	$+0{,}377$
$+60$	$-1{,}299$	$+1{,}375$	$+0{,}217$

λ	$\sin\lambda(3 - 4\sin^2\lambda)$
0	0
10	$+0{,}501$
20	$+0{,}866$
30	$+1{,}000$
40	$+0{,}867$
50	$+0{,}499$
60	0
70	$-0{,}504$
80	$-0{,}867$
90	$-1{,}000$
100	$-0{,}867$
110	stb.

	q = -60					-40					-20					0				
0	+10	+32	+22	0	+62	-10	+19	+37	0	+46	-13	-9	+30	0	+8	0	-23	0	0	-23
10		+31	+20	-1	+60		+19	+35	-2_{-2}	+42		-9	+28	-4_{-3}	+3		-23	0	-5_{-4}	-27
20		+30	+16	-1	+55		+18	+29	-4_{-3}	+34		-9	+23	-7_{-5}	-4		-22	0	-8_{-6}	-28
30		+27	+11	-1	+47		+16	+19	-4_{-3}	+22		-8	+15	-8_{-6}	-12		-20	0	-10_{-8}	-28
40		+24	+4	-1	+27		+14	+6	-4_{-3}	+7		-7	+5	-7_{-5}	-20		-18	0	-8_{-6}	-24
50		+20	+4	-1	+25		+12	+6	-2_{-2}	-6		-6	+5	-4_{-3}	-27		-15		-5_{-4}	-19
60		+16	+11	0	+15		+9	+19	0_{0}	-20		-5	+15	0	-33		-12		0	-12
70		+11	+16	+1	+6		+6	+29	+2	-31		-3	+23	$+4_{+3}$	-36		-8		$+5_{+4}$	-4
80		+5	+20	+1	-4		+3	+35	$+4_{+3}$	-39		-2	+28	$+7_{+5}$	-38		-4		$+8_{+6}$	+2
90		0	+22	+1	-11		0	+37	$+4_{+3}$	-44		0	+30	$+8_{+6}$	-37		0		$+10_{+8}$	+8
100		-5	+20	+1	-14		-3	+35	$+4_{+3}$	-45		+2	+28	$+7_{+5}$	-34		+4		$+8_{+6}$	+10
110		-11	+16	+1	-16		-6	+29	+2	-43		+3	+23	$+4_{+3}$	-30		+8		$+5_{+4}$	+12
120		-16	+11	0	-17		-9	+19	0	-38		+5	+15	0	-23		+12		0	+12
130		-20	+4	-1	-15		-12	+6	-2	-30		+6	+5	-4_{-3}	-15		+15		-5_{-4}	+11
140		-24	+4	-1	-11		-14	+6	-4_{-3}	-21		+7	+5	-7_{-5}	-6		+18		-8_{-6}	+12
150		-27	+11	-1	-7		-16	+19	-4_{-3}	-10		+8	+15	-8_{-6}	+4		+20		-10_{-8}	+12
160		-30	+16	-1	-5		-18	+29	-4_{-3}	-2		+9	+23	-7_{-5}	+14		+22		-8_{-6}	+16
170		-31	+20	-1	-2		-19	+35	-2	+4		+9	+28	-4_{-3}	+21		+23		-5_{-4}	+19
180		-32	+22	0	0		-19	+37	0	+8		+9	+30	0	+26		+23		0	+23
190		-31	+20	+1	0		-19	+35	+2	+8		+9	+28	$+4_{+3}$	+27		+23		$+5_{+4}$	+27
200		-30	+16	+1	-3		-18	+29	$+4_{+3}$	+7		+9	+23	$+7_{+5}$	+24		+22		$+8_{+6}$	+28
210		-27	+11	+1	-5		-16	+19	$+4_{+3}$	-4		+8	+15	$+8_{+6}$	+16		+20		$+10_{+8}$	+28
220		-24	+4	+1	-9		-14	+6	$+4_{+3}$	-15		+7	+5	$+7_{+5}$	+4		+18		$+8_{+6}$	+24
230		-20	+4	+1	-13		-12	+6	+2	-26		+6	+5	$+4_{+3}$	-7		+15		$+5_{+4}$	+19
240		-16	+11	0	-17		-9	+19	0	-38		+5	+15	0	-23		+12		0	+12
250		-11	+16	-1	-18		-6	+29	-2	-47		+3	+23	-4_{-3}	-36		+8		-5_{-4}	+4
260		-5	+20	-1	-16		-3	+35	-4_{-3}	-51		+2	+28	-7_{-5}	-44		+4		-8_{-6}	-2
270		0	+22	-1	-13		0	+37	-4_{-3}	-50		0	+30	-8_{-6}	-49		0		-10_{-8}	-8
280		+5	+20	-1	-6		+3	+35	-4_{-3}	-45		-2	+28	-7_{-5}	-48		-4		-8_{-6}	-10
290		+11	+16	-1	+4		+6	+29	-2	-35		-3	+23	-4_{-3}	-42		-8		-5_{-4}	-11
300		+16	+11	0	+15		+9	+19	0	-20		-5	+15	0	-33		-12		0	-12
310		+20	+4	+1	+27		+12	+6	+2	-2		-6	+5	$+4_{+3}$	-21		-15		$+5_{+4}$	-11
320		+24	+4	+1	+39		+14	+6	$+4_{+3}$	+13		-7	+5	$+7_{+5}$	-10		-18		$+8_{+6}$	-12
330		+27	+11	+1	+49		+16	+19	$+4_{+3}$	+28		-8	+15	$+8_{+6}$	+0		-20		$+10_{+8}$	-12
340		+30	+16	+1	+57		+18	+29	$+4_{+3}$	+40		-9	+23	$+7_{+5}$	+6		-22		$+8_{+6}$	-16
350		+31	+20	+1	+62		+19	+35	+2	+51		-9	+28	$+4_{+3}$	+9		-23		$+5_{+4}$	-19

				+20					+40					+60		
0	-23	+13	-9	+30	0	-26	+10	+19	∓37	0	-8	-10	+32	±22	0	0
-5_{-4}	-27		-9	+28	-4_{-3}	-27		+19	∓35	-2	-8		+31	±20	-1	0
-8_{-6}	-28		-9	+23	-7_{-5}	-24		+18	∓29	-4_{-3}	-7		+30	±16	-1	+3
-10_{-8}	-28		-8	+15	-8_{-6}	-16		+16	∓19	-4_{-3}	+4		+27	±11	-1	+5
-8_{-6}	-24		-7	+5	-7_{-5}	-6		+14	∓6	-4_{-3}	+15		+24	±4	-1	+9
-5_{-4}	-19		-6	+5	-4_{-3}	+9		+12	±6	-2	+26		+20	∓4	-1	+13
0	-12		-5	+15	0	+23		+9	±19	0	+38		+16	+11	0	+17
$+5_{+4}$	-4		-3	+23	$+4_{+3}$	+36		+6	±29	+2	+47		+11	+16	+1	+18
$+8_{+6}$	+2		-2	+28	$+7_{+5}$	+44		+3	±35	$+4_{+3}$	+51		+5	+20	+1	+16
$+10_{+8}$	+8		0	+30	$+8_{+6}$	+49		0	±37	$+4_{+3}$	+50		0	+22	+1	+13
$+8_{+6}$	+10		+2	+28	$+7_{+5}$	+48		-3	±35	$+4_{+3}$	+45		-5	+20	+1	+6
$+5_{+4}$	+12		+3	+23	$+4_{+3}$	+41		-6	±29	+2	+35		-11	+16	+1	-4
0	+12		+5	+15	0	+33		-9	±19	0	+20		-16	+11	0	-15
-5_{-4}	+11		+6	+5	-4_{-3}	+21		-12	±6	-2	+2		-20	+4	-1	-27
-8_{-6}	+12		+7	+5	-7_{-5}	+10		-14	∓6	-4_{-3}	-13		-24	∓4	-1	-39
-10_{-8}	+12		+8	+15	-8_{-6}	-0		-16	∓19	-4_{-3}	-28		-27	∓11	-1	-49
-8_{-6}	+16		+9	+23	-7_{-5}	-6		-18	∓29	-4_{-3}	-40		-30	∓16	-1	-57
-5_{-4}	+19		+9	+28	-4_{-3}	-9		-19	∓35	-2	-46		-31	∓20	-1	-62
0	+23		+9	+30	0	-8		-19	∓37	0	-46		-32	∓22	0	-64
$+5_{+4}$	+27		+9	+28	$+4_{+3}$	-3		-19	∓35	+2	-42		-31	∓20	+1	-60
$+8_{+6}$	+28		+9	+23	$+7_{+5}$	+4		-18	∓29	$+4_{+3}$	-34		-30	∓16	+1	-55
$+10_{+8}$	+28		+8	+15	$+8_{+6}$	+12		-16	∓19	$+4_{+3}$	-22		-27	∓11	+1	-47
$+8_{+6}$	+24		+7	+5	$+7_{+5}$	+20		-14	∓6	$+4_{+3}$	-7		-24	∓4	+1	-37
$+5_{+4}$	+19		+6	+5	$+4_{+3}$	+27		-12	±6	+2	+6		-20	+4	+1	-25
0	+12		+5	+15	0	+33		-9	±19	0	+20		-16	+11	0	-15
-5_{-4}	+4		+3	+23	-4_{-3}	+36		-6	±29	-2	+31		-11	+16	-1	-6
-8_{-6}	-2		+2	+28	-7_{-5}	+38		-3	±35	-4_{-3}	+39		-5	+20	-1	+4
-10_{-8}	-8		0	+30	-8_{-6}	+37		0	±37	-4_{-3}	+44		0	+22	-1	+11
-8_{-6}	-10		-2	+28	-7_{-5}	+34		+3	±35	-4_{-3}	+45		+5	+20	-1	+14
-5_{-4}	-11		-3	+23	-4_{-3}	+30		+6	±29	-2	+43		+11	+16	-1	+16
0	-12		-5	+15	0	+23		+9	±19	0	+38		+16	+11	0	+17
$+5_{+4}$	-11		-6	+5	$+4_{+3}$	+15		+12	±6	+2	+30		+20	+4	+1	+15
$+8_{+6}$	-12		-7	+5	$+7_{+5}$	+6		+15	∓6	$+4_{+3}$	+21		+24	+4	+1	+11
$+10_{+8}$	-12		-8	+15	$+8_{+6}$	-4		+16	∓19	$+4_{+3}$	+10		+27	∓11	+1	+7
$+8_{+6}$	-16		-9	+23	$+7_{+5}$	-14		+18	∓29	$+4_{+3}$	+2		+30	∓16	+1	+5
$+5_{+4}$	-19		-9	∓28	$+4_{+3}$	-21		+19	∓35	+2	-4		+31	∓20	+1	+2

Helmert-féle Continens Centrumok.

Schmidt táblázatából

	φ	λ	X_t	Y_t	Z_t
1) Ázsia	$+48°$	$+77,3_{20'}$	+229	+38	+474
2) Afrika	$+7,5°$	$+19,8_{50'}$	+316	−64	−32
3) Északamerika	$+51°$	$+262,8_{50'}$	+123	+28	+624
4) Ausztrália	$-25°$	$+134,3_{20'}$	+313	+20	−455

$\frac{1}{i}(ch\,i) = k$

$$1\begin{cases} X_{31} = -0,6691\,\underline{a} + 0,7250\,\underline{b} - 0,1630\,\underline{c} + 0,1020\,\underline{e} - 0,2128\,\underline{f} - 0,0229\,\underline{g} + 0,4494\,\underline{i} - 0,9945\,\underline{k} \\ Y_{31} = \quad -0,2193\,\underline{b} - 0,9757\,\underline{c} - 0,1630\,\underline{e} - 0,6047\,\underline{f} - 0,7250\,\underline{g} - 0,2863\,\underline{i} \\ Z_{31} = -1,4862\,\underline{a} - 1,3056\,\underline{b} + 0,2934\,\underline{c} - 1,4555\,\underline{e} + 0,2873\,\underline{f} + 0,3272\,\underline{g} - 0,6069\,\underline{i} - 0,6570\,\underline{k}. \end{cases}$$

$$2\begin{cases} X_{23} = -0,9914\,\underline{a} + 0,0443\,\underline{b} - 0,1228\,\underline{c} - 0,3277\,\underline{e} - 0,0826\,\underline{f} + 0,9086\,\underline{g} - 0,0996\,\underline{i} - 0,2588\,\underline{k} \\ Y_{23} = -0 \quad -0,9407\,\underline{b} - 0,3393\,\underline{c} - 0,1228\,\underline{e} + 0,1763\,\underline{f} - 0,0443\,\underline{g} - 0,6328\,\underline{i} \\ Z_{23} = -0,2610\,\underline{a} - 0,6728\,\underline{b} + 1,8652\,\underline{c} - 0,1317\,\underline{e} + 0,9411\,\underline{f} + 0,3652\,\underline{g} + 1,1350\,\underline{i} + 0,9488\,\underline{k} \end{cases}$$

$$3\begin{cases} X_{43} = -0,6293\,\underline{a} - 0,7710\,\underline{b} + 0,0970\,\underline{c} - 0,2063\,\underline{e} - 0,1211\,\underline{f} + 0,0130\,\underline{g} + 0,4739\,\underline{i} - 0,9781\,\underline{k}. \\ Y_{43} = \quad +0,1248\,\underline{b} + 0,9922\,\underline{c} + 0,0970\,\underline{e} - 0,6097\,\underline{f} + 0,7710\,\underline{g} - 0,1558\,\underline{i} \\ Z_{43} = -1,5542\,\underline{a} + 1,2488\,\underline{b} - 0,1571\,\underline{c} + 1,4556\,\underline{e} + 0,1471\,\underline{f} - 0,1831\,\underline{g} - 0,5755\,\underline{i} - 1,6240\,\underline{k} \end{cases}$$

$$4\begin{cases} X_{14} = -0,9063\,\underline{a} - 0,3023\,\underline{b} - 0,2953\,\underline{c} - 0,4598\,\underline{e} - 0,3829\,\underline{f} - 0,4492\,\underline{g} - 0,0089\,\underline{i} + 0,7660\,\underline{k} \\ Y_{14} = \quad +0,6988\,\underline{b} - 0,7153\,\underline{c} - 0,2953\,\underline{e} - 0,0211\,\underline{f} + 0,3023\,\underline{g} + 0,9060\,\underline{i} \\ Z_{14} = +0,8452\,\underline{a} - 1,2966\,\underline{b} - 1,2666\,\underline{c} + 0,8219\,\underline{e} - 1,2317\,\underline{f} + 0,8029\,\underline{g} - 0,0287\,i + 0,4642\,\underline{k} \end{cases}$$

$$1\begin{cases} 10000\,\frac{X_1}{X_t} = -29{,}218\,\underline{a} + 31{,}660\,\underline{b} - 7{,}118\,\underline{c} + 4{,}454\,\underline{e} - 9{,}293\,\underline{f} - 1{,}000\,\underline{g} + 19{,}624\,\underline{i} - 43{,}428\,\underline{k} \\ 1000\,\frac{Y_1}{Y_t} = \quad -57{,}711\,\underline{b} - 256{,}763\,\underline{c} - 42{,}895\,\underline{e} - 159{,}132\,\underline{f} - 19{,}079\,\underline{g} - 75{,}342\,\underline{i} \\ 1000\,\frac{Z_1}{Z_t} = -31{,}354\,\underline{a} - 27{,}544\,\underline{b} + 6{,}190\,\underline{c} - 30{,}707\,\underline{e} + 6{,}061\,\underline{f} + 6{,}903\,\underline{g} - 12{,}804\,\underline{i} - 13{,}861\,\underline{k} \end{cases}$$

$\frac{X_1}{X_t} + \frac{Y_1}{Y_t} + \frac{Z_1}{Z_t} = 3$:

$$30000 = -60{,}572\,\underline{a} - 53{,}595\,\underline{b} - 257{,}691\,\underline{c} - 69{,}148\,\underline{e} - 162{,}364\,\underline{f} - 13{,}176\,\underline{g} - 68{,}522\,\underline{i} - 57{,}289\,\underline{k}.$$

$\frac{Z_1}{Z_t} + i\frac{X_1}{X_t} = 0$:

$$30000 = -89{,}790\,\underline{a} + 35{,}776\,\underline{b} - 8{,}046\,\underline{c} + 21{,}799\,\underline{e} - 12{,}525\,\underline{f} + 4{,}903\,\underline{g} + 26{,}444\,\underline{i} - 100{,}717\,\underline{k}$$

$$2\begin{cases} 10000\,\frac{X_2}{X_t} = -31{,}372\,\underline{a} + 1{,}402\,\underline{b} - 3{,}886\,\underline{c} - 1{,}037\,\underline{e} - 2{,}614\,\underline{f} + 28{,}753\,\underline{g} - 3{,}152\,\underline{i} - 8{,}190\,\underline{k} \\ 10000\,\frac{Y_2}{Y_t} = \quad +146{,}984\,\underline{b} + 53{,}076\,\underline{c} + 19{,}187\,\underline{e} - 119{,}250\,\underline{f} + 6{,}922\,\underline{g} + 98{,}875\,\underline{i} \\ 10000\,\frac{Z_2}{Z_t} = +87{,}563\,\underline{a} + 210{,}250\,\underline{b} - 596{,}452\,\underline{c} + 41{,}156\,\underline{e} - 294{,}094\,\underline{f} - 114{,}125\,\underline{g} - 354{,}687\,\underline{i} - 296{,}500\,\underline{k} \end{cases}$$

$\frac{X_2}{X_t} + \frac{Y_2}{Y_t} + \frac{Z_2}{Z_t} = 3$:

$$30000 = +50{,}191\,\underline{a} + 358{,}636\,\underline{b} - 547{,}322\,\underline{c} + 59{,}306\,\underline{e} - 415{,}958\,\underline{f} - 78{,}450\,\underline{g} - 258{,}964\,\underline{i} - 304{,}690\,\underline{k}.$$

$\frac{Z_2}{Z_t} + 2\frac{X_2}{X_t} = 0$

$$30000 = +18{,}819\,\underline{a} + 213{,}54\,\underline{b} - 604{,}224\,\underline{c} + 39{,}082\,\underline{e} - 299{,}322\,\underline{f} - 56{,}519\,\underline{g} - 360{,}991\,\underline{i} - 312{,}880\,\underline{k}$$

$\frac{X_2}{X_t} + \frac{Y_2}{Y_t} = 0$

$$0 = -31{,}372\,\underline{a} - 145{,}582\,\underline{b} - 56{,}902\,\underline{c} - 20{,}224\,\underline{e} + 116{,}636\,\underline{f} + 21{,}831\,\underline{g} - 102{,}027\,\underline{i} - 8{,}190\,\underline{k}.$$

λ	φ = +60°	+50°	+40°	+30°	+20°	+10°	
0°	140 31	178 08	219 92	259 43	284 62	298 57	28
10°	150 43	189 18	232 86	273 28	298 21	309 52	28
20°	159 61	197 75	244 05	286 35	313 03	320 21	29
30°	164 98	206 05	254 77	298 08	325 38	329 01	30
40°	167 40	212 91	264 18	310 30	338 32	342 32	30
50°	166 46	215 77	270 79	322 19	350 24	344 03	31
60°	163 67	215 90	276 28	332 90	360 80	352 88	32
70°	158 40	215 18	280 70	340 81	371 95	362 60	34
80°	153 79	214 85	282 44	344 07	380 04	375 41	35
90°	151 99	216 01	283 69	343 62	378 10	383 47	36
100°	153 06	216 52	285 37	342 28	372 77	387 45	37
110°	155 15	218 29	285 00	339 28	367 82	383 12	38
120°	158 66	221 42	283 24	332 84	361 00	378 87	38
130°	162 89	225 85	281 62	323 94	352 36	372 96	38
140°	168 02	229 28	281 08	315 33	343 00	364 81	38
150°	172 68	233 78	278 86	307 99	333 52	357 13	37
160°	176 86	235 16	272 34	300 02	324 82	349 71	36
170°	177 23	231 43	262 65	290 50	317 34	339 06	36
180°	173 14	224 55	250 78	280 75	311 67	341 74	36
190°	165 55	217 32	243 80	274 12	308 88	341 08	36
200°	156 62	210 01	241 18	273 04	308 51	339 99	35
210°	141 43	201 55	240 60	275 94	309 63	338 20	35
220°	124 71	190 19	238 97	280 41	314 49	339 13	34
230°	106 93	175 40	235 09	285 29	321 67	344 07	34
240°	89 09	161 80	228 79	287 04	329 62	355 21	35
250	72 48	147 77	223 40	284 62	333 90	365 38	35
260°	58 26	133 59	213 39	282 85	332 89	365 29	35
270°	43 84	122 27	203 94	280 69	329 64	355 57	34
280°	40 09	113 08	196 90	273 92	321 46	341 70	33
290°	48 17	110 96	184 97	265 50	307 00	322 81	31
300°	56 39	112 09	173 22	240 36	291 29	307 80	31
310°	63 43	115 75	166 40	224 75	275 58	303 20	29
320°	78 88	121 80	165 54	215 61	263 17	294 85	29
330°	94 01	130 92	172 81	216 42	257 03	284 47	29
340°	110 95	145 39	187 03	228 48	261 54	281 77	29
350°	127 29	162 85	204 73	243 65	272 24	288 53	29

	0	−10°	−20°	−30°	−40°	−50°	−60°
7	281 43	244 12	209 00	190 54	184 29	187 30	189 66
52	286 89	245 93	207 37	182 77	171 68	170 52	171 78
11	293 07	249 41	209 10	180 26	163 41	157 13	155 15
01	300 51	255 48	214 09	181 26	158 81	146 85	142 75
32	309 75	263 65	221 29	184 95	157 44	140 37	131 03
03	319 22	274 92	230 61	190 71	158 82	135 24	119 65
88	329 50	288 57	242 51	198 25	162 52	132 19	108 31
60	340 88	302 83	255 20	207 51	166 76	131 01	96 93
41	353 20	319 78	269 70	217 42	172 32	130 43	84 53
47	365 90	335 58	285 71	228 52	179 06	130 14	77 35
45	375 68	349 98	302 65	241 82	187 09	131 89	76 64
12	385 44	360 85	316 43	255 55	195 92	136 60	74 49
87	385 73	368 32	329 96	267 74	203 22	141 86	71 43
96	387 79	371 17	339 71	278 83	212 97	145 38	72 64
81	381 90	370 60	344 53	286 47	217 70	149 41	79 46
13	372 83	367 14	346 01	288 66	220 95	156 07	88 67
71	364 03	361 58	345 30	291 37	228 23	166 30	100 68
06	362 78	362 12	344 21	294 80	236 23	178 90	114 21
74	364 14	361 92	342 20	299 14	245 61	190 71	129 50
08	360 53	359 63	339 07	301 86	254 46	201 44	144 15
99	356 57	354 14	335 21	301 37	259 91	210 27	155 78
20	350 91	347 98	329 92	299 16	261 69	216 46	165 58
13	344 90	340 39	323 75	295 56	262 09	220 69	173 56
07	347 80	337 50	318 87	291 75	261 76	224 47	181 48
21	353 06	336 57	315 59	288 90	261 74	229 41	190 02
38	354 68	335 90	312 51	285 95	262 71	234 86	199 91
29	352 70	333 99	307 95	281 35	264 59	241 58	209 49
57	346 77	327 02	299 21	275 53	266 88	248 51	219 45
70	337 66	315 93	289 27	274 46	271 02	259 13	233 88
81	320 01	301 92	280 49	270 80	270 50	272 84	249 63
80	304 82	290 35	273 95	264 97	266 97	270 71	258 22
20	299 71	283 52	267 30	258 25	261 25	267 11	258 74
85	292 67	275 50	256 63	246 99	250 24	258 59	254 19
47	282 81	262 97	244 32	233 61	235 10	244 43	243 40
77	276 09	251 81	230 91	218 32	217 81	226 32	227 36
53	276 59	244 06	217 25	203 24	200 06	206 12	208 97

y	λ	φ = +60°	+50°	+40°	+30°	+20°	+10°	
	0°	− 51 29	− 56 43	− 61 33	− 67 25	− 76 80	− 89 20	−
	10°	− 36 11	− 42 98	− 49 21	− 55 19	− 65 39	− 77 17	−
	20°	− 20 31	− 26 33	− 34 73	− 42 62	− 51 91	− 62 24	−
	30°	− 2 40	− 10 08	− 19 31	− 29 14	− 38 03	− 46 63	−
	40°	+ 14 15	+ 6 32	− 3 07	− 13 73	− 24 45	− 33 77	−
	50°	+ 28 60	+ 21 09	+ 10 87	− 1 12	− 10 60	− 19 84	−
	60°	+ 37 94	+ 32 27	+ 22 55	+ 8 23	− 2 10	− 9 24	−
	70°	+ 41 70	+ 37 94	+ 29 09	+ 16 37	+ 5 95	− 1 05	−
	80°	+ 40 35	+ 38 08	+ 32 60	+ 22 55	+ 14 16	+ 8 19	+
	90°	+ 30 37	+ 29 40	+ 29 40	+ 26 04	+ 19 37	+ 15 85	+
	100°	+ 16 99	+ 14 38	+ 15 62	+ 18 93	+ 21 71	+ 20 76	+
	110°	+ 4 06	− 1 91	− 1 82	+ 3 95	+ 11 35	+ 17 29	+
	120°	− 6 56	− 16 00	− 17 73	− 10 17	+ 1 05	+ 9 92	+
	130°	− 15 21	− 27 33	− 27 94	− 18 87	− 5 13	+ 5 64	+
	140°	− 18 15	− 30 52	− 26 24	− 13 03	+ 0 50	+ 11 68	+
	150°	− 10 56	− 15 66	− 8 93	− 1 97	+ 13 78	+ 24 97	+
	160°	+ 4 01	+ 4 45	+ 12 05	+ 21 68	+ 31 08	+ 40 05	+
	170°	+ 21 24	+ 27 05	+ 33 65	+ 40 40	+ 46 30	+ 50 47	+
	180°	+ 38 65	+ 47 39	+ 50 41	+ 51 87	+ 52 16	+ 54 13	+
	190°	+ 53 99	+ 61 29	+ 58 38	+ 55 11	+ 50 58	+ 48 44	+
	200°	+ 58 82	+ 71 97	+ 63 87	+ 56 38	+ 47 01	+ 42 25	+
	210°	+ 70 00	+ 79 06	+ 69 75	+ 58 15	+ 45 81	+ 36 74	+
	220°	+ 72 00	+ 81 71	+ 74 43	+ 61 14	+ 47 19	+ 33 65	+
	230°	+ 69 44	+ 78 83	+ 75 78	+ 64 56	+ 49 80	+ 34 65	+
	240°	+ 61 04	+ 71 76	+ 72 50	+ 65 83	+ 52 70	+ 39 43	+
	250°	+ 44 41	+ 58 71	+ 64 06	+ 61 54	+ 52 49	+ 43 79	+
	260°	+ 21 21	+ 37 68	+ 46 98	+ 48 60	+ 45 60	+ 44 64	+
	270°	− 6 36	+ 7 48	+ 20 84	+ 29 17	+ 35 03	+ 41 56	+
	280°	− 26 03	− 20 96	− 6 30	+ 6 77	+ 18 72	+ 29 89	+
	290°	− 52 57	− 48 25	− 33 62	− 16 24	+ 1 96	+ 15 79	+
	300°	− 72 18	− 67 80	− 55 17	− 37 71	− 17 14	+ 1 34	+
	310°	− 83 25	− 81 05	− 69 95	− 57 57	− 38 08	− 22 09	−
	320°	− 87 09	− 86 35	− 78 48	− 75 08	− 65 94	− 55 35	−
	330°	− 85 39	− 86 65	− 83 66	− 85 25	− 89 01	− 88 79	−
	340°	− 78 65	− 81 14	− 81 45	− 85 05	− 93 05	− 103 01	−
	350°	− 66 26	− 69 35	− 72 84	− 78 26	− 86 01	− 98 88	−

	0	− 10°	− 20°	− 30°	− 40°	− 50°	− 60°
20	− 98 00	− 103 62	− 106 34	− 102 17	− 94 92	− 88 14	− 73 75
17	− 84 25	− 90 33	− 96 70	− 102 00	− 99 65	− 95 82	− 85 33
24	− 69 46	− 76 25	− 85 76	− 97 20	− 100 81	− 98 96	− 93 22
63	− 54 97	− 63 70	− 75 46	− 90 51	− 98 73	− 100 19	− 97 20
77	− 42 15	− 51 88	− 64 85	− 82 22	− 94 85	− 100 43	− 99 46
84	− 28 68	− 39 86	− 53 81	− 71 30	− 89 26	− 99 16	− 100 88
24	− 18 04	− 28 80	− 41 31	− 60 93	− 82 81	− 96 04	− 101 59
05	− 8 92	− 20 11	− 34 35	− 54 31	− 77 76	− 92 19	− 101 85
19	+ 0 21	− 11 73	− 28 51	− 50 46	− 73 15	− 88 81	− 100 74
85	+ 9 05	− 3 12	− 21 23	− 44 42	− 66 47	− 82 91	− 92 40
76	+ 15 53	+ 4 28	− 14 54	− 33 99	− 56 01	− 73 11	− 74 67
29	+ 16 65	+ 10 29	− 4 98	− 22 06	− 40 16	− 55 65	− 53 30
92	+ 14 59	+ 11 57	+ 4 80	− 5 84	− 17 78	− 31 45	− 32 55
64	+ 12 86	+ 15 67	+ 14 04	+ 9 57	+ 3 09	− 5 92	− 14 12
68	+ 21 13	+ 27 22	+ 29 54	+ 27 58	+ 21 92	+ 13 25	+ 2 54
97	+ 34 26	+ 39 88	+ 44 02	+ 44 00	+ 39 76	+ 32 21	+ 20 47
05	+ 46 64	+ 51 25	+ 55 30	+ 54 88	+ 51 64	+ 47 68	+ 36 81
47	+ 55 51	+ 58 43	+ 59 45	+ 61 77	+ 61 09	+ 57 78	+ 48 29
13	+ 56 59	+ 58 40	+ 59 31	+ 62 49	+ 63 14	+ 60 25	+ 53 20
44	+ 50 14	+ 53 54	+ 56 23	+ 59 13	+ 60 70	+ 59 35	+ 54 76
25	+ 41 68	+ 46 63	+ 51 89	+ 55 85	+ 58 41	+ 58 31	+ 56 19
74	+ 31 17	+ 37 60	+ 47 35	+ 52 93	+ 56 42	+ 58 41	+ 59 07
65	+ 28 50	+ 33 27	+ 44 54	+ 51 41	+ 56 03	+ 60 37	+ 64 03
65	+ 28 90	+ 33 98	+ 44 82	+ 52 32	+ 58 43	+ 64 65	+ 72 71
43	+ 31 93	+ 38 84	+ 48 57	+ 56 15	+ 63 80	+ 73 21	+ 84 60
79	+ 40 62	+ 47 21	+ 56 04	+ 62 96	+ 73 51	+ 86 26	+ 98 37
64	+ 48 31	+ 56 89	+ 64 34	+ 72 76	+ 85 97	+ 100 89	+ 112 96
56	+ 53 06	+ 63 86	+ 70 91	+ 80 31	+ 97 13	+ 111 07	+ 123 49
89	+ 43 95	+ 56 84	+ 67 32	+ 80 43	+ 95 97	+ 109 99	+ 122 45
79	+ 27 62	+ 39 57	+ 50 47	+ 65 01	+ 79 70	+ 95 28	+ 107 51
34	+ 10 64	+ 19 45	+ 28 15	+ 38 81	+ 53 10	+ 69 17	+ 82 24
09	− 13 08	− 7 01	0 00	+ 8 72	+ 19 80	+ 35 80	+ 53 43
35	− 48 80	− 44 05	− 36 45	− 29 96	− 13 48	+ 2 26	+ 20 38
79	− 86 01	− 78 73	− 67 60	− 55 01	− 43 01	− 28 57	− 9 92
01	− 106 72	− 100 71	− 89 10	− 77 31	− 67 42	− 55 38	− 36 01
88	− 108 21	− 111 91	− 104 79	− 93 70	− 84 58	− 75 04	− 56 97

Z	λ	φ = + 60°	+ 50°	+ 40°	+ 30°	+ 20°	+ 10°	
	0°	+ 465 64	+ 427 91	+ 375 00	+ 297 64	+ 174 23	+ 53 35	−
	10°	+ 457 91	+ 419 94	+ 361 87	+ 268 45	+ 138 60	+ 13 93	−
	20°	+ 463 79	+ 413 60	+ 348 80	+ 255 38	+ 124 45	− 3 32	− 1
	30°	+ 474 70	+ 413 76	+ 347 40	+ 253 55	+ 122 49	− 6 96	−
	40°	+ 490 22	+ 424 12	+ 355 96	+ 257 56	+ 125 70	− 6 00	−
	50°	+ 508 72	+ 436 43	+ 366 24	+ 266 39	+ 131 01	− 4 01	−
	60°	+ 523 26	+ 453 59	+ 380 27	+ 280 25	+ 136 70	− 1 54	−
	70°	+ 534 65	+ 468 58	+ 396 85	+ 297 48	+ 146 54	+ 1 58	−
	80°	+ 545 50	+ 493 96	+ 411 10	+ 312 28	+ 160 13	+ 6 55	−
	90°	+ 551 43	+ 501 37	+ 425 49	+ 325 12	+ 172 54	+ 15 64	−
	100°	+ 560 37	+ 511 22	+ 438 70	+ 333 94	+ 186 85	+ 32 24	−
	110°	+ 562 81	+ 522 71	+ 443 09	+ 335 37	+ 197 73	+ 48 22	−
	120°	+ 559 94	+ 523 00	+ 437 01	+ 328 19	+ 198 74	+ 57 77	−
	130°	+ 552 31	+ 510 98	+ 418 25	+ 310 10	+ 192 67	+ 61 30	−
	140°	+ 538 73	+ 484 93	+ 390 94	+ 284 17	+ 179 19	+ 59 45	−
	150°	+ 512 10	+ 451 69	+ 364 70	+ 264 61	+ 166 43	+ 56 70	−
	160°	+ 494 97	+ 434 69	+ 347 88	+ 253 15	+ 160 32	+ 57 85	−
	170°	+ 495 80	+ 432 13	+ 344 06	+ 258 73	+ 166 95	+ 66 63	−
	180°	+ 500 96	+ 440 86	+ 351 00	+ 271 56	+ 186 14	+ 90 56	−
	190°	+ 517 83	+ 457 88	+ 367 06	+ 289 53	+ 207 82	+ 111 94	−
	200°	+ 540 46	+ 479 71	+ 387 89	+ 309 64	+ 230 87	+ 127 53	+
	210°	+ 562 65	+ 505 95	+ 414 17	+ 335 08	+ 248 23	+ 136 30	+
	220°	+ 581 15	+ 536 92	+ 443 90	+ 358 24	+ 264 48	+ 141 17	+
	230°	+ 604 16	+ 558 48	+ 474 48	+ 384 65	+ 279 65	+ 147 38	+
	240°	+ 631 81	+ 581 97	+ 506 98	+ 409 09	+ 297 93	+ 160 37	+
	250°	+ 638 47	+ 611 14	+ 540 93	+ 435 81	+ 319 82	+ 176 84	+
	260°	+ 628 57	+ 619 27	+ 566 75	+ 462 29	+ 339 93	+ 193 61	+
	270°	+ 573 55	+ 630 22	+ 576 24	+ 483 90	+ 355 48	+ 212 28	+
	280°	+ 546 36	+ 620 48	+ 585 95	+ 501 17	+ 370 42	+ 232 81	+
	290°	+ 592 08	+ 612 96	+ 567 36	+ 509 17	+ 373 52	+ 245 32	+ 1
	300°	+ 589 43	+ 582 87	+ 534 04	+ 477 50	+ 375 72	+ 254 48	+ 1
	310°	+ 560 96	+ 546 36	+ 500 45	+ 449 49	+ 369 19	+ 263 48	+ 1
	320°	+ 533 68	+ 512 22	+ 457 26	+ 414 71	+ 347 25	+ 249 51	+ 1
	330°	+ 512 54	+ 476 11	+ 431 24	+ 378 33	+ 313 82	+ 216 51	+ 1
	340°	+ 498 84	+ 457 45	+ 410 66	+ 355 17	+ 268 08	+ 169 73	+
	350°	+ 481 87	+ 438 09	+ 390 68	+ 327 67	+ 220 39	+ 111 01	+

°	0	− 10°	− 20°	− 30°	− 40°	− 50°	− 60°
35	− 40 56	− 112 57	− 170 39	− 215 58	− 258 29	− 312 75	− 370 16
93	− 86 68	− 167 99	− 211 50	− 250 18	− 287 92	− 334 29	− 389 79
32	− 120 17	− 204 99	− 246 35	− 287 48	− 317 45	− 357 23	− 406 54
96	− 132 83	− 228 87	− 284 53	− 320 48	− 347 30	− 383 62	− 427 45
00	− 137 01	− 245 50	− 317 07	− 354 84	− 378 23	− 410 60	− 449 92
01	− 137 70	− 253 81	− 336 10	− 379 72	− 406 68	− 438 02	− 468 63
54	− 136 13	− 257 32	− 348 09	− 401 26	− 434 98	− 463 56	− 490 83
58	− 133 75	− 258 45	− 356 60	− 417 38	− 458 50	− 487 25	− 513 72
55	− 130 88	− 258 36	− 362 08	− 425 72	− 478 50	− 516 13	− 539 43
64	− 126 02	− 255 96	− 368 91	− 439 07	− 497 57	− 545 30	− 575 14
24	− 116 16	− 250 42	− 375 29	− 457 67	− 518 67	− 581 70	− 601 70
22	− 100 52	− 243 50	− 382 98	− 479 04	− 542 13	− 626 41	− 631 74
77	− 90 29	− 235 52	− 387 52	− 498 40	− 565 60	− 657 22	− 647 12
30	− 86 02	− 234 40	− 388 84	− 510 31	− 590 56	− 674 85	− 649 50
45	− 82 47	− 227 72	− 384 04	− 511 46	− 585 21	− 674 75	− 655 36
70	− 77 31	− 218 98	− 363 30	− 489 18	− 565 10	− 653 48	− 627 61
85	− 63 06	− 198 29	− 334 97	− 460 96	− 540 32	− 627 37	− 629 35
63	− 42 90	− 172 34	− 310 85	− 432 83	− 525 25	− 591 47	− 637 93.
56	− 20 93	− 148 12	− 287 14	− 399 47	− 501 31	− 570 05	− 638 53
94	− 4 23	− 132 94	− 262 94	− 380 99	− 481 81	− 548 03	− 635 76
53	+ 5 22	− 121 83	− 246 45	− 367 44	− 462 97	− 531 15	− 632 73
30	+ 10 25	− 113 72	− 234 10	− 353 61	− 442 61	− 515 63	− 630 33
17	+ 13 59	− 104 56	− 226 71	− 343 09	− 428 34	− 506 74	− 624 54
38	+ 18 29	− 97 27	− 217 20	− 329 18	− 416 17	− 499 06	− 623 22
37	+ 24 79	− 88 15	− 204 72	− 312 85	− 404 47	− 493 00	− 606 36
84	+ 37 52	− 78 31	− 187 02	− 291 10	− 387 20	− 476 56	− 588 06
61	+ 51 62	− 63 30	− 162 61	− 260 90	− 360 39	− 453 45	− 560 70
28	+ 72 97	− 43 37	− 135 84	− 225 85	− 323 84	− 419 15	− 522 03
81	+ 95 49	− 17 76	− 108 10	− 189 30	− 284 18	− 375 39	− 476 27
32	+ 115 33	+ 8 86	− 77 26	− 153 32	− 234 54	− 334 81	− 425 28
48	+ 133 15	+ 31 87	− 52 28	− 120 63	− 194 76	− 286 81	− 380 40
48	+ 147 94	+ 44 92	− 36 38	− 100 05	− 173 41	− 260 26	− 352 74
51	+ 140 47	+ 42 53	− 34 89	− 95 92	− 167 97	− 251 19	− 340 86
51	+ 114 46	+ 22 01	− 48 13	− 110 64	− 180 10	− 257 83	− 343 63
73	+ 66 98	− 13 03	− 75 67	− 137 79	− 201 96	− 274 10	− 349 56
01	+ 9 51	− 60 35	− 121 14	− 175 90	− 229 55	− 292 57	− 359 30.

δ	$\delta/252$	μ_a	μ_b	μ_c	l	f	g	i	$2h+i$	h
ΣX		-312,6								
$\Sigma X \sin\delta$					-6,77					
$\Sigma X \cos\delta$							-79,58			
$\Sigma X \sin\delta = 0$	+0,10									
$\Sigma X \cos\delta = 0$	-2,20									
$\Sigma Y = 0$	-0,15									
$\Sigma Y \sin\delta$				+28,2						
$\Sigma Y \cos\delta$			+56,1							
$\Sigma Y \sin\delta$								-14,97		
$\Sigma Y \cos\delta$						-24,76				
ΣZ									-46,82	
$\Sigma Z \sin\delta$			+56,0							
$\Sigma Z \cos\delta$				+31,8						
$\Sigma Z \sin\delta$						-24,15				
$\Sigma Z \cos\delta$								-17,79		
$\Sigma X - \Sigma X'$									-5,26	
$\Sigma X \sin\delta$			+70,16							
$\Sigma X \cos\delta$				+19,5						
$\Sigma X \sin\delta - \Sigma X' \sin\delta$						-28,69				
$\Sigma X \cos\delta - \Sigma X' \cos\delta$								-1,23		
$\Sigma Y - \Sigma Y' = 0$	+1,17									
$\Sigma Y \sin\delta - \Sigma Y' \sin\delta$							-51,26			

h	δ	$\delta/252$	μ_a	μ_b	μ_c	e	f	g	i	2h+i	h
	$\Sigma y_{ausd} - \Sigma y'_{ausd}$					-11,74					
	$\Sigma y_{anzd} - \Sigma y'_{anzd=0}$	+10,56									
	$\Sigma y_{ausd} - \Sigma y'_{ausd=0}$	+0,30									
	δ										
	$\Sigma z - \Sigma z'$		-317,8								
	$\Sigma z_{anzd} - \Sigma z'_{anzd}$					-11,23					
	$\Sigma z_{ausd} - \Sigma z'_{ausd}$							-51,59			
	$\Sigma z_{anzd} - \Sigma z'_{anzd=0}$	+1,79									
	$\Sigma z_{ausd} - \Sigma z'_{ausd=0}$	-15,56									
	$\Sigma \overset{\pi}{x}_{o} - \Sigma \overset{\pi}{x}_{\pi}$					-0,51					
	$\Sigma \overset{\pi}{x}_{o\,ausd} - \Sigma \overset{\pi}{x}_{\pi\,anzd}$		-3860								
	$\Sigma x_{ausd} - \Sigma x_{ausd=0}$	+13,60									
	$\Sigma x_{anzd} - \Sigma x_{ausd}$							-66,64			
	$\Sigma x_{ausd} - \Sigma x_{anzd}$					-14,10					

$\Sigma(Z+Z')$ ből számítottam $(2h+i)$

$\varphi=0$ ra $2h+i=-44,88$

20 . . . . $-21,65$

40 . . . $-147,91$

$60°$ ra $-14,57$.

$-239,01$ Közép $=-57,5=2h+i$

$i=13,0$ al

$\Sigma X-\Sigma X'$

$h=-22,0$

$\varphi=20°$ adja $2h+i=-56,07$

$40°$ $-18,58$

$60°$ ra $+32,46$.

I Formulában tévés $h=+5,9$ helyébe $h=-22,0$ at.

$h=-22,0$ al I ből számítandó **V Formula**.

	Z_V-Z_I	X_V-X_I	Y_V-Y_I
-60	$+35$		
-40	$+7$		
-20	-19		
0	-28		
$+20$	-19		
$+40$	-7		
$+60$	-35		

λ	$\varphi = -60$ η_τ	ξ_τ	$\varphi = -40$ η_τ	ξ_τ	$\varphi = -20$ η_τ	ξ_τ	$\varphi = 0$ η_τ	ξ_τ	ξ_τ
0		+49		+31		-18		-42	
10		+47		+29		-26		-54	
20		+49		+28		-28		-59	
30		+49		+25		-36		-46	
40		+47		+23		-43		-31	
50		+47		+18		-40		-14	
60		+46		+11		-35		-7	
70		+41		+10		-29		-1	
80		+32		+7		-25		0	
90		+12		+4		-24		+3	
100		-1		-4		-24		+9	
110		-19		-16		-27		+21	
120		-22		-29		-27		+26	
130		-20		-48		-25		+29	
140		-20		-34		-16		+29	
150		+10*		-12		+6		+32	
160		-3		+13		+35		+44	
170		-7		+23		+55		+61	
180		-16		+38		+71		+76	
190		-25		+42		+81		+81	
200		-37		+42		+79		+76	
210		-54		+36		+66		+61	
220		-69		+23		+45		+42	
230		-91		+1		+19		+18	
240		-99		-21		-4		-4	
250		-106		-40		-25		-21	
260		-104		-47		-36		-35	
270		-87		-53		-41		-38	
280		-61		-29		-39		-33	
290		-25		-1		-27		-24	
300		+9		+26		-11		-8	
310		+29		+42		+3		+14	
320		+40		+49		+15		+23	
330		+42		+47		+18		+19	
340		+42		+39		+14		0	
350		+46		+34		-1		-24	

$\Delta\xi$	$\Delta\eta$ +20	$\Delta\xi$	$\Delta\xi$	$\Delta\eta$ +40	$\Delta\xi$	$\Delta\xi$	$\Delta\eta$ +60	$\Delta\xi$
		+4			+34			+7
		−4			+38			+8
		+5			+41			+22
		+21			+49			+37
		+35			+62			+52
		+45			+70			+67
		+51			+78			+76
		+53			+86			+77
		+57			+85			+78
		+57			+85			+74
		+58			+82			+68
		+54			+70			+58
		+45			+49			+43
		+28			+16			+25
		+8			−21			+1
		−12			−57			−34
		−22			−82			−59
		−20			−91			−64
		−6			−90			−64
		+9			−80			−50
		+23			−64			−31
		+26			−44			−11
		+30			−20			+5
		+26			+3			+28
		+26			+29			+57
		+31			+58			+65
		+35			+80			+59
		+39			+89			+9*
		+47			+103			+62*
		+51			+90			+43*
		+57			+70			+52
		+9*			+57			+35
		+64			+27			+22
		+4*			+22			+14
		+38			+25			+15
		+21			+27			+12

$$\frac{\partial X}{\partial t} + Y \sin\varphi = \frac{\partial Y}{\partial \varphi} \cos\varphi$$

$\frac{\partial x}{\partial \lambda} + y \sin\varphi = \frac{\partial y}{\partial \varphi}\cos\varphi$

λ	$\varphi = -60$		-40		-20		$\frac{\partial y}{\partial \varphi}$ 0		$+20$	
0	$-\frac{1}{16}$	-63	$-\frac{1}{30}$	-33	0		$+\frac{1}{26}$	+38	$+\frac{1}{28}$	+36
20	0		$+\frac{1}{49}$	+20	$+\frac{1}{52}$	+19	$+\frac{1}{19}$	+53	$+\frac{1}{20}$	+50
40	0		$+\frac{1}{20}$	+50	$+\frac{1}{20}$	+50	$+\frac{1}{18}$	+56	$+\frac{1}{18}$	+56
60	$+\frac{1}{45}$	+22	$+\frac{1}{12}$	+83	$+\frac{1}{11}$	+91	$+\frac{1}{16}$	+63	$+\frac{1}{22}$	+45
80	$+\frac{1}{25}$	+40	$+\frac{1}{13}$	+77	$+\frac{1}{8}$	+125	$+\frac{1}{13}$	+77	$+\frac{1}{47}$	+21
100	$+\frac{1}{28}$	+36	$+\frac{1}{14}$	+71	$+\frac{1}{11}$	+91	0	0	$+\frac{1}{130}$	+8
120	$+\frac{1}{20}$	+50	$+\frac{1}{18}$	+56	$+\frac{1}{28}$	+36	0	0	$-\frac{1}{25}$	-40
140	$+\frac{1}{19}$	+53	$+\frac{1}{50}$	+20	0		$-\frac{1}{27}$	-37	$-\frac{1}{19}$	-53
160	$+\frac{1}{19}$	+53	$+\frac{1}{72}$	+14	0		$-\frac{1}{52}$	-19	$-\frac{1}{21}$	-48
180	$+\frac{1}{30}$	+33	0	0	0		$-\frac{1}{60}$	-17	$-\frac{1}{50}$	-20
200	0		0	0	$-\frac{1}{50}$	-20	0	0	0	0
220	$-\frac{1}{45}$	-22	$-\frac{1}{27}$	-37	$-\frac{1}{20}$	-50	0	0	$+\frac{1}{12}$	+83
240	$-\frac{1}{30}$	-28	$-\frac{1}{20}$	-50	$-\frac{1}{22}$	-45	0	0	$+\frac{1}{20}$	+50
260	0		$-\frac{1}{19}$	-53	$-\frac{1}{27}$	-37	$-\frac{1}{44}$	-23	$-\frac{1}{64}$	-16
280	0		$-\frac{1}{18}$	-56	$-\frac{1}{18}$	-56	$-\frac{1}{20}$	-50	$-\frac{1}{16}$	-63
300	$-\frac{1}{70}$	-14	$-\frac{1}{16}$	-60	$-\frac{1}{16}$	-63	$-\frac{1}{15}$	-67	$-\frac{1}{14}$	-71
320	$-\frac{1}{45}$	-22	$-\frac{1}{12}$	-83	$-\frac{1}{16}$	-60	$-\frac{1}{29}$	-34	$-\frac{1}{26}$	-38
340	$-\frac{1}{13}$	-17	$-\frac{1}{14}$	-71	0		0	0	$-\frac{1}{100}$	-10
364		+287		+291		+412		+287		+349
		-226		-446		-334		-247		-359
		+61		-55		+78		+40		-10
					výjmy	+211				
						-109				
						+102				
		+46		-70		+63		+23		+25

	+40		+60	
+36	$+\frac{1}{25}$	+40	$+\frac{1}{60}$	+17
+50	$+\frac{1}{20}$	+50	0	0
+56	$+\frac{1}{19}$	+53	0	0
+45	$+\frac{1}{18}$	+56	0	0
+27	$+\frac{1}{34}$	+29	0	0
+8	0	0	$+\frac{1}{70}$	+14
-40	0	0	$+\frac{1}{20}$	+50
-53	0	0	$+\frac{1}{45}$	+22
-48	$-\frac{1}{24}$	-42	$+\frac{1}{30}$	+33
-20	0	0	0	0
0	0	0	$-\frac{1}{32}$	-31
+83	$+\frac{1}{19}$	+53	$-\frac{1}{30}$	-33
+50	0	0	$-\frac{1}{36}$	-28
-16	$-\frac{1}{24}$	-42	$-\frac{1}{22}$	-45
-63	$-\frac{1}{18}$	-56	$-\frac{1}{34}$	-29
-71	$-\frac{1}{14}$	-71	$-\frac{1}{69}$	-14
-38	$-\frac{1}{26}$	-38	0	0
-10	0	0	0	0
+349		+281		+106
-359		-249		-180
-10		+32		-44
+25		+17		-59

Σ 0, 10°, 20° ch. 36 értékből   n = 36

φ	ΣX			ΣX sin λ			ΣX cos λ			ΣX sin 2λ
−60	5666			−1385			+675			−142
−40	7952		×	−863			−471		×	−221
−20	10300	ΣX+ΣX'	ΣX−ΣX'	−106	Σ+Σ'	Σ−Σ'	−1107	Σ+Σ'	Σ−Σ'	−243
0	12123	24246	0	+260	+520	0	−756	−1512	0	−48
+20	11598	21898	+1298	+560	+454	+666	−316	−1423	+791	+240
+40	8611	16563	+659	+824	−39	+1687	−425	−896	+46	+239
+60	4654	10320	−1012	+939	−446	+2324	−292	+383	−967	+203

φ	ΣY			ΣY sin λ			ΣY cos λ			ΣY sin 2λ
−60	+50			−1617			−976			−303
−40	−101			−1164			−1204			−243
−20	−29	Σ+Σ'	Σ−Σ'	−596	Σ+Σ'	Σ−Σ'	−1203	Σ+Σ'	Σ−Σ'	−82
0	−37	−74	0	−214	−428	0	−1083	−2166	0	+49
+20	+48	−19	+77	−141	−737	+455	−935	−2138	+268	+335
+40	+57	−44	+158	−39	−1203	+1125	−886	−2090	+318	+816
+60	+11	+61	+61	+219	−1398	+1836	−780	−1756	+196	+883

φ	ΣZ			ΣZ sin λ			ΣZ cos λ			ΣZ sin 2λ
−60	−18809			−678			+2666			−384
−40	−14182	×		−1988			+2495	×		−304
−20	−8650	Σ+Σ'	Σ−Σ'	−2492	Σ+Σ'	Σ−Σ'	+1331	Σ+Σ'	Σ−Σ'	−578
0	−808	−1616	0	−2105	−4210	0	+155	+310	0	−815
+20	+8142	−508	+16792	−1770	−4262	+722	−34	+1297	−1365	−541
+40	+15460	+1278	+29642	−1255	−3243	+733	+28	+2523	−2467	−303
+60	+19465	+656	+38274	−621	−1299	+57	−449	+2217	−3115	+30

Csupán 18 értékből egybeállítva
$\lambda = 10, 30, 50, 70°$-ra etc.

$\Sigma X \sin\lambda$			$\Sigma X \cos\lambda$			$\Sigma X \sin^3\lambda$			$\Sigma X \cos^3\lambda$		
-142			+72			-506			+237		
-221			-79			-313			-187		
-243	$\xi+\xi'$	$\xi-\xi'$	-142	$\xi+\xi'$	$\xi-\xi'$	-39	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	-440	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$
-48	-96	0	-312	-624	0	+92	+184		-276	-552	
+240	-3	+483	-521	-663	-379	+193	+154	+232	-126	-566	+314
+239	+18	+460	-80	-159	-1	+292	-21	+605	-147	-334	+40
+203	+61	+345	+507	+579	+425	+352	-154	+858	-110	+127	-347

$\Sigma Y \sin\lambda$			$\Sigma Y \cos\lambda$			$\Sigma Y \sin^3\lambda$			$\Sigma Y \cos^3\lambda$		
-303			-247			-638			-387		
-243			-276			-472			-484		
-82	$\xi+\xi'$	$\xi-\xi'$	-416	$\xi+\xi'$	$\xi-\xi'$	-251	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	-488	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$
+49	+98	0	-480	-960	0	-102	-204		-444	-888	0
+335	+253	+417	-382	-798	+34	-68	-319	+183	-366	-854	+122
+816	+573	+1059	-287	-663	-11	-5	-477	+467	-343	-827	+141
+883	+583	+1186	-195	-471	+52	+95	-543	+733	-297	-684	+90

$\Sigma Z \sin\lambda$			$\Sigma Z \cos\lambda$			$\Sigma Z \sin^3\lambda$			$\Sigma Z \cos^3\lambda$		
-384			+381			-236			+949		
-304			+295			-698			+905		
-578	$\xi+\xi'$	$\xi-\xi'$	+253	$\xi+\xi'$	$\xi-\xi'$	-888	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	+469	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$
-815	-1630	0	-69	-138	0	-739	-1478		+28	+56	
-541	-1119	+37	-770	-517	-1023	-624	-1512	+264	-42	+427	-511
-303	-607	+1	-1301	-1006	-1596	-474	-1172	+224	+30	+935	-875
+30	-354	+414	-922	-541	-1303	-198	-434	+38	-155	+794	-1104

φ	$\sum_{\lambda=0}^{\lambda=\pi} X$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X$	X(1)	$\sum_{\lambda=0}^{\lambda=\pi} X\sin\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X\sin\lambda$		$\sum_{\lambda=0}^{\lambda=\pi} X\cos\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X\cos\lambda$		$\sum_{0}^{\pi} X\sin\lambda$	$\sum_{\pi}^{2\pi} X\sin\lambda$
-80											
-60	1959	3707	-1748	+1093	-2478	+3571	+440	+235	+205	+246	-28
-40	3376	4576	-1200	+2114	-2977	+5091	-109	-362	+253	-290	+0
-20	5015	5285	-270	+3250	-3356	+6606	-354	-753	+399	-607	+36
0	6197	5926	+271	+4045	-3785	+7830	-66	-690	+624	-355	+30
+20	6174	5424	+750	+4071	-3511	+7582	+245	-561	+805	-25	+26
+40	4839	2772	+1067	+3163	-2339	+5502	+118	-543	+661	-85	+32
+60	2903	1751	+1152	+1841	-902	+2743	+95	-387	+482	-19	+22
+80											

	$\sum_{\lambda=0}^{\lambda=\pi} Y$	$\sum_{\lambda=\pi}^{\lambda=2\pi} Y$		$\sum_{\lambda=0}^{\pi} Y\sin\lambda$	$\sum_{\lambda=\pi}^{2\pi} Y\sin\lambda$		$\sum_{\lambda=0}^{\lambda=\pi} Y\cos\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} Y\cos\lambda$		$\sum_{0}^{\pi} Y\sin\lambda$	$\sum_{\pi}^{2\pi} Y\sin\lambda$
-80											
-60	-1013	+1063	-2076	-741	-876	+135	-622	-255	-267	-516	+21
-40	-813	+712	-1525	-557	-607	+50	-715	-489	-226	-565	+38
-20	-420	+391	-811	-220	-376	+156	-650	-553	-97	-472	+39
0	-177	+140	-317	-19	-195	+176	-526	-557	+31	+352	+40
+20	-108	+156	-264	+21	-162	+183	-340	-595	+255	-177	+51
+40	-61	+118	-179	+50	-89	+139	-63	-379	+316	+57	+75
+60	+81	-70	+151	+150	+69	+81	-30	-750	+720	+119	+76
+80											

	$\sum_{\lambda=0}^{\pi} Z$	$\sum_{\lambda=\pi}^{\lambda=2\pi} Z$		$\sum_{\lambda=0}^{\pi} Z\sin\lambda$	$\sum_{\lambda=\pi}^{2\pi} Z\sin\lambda$		$\sum_{\lambda=0}^{\lambda=\pi} Z\cos\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} Z\cos\lambda$		$\sum_{0}^{\pi} Z\sin\lambda$	$\sum_{\pi}^{2\pi} Z\sin\lambda$
-80											
-60	-9719	-9090	-629	-6290	+5712	-12102	+667	+1999	-1332	+1017	-140
-40	-8296	-5886	-2410	-5560	+3572	-9132	+749	+1746	-997	+979	-128
-20	-5930	-2720	-3210	-4046	+1554	-5600	+196	+1135	-939	+333	-91
0	-1841	+1033	-2874	-1290	-815	-475	-297	+452	-749	-269	-54
+20	+2881	+5261	-2380	+1867	-3637	+5504	-54	+20	-74	-276	-26
+40	+6952	+8508	-1556	+4555	-5810	+10365	+268	-240	+508	-184	-119
+60	9295	10170	-875	+6073	-6694	+12767	+272	-721	+993	-213	+24
+80											

$\sum_{\pi}^{2\pi} X_n \cos nt$		$\sum_{0}^{\pi} X_n \cos nt$	$\sum_{\pi}^{2\pi} X_n \cos nt$	
-288	+734	+322	-250	+572
+69	-359	+80	-159	+239
+364	-671	-120	-22	-98
+307	-662	-232	-80	-152
+265	-290	-336	-185	-151
+324	-409	-182	+102	-284
+223	-241	+34	+473	-439

$\sum_{\pi}^{2\pi} Y_n \sin nt$		$\sum_{0}^{\pi} Y_n \sin nt$	$\sum_{\pi}^{2\pi} Y_n \sin nt$	
+213	-729	+237	-484	+721
+322	-887	+134	-410	+444
+390	-862	-70	-346	+276
+401	-753	-184	-296	+112
+512	-689	-191	-191	0
+759	-702	-211	-76	-135
+764	-645	-218	+23	-241

$\sum_{\pi}^{2\pi} Z_n \sin nt$		$\sum_{0}^{\pi} Z_n \sin nt$	$\sum_{\pi}^{2\pi} Z_n \sin nt$	
-1401	+2418	+229	-48	+277
-1283	+2262	+572	-277	+849
-911	+1244	+569	-316	+885
-546	+277	+245	-314	+559
-265	-11	-108	-662	+554
-119	+65	-357	-944	+587
+243	-456	-388	-534	+146

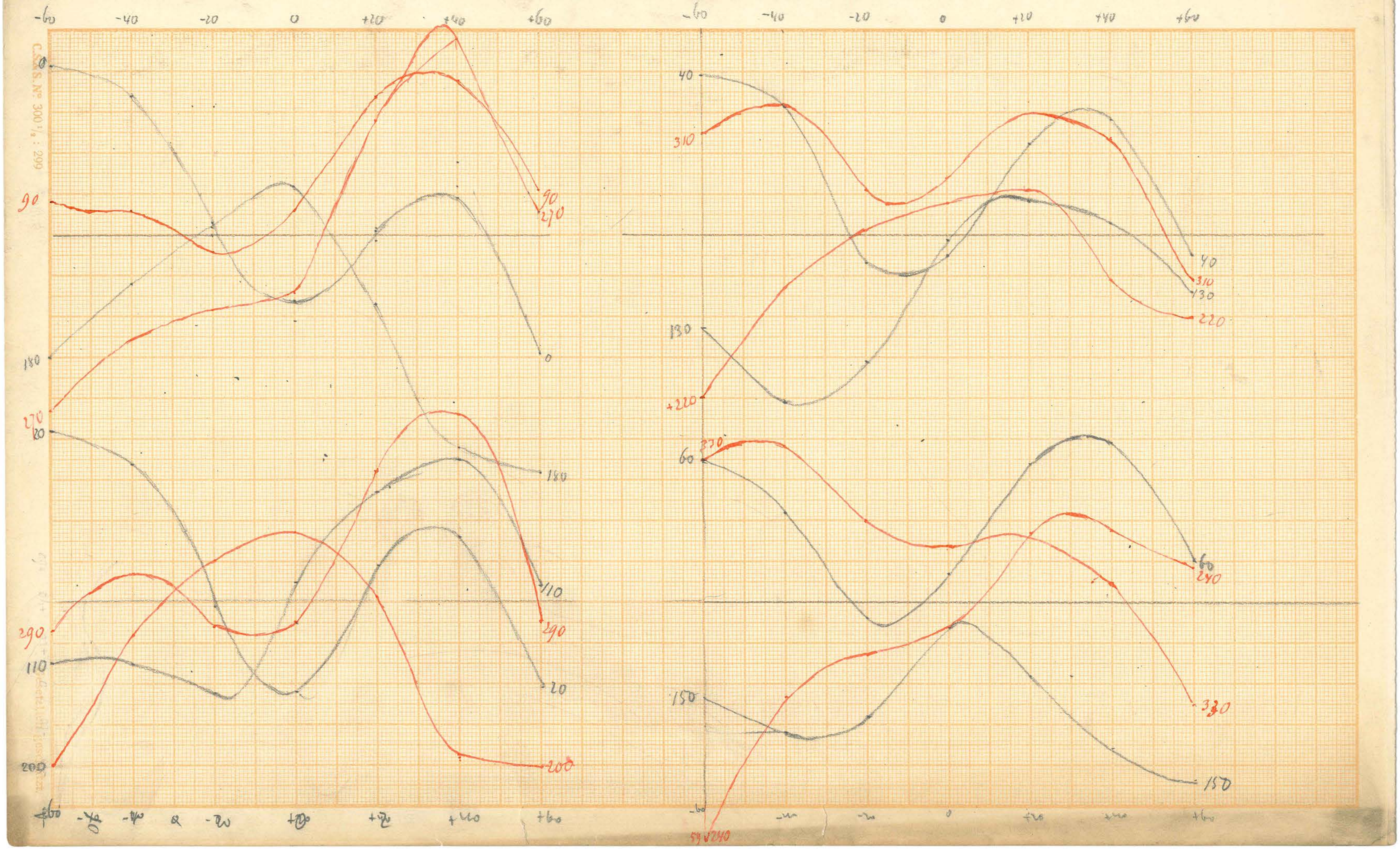
$$Z = Z_0 = a\varphi_1 + b\varphi_1^2 + \cancel{\quad}$$

$$\frac{\partial Z}{\partial \varphi} =$$

45 50 55 60

CSAS № 300 1/5 : 299

Gesetzlich geschützt



-60 -40 -20 0 +20 +40 +60
90
180
270
0
110
200
290
310
130
+220
40
220
60
150
240
330

$$\frac{\partial X_1}{\partial \varphi} + \frac{\partial Y_1}{\partial \lambda}\frac{\operatorname{tg}\delta}{\cos\varphi} = 0$$

$$\frac{\partial Z_1}{\partial \varphi} + \frac{\partial Z_1}{\partial \lambda}\operatorname{tg}$$

$$\frac{\partial Z_t}{\partial \varphi}\cos\delta + \frac{\partial Z_t}{\partial \lambda}\frac{\sin\delta}{\cos\varphi} = \frac{\partial Z_1}{\partial \varphi}\cos\delta + \frac{\partial Z_1}{\partial \lambda}\frac{\sin\delta}{\cos\varphi}.$$

$$\frac{\partial Z_t}{\partial \varphi}\cos\delta + \frac{\partial Z_t}{\partial \lambda}\frac{\sin\delta}{\cos\varphi} = 2(X_1\cos\delta + Y_1\sin\delta) - \Big[K\sin 2\varphi + (e\sin\lambda - g\cos\lambda)\cos 2\varphi + \tfrac{1}{2}(f\sin 2\lambda + i\cos 2\lambda)\sin 2\varphi\Big]\cos\delta - \Big[(e\cos\lambda + g\sin\lambda)\sin\varphi - (f\cos 2\lambda - i\sin 2\lambda)\cos\varphi\Big]\sin\delta$$

[illegible] $$X_1\cos\delta + Y_1\sin\delta = \underline{X_t\cos\delta + Y_t\sin\delta}$$

$$\frac{\partial Z}{\partial \varphi} = H\frac{1}{\cos^2 i}\frac{\partial i}{\partial \varphi} + \operatorname{tg} i\,\frac{\partial H}{\partial \varphi} \qquad \frac{\partial Z}{\partial \lambda} = H\frac{1}{\cos^2 i}\frac{\partial i}{\partial \lambda} + \operatorname{tg} i\,\frac{\partial H}{\partial \lambda}$$

	H	i	$\frac{\partial H}{\partial \varphi}$	$\frac{\partial H}{\partial \lambda}$	$\frac{\partial i}{\partial \varphi}$	$\frac{\partial i}{\partial \lambda}$	$\frac{\partial Z}{\partial \varphi}$	$\frac{\partial Z}{\partial \lambda}$	Schmidt. $\frac{\partial Z}{\partial \varphi}$	Schmidt. $\frac{\partial Z}{\partial \lambda}$
1)	245	63° 40'	−318	−29	+0,94	+0,20	+528	+190	+477	+171
3)	305	+35° 0	0	0	+1,47	0	+668 [679]	0	+573	0
7)	230	64° 10'	−318	+16	+1,08	−0,15	+583	−153	+499	−129
× 8)	294	−57° 30'	+353	+28	+1,19	+0,19	+658	+150	+655	+143
9)	372	−35° 0	+115	0	+2,00	0	+1053	0	+955 [965]	+27

$$\frac{\partial Z_t}{\partial \varphi}\cos\delta + \frac{\partial Z_t}{\partial \lambda}\frac{\sin\delta}{\cos\varphi} - 2T = -e(\sin\lambda\cos 2\varphi\cos\delta + \cos\lambda\sin\varphi\sin\delta) + f(\cos 2\lambda\cos\varphi\sin\delta - \tfrac{1}{2}\sin 2\lambda\sin 2\varphi\cos\delta) + g(\cos\lambda\cos 2\varphi\cos\delta - \sin\lambda\sin\varphi\sin\delta) - i(\sin 2\lambda\cos\varphi\sin\delta + \tfrac{1}{2}\cos 2\lambda\sin 2\varphi\cos\delta) - K\sin 2\varphi\cos\delta$$

1) [illegible] $+17{,}9 = -0{,}0201e - 0{,}3161f - 0{,}3052g + 0{,}4466i - 0{,}8996K.$

$-40 = -0{,}1228e + 0{,}1228g + 0{,}9848i$

9rc

	H	i	$\frac{\partial H}{\partial \varphi}$	$\frac{\partial H}{\partial \lambda}$	$\frac{\partial i}{\partial \varphi}$	$\frac{\partial i}{\partial \lambda}$	$\frac{\partial Z}{\partial \varphi}$	$\frac{\partial Z}{\partial \lambda}$	Schmidt. $\frac{\partial Z}{\partial \varphi}$	Schmidt. $\frac{\partial Z}{\partial \lambda}$
4	+260	−7° 30'	+89	−41	+1,54	−0,16	+395	−39	+460	−85
× 5	+290	−34°	+241	+48	+2,08	0	+715	−32	+716	−14
6	+247	+27° 30'	−176	−48	+1,57	−0,10	+731	−92	+796	−86

Schmidt. Seewarte

	φ	λ	$\frac{\partial Z_0}{\partial \varphi}$	$\frac{\partial Z_0}{\partial \lambda}$	ϑ	$\frac{\partial Z_0}{\partial \varphi}\cos\vartheta + \frac{\partial Z_0}{\partial \lambda}\frac{\sin\vartheta}{\cos\varphi}$
9	$-10°$	$+135°$	$+847$	$+18^{38}$	$+90°$	$+18^{38}$
8	$-30°$	$+155°$	$+600$	$+147^{162}$	$+13°$	$+623^{627}$
7	$+50°$	$+140°$	$+449$	-186	$+21°$	$+316$
6	$+25°$	$+120°$	$+742$	-65	$+30°$	$+607$
5	$-5°$	$+40°$	$+622$	-37	$+33°$	$+501$
4	$-20°$	$-40°$	$+372^{+395}$	-28	$+29°$	$+311$
3	$+5°$	$-50°$	$+662$	$+25$	$-60°$	$+309$
1	$+40°$	$-125°$	$+543$	$+186$	-24	$+397$

$$\frac{\partial Z_0}{\partial \varphi} = -2a\cos\varphi + 2b\sin\lambda\sin\varphi - 2c\cos\lambda\sin\varphi \qquad k = \tfrac{1}{2}(2k+i)$$

$$-3e\sin\lambda\cos\varphi - \tfrac{3}{2}f\sin 2\lambda\sin 2\varphi + 3g\cos\lambda\cos 2\varphi - \tfrac{3}{2}i\cos\lambda\sin 2\varphi - 3k\sin 2\varphi$$

$$\frac{\partial Z_0}{\partial \lambda}\frac{1}{\cos\varphi} = -2b\cos\lambda - 2c\sin\lambda$$
$$-3e\cos\lambda\sin\varphi + 3f\cos 2\lambda\cos\varphi - 3g\sin\lambda\sin\varphi - 3i\sin 2\lambda\cos\varphi$$

$$\frac{\partial Z_0}{\partial \varphi}\cos\vartheta + \frac{\partial Z_0}{\partial \lambda}\frac{\sin\vartheta}{\cos\varphi} = \frac{\partial Z_0}{\partial \varphi}\cos\vartheta + \frac{\partial Z_0}{\partial \lambda}\frac{\sin\vartheta}{\cos\varphi}$$

9) $+18 = +1{,}4142\,\underline{b} - 1{,}4142\,\underline{c} - 0{,}3684\,\underline{e} + 0{,}3684\,\underline{g} + 2{,}9544\,\underline{i}$

8) $+623 = -1{,}6877\,\underline{a} + 0{,}0060\,\underline{b} - 1{,}0733\,\underline{c} - 0{,}9236\,\underline{e} - 0{,}5937\,\underline{f} - 1{,}1822\,\underline{g} + 1{,}2616\,\underline{i} + 1{,}8790\,\underline{k}$

7) $+316 = -1{,}2002\,\underline{a} + 1{,}4685\,\underline{b} + 0{,}6349\,\underline{c} + 0{,}9435\,\underline{e} + 1{,}4781\,\underline{f} - 0{,}1569\,\underline{g} + 0{,}4411\,\underline{i} - 2{,}7582\,\underline{k}.$

$T = X\cos\delta + Y\sin\delta$ · 1908 April 3.

$+22489 = -0{,}76312\,a - 0{,}57452\,b + 0{,}29589\,c + 0{,}10957\,e - \sout{0{,}10503\,f} - 0{,}14511\,g - 0{,}98106\,h - \sout{0{,}29993\,i}$ ... 1)
$- 0{,}43871\,f \qquad\qquad - 0{,}26003\,i$

$-15250 = +0{,}51834\,a + 0{,}11018\,b + 0{,}84805\,c - 0{,}48410\,e - 0{,}82952\,f + 0{,}17632\,g + 0{,}21554\,h$ ..... 2)

$+28258 = -0{,}75440\,a + 0{,}56652\,b + 0{,}33157\,c + 0{,}19407\,e - 0{,}35767\,f - 0{,}06356\,g + 0{,}96985\,h + 0{,}13148\,i$ ... 3)

$+2420 = -0{,}29005\,a - 0{,}93969\,b - 0{,}18124\,c - 0{,}49796\,e + 0{,}79690\,f + 0{,}14993\,g - 0{,}30740\,h - 0{,}30740\,i$ ... 4)

$-30522 = +0{,}87380\,a - 0{,}57342\,b - 0{,}09450\,c + 0{,}29543\,e + 0{,}35571\,f - 0{,}61813\,g + 0{,}55668\,h - 0{,}13604\,i$ ... 5)

$-5196 = +0{,}17196\,a + 0{,}35953\,b - 0{,}91715\,c + 0{,}10998\,e - 0{,}73168\,f + 0{,}18588\,g - 0{,}04786\,h + 0{,}62127\,i$ ... 6)

$+22646 = -0{,}92542\,a - 0{,}37136\,b - 0{,}07551\,c - 0{,}48398\,e + 0{,}24732\,f + 0{,}74095\,g + 0{,}32139\,h - 0{,}11879\,i$ ... 7)

$+16187 = \sout{-0{,}69637\,a} + 0{,}86978\,b + 0{,}19209\,c + 0{,}54282\,e + 0{,}55888\,f - 0{,}11764\,g - 0{,}69637\,h - 0{,}22382\,i$ ... 8)
$-0{,}45452\,a$

$+24277 = -0{,}68255\,a + 0{,}40234\,b - 0{,}61013\,c - 0{,}30420\,e + 0{,}26630\,f - 0{,}12870\,g + 0{,}87748\,h + 0{,}93121\,i$ .... 9)

$-16432 = +0{,}32899\,a - 0{,}60905\,b - 0{,}72168\,c - 0{,}56344\,e - 0{,}18670\,f - 0{,}41384\,g + 0{,}53899\,h + 0{,}77794\,i$ .... 10)

M 5104/5

1, 3, 4, 6, 8 egyenletekből:

$$e = +156961 + 4{,}88803\,a - 1{,}58019\,b - 0{,}01286\,c$$
$$f = -88200 - 2{,}85837\,a - 0{,}67019\,b + 0{,}10538\,c$$
$$g = +495484 + 16{,}43853\,a + 1{,}11973\,b + 1{,}99794\,c$$
$$h = +36373 + 1{,}08952\,a - 0{,}24621\,b - 0{,}30258\,c$$
$$i = -285482 - 9{,}34331\,a - 1{,}44203\,b + 0{,}98158\,c$$

A

Kipróbálva

2) 5) és 9) helyettesítve ezeket

$$-107633 = +3{,}65640\,a + 1{,}57545\,b + 1{,}05393\,c$$
$$+201670 = -7{,}04246\,a - 1{,}91168\,b - 1{,}59778\,c$$
$$+393209 = -12{,}79086\,a - 0{,}99842\,b - 0{,}18674\,c$$

a miből:

1, 2, 3, 4, 5, 6, 8, 9 re →

$a = -30005$	és	$e = +31522$
$b = -13614$		$f = +9041$
$c = +22321$		$g = +31598$
		$h = +280$
		$i = +36406$

próbán jónak találva

1910 Nov. 30

$\varphi = -60$ 0·001 C.G.S. egység

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
10	169	+2	171	-63	-23	- 86	-536	+146	- 390
30	150	-7	143	-63	-34	- 97	-558	+130	- 428
50	132	-12	120	-56	- 45	-101	-579	+110	- 469
70	117	- 20	97	- 42	-59	- 101	-596	+83	- 513
90	107	-29	78	- 23	-69	- 92	-608	+33	- 575
110	103	-28	75	-2	-52	- 54	-612	-19	- 631
130	106	-33	73	+20	-34	- 14	-609	-41	- 650
150	115	-26	89	+40	-19	+ 21	-598	-29	- 627
170	129	-15	114	+55	-6	+ 49	-582	-56	- 638
190	147	-3	144	+63	-8	+ 55	-560	-76	- 636
210	167	-1	166	+63	-4	+ 59	-539	-92	- 631
230	185	-3	182	+56	+17	+ 73	-518	-105	- 623
250	200	0	200	+42	+56	+ 98	-500	-88	- 588
270	210	+10	220	+23	+100	+123	-489	-33	- 522
290	214	+36	250	+2	+106	+108	-484	+59	- 425
310	211	+48	259	- 20	+74	+ 54	-488	+135	- 353
330	202	+42	244	-40	+30	- 10	-498	+155	- 343
350	187	+22	209	- 55	-2	- 57	-515	+156	- 359
			2834			+ 28			-9401

$\varphi = -40$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m	λ
10	251	-79	172	-63	-37	-100	-387	+100	-287	10
30	236	-78	158	-63	-35	-98	-422	+74	-348	30
50	223	-64	159	-56	-33	-89	-454	+47	-407	50
70	212	-45	167	-42	-35	-77	-480	+22	-458	70
90	203	-24	179	-23	-43	-66	-498	+1	-497	90
110	201	-6	195	-2	-39	-41	-505	-37	-542	110
130	204	+10	214	+20	-17	+3	-500	-91	-591	130
150	210	+11	221	+40	0	+40	-484	-81	-565	150
170	221	+15	236	+55	+7	+62	-458	-67	-525	170
190	234	+20	254	+63	-2	+61	-427	-55	-482	190
210	249	+13	262	+63	-7	+56	-393	-50	-443	210
230	262	0	262	+56	+2	+58	-360	-56	-416	230
250	273	-11	262	+42	+31	+73	-334	-54	-388	250
270	281	-14	267	+23	+74	+97	-316	-18	-334	270
290	284	-13	271	+2	+78	+80	-309	+74	-235	290
310	282	-20	262	-20	+40	+20	-314	+141	-173	310
330	275	-40	235	-40	-3	-43	-330	+150	-180	330
350	264	-64	200	-55	-30	-85	-356	+126	-230	350
			3976			-49			-7101	

$\varphi = -20$

λ	X_m	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
10	302	-95	207	-63	-34	-97	-193	-19	-212
30	294	-80	214	-63	-12	-75	-234	-50	-284
50	287	-56	231	-56	+2	-54	-274	-62	-336
70	282	-26	256	-42	+8	-34	-307	-50	-357
90	277	+9	286	-23	+2	-21	-328	-41	-369
110	275	+41	316	-2	-3	-5	-337	-46	-383
130	277	+63	340	+20	-6	+14	-331	-58	-389
150	280	+66	346	+40	+4	+44	-311	-53	-364
170	286	+58	344	+55	+5	+60	-279	-32	-311
190	293	+46	339	+63	-7	+56	-241	-22	-263
210	301	+29	330	+63	-16	+47	-199	-35	-234
230	308	+11	319	+56	-11	+45	-159	-58	-217
250	314	-1	313	+42	+14	+56	-126	-61	-187
270	318	-19	299	+23	+48	+71	-105	-31	-136
290	319	-39	280	+2	+49	+51	-96	+19	-77
310	318	-51	267	-20	+20	0	-103	+66	-37
330	315	-70	245	-40	-28	-68	-122	+74	-48
350	309	-92	217	-55	-50	-105	-154	+33	-121
			5149			-15			-4325

$q = +60$ 0·001 c.g.s egység.

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
10	147	+3	150	−63	+27	−36	560	−102	+458
30	167	−2	165	−63	+61	−2	539	−64	+475
50	185	−18	167	−56	+85	+29	518	−9	+509
70	200	−41	159	−42	+84	+42	500	+34	+534
90	210	−58	152	−23	+54	+31	489	+63	+552
110	214	−59	155	−2	+6	+4	484	+79	+563
130	211	−48	163	+20	−36	−16	488	+65	+553
150	202	−29	173	+40	−50	−10	498	+14	+512
170	187	−10	177	+55	−33	+22	515	−19	+496
190	169	−4	165	+63	−9	+54	536	−18	+518
210	150	−9	141	+63	+7	+70	558	+5	+563
230	132	−25	107	+56	+13	+69	579	+25	+604
250	117	−44	73	+42	+2	+44	596	+42	+638
270	107	−63	44	+23	−30	−7	608	−34	+574
290	103	−55	48	+2	−54	−52	612	−20	+592
310	106	−42	64	−20	−63	−83	609	−48	+561
330	115	−21	94	−40	−46	−86	598	−86	+512
350	129	−2	127	−55	−12	−67	582	−100	+482
			2324			+6			+9696

$\varphi = +40$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m	λ
10	234	−1	233	−63	+14	−49	426	−65	361	10
30	249	+6	255	−63	+44	−19	393	−45	348	30
50	262	+9	271	−56	+67	+11	360	+6	366	50
70	273	+7	280	−42	+72	+30	334	+63	397	70
90	281	+3	284	−23	+53	+30	316	+110	426	90
110	284	+1	285	−2	0	−2	309	+134	443	110
130	281	0	281	+20	−48	−28	314	+104	418	130
150	275	+4	279	+40	−49	−9	330	+34	364	150
170	264	−1	263	+55	−21	+34	356	−12	344	170
190	251	−7	244	+63	−4	+59	387	−20	367	190
210	236	+4	240	+63	+7	+70	422	−7	415	210
230	223	+12	235	+56	+20	+76	454	+21	475	230
250	212	+12	224	+42	+22	+64	480	+61	541	250
270	203	+1	204	+23	−3	+20	498	+78	576	270
290	201	−16	185	+2	−35	−33	505	+62	567	290
310	204	−37	167	−20	−50	−70	500	+1	501	310
330	210	−38	172	−40	−44	−84	484	−53	431	330
350	221	−16	205	−55	−18	−73	458	−68	390	350
			+4307			+27			+7730	

$q = +20$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
10	293	+5	298	-63	-3	-66	241	-102	139
30	301	+25	326	-63	+25	-38	199	-76	123
50	308	+42	350	-56	+46	-10	159	-28	131
70	314	+58	372	-42	+48	+6	126	+20	146
90	318	+60	378	-23	+43	+20	105	+68	173
110	319	+49	368	-2	+13	+11	96	+101	197
130	318	+34	352	+20	-25	-5	102	+90	192
150	315	+19	334	+40	-26	+14	122	+44	166
170	309	+8	317	+55	-8	+47	154	+13	167
190	302	+7	309	+63	-12	+51	193	+15	208
210	294	+15	309	+63	-18	+45	234	+14	248
230	287	+35	322	+56	-6	+50	274	+6	280
250	281	+53	334	+42	+10	+52	307	+13	320
270	277	+53	330	+23	+12	+35	328	+27	355
290	276	+31	307	+2	+3	+5	337	+37	374
310	277	+1	278	-20	-1	-21	331	-18	313
330	280	-53	227	-40	-23	-63	311	-49	262
350	286	-14	272	-55	-31	-86	279	-59	220
			5783			+47			+4014

$q = 0$

λ	X_n	X_r	X_m	Y_n	Y_r	Y_m	Z_n	Z_r	Z_m
10	317	-30	287	-63	-22	-85	+26	-112	-86
30		-16	301	-63	+8	-55	-19	-114	-133
50		+3	320	-56	+28	-28	-61	-77	-138
70		+24	341	-42	+34	-8	-96	-38	-134
90		+49	366	-23	+33	+10	-119	-7	-126
110		+65	382	-2	+18	+16	-128	+27	-101
130		+71	388	+20	-8	+12	-121	+36	-85
150		+56	373	+40	-6	+34	-100	+23	-77
170		+46	363	+55	+1	+56	-67	+24	-43
190		+44	361	+63	-13	+50	-26	+21	-5
210		+34	351	+63	-32	+31	+19	-9	+10
230		+31	348	+56	-27	+29	+61	-43	+18
250		+38	355	+42	-2	+40	+96	-58	+38
270		+30	347	+23	+30	+53	+119	-46	+73
290		+3	320	+2	+26	+28	+128	-13	+115
310		-17	300	-20	+7	-13	+121	+27	+148
330		-34	283	-40	-46	-86	+100	+14	+114
350		-40	277	-55	-54	-109	+67	-57	+10
			6063			-25			-402

Jelzések:

$\frac{V_\alpha}{r^3} = \mu_a$; $\frac{V_\beta}{r^3} = \mu_b$; $\frac{V_\gamma}{r^3} = \mu_c$.

$$3\frac{V}{r^4}(\beta a_0 + \alpha b_0) = l$$

$$3\frac{V}{r^4}(\gamma b_0 + \beta c_0) = f$$

$$3\frac{V}{r^4}(\alpha c_0 + \gamma a_0) = g$$

$$3\frac{V}{r^4}(\alpha a_0 - \beta b_0) = h$$

$$3\frac{V}{r^4}(\beta b_0 - \gamma c_0) = i$$

$$\frac{3}{2}\frac{V}{r^5}(\alpha(A^2 - B^2) - 2\beta AB) = \mathcal{E}$$

$$\frac{3}{2}\frac{V}{r^5}(\beta(B^2 - C^2) - 2\gamma BC) = \mathcal{F}$$

$$\frac{3}{2}\frac{V}{r^5}(\gamma(B^2 - C^2) + 2\beta BC) = \mathcal{G}$$

$$\frac{3}{2}\frac{V}{r^5}(\alpha(B^2 - C^2) + 2\beta AB - 2\gamma CA) = \mathcal{H}$$

$$\frac{3}{2}\frac{V}{r^5}(\beta(C^2 - A^2) + 2\gamma BC - 2\alpha AB) = \mathcal{J}$$

$$\frac{3}{2}\frac{V}{r^5}(\gamma(A^2 - B^2) + 2\alpha CA - 2\beta BC) = \mathcal{K}$$

$$\frac{3}{2}\frac{V}{r^5}(\gamma AB + \alpha BC + \beta CA) = \mathcal{L}$$

$$X = -\mu_a \cos\varphi + \mu_b \sin\varphi \underline{\sin\lambda} - \mu_c \sin\varphi \underline{\cos\lambda} -$$
$$- h \sin 2\varphi - e \cos 2\varphi \underline{\sin\lambda} + g \cos 2\varphi \underline{\cos\lambda} - \tfrac{1}{2} f \sin 2\varphi \underline{\sin 2\lambda} - i \sin 2\varphi \underline{\cos^2\lambda} -$$
$$- (12\mathfrak{E} + \mathfrak{H}) \cos\varphi + 15\mathfrak{E} \cos^3\varphi +$$
$$+ \left[(11\mathfrak{J} - 3\mathfrak{F}) \sin\varphi - 15\mathfrak{J} \sin^3\varphi\right] \underline{\sin\lambda} + \left[(11\mathfrak{K} - 3\mathfrak{G}) \sin\varphi - 15\mathfrak{K} \sin^3\varphi\right] \underline{\cos\lambda} -$$
$$- 10\mathfrak{L} \left(\cos\varphi - \tfrac{3}{2}\cos^3\varphi\right) \underline{\sin 2\lambda} - 10\mathfrak{H} \left(\cos\varphi - \tfrac{3}{2}\cos^3\varphi\right) \underline{\cos^2\lambda} +$$
$$+ 15\mathfrak{F} \left(\sin\varphi - \sin^3\varphi\right) \underline{\sin^3\lambda} + 15\mathfrak{G} \left(\sin\varphi - \sin^3\varphi\right) \underline{\cos^3\lambda} .$$

$$Y = -\mu_c \sin\lambda - \mu_b \cos\lambda -$$
$$- g \sin\varphi \underline{\sin\lambda} - e \sin\varphi \underline{\cos\lambda} - i \cos\varphi \underline{\sin 2\lambda} + f \cos\varphi \underline{\cos 2\lambda} -$$
$$- 5\mathfrak{L} \sin 2\varphi - \left[(4\mathfrak{K} + 3\mathfrak{G}) - 5(\mathfrak{K} + 3\mathfrak{G}) \cos^2\varphi\right] \underline{\sin\lambda} +$$
$$+ \left[(4\mathfrak{J} + 3\mathfrak{F}) - 5(\mathfrak{J} + 3\mathfrak{F}) \cos^2\varphi\right] \underline{\cos\lambda} - \tfrac{5}{2}\mathfrak{H} \sin 2\varphi \underline{\sin 2\lambda} +$$
$$+ 10\mathfrak{L} \sin 2\varphi \underline{\cos^2\lambda} - 15\mathfrak{G} \cos^2\varphi \underline{\sin^3\lambda} + 15\mathfrak{F} \cos^2\varphi \underline{\cos^3\lambda} .$$

$$Z = -2\mu_a \sin\varphi - 2\mu_b \cos\varphi \underline{\sin\lambda} + 2\mu_c \cos\varphi \underline{\cos\lambda} -$$
$$- 2h - i + 3h \cos^2\varphi - \tfrac{3}{2} e \sin 2\varphi \underline{\sin\lambda} + \tfrac{3}{2} g \sin 2\varphi \underline{\cos\lambda} +$$
$$+ \tfrac{3}{2} f \cos^2\varphi \underline{\sin 2\lambda} + 3i \cos^2\varphi \underline{\cos^2\lambda} +$$
$$+ 4(3\mathfrak{E} - \mathfrak{H}) \sin\varphi - 20\mathfrak{E} \sin^3\varphi +$$
$$+ 4\left[(4\mathfrak{J} + 3\mathfrak{F}) \cos\varphi - 5\mathfrak{J} \cos^3\varphi\right] \underline{\sin\lambda} + 4\left[(4\mathfrak{K} + 3\mathfrak{G}) \cos\varphi - 5\mathfrak{K} \cos^3\varphi\right] \underline{\cos\lambda} -$$
$$+ 20\mathfrak{L} \left(\sin\varphi - \sin^3\varphi\right) \underline{\sin 2\lambda} + 20\mathfrak{H} \left(\sin\varphi - \sin^3\varphi\right) \underline{\cos^2\lambda} -$$
$$- 20\mathfrak{F} \cos^3\varphi \underline{\sin^2\lambda} - 20\mathfrak{G} \cos^3\varphi \underline{\cos^3\lambda} .$$

$\varphi = +60^\circ$

λ	X	Y	Z	$X \sin\lambda$	$Y \sin\lambda$	$Z \sin\lambda$	$X \cos\lambda$	$Y \cos\lambda$	$Z \cos\lambda$	$X \sin 2\lambda$
0	140	− 51	466	0	0	0	+ 140	− 51	+ 466	0
20	160	− 20	464	+ 55	− 7	+ 159	+ 150	− 19	+ 436	+ 103
40	167	+ 14	490	+ 107	+ 9	+ 315	+ 128	+ 11	+ 375	+ 164
60	164	+ 38	523	+ 142	+ 33	+ 453	+ 82	+ 19	+ 262	+ 142
80	154	+ 40	546	+ 152	+ 39	+ 538	+ 27	+ 7	+ 95	+ 53
100	153	+ 17	560	+ 151	+ 17	+ 551	− 27	− 3	− 97	− 52
120	159	− 7	560	+ 138	− 6	+ 485	− 80	+ 4	− 280	− 138
140	168	− 18	539	+ 108	− 12	+ 346	− 129	+ 14	− 413	− 165
160	177 (1442)	+ 4 (+17)	495 (+4643)	+ 61 (+914)	+ 1 (+74)	+ 169 (+3016)	− 166 (+125)	− 4 (−22)	− 465 (+379)	− 114 (−7)
180	173	+ 39	501	0	0	0	− 173	− 39	− 501	0
200	157	+ 59	541	− 54	− 20	− 185	− 148	− 55	− 508	+ 101
220	125	+ 72	581	− 80	− 46	− 373	− 96	− 55	− 445	+ 123
240	89	+ 61	632	− 77	− 53	− 547	− 45	− 31	− 316	+ 77
260	58	+ 21	629	− 57	− 20	− 619	− 10	− 4	− 109	+ 20
280	40	− 26	620 (+546 ?)	− 39	+ 26	− 611	+ 7	− 5	+ 108	− 14
300	56	− 72	589	− 48	+ 62	− 510	+ 28	− 36	+ 295	− 48
320	79	− 87	534	− 51	+ 56	− 343	+ 61	− 67	+ 409	− 78
340	111 (888)	− 79 (−12)	499 (5126)	− 38 (−444)	+ 27 (+32)	− 171 (43359)	+ 104 (−272)	− 74 (−366)	+ 469 (−598)	− 71 (+110)
	+ 2330	+ 5	+ 9769	+ 470	+ 106	− 343	− 147	− 388	− 219	+ 103

$X \sin 2\lambda$	$Y \sin 2\lambda$	$Z \sin 2\lambda$	$X \cos 2\lambda$	$Y \cos 2\lambda$	$Z \cos 2\lambda$
0	0	0	+ 140	− 51	+ 466
+ 103	− 13	+ 298	+ 123	− 15	+ 355
+ 164	+ 14	+ 483	+ 29	+ 2	+ 85
+ 142	+ 33	+ 453	− 82	− 19	− 262
+ 53	+ 14	+ 187	− 145	− 37	− 513
− 52	− 6	− 192	− 144	− 16	− 526
− 138	+ 6	− 485	− 80	+ 4	− 280
− 165	+ 18	− 531	+ 29	− 3	+ 94
− 114	− 3	− 318	+ 136	+ 3	+ 379
−7	+63	−105	+6	+132	−202
0	0	0	+ 173	+ 39	+ 501
+ 101	+ 38	+ 348	+ 120	+ 45	+ 414
+ 123	+ 71	+ 573	+ 22	+ 12	+ 101
+ 77	+ 53	+ 547	− 45	− 31	− 316
+ 20	+ 7	+ 275	− 55	− 20	− 591
− 14	+ 9	− 212	− 38	+ 24	− 583
− 48	+ 62	− 510	− 28	+ 36	− 295
− 78	+ 86	− 526	+ 14	− 15	+ 93
$-\ 71_{+110}$	$+\ 51_{+377}$	$-\ 321_{+114}$	$+\ 85_{+248}$	$-\ 61_{+39}$	$+\ 383_{-294}$
+103	+440	+ 9	+ 254	− 103	− 496

$\varphi = +60°$

λ	X	y	Z	$X \sin\lambda$	$y \sin\lambda$	$Z \sin\lambda$	$X \cos\lambda$	$y \cos\lambda$	$Z \cos\lambda$	$X \sin 2\lambda$
10	150	−36	458	+ 26	− 6	+ 80	+ 148	− 35	+ 451	+ 51
30	165	− 2	475	+ 83	− 1	+ 238	+ 143	− 2	+ 411	+ 143
50	167	+29	509	+128	+ 22	+ 390	+ 107	+ 19	+ 327	+ 164
70	159	+42	534	+149	+ 39	+502	+ 54	+ 14	+ 183	+ 102
90	152	+31	552	+152	+ 31	+552	0	0	0	0
110	155	+ 4	563	+146	+ 4	+529	− 53	− 1	− 193	− 100
130	163	−16	553	+125	− 12	+424	− 105	+ 10	− 355	− 161
150	173	−10	512	+ 87	− 5	+256	− 150	+ 9	− 443	− 150
170	177_{1461}	$+22_{+64}$	496_{4652}	+ 31	+ 4	+ 86	− 174	− 22	− 488	− 61
190	165	+54	518	-29_{+927}	-9_{+76}	-90_{+3057}	-162_{-30}	-53_{-8}	-510_{-107}	$+56_{-12}$
210	141	+70	563	− 71	− 35	−282	− 122	− 61	− 488	+ 122
230	107	+69	604	− 82	− 53	−463	− 69	− 44	− 388	+ 105
250	73	+44	638	− 69	− 41	−600	− 25	− 15	− 218	+ 47
270	44	− 7	574*	− 44	+ 7	−574	0	0	0	0
290	48	−52	592	− 45	+ 49	−556	+ 16	− 18	+ 202	− 31
310	64	−83	561	− 49	+ 64	−430	+ 41	− 53	+ 361	− 63
330	94	−86	512	− 47	+ 43	−256	+ 81	− 74	+ 443	− 81
350	127_{-58}	-67_{-58}	482_{5044}	-22_{-458}	$+12_{+37}$	− 84	$+125_{115}$	-66_{-384}	$+475_{123}$	-47_{112}
	2324	+ 6	+9696	+469	+113	-278^{3335}	−145	−392	− 230	+100

+ 60°

	$X\sin 2\lambda$	$Y\sin 2\lambda$	$Z\sin 2\lambda$	$X\cos 2\lambda$	$Y\cos 2\lambda$	$Z\cos 2\lambda$	$X\sin^3\lambda$	$Y\sin^3\lambda$	$Z\sin^3\lambda$	$X\cos^3\lambda$	$Y\cos^3\lambda$	$Z\cos^3\lambda$
1	+ 51	− 12	+ 157	+ 141	− 34	+ 430	+ 1	0	+ 2	+143	−34	+438
1	+143	− 2	+ 411	+ 83	− 1	+ 238	+ 21	0	+ 59	+107	−1	+309
7	+164	+ 29	+ 501	− 29	− 5	− 88	+ 75	+ 13	+229	+ 44	+ 8	+135
3	+102	+ 27	+ 343	− 121	− 32	− 409	+132	+ 35	+435	+ 6	+ 2	+ 21
0	0	0	0	− 152	− 31	− 552	+152	+ 31	+552	0	0	0
3	−100	− 3	−362	− 119	− 3	− 431	+129	+ 3	+468	− 6	0	− 23
5	−161	+ 16	−545	− 28	+ 3	− 96	+ 73	− 7	+249	− 43	+ 4	−147
13	−150	+ 9	−443	+ 87	− 5	+ 256	+ 22	− 1	+ 64	−112	+ 6	−333
88	− 61	− 8	−170	+166	+ 27	+ 466	+ 1	0	+ 3	−169	− 21	−474
0	+ 56	+ 18	+177	+155	+ 51	+ 487	− 1	0	− 3	−158	− 52	−495
88	+122	+ 61	+488	+ 71	+ 35	+ 282	− 18	− 9	− 70	− 92	− 45	−366
8	+105	+ 68	+595	− 19	− 12	− 105	− 48	− 31	− 271	− 28	− 18	−161
8	+ 47	+ 28	+410	− 56	− 34	− 489	− 61	− 37	− 530	− 3	− 2	− 26
0	0	0	0	− 44	+ 7	− 574	− 44	+ 7	− 574	0	0	0
2	− 31	+ 33	−381	− 37	+ 40	− 453	− 40	+ 43	− 492	+ 2	− 2	+ 24
1	− 63	+ 82	−552	− 11	+ 14	− 97	− 29	+ 37	− 252	+ 17	− 22	+149
3	− 81	+ 74	−443	+ 47	− 43	+ 256	− 12	+ 11	− 64	+ 61	− 56	+333
5	− 43	+ 23	−165	+119	− 63	+ 453	− 1	0	− 3	+121	− 64	+461
0	+100	+ 443	+ 21	+ 253	− 92	− 426	+352	+ 95	−198	−110	−297	−155

$\varphi = +40°$

λ	X	Y	Z	$X \sin\lambda$	$Y \sin\lambda$	$Z \sin\lambda$	$X \cos\lambda$	$Y \cos\lambda$	$Z \cos\lambda$	$X \sin 2\lambda$
0	220	− 61	375	0	0	0	+220	− 61	+375	0
20	244	− 35	349	+83	− 12	+119	+229	− 33	+328	+157
40	264	− 3	356	+170	− 2	+229	+202	− 2	+273	+260
60	276	+ 23	380	+239	+ 20	+329	+138	+ 12	+190	+239
80	283	+ 33	410	+279	+ 32	+404	+ 49	+ 6	+ 71	+ 97
100	285	+ 16	439	+281	+ 16	+432	− 49	− 3	− 76	− 97
120	283	− 18	437	+245	− 16	+378	−142	+ 9	−219	−245
140	281	− 26	391	+181	− 17	+251	−215	+ 20	−300	−277
160	272 (2408)	+ 12 (−59)	348 (+3485)	+ 93 (+1571)	+ 4 (+25)	+119 (+2261)	−256 (+176)	− 11 (−63)	−327 (+315)	−175 (−41)
180	251	+ 51	351	0	0	0	−251	− 51	−351	0
200	241	+ 64	388	− 82	− 22	− 133	−226	− 60	−365	+155
220	239	+ 75	444	−154	− 48	− 285	−183	− 57	−340	+235
240	229	+ 73	507	−198	− 63	− 439	−115	− 37	−254	+198
260	213	+ 47	567	−210	− 46	− 558	− 37	− 8	− 98	+ 73
280	197	− 6	586	−194	+ 6	− 577	+ 34	− 1	+102	− 67
300	173	− 55	534	−150	+ 48	− 462	+ 87	− 28	+267	−150
320	166	− 79	457	−107	+ 51	− 294	+127	− 61	+350	−163
340	187 (1896)	− 81 (+89)	411 (+4245)	− 64 (1159)	+ 28 (−46)	− 141 (+2889)	+176 (−388)	− 76 (−379)	+386 (−307)	−128 (+181)
	+4304	+ 30	+7730	+412	− 21	− 628	−212	−442	+ 12	+120

	$X \sin 2\lambda$	$Y \sin 2\lambda$	$Z \sin 2\lambda$	$X \cos 2\lambda$	$Y \cos 2\lambda$	$Z \cos 2\lambda$
	0	0	0	+ 220	− 61	+ 375
	+ 157	− 22	+ 224	+ 187	− 27	+ 267
	+ 260	− 3	+ 351	+ 46	− 1	+ 62
	+ 239	+ 20	+ 329	− 138	− 12	− 190
	+ 97	+ 11	+ 140	− 266	− 31	− 386
	− 97	− 5	− 150	− 268	− 15	− 413
	− 245	+ 16	− 378	− 142	+ 9	− 219
	− 277	+ 26	− 385	+ 49	− 5	+ 68
	− 175	− 8	− 224	+ 208	+ 9	+ 267
		+35	−93	−104	−134	−189
	0	0	0	+ 251	+ 51	+ 351
	+ 155	+ 41	+ 249	+ 185	+ 49	+ 297
	+ 235	+ 74	+ 437	+ 41	+ 13	+ 77
	+ 198	+ 63	+ 439	− 115	− 37	− 254
	+ 73	+ 16	+ 194	− 200	− 44	− 533
	− 67	+ 2	− 200	− 185	+ 6	− 551
	− 150	+ 48	− 462	− 87	+ 28	− 267
	− 163	+ 78	− 450	+ 29	− 14	+ 79
	− 120	+ 52	− 264	+ 143	− 62	+ 315
	+181	+374	−57	+62	−10	−426
	+120	+409	− 150	− 42	− 144	− 655

$\varphi = +40°$

λ	X	Y	Z	X sin λ	Y sin λ	Z sin λ	X cos λ	Y cos λ	Z cos λ	X sin 2λ	Y
10	233	−49	361	+ 40	− 9	+ 63	+ 229	− 48	+ 356	+ 80	
30	255	−19	348	+128	− 10	+174	+ 221	− 16	+ 301	+221	
50	271	+11	366	+208	+ 8	+280	+ 174	+ 7	+ 235	+267	
70	280	+30	397	+263	+ 28	+373	+ 96	+ 10	+ 136	+180	+
90	284	+30	426	+284	+ 30	+426	0	0	0	0	
110	285	−2	443	+268	− 2	+416	− 97	+ 1	− 152	−183	
130	281	−28	418	+215	− 21	+320	− 180	+ 18	− 269	−277	
150	279	−9	364	+140	− 5	+182	− 242	+ 8	− 315	−242	
170	263	+34	344	+ 46 +1592	+ 6 +25	+ 60 +2294	− 259 −58	− 33 −53	− 339 −47	− 90 −44	
190	244 (2421)	+59 −2	367 (+2467)	− 42	− 10	− 64	− 240	− 58	− 361	+ 83	
210	240	+70	415	−120	− 35	−208	− 208	− 61	− 359	+208	
230	235	+76	475	−180	− 58	−364	− 151	− 49	− 305	+231	
250	224	+64	541	−210	− 60	−508	− 77	− 22	− 185	+144	
270	204	+20	576	−204	− 20	−576	0	0	0	0	
290	185	−33	567	−174	+ 31	−533	+ 63	− 11	+ 194	−119	
310	167	−70	501	−128	+ 54	−384	+ 107	− 45	+ 322	−165	
330	172	−84	431	− 86	+ 42	−216	+ 149	− 73	+ 373	−149	
350	205	−73 +29	390 +1263	− 36 −1180	+ 13 −43	− 68 +2921	+ 202 −155	− 72 −391	+ 384 +163	− 70 +163	
	4307	+27	~~+~~7730	+412	− 18	−627	− 213	− 444	+ 16	+119	

$\varphi = +40°$

λ	$X\sin 2\lambda$	$Y\sin 2\lambda$	$Z\sin 2\lambda$	$X\cos 2\lambda$	$Y\cos 2\lambda$	$Z\cos 2\lambda$	$X\sin^3\lambda$	$Y\sin^3\lambda$	$Z\sin^3\lambda$	$X\cos^3\lambda$	$Y\cos^3\lambda$	$Z\cos^3\lambda$
6	+ 80	− 17	+ 123	+ 219	− 46	+ 339	+ 1	0	+ 2	+223	− 47	+345
1	+221	− 16	+ 301	+ 128	− 10	+ 174	+ 32	− 2	+ 44	+166	− 12	+226
5	+267	+ 11	+ 360	− 47	− 2	− 64	+ 122	+ 5	+165	+ 72	+ 3	+ 97
6	+180	+ 19	+ 255	− 214	− 23	− 304	+ 233	+ 25	+ 330	+11	+1	+16
0	0	0	0	− 284	− 30	− 426	+ 284	+ 30	+ 426	0	0	0
52	− 183	+ 1	− 285	− 218	+ 2	− 339	+ 237	− 2	+ 368	−11	0	−18
69	− 277	+ 28	− 412	− 49	+ 5	− 73	+ 126	− 13	+ 188	−75	+7	−111
15	− 242	+ 8	− 315	+ 140	− 5	+ 182	+ 35	− 1	+ 46	−181	+6	−236
39	− 90	− 12	− 118	+ 247	+ 32	+ 323	+ 1	0	+ 2	−257	−32	−329
1	+ 83	+ 20	+ 126	+ 229	+ 55	+ 345	− 1	0	− 2	−233	−56	−351
59	+ 208	+ 61	+ 359	+ 120	+ 35	+ 208	− 30	− 9	− 52	−156	−45	−270
5	+ 231	+ 75	+ 468	− 41	− 13	− 82	−106	− 34	− 214	−62	−20	−126
5	+144	+ 41	+ 348	− 172	− 49	− 414	−186	− 53	− 449	−9	−3	−22
0	0	0	0	− 204	− 20	− 576	− 204	− 20	− 576	0	0	0
4	− 119	+ 21	− 364	− 142	+ 25	− 434	− 154	+ 27	− 471	+7	−1	+23
2	− 165	+ 69	− 493	− 29	+ 12	− 87	− 75	+ 31	− 225	+44	−19	+133
3	− 149	+ 73	− 373	+ 86	− 42	+ 216	− 22	+ 11	− 54	+112	−55	+280
4	− 70	+ 25	− 133	+ 193	− 69	+ 366	− 1	0	− 2	+196	−70	+373
6	+119	+407	− 153	− 38	−143	−646	+292	− 5	−474	−147	−343	+ 30

tessük:

$\mu_a = -215,15 \qquad \mu_b = +62,10 \qquad \mu_c = +26,06$

$2E + H = +7,9$

$-4J + 2F = 0$

$4K + 3G = 23,0$

$F = -1,9 \qquad$ és $\qquad e = -17,6$

$G = 0 \qquad f = -26,2$

$H = -9,9 \qquad g = -42,8.$

$L = 0$

Keressük ϑ és $\underline{h}$ és $\underline{i}$ t.

$\underline{\varphi = 0} \quad \underline{\lambda = +80}$ helyen a hal Schmidt szerint.

$\frac{\partial X_t}{\partial \varphi} = +143 \qquad \frac{\partial Y_t}{\partial \varphi} = +69 \qquad \frac{\partial Z_t}{\partial \varphi} = +764$

$\frac{\partial X_t}{\partial \lambda} = +65 \qquad \frac{\partial Y_t}{\partial \lambda} = +53 \qquad \frac{\partial Z_t}{\partial \lambda} = +48$

helyes formulákkal (F G. H. L cd)

$\frac{\partial X_0}{\partial \varphi} = +70,4 - 0,06i - 2h \quad \Big| \quad \frac{\partial Y_0}{\partial \varphi} = +62,2 \quad \Big| \quad \frac{\partial Z_0}{\partial \varphi} = +800$

$\frac{\partial X_0}{\partial \lambda} = +62,2 \quad \Big| \quad \frac{\partial Y_0}{\partial \lambda} = +65,0 + 1,880\,i \quad \Big| \quad \frac{\partial Z_0}{\partial \lambda} = +47,7 - 1,026\,i$

a $\left(\frac{\partial X_t}{\partial \varphi} - \frac{\partial X_0}{\partial \varphi}\right) + \left(\frac{\partial X_t}{\partial \lambda} - \frac{\partial X_0}{\partial \lambda}\right) \frac{tg\,\vartheta}{\cos\varphi} = 0$ etc. (csekkel) egyenletekkel:

$\vartheta = -79^\circ \qquad tg\,\vartheta = -5,18$

$h = -28,8 \qquad i = -7,1$

Ha etc. túloldalon levő értékeivel számítva,

$\lambda = -130 \qquad \varphi = +50$ re.

$X_t = +175 \qquad Y = +79 \qquad Z = +550.$

Schmidt-féle {

$\frac{\partial X_t}{\partial \varphi} = -335 \qquad \frac{\partial Y_t}{\partial \varphi} = -37^{+)} \qquad \frac{\partial Z_t}{\partial \varphi} = +218$

$\frac{\partial X_t}{\partial \lambda} = -77 \qquad \frac{\partial Y_t}{\partial \lambda} = -64 \qquad \frac{\partial Z_t}{\partial \lambda} = +159$

+) $\frac{\partial X}{\partial \lambda} + Z \sin\varphi = \frac{\partial Y}{\partial \varphi} \cos\varphi$ formulával számítva.

$$\left(\frac{\partial X_t}{\partial \varphi} - \frac{\partial X_f}{\partial \varphi}\right) + \left(\frac{\partial X_t}{\partial \lambda} - \frac{\partial X_f}{\partial \lambda}\right) \frac{\operatorname{tg} \vartheta}{\cos\varphi} = 0$$ és egyenletekből

K_x [illegible]

T_x T_y T_z az $\mathcal{E}\ \mathcal{G}\ \mathcal{H}$-t is tartalmazó [illegible] a $X\ Y\ Z$ tényezői $(4J+3F)=0$ $G=0$ $L=0$.

$$\frac{\partial T_x}{\partial\varphi} = +(2\mathcal{E}+\mathcal{H})\left(6\sin\varphi - \frac{45}{2}\cos^2\varphi\sin\varphi\right)$$
$$+\frac{1}{4}(4K+3G)(11\cos\varphi - 45\sin^2\varphi\cos\varphi)\cos\lambda$$
$$+5\mathcal{H}\left(\sin\varphi - \frac{9}{2}\cos^2\varphi\sin\varphi\right)\cos 2\lambda$$
$$-\frac{15}{4}F(\cos\varphi - 3\sin^2\varphi\cos\varphi)(3-4\sin^2\lambda)\sin\lambda$$

$$\frac{\partial T_x}{\partial\lambda} = -\frac{1}{4}(4K+3G)(11\sin\varphi - 15\sin^3\varphi)\sin\lambda$$
$$+10\mathcal{H}\left(\cos\varphi - \frac{3}{2}\cos^3\varphi\right)\sin 2\lambda$$
$$-\frac{45}{4}F(\sin\varphi - \sin^3\varphi)(1-4\sin^2\lambda)\cos\lambda$$

$$\frac{\partial T_y}{\partial\varphi} = -\frac{5}{4}(4K+3G)\sin 2\varphi\sin\lambda$$
$$-5\mathcal{H}\cos 2\varphi\sin 2\lambda$$
$$+\frac{15}{4}F\sin 2\varphi(3-4\cos^2\lambda)\cos\lambda$$

$$\frac{\partial T_y}{\partial\lambda} = -(4K+3G)\left(1-\frac{5}{4}\cos^2\varphi\right)\cos\lambda$$
$$-5\mathcal{H}\sin 2\varphi\cos 2\lambda$$
$$+\frac{45}{4}F\cos^2\varphi(1-4\cos^2\lambda)\sin\lambda$$

$$\frac{\partial T_z}{\partial\varphi} = (2\mathcal{E}+\mathcal{H})(6\cos\varphi - 30\sin^2\varphi\cos\varphi)$$
$$-(4K+3G)(4\sin\varphi - 15\cos^2\varphi\sin\varphi)\sin\lambda$$
$$+10\mathcal{H}(\cos\varphi - 3\cos^2\varphi\sin\varphi)\cos 2\lambda$$
$$-15F\cos^2\varphi\sin\varphi\sin\lambda(3-4\sin^2\lambda)$$

$$\frac{\partial T_z}{\partial\lambda} = -(4K+3G)(4\cos\varphi - 5\cos^3\varphi)\sin\lambda$$
$$-20\mathcal{H}(\sin\varphi - \sin^3\varphi)\sin 2\lambda$$
$$+15F\cos^3\varphi\cos\lambda(1-4\sin^2\lambda)$$

$\lambda = -130 \qquad \varphi = +50$

$(\mu_b \sin\lambda - \mu_c \cos\lambda) = -30{,}8$ $\qquad f\sin 2\lambda = -25{,}81$ $\qquad (1-4\sin^2\lambda)\cos\lambda = +0{,}867$

$(\mu_b \cos\lambda + \mu_c \sin\lambda) = -59{,}9$ $\qquad f\cos 2\lambda = +4{,}56$

$e\sin\lambda - g\cos\lambda = -14{,}0$

$e\cos\lambda + g\sin\lambda = +43{,}8 +$ (helyesebben +44,1)

$\frac{\partial X_0}{\partial\varphi} = -293 + 0{,}144\,i + 0{,}348\,h + 7 = -286 + 0{,}144\,i + 0{,}348\,h$

$\frac{\partial X_0}{\partial\lambda} = -42{,}7 + 0{,}970\,i - 10{,}5 \qquad = -53{,}2 + 0{,}970\,i$

$\frac{\partial Y_0}{\partial\varphi} = -31{,}9 + 0{,}755\,i + 19{,}3 \qquad = -12{,}6 + 0{,}755\,i$

$\frac{\partial Y_0}{\partial\lambda} = -8 + 0{,}224\,i - 6 \qquad = -14 + 0{,}224\,i$

~~$Y_0 = +62{,}26 - 0{,}633\,i$~~

$\frac{\partial X_0}{\partial\lambda} + Y_0 \sin\varphi = \frac{\partial Y_0}{\partial\varphi}\cos\varphi.$

~~$-54 + 0{,}970\,i + 45{,}7 - 0{,}485\,i$~~

~~$-8{,}36 + 0{,}485\,i$~~

$Y_0 = +59{,}08 - 0{,}633\,i$

$-53{,}2 + 0{,}970\,i + 45{,}2 - 0{,}485\,i =$
$= -8{,}10 + 0{,}485\,i$

$\frac{\partial Z_0}{\partial\varphi} = +389 - 1{,}221\,i - 2{,}955\,h - 89 = +300 - 1{,}221\,i - 2{,}955\,h$

$\frac{\partial Z_0}{\partial\lambda} = +18 - 1{,}220\,i + 72. \qquad = +90 - 1{,}220\,i$

$+49 + 0{,}144\,i + 0{,}348\,h + 35{,}77\,\mathrm{tg}\,\vartheta + 1{,}57\,i\,\mathrm{tg}\,\vartheta = 0$

$+24 + 0{,}755\,i \qquad + 77{,}76\,\mathrm{tg}\,\vartheta + 0{,}35\,i\,\mathrm{tg}\,\vartheta = 0$

$+18 + 1{,}221\,i + 2{,}955\,h + 107{,}31\,\mathrm{tg}\,\vartheta + 1{,}90\,i\,\mathrm{tg}\,\vartheta = 0$

$+144{,}80 + 0{,}426\,i + \sim \qquad + 105{,}70\,\mathrm{tg}\,\vartheta + 4{,}462\,i\,\mathrm{tg}\,\vartheta = 0$

$+6{,}26 + 0{,}425\,i \qquad + 37{,}34\,\mathrm{tg}\,\vartheta + 0{,}661\,i\,\mathrm{tg}\,\vartheta = 0$

$138{,}54 \qquad + 68{,}36\,\mathrm{tg}\,\vartheta + 3{,}801\,i\,\mathrm{tg}\,\vartheta = 0$

$\mathrm{tg}\,\vartheta = +0{,}0163 \pm 0{,}6207 \rightarrow \quad i = -\frac{24 + 77{,}76\,\mathrm{tg}\,\vartheta}{0{,}755 + 0{,}35\,\mathrm{tg}\,\vartheta}$ $\qquad 0{,}6207$

$138{,}54 \cdot 0{,}755 + 138{,}54 \cdot 0{,}35\,\mathrm{tg}\,\vartheta + 68{,}36 \cdot 0{,}755\,\mathrm{tg}\,\vartheta + 68{,}35 \cdot 0{,}35\,\mathrm{tg}^2\vartheta$
$- 3{,}801 \cdot 24\,\mathrm{tg}\,\vartheta - 3{,}801 \cdot 77{,}76\,\mathrm{tg}^2\vartheta = 0$

$104{,}60 + 48{,}49\,\mathrm{tg}\,\vartheta + 57{,}61\,\mathrm{tg}\,\vartheta + 23{,}93\,\mathrm{tg}^2\vartheta - 91{,}22\,\mathrm{tg}\,\vartheta - 295{,}57\,\mathrm{tg}^2\vartheta = 0$

48 49 $\quad$ 100 10 $\quad$ 91 22 $\qquad$ 23 93 $\quad$ 271 64

$104{,}60 + 8{,}88\,\mathrm{tg}\,\vartheta - 271{,}64\,\mathrm{tg}^2\vartheta = 0$

0,385
00026

$\mathrm{tg}^2\vartheta - 0{,}0326\,\mathrm{tg}\,\vartheta - 0{,}385 = 0$

$\mathrm{tg}\,\vartheta = +0{,}0163 \pm \sqrt{0{,}38526}$

$+0{,}0163 \pm \sqrt{0{,}6207}$

$\frac{1}{n}\Sigma z = -a\sin\varphi - 2k(1-\frac{3}{2}\sin^2\varphi)$ $\quad \frac{1}{2}(2k+i) = k.$

és $\frac{1}{n}\Sigma X = -a\cos\varphi - k\sin^2\varphi$.

egyenletek

$$k = \frac{1}{n}\,\frac{\sin\varphi\Sigma X - \frac{1}{2}\cos\varphi\Sigma z}{\cos\varphi(1-\frac{3}{2}\sin^2\varphi) - \sin\varphi\sin 2\varphi}$$

$$a = \frac{1}{n}\,\frac{\frac{1}{2}\sin 2\varphi\Sigma z - (1-\frac{3}{2}\sin^2\varphi)\Sigma X}{\cos\varphi(1-\frac{3}{2}\sin^2\varphi) - \sin\varphi\sin^2\varphi}.$$

φ	Nevező	a	k_i.
-60	-15,75	-292,31	+12,94
-40	-19,10	-310,00	-16,75
-20	-18,89	-324,09	-28,60
0	-18,0	-336,75	-44,88
+20	-18,89	-337,79	-7,46
+40	-19,10	-338,38	+20,21
+60	-15,75	-350,47	+53,14
			$k = -3,43$

1945

$\frac{1}{n}\Sigma y\sin\lambda = -\frac{1}{2}c - \frac{1}{2}g\sin\varphi$

$\frac{1}{n}\Sigma z\sin\lambda = +c\sin\varphi + \frac{3}{4}g\sin 2\varphi$ 2)

$\frac{1}{n}\Sigma X\sin\lambda = -\frac{1}{2}c\sin\varphi + \frac{1}{2}g\cos 2\varphi$ 3)

2 és 3 ből

$$g = \frac{1}{n}\,\frac{\sin\varphi\Sigma z\sin\lambda + 2\cos\varphi\Sigma X\sin\lambda}{\frac{3}{4}\sin\varphi\sin 2\varphi + \cos\varphi\cos 2\varphi}$$

$$c = \frac{1}{n}\,\frac{\cos 2\varphi\Sigma z\sin\lambda - \frac{3}{2}\sin 2\varphi\Sigma X\sin\lambda}{\frac{3}{4}\sin\varphi\sin 2\varphi + \cos\varphi\cos 2\varphi}.$$

φ	Nevező	c	g
-60	+11,25	-40,53	-145,24
-40	+21,88	-12,02	-106,31
-20	+31,85	-1,48	-79,59
0	+36,00	+4,31	-42,00
+20	+31,85	+8,75	-19,03
+40	+21,88	+28,93	-28,93
+60	+11,25	+32,44	-60,53
		+2,92	-68,80

1 és 2 közt

$$g = \frac{4}{n} \frac{2\cos\varphi \sum Y \sin\lambda + \sum Z \cos\lambda}{\sin 2\varphi}$$

$$c = -\frac{2}{n} \frac{3\cos\varphi \sum Y \sin\lambda + \sum Z \cos\lambda}{\cos\varphi}$$

φ	c	g.
−60	−26,67	−134,59
−40	+13,05	−80,24
−20	+20,63	−36,47
0	+27,05	
+20	+24,89	−51,68
+40	+4,49	−3,61
+60	+13,33	−29,57
közép	+10,97	−56,03

1 és 2 együttesen

$$g = -\frac{2}{n} \frac{\sin\varphi \sum Y \sin\lambda - \sum X \cos\lambda}{\cos^2\varphi}$$

$$c = -\frac{2}{n} \frac{\cos 2\varphi \sum Y \sin\lambda + \sin\varphi \sum X \cos\lambda}{\cos^2\varphi}.$$

φ	C	g.
−60	−47,33	−161,11
−40	−9,56	−115,40
−20	+4,91	−82,50
0	+11,89	−42,00
+20	+13,53	−16,86
+40	+26,51	−37,87
+60	+80,67	−107,11
	+11,53	562,88
		közép −80,41

$$\frac{1}{n}\sum X \sin\lambda = \frac{1}{2} b \sin\varphi - \frac{1}{2} e \cos 2\varphi \qquad 1)$$

$$\frac{1}{n}\sum Y \cos\lambda = -\frac{1}{2} b - \frac{1}{2} e \sin\varphi \qquad 2)$$

$$\frac{1}{n}\sum Z \sin\lambda = - b \cos\varphi - \frac{3}{4} e \sin 2\varphi. \qquad 3)$$

1 és 2 ből:

$$e = -\frac{2}{n} \frac{\sum X \sin\lambda + \sin\varphi \sum Y \cos\lambda}{\cos^2\varphi}$$

$$b = +\frac{2}{n} \frac{\sin\varphi \sum X \sin\lambda - \cos 2\varphi \sum Y \cos\lambda}{\cos^2\varphi}$$

φ	Nevező	e	b.
-60	4,5	+120,00	+158,00
-40	10,56	+8,43	+72,34.
-20	15,89	-19,19	+60,22
0	18	-14,44	+60,17
+20	15,89	-15,10	+57,14
+40	10,56	-24,05	+64,77.
+60	4,5	-58,67.	+94,00

1 és 3 ből:

$$e = -\frac{1}{n} \frac{2\cos\varphi \sum X \sin\lambda + \sin\varphi \sum Z \sin\lambda}{\cos\varphi \cos 2\varphi + \frac{3}{4} \sin\varphi \sin 2\varphi}$$

$$b = +\frac{1}{n} \frac{\frac{3}{2} \sin 2\varphi \sum X \sin\lambda - \cos 2\varphi \sum Z \sin\lambda}{\cos\varphi \cos 2\varphi + \frac{3}{4} \sin\varphi \sin 2\varphi}$$

φ	Nevező	e	b
-60	+11,25	+70,93	+129,86
-40	+21,88	+2,09	+74,04
-20	+31,85	-20,50	+63,13
0	+36,00	-14,44	+58,47.
+20	+31,85	-14,03	+59,53
+40	+21,88	-20,79	+65,58
+60	+11,25	-35,64	+80,8

$$e = \frac{4}{n}\,\frac{2\cos\varphi\,\Sigma y_i \cos\lambda_i - \Sigma x_i \sin\lambda_i}{\sin 2\varphi}$$

$$b = -\frac{4}{n}\,\frac{\frac{3}{2}\sin 2\varphi\,\Sigma y_i \cos\lambda_i - \sin^2\varphi\,\Sigma x_i \sin\lambda_i}{\sin 2\varphi} = -\frac{2}{n}\,\frac{3\cos^2\varphi\,\Sigma y_i \cos\lambda_i - \Sigma x_i \sin\lambda_i}{\cos\varphi}.$$

φ	hengő	e	b
−60	−7,79	+38,25	+87,22
−40	−8,86	−16,14	+56,49
−20	−5,79	−39,89	+53,16
0	0		+63,52
+20	+5,79	+2,24	+57,21
+40	+8,86	−11,51	+56,63
+60	+7,79	−20,41	+61,00

	i			f		
φ	$\Sigma x_i \cos\lambda_i$	$\Sigma y_i \cos\lambda_i$	$\Sigma x_i \sin\lambda_i$	$x_f \cos\lambda_f$	$y_f \cos\lambda_f$	$z_f \sin\lambda_f$
−60	+9,24	+22,67	+56,44	−18,22	−27,44	−56,89
−40	−8,92	+17,62	+18,61	−24,94	−20,07	−19,17
−20	−24,52	+4,89	+10,59	−41,96	−24,60	−24,21
0		−2,72	−2,55		−26,67	−30,18
+20	+89,98	−19,87	−32,25	−41,45	−22,59	−22,66
+40	+9,03	−59,17	−82,08	−26,97	−20,81	−19,11
+60	−65,08	−98,11	−136,59	−26,05	−21,67	+4,44

$$-110{,}8 + 0{,}03\,i + 0{,}174(2h+i) + (-40{,}75 + 1{,}508\,i)\,tg\,\vartheta = 0$$

$$-47{,}31 + 0{,}755\,i - (85{,}54 + 0{,}348\,i)\,tg\,\vartheta = 0$$

$$-83{,}4 - 0{,}256\,i + 1{,}478(2h+i) - (77{,}92 + 1{,}899\,i)\,tg\,\vartheta = 0$$

$$-163{,}76 + 0{,}0443\,i + \sim \quad -60{,}229\,tg\,\vartheta + 2{,}229\,i\,tg\,\vartheta = 0$$

$$-14{,}51 - 0{,}0445\,i + \sim \quad -13{,}558\,tg\,\vartheta - 0{,}330\,i\,tg\,\vartheta = 0$$

$$-149{,}25 + 0{,}0888\,i \quad -46{,}671\,tg\,\vartheta + 2{,}559\,i\,tg\,\vartheta = 0$$

$$-47{,}31 + 0{,}755\,i \quad -85{,}54\,tg\,\vartheta - 0{,}348\,i\,tg\,\vartheta = 0$$

78
29

$$tg\,\vartheta = \frac{-149{,}25 + 0{,}0888\,i}{46{,}671 - 2{,}559\,i} = \frac{-47{,}31 + 0{,}755\,i}{85{,}54 + 0{,}348\,i}$$

$$-12767 - 57{,}939\,i + 7{,}596\,i + 0{,}0309\,i^2 =$$

$$= -2208 + 35{,}237\,i + 121{,}066\,i - 1{,}9320\,i^2$$

$$-10559 - 200{,}646\,i + 1{,}9629\,i^2 = 0$$

$$i^2 - 221{,}917\,i - 5379{,}29 = 0$$

$$i = +110{,}958 \pm \sqrt{12311{,}68 + 5379{,}29}$$

$$\begin{array}{r} 5379{,}29 \\ \hline 17690{,}97 \end{array}$$

~~$i = -22{,}05$ $\quad tg\,\vartheta = -0{,}8213$~~

~~$\vartheta = -39{,}24'$~~

~~$-110{,}8 - 0{,}662 + 60{,}7\ldots = \ldots(2h+i)$~~

$$\begin{array}{r} -10559 \\ \hline -87{,}176 \\ -113{,}470 \\ \hline -200{,}646 \end{array}$$

$$tg\,\vartheta = \frac{-47{,}31 - 16{,}65}{85{,}54 - 7{,}67}$$

$$tg\,\vartheta = -\frac{63{,}96}{77{,}87}$$

4,247752

2,123876

$$\begin{array}{r} 133{,}008 \\ 110{,}958 \\ \hline 22{,}050 \end{array}$$

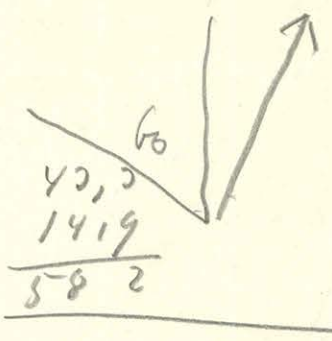
$$\begin{array}{r} 28{,}91 \\ 47{,}31 \\ \hline -76{,}22 \\ \hline 72{,}22 \end{array}$$

$$\begin{array}{r} 8554 \\ 13{,}32 \\ \hline 72{,}22 \end{array}$$

$$\begin{array}{r} -33{,}251 \\ 40{,}75 \\ \hline -74{,}001 \end{array}$$

+225,4
+17,34
+ 7,45
+250,19

+10,09
−22,16
− 5,10
+24,63
3502
27,26
+7,76



0
50
570

−117,61
+ 7,83
+
− 6,75
+13,44
− 1,34
−125,70
21,27
−104,43

+ 100/15 − 50/24

− 57,30/15 − 2865/24

−382

84
272
145

18/1146/64
108
66

18/5730/318
33 159
150

96/1146

97/2865 | 774
259
2756

-45,73
+14,47
-31,26

-23,95
47,90

-28,29
-17,24
-45,63

-25,77
+71,54

e sud - gord

+13,48
-27,52
-14,04

13,83
27,66

+2,44
-7,32

e sud + gird

+11,32
-32,78
-21,46

3,73

+21,14
1057
+31,71

forsed = -25,81
51,62

25,81
1291
38,72

forsed

+4,56

1,88
5,64

i cosd

-0,174

111
224

0,171
85
256

sud

-0,985

+0,407
1,221

985
493
1,478

64 / -23,5 / 0,192 / 430 / -87.

$i^2 - 102,219\, i - 5379,29 = 0$

$i = +51,12 \pm \sqrt{2613,25 + 5379,29}$

$$\begin{array}{r} 2613,25 \\ \hline 7993,54 \end{array}$$

3,902737
1,951368

$i = +51,12 \pm 89,41$

$i = -38,29$

$tg\, \vartheta = -1,0554$

$\vartheta = 46^\circ 22'$

$(2h + i) = +45,99$

$h = +42,14$

43	58
15	28

$-112 \quad +100$

$-12 \quad 2h+i = +70$

-75
$+5$
-70

$2h + i = +50$

$-110,8$
$-1,149$

$$\begin{array}{r} 4599 \\ 2829 \\ \hline 8428 \\ 4214 \end{array}$$

$$\begin{array}{r} 57741 \\ 4075 \\ \hline 98,49 \\ \hline 111\,949 \\ +\, 103\,946 \\ \hline 8,003 \end{array}$$

$$\begin{array}{r} -83,4 \\ +\, 9,802 \\ \hline -73,598 \\ 5,495 \\ \hline 67,903 \end{array}$$

$-111 + 10$

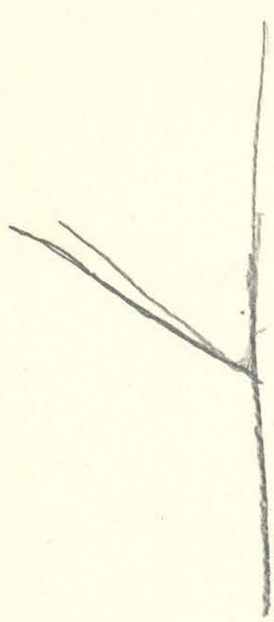
$\xi \quad \frac{-121}{68} = tg\, \vartheta$

$\xi = -\frac{58}{80}\, tg\, \vartheta$

$\xi \quad -\frac{166}{49}$

$$\begin{array}{r} 77,92 \\ 72,713 \\ \hline 5,207 \end{array}$$

45,94



Egyes meridiánokra számítottuk közepét $\varphi = +40$ tól $\varphi = -40$

$\mu_a = -325,4$ $\qquad e = -17,6$

$\mu_b = +59,7$ $\qquad f = -26,2$

$\mu_c = +22,5$ $\qquad g = -42,8$

<u>h és i kiszámítása.</u>

Continuum határvonalán δ irányban

$$\frac{\partial \xi}{\partial s} = 0 \qquad \frac{\partial \eta}{\partial s} = 0 \qquad \text{és} \qquad \frac{\partial \zeta}{\partial s} = 0 .$$

ez alkalmazva egy pontra a hol $\frac{\partial X}{\partial \lambda} + Y \sin\varphi = \frac{\partial Y}{\partial \varphi}\cos\varphi$ egyenlet

elég van téve. ilyen a $\lambda = 100$ $\varphi = 0$ tól $\varphi = 40$ ig.

választjuk <u>$\lambda = 100$ $\quad \varphi = 0$ pontot.</u>

a hol $X_t = +276$ $\qquad Y = +16$ $\qquad Z = -116$

$\frac{\partial X_t}{\partial s} = 0$ $\qquad \frac{\partial Y_t}{\partial s} = 0$

~~δ = 22°~~ ~~δ = 6~~ $\delta = -67^0$

$$\frac{\partial \xi}{\partial s} = 0 = \frac{\partial \xi}{\partial \varphi}\cos\delta + \frac{1}{\cos\varphi}\frac{\partial \xi}{\partial \lambda}\sin\delta$$

és így η.

~~∂X_t~~

$$\frac{\partial X}{\partial \varphi} = \mu_a \sin\varphi + \mu_b \cos\varphi \sin\lambda - \mu_c \cos\varphi\cos\lambda - 2h\cos 2\varphi + 2e \sin 2\varphi \sin\lambda - 2g \sin 2\varphi \cos\lambda - f \cos 2\varphi \sin 2\lambda - 2i \cos 2\varphi \cos^2\lambda$$

$$\frac{\partial X}{\partial \lambda} = +\mu_b \sin\varphi\cos\lambda + \mu_c \sin\varphi \sin\lambda - e\cos 2\varphi \cos\lambda - g\cos 2\varphi \sin\lambda - f \sin 2\varphi \cos 2\lambda + 2i \sin 2\varphi \sin 2\lambda$$

tehát $\varphi = 0$ ra $\lambda = 100°$ ra.

$$\frac{\partial X}{\partial \varphi} = \mu_a + \mu_b \sin\lambda - \mu_c \cos\lambda - 2h - f\sin 2\lambda - 2i\cos^2\lambda \qquad \frac{\partial X}{\partial \varphi} = -271,64 - 2h - 0,060\, i$$

és

$$\frac{\partial X}{\partial \lambda} = -e\cos\lambda - g\sin\lambda \qquad \frac{\partial X}{\partial \lambda} = +39,10$$

~~$a = \frac{\partial X}{\partial \varphi} = -408,00 - 2h - 306\, i$~~ $\qquad$ ~~$\frac{\partial X}{\partial \lambda} = -392 = 22,5$~~ [illegible]

$$\frac{\partial y}{\partial \varphi} = -g\cos\varphi\sin\lambda - e\cos\varphi\cos\lambda + i\sin\varphi\sin 2\lambda - f\sin\varphi\cos 2\lambda$$

$$\frac{\partial y}{\partial \lambda} = -\mu_c\cos\lambda + \mu_b\sin\lambda - g\sin\varphi\cos\lambda + e\sin\varphi\sin\lambda - 2i\cos\varphi\cos 2\lambda$$
$$- 2f\cos\varphi\sin 2\lambda$$

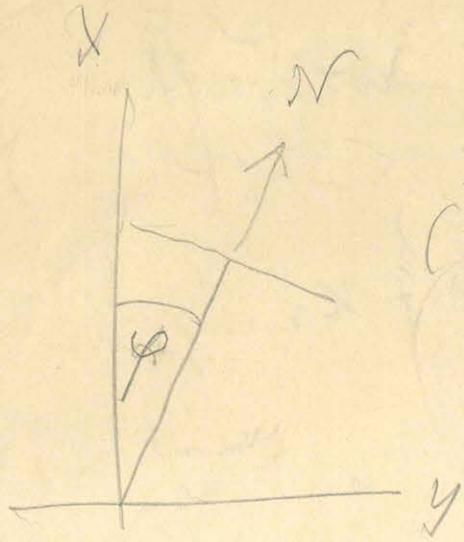
$\varphi = 0$ на.

$$\frac{\partial y}{\partial \varphi} = -g\sin\lambda - e\cos\lambda$$

$$\frac{\partial y}{\partial \lambda} = -\mu_0\cos\lambda + \mu_b\sin\lambda - 2i\cos 2\lambda - 2f\sin 2\lambda$$

$$\frac{\partial^2 u}{\partial \nu^2} = (\;)\frac{1}{\cos 2\varphi}$$

$$\frac{1}{(\;)} = \frac{1}{\frac{\partial^2 u}{\partial \nu^2}\cos 2\varphi}$$



elteendő

$$\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial \nu^2}\cos^2\varphi$$

$$\frac{\partial^2 u}{\partial y^2} = \frac{\partial^2 u}{\partial \nu^2}\sin^2\varphi$$

$$\frac{\partial^2 u}{\partial x \partial y} = \frac{1}{2}\frac{\partial^2 u}{\partial \nu^2}\sin 2\varphi$$

$$\frac{\partial^2 u}{\partial x \partial z} = \frac{\partial^2 u}{\partial \nu \partial z}\cos\varphi$$

$$\frac{\partial^2 u}{\partial y \partial z} = \frac{\partial^2 u}{\partial \nu \partial z}\sin\varphi$$

$$\xi = kX\frac{\partial^2 u}{\partial \nu^2}\cos^2\varphi + kY\frac{\partial^2 u}{\partial \nu^2}\sin\varphi\cos\varphi + kZ\frac{\partial^2 u}{\partial \nu \partial z}\cos\varphi$$

$$\eta = kX\frac{\partial^2 u}{\partial \nu^2}\sin\varphi\cos\varphi + kY\frac{\partial^2 u}{\partial \nu^2}\sin^2\varphi + kZ\frac{\partial^2 u}{\partial \nu \partial z}\sin\varphi$$

$$\zeta = kX\frac{\partial^2 u}{\partial \nu \partial z}\cos\varphi + kY\frac{\partial^2 u}{\partial \nu \partial z}\sin\varphi + kZ\frac{\partial^2 u}{\partial \nu^2}$$

$$X\xi + Y\eta - Z\zeta = k\left(X^2\cos^2\varphi + Y^2\sin^2\varphi + Z^2\right)\frac{\partial^2 u}{\partial \nu^2} + kXY\sin 2\varphi\frac{\partial^2 u}{\partial \nu^2}$$

$$(16Jk_1 - 20Jk_3)\sin\lambda \quad \cancel{-20Jk_3\sin\lambda}$$
$$+12Fk_1\sin\lambda - 20Fk_3\sin^3\lambda$$

$$\frac{1}{2}(16Jk_1 - 20Jk_3) + 6Fk_1 - \frac{60}{8}Fk_3$$

$$\frac{3}{8}(16Jk_1 - 20Jk_3) + \frac{36}{8}Fk_1 - \frac{100}{16}Fk_3$$

$\beta a_0 + \alpha b_0 = -0,247$

$\gamma a_0 + \alpha c_0 = -1,953$

~~$2\alpha a_0 + \beta b_0 +$~~

$2\alpha a_0 - \beta b_0 - \gamma c_0 = 0,387.$

$\underline{\zeta_{VIII}}$ Kiszámítva ζ_6-ból téve $\mu_a = -327,4$ helyébe $\mu_a = -315,2$

azután

$$\zeta_{IX} = \zeta_{VIII} - T$$

	$\varphi=-60$			-40			-20			0			$+2$	
	ζ_{VIII}	T	ζ_9	ζ_8	T	ζ_9	ζ_8	T	ζ_9	ζ_8	T	ζ_9	ζ_8	T
0	+63	+62	+1	+48	+46	+2	-5	+8	-13	-42	-23	-19	-9	-2
10	+62	+60	+2	+47	+42	+5	-12	+2	-14	-54	-28	-26	-18	-2
20	+64	+55	+9	+46	+33	+13	-15	-6	-9	-59	-30	-29	-8	-2
30	+63	+47	+16	+52	+21	+31	-23	-14	-9	-46	-30	-16	0	-1
40	+59	+37	+22	+38	+6	+32	-31	-22	-9	-31	-26	-5	+23	-0
50	+58	+25	+33	+31	-6	+37	-29	-28	-1	-14	-20	+6	+34	+2
60	+54	+15	+39	+22	-20	+42	-26	-33	+7	-7	-12	+5	+42	+2
70	+47	+6	+41	+17	-31	+48	-22	-35	+13	-1	-3	+2	+46	+3
80	+35	-4	+39	+21	-38	+59	-20	-36	+16	0	+4	-4	+53	+4
90	+11	-11	+22	+4	-43	+47	-22	-35	+13	+3	+10	-7	+55	+5
100	-6	-14	+8	-8	-44	+36	-25	-32	+7	+9	+12	-3	+59	+5
110	-27	-16	-11	-23	-43	+20	-30	-29	-1	+20	+13	+7	+57	+4
120	-34	-17	-17	-41	-38	-3	-34	-23	-11	+26	+12	+14	+52	+3
130	-35	-15	-20	-63	-30	-33	-34	-16	-18	+29	+10	+19	+37	+2
140	-38	-11	-27	-47	-22	-25	-26	-8	-18	+29	+10	+19	+18	+0
150	-10*	-7	-3*	-33	-11	-22	-7	+2	-9	+32	+10	+22	+1	-2
160	-26	-5	-21	-11	-3	-8	+21	+12	+9	+44	+14	+30	-7	-5
170	-32	-2	-30	-3	+4	-7	+39	+20	+19	+61	+18	+43	-4	-10
180	-42	0	-42	+11	+8	+3	+54	+26	+28	+76	+23	+53	+11	-8
190	-52	0	-52	+14	+8	+6	+63	+28	+35	+81	+28	+53	+27	-2
200	-64	-3	-61	+14	+5	+9	+62	+26	+36	+76	+30	+46	+40	+0
210	-70	-5	-65	+9	-3	+12	+49	+18	+31	+61	+30	+31	+43	+1
220	-93	-9	-84	-2	-14	+12	+29	+6	+23	+42	+26	+16	+46	+2
230	-114	-13	-101	-22	-26	+4	+4	-6	-2	+18	+20	-2	+41	+2
240	-119	-17	-102	-41	-38	-3	-17	-23	-6	-4	+12	-16	+39	+3
250	-124	-18	-106	-57	-47	-10	-35	-37	+2	-11	+3	-14	+42	+3
260	-119	-16	-103	-61	-52	-9	-45	-46	+1	-35	-4	-31	+44	+3
270	-98	-13	-85	-63	-51	-12	-57	-51	-6	-38	-10	-28	+45	+3
280	-68	-6	-62	-35	-46	+11	-42	-50	+8	-33	-72	-21	+50	+3
290	-29	+4	-25	-6	-35	+29	-28	-43	+15	-24	-13	-11	+52	+2
300	+9	+15	-6	+28	-20	+48	-8	-33	+25	-8	-12	+4	+54	+2
310	+32	+27	+5	+47	-2	+49	+8	-20	+28	+14	-10	+24	+4*	+1
320	+46	+39	+7	+58	+14	+44	+21	-8	+29	+23	-10	+33	+58	+8
330	+50	+49	+1	+58	+29	+29	+37	+2	+35	+19	-10	+29	-5*	-2
340	+53	+57	-4	+53	+41	+12	+25	+8	+17	0	-14	+14	+27	-1
350	+59	+62	-3	+50	+51	-1	+11	+10	+1	-24	-18	-6	+9	-2

	+20			+40			+60	
ξ_8	τ	ξ_9	ξ_8	τ	ξ_9	ξ_8	τ	ξ_9
-9	-26	+17	+17	-8	+25	-7	0	-7
-18	-28	+10	+20	-8	+28	-7	0	-7
-8	-26	+18	+23	-5	+28	+7	+3	+4
0	-18	+18	+32	+3	+29	+23	+5	+18
+23	-6	+29	+47	+14	+33	+41	+9	+32
+34	+8	+26	+57	+26	+31	+56	+13	+43
+42	+23	+19	+68	+38	+30	+68	+17	+51
+46	+37	+9	+79	+47	+32	+71	+18	+53
+53	+46	+7	+81	+52	+29	+75	+16	+59
+55	+51	+4	+85	+51	+34	+75	+13	+62
+59	+50	+9	+86	+46	+40	+73	+6	+67
+57	+43	+14	+77	+35	+42	+66	-4	+70
+52	+33	+19	+61	+20	+41	+55	-15	+70
+37	+20	+17	+31	+2	+29	+40	-27	+67
+18	+8	+10	-8	-14	+6	+19	-39	+58
+1	-2	+3	-36	-29	-7	-14	-49	+35
-7	-8	+1	-58	-41	-17	-36	-57	+21
-4	-10	+6	-65	-46	-19	-39	-62	+23
+11	-8	+19	-73	-46	-27	-38	-64	+26
+27	-2	+29	-52	-42	-10	-23	-60	+37
+40	+6	+34	-35	-33	-2	-4	-55	+51
+43	+14	+29	-17	-21	+4	+14	-47	+61
+46	+22	+24	+5	-6	+11	+29	-37	+66
+41	+28	+13	+26	+6	+20	+51	-25	+76
+39	+33	+6	+49	+20	+29	+77	-15	+92
+42	+35	+7	+75	+31	+44	+83	-6	+89
+44	+36	+8	+94	+38	+56	+74	+4	+70
+45	+35	+10	+99	+43	+56	+20*	+11	+9*
+50	+32	+18	+109	+44	+65	+69 jan.	+14	+55 dim
+52	+29	+23	+93	+43	+50	+47	+16	+31
+54	+23	+31	+68	+38	+30	+52	+17	+35
+4*	+16	-12*	+46	+30	+16	+32	+15	+17
+58	+8	+50	+18	+22	-4	+16	+11	+5
-5*	-2	-3*	+11	+11	0	+6	+7	-1
+27	-12	+39	+11	+3	+8	+4	+5	-1
+9	-20	+29	+11	-4	+15	-1	+2	-3

−0,76312 a	−0,57452 b	+0,29589 c	+0,10957 e	−0,10503 f	−0,14511 g	−0,98106 h	−0,29993 i	1
+0,51834 a	+0,11018 b	+0,84805 c	−0,48410 e	−0,82952 f	+0,17632 g	+0,21554 h		2
−0,75440 a	+0,56652 b	+0,33157 c	+0,19407 e	−0,35767 f	−0,06356 g	+0,96985 h	+0,13148 i	3
+0,87380 a	−0,57342 b	−0,09450 c	+0,29543 e	+0,35571 f	−0,61813 g	+0,55668 h	−0,13604 i	5
+0,17196 a	+0,35953 b	−0,91715 c	+0,10998 e	−0,73168 f	+0,18588 g	−0,04786 h	+0,62127 i	6
−0,92542 a	−0,37136 b	−0,07551 c	−0,48398 e	+0,24732 f	+0,74095 g	+0,32139 h	−0,11879 ~~−0,10395~~ −0,22382 i	7
−0,69637 a	+0,86978 b	+0,19209 c	+0,54282 e	+0,55888 f	−0,11764 g	−0,69637 h	~~−0,66666~~ +0,93121 i	8
−0,68255 a	+0,40234 b	−0,61013 c	−0,30420 e	+0,26630 f	−0,12870 g	+0,87748 h	~~+0,88451 i~~	9
+0,32899 a	−0,60905 b	−0,72168 c	−0,56344 e	−0,18670 f	−0,41384 g	+0,53899 h	+0,77794 i	10

+0,57358 $\cos\delta = -0,57358$ +0,32899 a	+0,81915 −0,34202 −0,28017 +0,16070 b	+0,81915 −0,93969 −0,76975 −0,44151 c	−0,34202 −0,34202 +0,11698 +0,06710 e	+0,93969 +0,64279 +0,60402 30201 +0,17323 f	−0,34202 −0,93969 +0,32139 −0,18434 g	+0,93969 +0,53899 h	+0,93969 $_2$ +0,93969 +0,82976 i +0,47593 i
$\sin\delta = -0,81915$	−0,93969 −0,76975 b	−0,34202 −0,28017 c	+0,81915 −0,93969 −0,76975 −0,63054 e	+0,57358 +0,17660 4 +0,43939 −0,35993 7	+0,81915 −0,34202 −0,28017 −0,22950 g		+0,57358 +0,64279 +0,36869 +0,30201 i

+	−	+	+	−	−	+	+
4,366012	4,546209	4,433322	4,401780	4,529328	4,563232	4,416724	4,370938
0,998344−1	0,724210−1	0,993357−1	0,534052−1	0,937531−1	0,239670−1	0,972986−1	0,849485−1
4,364356	4,270419	4,426673	3,935832	4,466859	3,802902	4,389710	4,220423
						+ 4,380934	4,269956
						0,949881−1	− 0,758591−1
						4,330815	4,028547
⊕ 3,873495	⊕ 3,601625	⊕ 3,950219	⊖ 3,879807	⊖ 3,388279	⊕ 3,069668	⊖ 3,743667	⊖ 2,778874
− 0,940296−2	+ 0,928420−1	+ 0,239670−1	− 0,972986−1	− 0,698970−1	+ 0,993351−1	− 0,534052−1	− 0,849485
2,813791	3,530045	3,189889	3,792793	3,087249	3,063019	3,277719	2,628359
						+ 3,798789	+ 3,846523
						+ 0,657047−1	− 0,913365−1
						3,455836	3,759888
+ 23140	− 18639	+ 26710	+ 8626	− 29299	− 6352	+ 24531	+ 16612
− 651	+ 3389	+ 1548	− 6206	− 1223	+ 1156	− 1895	− 425
+ 22489	− 15250	+ 28258	+ 2420	− 30522	− 5196	+ 22646	+ 16187
						+ 21420	− 10679
						+ 2857	− 5753
						+ 24277	− 16432

$X = -a\cos\varphi$	$+b\sin\varphi\sin\lambda$	$-c\sin\varphi\cos\lambda$	$-e\cos2\varphi\sin\lambda$	$-\frac{1}{2}f\sin2\varphi\sin2\lambda$	$+g\cos2\varphi\cos\lambda$	$-h\sin2\varphi$	$-i\sin2\varphi\cos^2\lambda$
$+0,84805$	0	$+0,52992$	0	0	$+0,43837$	$+0,89879$	$+0,89879$
$\cos\delta = +0,34202$					$+0,14993\ g$	$-0,30740\ h$	$-0,30740\ i$
$-0,29005\ a$		$-0,18124\ c$					
$+0,93969$	$+0,34202$	$+0,34202$	$+0,76604$	$+0,64279$	$+0,76604$	$+0,64279$	$+0,64279$
	$+0,64279$	$+0,76604$	$+0,64279$	$+0,98481$	$+0,76604$		$+0,76604$
$\cos\delta = -0,86603$	$+0,21985$	$+0,26200$	$+0,49240$	$+0,63303$	$+0,58682$		$+0,37720$
$+0,87380\ a$	$-0,19040\ b$	$+0,22690\ c$	$+0,42643\ e$	$+0,27412\ f$	$-0,50820\ g$	$+0,55668\ h$	$+0,32667\ i$
$+0,99027$	$-0,13917$	$-0,13917$	$+0,96126$	$-0,27564$	$+0,96126$	$-0,27564$	$-0,27564$
$\cos\delta = -0,17365$	$+0,93969$	$-0,34202$	$+0,93969$	$-0,64279$	$-0,34202$		$+0,34202$
	$-0,13078$	$+0,04760$	$+0,90329$	$+0,17718$	$-0,32877$		$-0,03224$
$+0,17196\ a$	$+0,02271\ b$	$+0,00827\ c$	$+0,15686\ e$	$+0,03077\ f$	$+0,05709\ g$	$-0,04786\ h$	$-0,00560$
				$+0,01539\ f$			

$Y =$	$-b\cos\lambda$	$-c\sin\lambda$	$-e\sin\varphi\cos\lambda$	$+f\cos\varphi\cos2\lambda$	$-g\sin\varphi\sin\lambda$		$-i\cos\varphi\sin2\lambda$
$\sin\delta = +0,93969$	$+1,00000$	0	$+0,52992$	$+0,84805$	0		0
	$-0,93969\ b$		$-0,49796\ e$	$+0,79690\ f$			
$\sin\delta = +0,50000$	$+0,76604$	$+0,64279$	$+0,34202$	$+0,93969$	$+0,34202$		$+0,93969$
			$+0,76604$	$+0,17365$	$+0,64279$		$+0,98481$
			$+0,26200$	$+0,16318$	$+0,21985$		$+0,92542$
	$-0,38302\ b$	$-0,32140\ c$	$-0,13100\ e$	$+0,08159\ f$	$-0,10993\ g$		$-0,46271\ i$
$\sin\delta = +0,98481$	$-0,34202$	$+0,93969$	$-0,13917$	$+0,99027$	$-0,13917$		$+0,99027$
			$-0,34202$	$-0,76604$	$+0,93969$		$-0,64279$
			$+0,04760$	$-0,75859$	$-0,13078$		$-0,63654$
	$+0,33682\ b$	$-0,92542\ c$	$-0,04688\ e$	$-0,74707\ f$	$+0,12879\ g$		$+0,62687\ i$

$X = -a\cos\varphi$	$+b\sin\varphi\sin\delta$	$-c\sin\varphi\cos\delta$	$-e\cos2\varphi\sin\delta$	$-\frac{1}{2}f\sin2\varphi\sin\delta$	$+g\cos2\varphi\cos\delta$	$-h\sin2\varphi$	$-i\sin2\varphi\cos^2\delta$
$+0,76604$	$+0,64279$	$+0,64279$	$+0,17365$	$+0,98481$	$+0,17365$	$+0,98481$	$+0,98481_2$
$\cos\delta = +0,99619$	$-0,81915$	$-0,57358$	$-0,81915$	$+0,34202$	$-0,57358$		$+0,57358$
$-0,76312\,a$	$-0,52654$	$-0,36869$	$-0,14225$	$+0,33082$ (16841)	$-0,09960$		$+0,32400$
	$-0,52453\,b$	$+0,36729\,c$	$+0,14171\,e$	$-0,16777\,f$	$-0,09922\,g$	$-0,98706\,h$	$-0,32277\,i$
$+0,97875$	$+0,20791$	$+0,20791$	$+0,91355$	$+0,40674$	$+0,91355$	$+0,40674$	$+0,40674$
$\cos\delta = -0,52992$	$-0,20791$	null	$+0,91355$	null	null		null
$+0,51834\,a$	$+0,11018\,b$	0	$-0,48410\,e$			$+0,21554\,h$	
$+0,76604$	$-0,64279$	$-0,64279$	$+0,17365$	$-0,98481$	$+0,17365$	$-0,98481$	$-0,98481_2$
$\cos\delta = +0,98481$	$-0,96593$	$+0,25882$	$-0,96593$	$-0,50000$	$+0,25882$		$+0,25882$
$-0,75440\,a$	$+0,62089$	$-0,16637$	$-0,16773$	$+0,49241$ (24621)	$+0,04494$		$-0,06597$
	$+0,61146\,b$	$+0,16384\,c$	$+0,16518\,e$	$-0,24247\,f$	$+0,04426\,g$	$+0,96985\,h$	$+0,06497$
$y =$	$-b\cos\lambda$	$-c\sin\lambda$	$-e\sin\varphi\cos\lambda$	$+f\cos\varphi\cos2\lambda$	$-g\sin\varphi\sin\lambda$		$-i\cos\varphi\sin2\lambda$
$\sin\delta = -0,08716$	$-0,57358$	$-0,81915$	$+0,64279$	$+0,76604$	$+0,64279$		$+0,76604$
			$-0,57358$	$-0,93969$	$-0,81915$		$+0,34202$
	$-0,04999\,b$	$-0,07140\,c$	$-0,03214\,e$	$-0,71984$	$-0,52654$		$+0,26200$
				$+0,06274\,f$	$-0,04589\,g$		$+0,02284\,i$
$\sin = +0,84805$	null	-1	$+0,20791$	$+0,97875$	$+0,20791$		$+0,97875$
			null	$-0,97875$	$-0,20791$		null
		$+0,84805\,c$	0	$-0,82952\,f$	$+0,17632\,g$		
$\sin\delta = \pm 0,17365$	$+0,25882$	$-0,96593$	$-0,64279$	$+0,76604$	$-0,64279$		$+0,76604$
	$-0,04494\,b$	$+0,16773\,c$	$+0,25882$	$-0,86603$	$-0,96593$		$-0,50000$
			$-0,16637$	$-0,66341$	$+0,62089$		$-0,38302$
			$+0,02889\,e$	$-0,11520\,f$	$-0,10782\,g$		$+0,06651\,i$

$X = -a\cos\varphi$	$+b\sin\varphi\sin\delta$	$-c\sin\varphi\cos\delta$	$-e\cos\varphi\sin\delta$	$-\frac{1}{2}f\sin\varphi\sin\delta$	$+g\cos2\varphi\cos\delta$	$-h\sin2\varphi$	$-i\sin2\varphi\cos^2\delta$
$+0,98481$	$-0,17365$	$-0,17365$	$+0,93969$	$-0,34202$	$+0,93969$	$-0,34202$	$-0,34202$
$\cos\delta = +0,93969$	$+0,60182$	$+0,79864$	$+0,60182$	$+0,96126$	$+0,79864$		$+0,79864^2$
	$-0,10451$	$-0,13868$	$+0,56552$	$-0,32877$ (164 39)	$+0,75047$		$-0,21815$
$-0,92542\,a$	$-0,09821\,b$	$+0,13032\,c$	$-0,53141\,e$	$+0,15448\,f$	$+0,70521\,g$	$+0,32139\,h$	$+0,20499\,i^2$
$+0,64279$	$+0,76604$	$+0,76604$	$-0,17365$	$+0,98481$	$-0,17365$	$+0,98481$	$+0,98481^2$
$\cos\delta = \pm 0,70711$	$+0,42262$	$-0,90631$	$+0,42262$	$-0,76604$	$-0,90631$		$+0,90631$
	$+0,32374$	$-0,69427$	$-0,07339$	$-0,75440$ (37 20)	$+0,15738$		$+0,80892$
$-0,69637\,a$	$+0,22892\,b$	$+0,49093\,c$	$+0,05189\,e$	$+0,26672\,f$	$+0,11128\,g$	$-0,69637\,h$	$-0,57200\,i$
$+0,76604$	$-0,64279$	$-0,64279$	$+0,17365$	$-0,98481$	$+0,17365$	$-0,98481$	$-0,98481^2$
$\cos\delta = \pm 0,89101$	$+0,08716$	$-0,99620$	$+0,08716$	$-0,17365$	$-0,99620$		$+0,99620$
	$-0,05603$	$+0,64035$	$+0,01514$	$+0,17101$ (15 27)	$-0,17299$		$-0,97734$
$-0,68255\,a$	$-0,04992\,b$	$-0,57056\,c$	$-0,01349\,e$	$-0,07619\,f$	$-0,15414\,g$	$+0,87748\,h$	$+0,87082\,i$

$Y =$	$-b\cos\delta$	$-c\sin\delta$	$-e\sin\varphi\cos\delta$	$+f\cos\varphi\cos\delta$	$-g\sin\varphi\sin\delta$	$-i\cos\varphi\sin2\delta$
$\sin\delta = +0,34202$	$+0,79864$	$+0,60182$	$-0,17365$	$+0,98481$	$-0,17365$	$+0,98481$
			$+0,79864$	$+0,27564$	$+0,60182$	$+0,96126$
	$-0,27315\,b$	$-0,20583\,c$	$-0,13868$	$+0,27145$	$-0,10451$	$+0,94666$
			$+0,04743\,e$	$+0,09284\,f$	$+0,03574\,g$	$-0,32378\,i$
$\sin\delta = \pm 0,70711$	$-0,90631$	$+0,42262$	$+0,76604$	$+0,64279$	$+0,76604$	$+0,64279$
			$-0,90631$	$+0,64279$	$+0,42262$	$-0,76604$
			$-0,69427$	$+0,41318$	$+0,32374$	$+0,13302$
	$+0,64086\,b$	$-0,29884\,c$	$+0,49093\,e$	$+0,29216$	$-0,22892\,g$	$-0,09406$
$\sin\delta = +0,45399$	$-0,99620$	$+0,08716$	$-0,64279$	$+0,76604$	$-0,64279$	$+0,76604$
			$-0,99620$	$+0,98481$	$+0,08716$	$-0,17365$
			$+0,64035$	$+0,75440$	$-0,05603$	$-0,19301$
	$+0,45226\,b$	$-0,03957\,c$	$-0,29071\,e$	$+0,34249\,f$	$+0,02544\,g$	$+0,01369\,i$

227,4

VI Formulás

a II formulákban tesszük $h = +5,9$ helyébe $h = -22,7$ -et.

ami:

	$\xi_6 - \xi_2$		
−60	−35		
−40	−7		
−20	+19		
0	+28		
+20	+19		
+40	+7		
+60	+35		

λ	ξ_{VI} -60	-40	-20	0	+20	+40	+60	η_{VI} -60	-40	-20	0	+20	+40	+6
0														
10														
20														
30														
40														
50														
60														
70														
80														
90														
100														
110														
120														
130														
140														
150														
160														
170														
180														
190														
200														
210														
220														
230														
240														
250														
260														
270														
280														
290														
300														
310														
320														
330														
340														
350														

+40	+60	-60	-40	-20	Sil. 0	+20	+40	+60	
		+84	+64	+3	−42	−17	+1	−28	
		+83	+63	−4	−54	−26	+4	−28	
		+85	+62	−7	−59	−16	+7	−14	
		+84	+58	−15	−46	0	+16	+2	
		+80	+54	−23	−31	+15	+31	+19	
		+79	+47	−21	−14	+26	+41	+35	
		+75	+38	−18	−7	+34	+52	+47	
		+68	+33	−14	−1	+38	+63	+50	
		+56	+27	−12	0	+45	+65	+54	
		+32	+20	−14	+3	+47	+69	+54	
		+15	+8	−17	+9	+51	+70	+52	
		−6	−7	−22	+20	+49	+61	+45	
		−13	−25	−26	+26	+44	+45	+34	
		−14	−47	−26	+29	+29	+15	+19	
		−17	−31	−18	+29	+10	−24	−2	
		+11*	−17	+1	+32	−7	−52	−35	
		−5	+5	+28	+44	−15	−74	−57	
		−11	+13	+47	+61	−12	−81	−60	
		−21	+27	+62	+76	+3	−79	−59	
		−31	+30	+71	+81	+19	−68	−44	
		−43	+30	+70	+76	+32	−51	−25	
		−59	+25	+57	+61	+35	−33	−7	
		−72	+14	+37	+42	+38	−11	+8	
		−93	−6	+12	+18	+33	+10	+30	
		−98	−25	−9	−4	+31	+33	+56	
		−103	−41	−28	−11	+34	+59	+62	
		−98	−45	−37	−35	+36	+78	+53	
		−77	−47	−39	−38	+37	+83	−1*	
		−47	−19	−34	−33	+42	+93	+48	
		−8	+10	−20	−24	+44	+77	+26	
		+30	+44	0	−8	+46	+52	+31	
		+53	+63	+16	+14	−4*	+30	+11	
		+67	+74	+29	+23	+50	+2	−5	
		+71	+74	+45	+19	−13*	−5	−15	
		+74	+69	+33	0	+19	−5	−17	
		+80	+66	+19	−24	+1	−5	−22	

$$T = X\cos\vartheta + Y\sin\vartheta$$

$$+1872 = -0.17365\,b + 0.98481\,c - 0.05939\,e - 0.88302\,f + 0.33682\,g + 0.32139\,i \quad \ldots \quad 11.)$$

$$-3753 = +0.15039\,a - 0.25652\,b - 0.95477\,c - 0.75727\,f - 0.5001\,g + 0.15039\,h - 0.28717\,i \quad \ldots \quad 12.)$$

$$-5860 = +0.15738\,a - 0.55597\,b - 0.81619\,c - 0.1143\,e - 0.38867\,f - 0.416259\,g + 0.13302\,h - 0.73971\,i \quad \ldots \quad 13.)$$

$$+22489 = -0.76313\,a - 0.57453\,b + 0.29589\,c + 0.10956\,e - 0.43811\,f - 0.14511\,g - 0.98107\,h - 0.26002\,i \qquad 1.)$$

$$+28258 = -0.75440\,a + 0.56652\,b + 0.33157\,c + 0.19407\,e - 0.35766\,f - 0.06356\,g + 0.96985\,h + 0.13148\,i \qquad 3.)$$

$$+2420 = -0.29005\,a - 0.93969\,b - 0.18124\,c - 0.49796\,e + 0.79690\,f + 0.14993\,g - 0.30740\,h - 0.30740\,i \qquad 4.)$$

$$-5196 = +0.17196\,a + 0.35953\,b - 0.91715\,c + 0.10998\,e - 0.73168\,f + 0.18588\,g - 0.04786\,h + 0.62127\,i \qquad 6.)$$

$$+16187 = -0.45452\,a + 0.86978\,b + 0.19209\,c + 0.54282\,e + 0.55888\,f - 0.11764\,g - 0.69637\,h - 0.22382\,i \qquad 8.)$$

az 1,3,4,6,8 ból képezett A egyenletekkel. 11, 13 és 9

11) ből $\quad -141826 = 4{,}76768\,a + 0{,}42569\,b + 1{,}88094\,c$

13 ből $\quad -32418 = 0{,}93740\,a + 0{,}44843\,b - 2{,}45369\,c$

9 szer $+393209 = -12{,}79086a - 0{,}99842b - 0{,}18674c$

az utóbbiakból helyesebbára kiszámítható :

18468
91113

$a = -31274$

$b = +6369$

$c = +2428$

és az A egyenletekbe téve

$e = -6002$

~~b = + 6369~~ $f = -2821$

~~c = + 2428~~ $g = -6632$

$h = -3$

$i = -81$

$k = ~~+~~ 44$

Jánosi találom ki 1910 Nov. 30

$a = -31274$

$b = +6369$

$c = +2428$

$e = -6002$

$f = -2821$

$g = -6632$

$h = -3$

$i = -87$

1, 3, 4, 6, 8, 9, 11, 13

11

	a	b	c
+1872 =		−0,17365	+0,98481
− 9322	−0,29030	+0,99385	+0,00076
+ 77882	+2,52400	+0,59179	−0,09305
+ 166889	+5,53683	+0,37715	+0,67295
− 91751	−3,00285	−0,46345	+0,31547
+143698	+4,76768	+0,42569	+1,88094

1872
141826

−5860 =	+0,15738 −	−0,55597 −	−0,81619 −
− 17490	−0,54467 −	+0,17608 −	+0,00143 −
+ 34281 −	+1,11096 −	+0,26048 −	−0,04096 −
− 206245	−6,84254 −	−0,46609 −	−0,83164 −
+ 4838 −	+0,14493 −	−0,03275 −	−0,04025 −
+ 211174 −	+6,91134 −	+1,06668 −	−0,72608 −
~~+228076~~	+0,93740 a	+0,44843 b	−2,45369
+26558			
5860			
32418			

Z.

$a = -313$ $b = +64$ ~~$c = +24$~~

$e = -62$

$a = -31274$ $b = +6369$ $c = +2428$

$e = -6002$ $f = -2821$ $g = -6632$

$h = -3$ $i = -84$ $k = -44$

	$-2a\sin\varphi$	$-(2b\cos\varphi + \frac{3}{2}e\sin 2\varphi)\sin l$	$+(2(c\cos\varphi + \frac{3}{2}g\sin 2\varphi)\cos l$	$+\frac{1}{2}k\cos^2\varphi\sin 2l$
-60	+ 54168	- 14166 sin l	+ 11043 cos l	- 353 sin 2l
-50	+ 47914	- 17054 sin l	+ 12918 cos l	- 583 sin 2l
-40	+ 40205	- 18624 sin l	+ 13517 cos l	- 828 sin 2l
-30	+ 31274	- 18828 sin l	+ 12820 cos l	- 1058 sin 2l
-20	+ 21393	- 17757 sin l	+ 10957 cos l	- 1246 sin 2l
-10	+ 10861	- 15624 sin l	+ 8184 cos l	- 1368 sin 2l
0	0	- 12738 sin l	+ 4856 cos l	- 1411 sin 2l
+10	+ 10861	- 9466 sin l	+ 1380 cos l	- 1368 sin 2l
+20	+ 21393	- 6183 sin l	- 1831 cos l	- 1246 sin 2l
+30	+ 31274	- 3234 sin l	- 4410 cos l	- 1058 sin 2l
+40	+ 40205	- 892 sin l	- 6077 cos l	- 828 sin 2l
+50	+ 47914	+ 678 sin l	- 6676 cos l	- 583 sin 2l
+60	+ 54168	+ 1428 sin l	- 6187 cos l	- 353 sin 2l

		$\varphi = -60$					$\varphi - 40$					$\varphi = -20$					$\varphi = 0$					
0	-542	0	+110	0	-442	-402	0	+135	0	-267	-214	0	+110	0	-114	0	0	+49	0	+49	0	+
10		-25	+109	-1	-459		-32	+133	-3	-304		-31	+108	-4	-141		-22	+48	-5	+21	10	
20		-48	+104	-2	-488		-63	+127	-6	-344		-61	+103	-8	-180		-43	+46	-9	-6	20	
30		-71	+96	-3	-520		-93	+117	-7	-385		-89	+95	-11	-209		-64	+42	-12	-34	30	
40		-91	+85	-3	-551		-120	+104	-8	-426		-114	+84	-12	-256		-82	+37	-14	-59	40	
50		-109	+71	-3	-583		-143	+87	-8	-466		-136	+70	-12	-292		-98	+31	-14	-81	50	
60		-123	+55	-3	-613		-161	+68	-7	-502		-154	+55	-11	-324		-110	+24	-12	-98	60	
70		-133	+38	-2	-639		-175	+46	-6	-537		-167	+37	-8	-352		-120	+17	-9	-112	70	
80		-139	+19	-1	-663		-183	+24	-3	-564		-174	+19	-4	-373		-125	+8	-5	-122	80	
90		-142	0	0	-684		-186	0	0	-588		-178	0	0	-392		-127	0	0	-127	90	
100		-139	-19	+1	-699		-183	-24	+3	-606		-174	-19	+4	-403		-125	-8	+5	-128	100	
110		-133	-38	+2	-714		-175	-46	+6	-617		-167	-37	+8	-410		-120	-17	+9	-128	110	
120		-123	-55	+3	-717		-161	-68	+7	-624		-154	-55	+11	-412		-110	-24	+12	-122	120	
130		-109	-71	+3	-719		-143	-87	+8	-624		-136	-70	+12	-408		-98	-31	+14	-115	130	
140		-91	-85	+3	-715		-120	-104	+8	-618		-114	-84	+12	-400		-82	-37	+14	-105	140	
150		-71	-96	+3	-706		-93	-117	+7	-605		-89	-95	+11	-387		-64	-42	+12	-94	150	
160		-48	-104	+2	-692		-63	-127	+6	-586		-61	-103	+8	-370		-43	-46	+9	-80	160	
170		-25	-109	+1	-675		-32	-133	+3	-564		-31	-108	+4	-349		-22	-48	+5	-65	170	
180		0	-110	0	-652		0	-135	0	-537		0	-110	0	-324		0	-49	0	-49	180	
190		+25	-109	-1	-627		+32	-133	-3	-506		+31	-108	-4	-295		+22	-48	-5	-31	190	
200		+48	-104	-2	-600		+63	-127	-6	-472		+61	-103	-8	-264		+43	-46	-9	-12	200	
210		+71	-96	-3	-570		+93	-117	-7	-433		+89	-95	-11	-231		+64	-42	-12	+10	210	
220		+91	-85	-3	-539		+120	-104	-8	-394		+114	-84	-12	-196		+82	-37	-14	+31	220	
230		+109	-71	-3	-507		+143	-87	-8	-354		+136	-70	-12	-160		+98	-31	-14	+53	230	
240		+123	-55	-3	-477		+161	-68	-7	-316		+154	-55	-11	-126		+110	-24	-12	+74	240	
250		+133	-38	-2	-449		+175	-46	-6	-279		+167	-37	-8	-92		+120	-17	-9	+94	250	
260		+139	-19	-1	-423		+183	-24	-3	-246		+174	-19	-4	-63		+125	-8	-5	+112	260	
270		+142	0	0	-400		+186	0	0	-216		+178	0	0	-36		+127	0	0	+127	270	
280		+139	+19	+1	-383		+183	+24	+3	-192		+174	+19	+4	-17		+125	+8	+5	+138	280	
290		+133	+38	+2	-369		+175	+46	+6	-175		+167	+37	+8	-2		+120	+17	+9	+146	290	
300		+123	+55	+3	-361		+161	+68	+7	-166		+154	+55	+11	+6		+110	+24	+12	+146	300	
310		+109	+71	+3	-359		+143	+87	+8	-164		+136	+70	+12	+4		+98	+31	+14	+143	310	
320		+91	+85	+3	-363		+120	+104	+8	-170		+114	+84	+12	-4		+82	+37	+14	+133	320	
330		+71	+96	+3	-372		+93	+117	+7	-185		+89	+95	+11	-19		+64	+42	+12	+118	330	
340		+48	+104	+2	-388		+63	+127	+6	-206		+61	+103	+8	-42		+43	+46	+9	+98	340	
350		+25	+109	+1	-407		+32	+133	+3	-234		+31	+108	+4	-71		+22	+48	+5	+75	350	

			$\varphi=+20$					$\varphi=+40$					$\varphi=+60$			
+49	0	+214	0	-18	0	+196	+402	0	-61	0	+341	+542	0	-62	0	+480
+21	10		-11	-18	-4	+187		-2	-60	-3	+337		+2	-61	-1	+482
-6	20		-21	-17	-8	+168		-3	-57	-6	+336		+5	-58	-2	+487
-34	30		-31	-16	-11	+156		-4	-53	-7	+338		+7	-54	-3	+492
-59	40		-40	-14	-12	+148		-6	-47	-8	+341		+9	-47	-3	+501
-87	50		-47	-12	-12	+143		-7	-39	-8	+348		+11	-40	-3	+510
-98	60		-54	-9	-11	+140		-8	-30	-7	+357		+12	-31	-3	+520
-112	70		-58	-6	-8	+142		-8	-21	-6	+367		+13	-21	-2	+532
-122	80		-61	-3	-4	+148		-9	-11	-3	+379		+14	-11	-1	+544
-127	90		-62	-0	0	+152		-9	0	0	+393		+14	0	0	+556
-128	100		-61	+3	+4	+160		-9	+11	+3	+407		+14	+11	+1	+568
-128	110		-58	+6	+8	+170		-8	+21	+6	+421		+13	+21	+2	+578
-122	120		-54	+9	+11	+180		-8	+30	+7	+431		+12	+31	+3	+588
-115	130		-47	+12	+12	+191		-7	+39	+8	+442		+11	+40	+3	+596
-105	140		-40	+14	+12	+200		-6	+47	+8	+451		+9	+47	+3	+601
-94	150		-31	+16	+11	+210		-4	+53	+7	+458		+7	+54	+3	+606
-80	160		-21	+17	+8	+218		-3	+57	+6	+462		+5	+58	+2	+607
-65	170		-11	+18	+4	+225		-2	+60	+3	+463		+2	+61	+1	+606
-49	180		0	+18	0	+232		0	+61	0	+463		0	+62	0	+604
-31	190		+11	+18	-4	+239		+2	+60	-3	+461		-2	+61	-1	+600
-12	200		+21	+17	-8	+244		+3	+57	-6	+456		-5	+58	-2	+593
+10	210		+31	+16	-11	+250		+4	+53	-7	+452		-7	+54	-3	+586
+31	220		+40	+14	-12	+256		+6	+47	-8	+447		-9	+47	-3	+577
+53	230		+47	+12	-12	+261		+7	+39	-8	+440		-11	+40	-3	+568
+74	240		+54	+9	-11	+266		+8	+30	-7	+433		-12	+31	-3	+558
+94	250		+58	+6	-8	+270		+8	+21	-6	+425		-13	+21	-2	+548
+112	260		+61	+3	-4	+274		+9	+11	-3	+419		-14	+11	-1	+538
+127	270		+62	0	0	+276		+9	0	0	+411		-14	0	0	+528
+138	280		+61	-3	+4	+276		+9	-11	+3	+403		-14	-11	+1	+518
+146	290		+58	-6	+8	+274		+8	-21	+6	+395		-13	-21	+2	+510
+146	300		+54	-9	+11	+270		+8	-30	+7	+387		-12	-31	+3	+502
+143	310		+47	-12	+12	+261		+7	-39	+8	+378		-11	-40	+3	+494
+133	320		+40	-14	+12	+252		+6	-47	+8	+369		-9	-47	+3	+489
+118	330		+31	-16	+11	+240		+4	-53	+7	+360		-7	-54	+3	+484
+98	340		+21	-17	+8	+226		+3	-57	+6	+354		-5	-58	+2	+481
+75	350		+11	-18	+4	+211		+2	-60	+3	+347		-2	-61	+1	+480

Z λ	Észlelt φ = −60	számított		Észl φ = −40	Szám		Észlelt φ = −20	számított		Észlelt 0	számított		λ	Z
0	-370	-442	+72	-258	-267	+9	-170	-114	-56	-41	+49	-100	0	
10	-390	-459	+69	-287	-304	+17	-212	-141	-71	-86	+21	-107	10	
20	-407	-488	+81	-317	-344	+27	-246	-180	-66	-120	-6	-114	20	
30	-428	-520	+92	-348	-385	+37	-284	-209	-75	-133	-34	-99	30	
40	-450	-551	+101	-378	-426	+48	-317	-256	-61	-137	-59	-78	40	
50	-469	-583	+114	-407	-466	+59	-336	-292	-44	-138	-81	-57	50	
60	-491	-613	+122	-435	-502	+67	-348	-324	-24	-136	-98	-38	60	
70	-513	-639	+126	-458	-537	+79	-357	-352	-5	-134	-112	-22	70	
80	-539	-663	+124	-478	-564	+86	-362	-373	+11	-131	-122	-9	80	
90	-575	-684	+109	-497	-588	+91	-369	-392	+23	-126	-127	+1	90	
100	-602	-699	+97	-519	-606	+87	-375	-403	+28	-116	-128	+12	100	
110	-631	-711	+80	-542	-617	+75	-383	-410	+27	-101	-128	+27	110	
120	-645	-717	+72	-566	-624	+58	-388	-412	+24	-91	-122	+31	120	
130	-650	-719	+69	-591	-624	+33	-389	-408	+19	-85	-115	+30	130	
140	-655	-715	+60	-585	-618	+33	-384	-400	+16	-83	-105	+22	140	
150	-627 *	-706	+79	-565	-605	+40	-364	-387	+23	-77	-94	+17	150	
160	-639	-692	+53	-540	-586	+46	-335	-370	+35	-63	-80	+17	160	
170	-638	-675	+37	-525	-564	+39	-311	-349	+38	-43	-65	+22	170	
180	-639	-652	+13	-501	-537	+36	-287	-324	+37	-21	-49	+28	180	
190	-636	-627	-9	-482	-506	+24	-263	-295	+32	-5	-31	+26	190	
200	-633	-600	-33	-463	-472	+9	-247	-264	+17	+5	-12	+17	200	
210	-631	-570	-61	-443	-433	-10	-234	-231	-3	+10	+10	——	210	
220	-624	-539	-85	-428	-394	-34	-227	-196	-31	+14	+31	-17	220	
230	-623	-507	-116	-416	-354	-62	-217	-160	-57	+18	+53	-35	230	
240	-606	-477	-129	-404	-316	-88	-205	-126	-79	+25	+74	-49	240	
250	-588	-449	-139	-388	-279	-109	-187	-92	-95	+38	+94	-56	250	
260	-561	-423	-138	-360	-246	-114	-163	-63	-100	+52	+112	-60	260	
270	-522	-400	-122	-334	-216	-118	-136	-36	-100	+73	+127	-54	270	
280	-476	-383	-93	-284	-192	-92	-108	-17	-91	+96	+138	-42	280	
290	-425	-369	-56	-235	-175	-60	-77	-2	-75	+115	+146	-31	290	
300	-380	-361	-19	-195	-166	-29	-52	+6	-58	+133	+146	-13	300	
310	-353	-359	+6	-173	-164	-9	-37	+4	-41	+148	+143	+5	310	
320	-341	-363	+22	-168	-170	+2	-35	-4	-31	+141	+133	+8	320	
330	-343	-372	+29	-180	-185	+5	-48	-19	-29	+114	+118	-4	330	
340	-350	-388	+38	-202	-206	+4	-76	-42	-34	+67	+98	-21	340	
350	-359	-407	+48	-230	-234	+4	-121	-71	-50	+10	+75	-65	350	

λ	Z	λ	φ=+20 Észlelt	számít.	D	φ=+40 Észlelt	számítv	D	φ=+60 Észlelt	számítv	D	λ
0		0	+174	+196	− 22	+375	+341	+ 34	+466	+480	− 14	0
10		10	+139	+181	− 42	+361	+337	+ 24	+458	+482	− 24	10
20		20	+125	+168	− 43	+349	+336	+ 13	+464	+487	− 23	20
30		30	+123	+156	− 33	+348	+338	+ 10	+475	+492	− 17	30
40		40	+126	+148	− 22	+356	+341	+ 15	+490	+501	− 11	40
50		50	+131	+143	− 12	+366	+348	+ 18	+509	+510	− 1	50
60		60	+137	+140	− 3	+380	+357	+ 23	+513	+510	+ 3	60
70		70	+146	+142	+ 4	+397	+367	+ 30	+534	+532	+ 2	70
80		80	+160	+148	+ 12	+410	+379	+ 31	+546	+544	+ 2	80
90		90	+173	+152	+ 21	+426	+393	+ 33	+552	+556	− 4	90
100		100	+187	+160	+ 27	+439	+407	+ 32	+560	+568	− 8	100
110		110	+197	+170	+ 27	+443	+421	+ 22	+563	+578	− 15	110
120		120	+199	+180	+ 19	+437	+431	+ 6	+560	+588	− 28	120
130		130	+192	+191	+ 1	+418	+442	− 24	+553	+596	− 43	130
140		140	+179	+200	− 21	+391	+451	− 60	+539	+601	− 62	140
150		150	+166	+210	− 44	+364	+458	− 94	+512	+606	− 94	150
160		160	+160	+218	− 58	+348	+462	−114	+495	+607	−112	160
170		170	+167	+225	− 58	+344	+463	−119	+496	+606	−110	170
180		180	+186	+232	− 46	+357	+463	−112	+501	+604	−103	180
190		190	+208	+239	− 31	+367	+461	− 94	+518	+600	− 82	190
200		200	+231	+244	− 13	+388	+456	− 68	+541	+593	− 52	200
210		210	+248	+250	− 2	+415	+452	− 37	+563	+586	− 23	210
220		220	+265	+256	+ 9	+444	+447	− 3	+581	+577	+ 4	220
230		230	+280	+261	+ 19	+475	+440	+ 35	+604	+568	+ 36	230
240		240	+298	+266	+ 32	+507	+433	+ 74	+632	+558	+ 74	240
250		250	+320	+270	+ 50	+541	+425	+116	+638	+548	+ 90	250
260		260	+340	+274	+ 66	+567	+419	+148	+629*	+538	+ 91	260
270		270	+355	+276	+ 79	+576	+411	+165	+574*	+528	+ 46	270
280		280	+370	+276	+ 94	+586	+403	+183	+620*	+518	+102	280
290		290	+374	+274	+100	+567	+395	+172	+592	+510	+ 82	290
300		300	+376	+270	+106	+534	+387	+147	+589	+502	+ 87	300
310		310	+313*	+261	+ 52	+501	+378	+123	+561	+494	+ 67	310
320		320	+347*	+252	+ 95	+457	+369	+ 88	+534	+489	+ 45	320
330		330	+262*	+240	+22	+431	+360	+ 71	+512	+484	+ 28	330
340		340	+268	+226	+ 42	+411	+354	+ 57	+499	+481	+ 18	340
350		350	+220	+211	+ 9	+390	+347	+ 43	+482	+480	+ 2	350

$\varphi = +20$

λ	X	y	z	$\sin\lambda$	$X_{\sin\lambda}$	$Y_{\sin\lambda}$	$Z_{\sin\lambda}$	$\cos\lambda$	$X_{\cos\lambda}$	$Y_{\cos\lambda}$	$Z_{\cos\lambda}$
0	28	− 8	+ 18_{-1}	0	0	0	0	+1,0	+28	−8	+18
20	31	− 5	+ 14_{-2}	+0,34	+10	−2	+5	+0,94	+29	−5	+13
40	33	− 2	+ 12_{-1}	+0,64	+22	−2	+8	+0,77	+25	−2	+9
60	36	0	+ 13_{-1}	+0,87	+31	0	+11	+0,50	+18	0	+7
80	36	+ 1	+ 16	+0,98	+35	+1	+16	+0,17	+6	0	+3
100	38	+ 1_{+1}	+ 20_{-1}	+0,98	+37	+1	+20	−0,17	−6	0	−3
120	36	0	+ 20	+0,87	+31	0	+17	−0,50	−18	0	−10
140	34	+ 1_{-1}	+ 17_{+1}	+0,64	+22	+1	+12	−0,77	−26	−1	−13
160	32	+ 3	+ 17_{-1}	+0,34	+11	+1	+8	−0,94	−30	−3	−16
180	31	+ 5	+ 18_{+1}	0	0	0	0	−1,0	−31	−5	−18
200	30	+ 5	+ 22_{+1}	−0,34	−10	−2	−7	−0,94	−28	−5	−21
220	32	+ 5	+ 26	−0,64	−21	−3	−17	−0,77	−24	−4	−20
240	32	+ 5	+ 30	−0,87	−28	−4	−26	−0,50	−16	−3	−15
260	34	+ 5	+ 35_{-1}	−0,98	−33	−5	−34	−0,17	−6	−1	−6
280	32	+ 2	+ 38_{-1}	−0,98	−31	−2	−37	+0,17	+5	0	+6
300	28	− 2	+ 40_{-2}	−0,87	−24	+2	−35	+0,50	+14	−1	+20
320	27	− 6_{-1}	+ 30_{+5}	−0,64	−18	+4	−20	+0,77	+20	−5	+23
340	27	− 9	+ 27	−0,34	−9	+3	−9	+0,94	+25	−8	+25
Σ	+577	+1	+413		+25	−7	−88		−15	−51	+2
		0	+410								

$\varphi = +40°$

λ	X	Y	Z	sin λ	X sin λ	Y sin λ	Z sin λ	cos λ	X cos λ	Y cos λ	Z cos λ	λ
0	22	− 6	+ 37 +1	0	0	0	0	+1·0	+22	−6	+37	0
20	25	− 3	+ 35	+0·34	+8	−1	+12	+0·94	+24	−3	+33	20
40	27	0	+ 35 +1	+0·64	+18	0	+23	+0·77	+20	0	+26	40
60	28	+ 2	+ 36 +2	+0·87	+24	+2	+31	+0·50	+14	+1	+18	60
80	28	+ 2 +1	+ 41	+0·98	+27	+2	+40	+0·17	+5	0	+7	80
100	28	+ 1 +1	+ 44	+0·98	+27	+1	+43	−0·17	−5	0	−7	100
120	28	− 1 −1	+ 43 +1	+0·87	+24	−1	+38	−0·50	−14	+1	−22	120
140	27	− 1 −2	+ 38 +1	+0·64	+18	−1	+25	−0·77	−20	+1	−29	140
160	27	0 +1	+ 35	+0·34	+9	0	+12	−0·94	−25	0	−33	160
180	26	+ 4 +1	+ 35	0	0	0	0	−1·00	−26	−4	−35	180
200	25	+ 7 −1	+ 39	−0·34	−8	−2	−13	−0·94	−23	−7	−37	200
220	24	+ 8 −1	+ 45 −1	−0·64	−16	−6	−30	−0·77	−18	−6	−34	220
240	23	+ 6 +1	+ 52 −1	−0·87	−20	−5	−45	−0·50	−12	−3	−26	240
260	21	+ 4 +1	+ 57	−0·98	−21	−4	−56	−0·17	−4	−1	−10	260
280	18	0 −1	+ 57 +2	−0·98	−18	0	−56	+0·17	+3	0	+10	280
300	17	− 5 −1	+ 55 −2	−0·87	−15	+4	−48	+0·50	+9	−3	+28	300
320	17	− 8	+ 48 −2	−0·64	−12	+6	−32	+0·77	+13	−6	+36	320
340	18	− 8	+ 42 −1	−0·34	−6	+3	−14	+0·94	+17	−8	+40	340
Σ	+429	+2 −1	+774 +2		+39	−2	−70		−20	−44	+2	Σ
		+1	+776									

$\varphi = +60°$

λ	X	Y	Z	sin λ	X sin λ	Y sin λ	Z sin λ	cos λ	X cos λ	Y cos λ	Z cos λ
0	14	-6_{+1}	$+47$	0	0	0	0	+1.00	+14	−6	+47
20	16	−2	+46	+0.34	+5	−1	+15	+0.94	+15	−2	+43
40	16	0_{+1}	$+47_{+2}$	+0.64	+11	0	$+31_{+1}$	+0.77	+12	0	$+35_{+2}$
60	15	$+3_{+1}$	$+50_{+2}$	+0.87	+13	+3	$+44_{+2}$	+0.50	+8	+2	$+25_{+1}$
80	15	$+3_{+1}$	$+53_{+2}$	+0.98	+15	+3	$+52_{+2}$	+0.17	+3	+1	+9
100	14	+2	+56	+0.98	+14	+2	+55	−0.17	−2	0	−9
120	15	0_{-1}	+56	+0.87	+13	0	+49	−0.50	−8	0	−28
140	16	-1_{-1}	$+55_{-1}$	+0.64	+11	−1	$+37_{-1}$	−0.77	−12	+1	-41_{+1}
160	18	0	$+52_{-3}$	+0.34	+6	0	$+17_{-1}$	−0.94	−17	0	-49_{+3}
180	18	$+3_{+1}$	$+52_{-2}$	0	0	0	0	−1.00	−18	−3	-52_{+2}
200	16	+6	+54	−0.34	−5	−2	−18	−0.94	−15	−6	−51
220	13	$+9_{-2}$	$+57_{+1}$	−0.64	−9	−6	-38_{-1}	−0.77	−10	−7	-43_{-1}
240	9	+6	$+62_{+1}$	−0.87	−8	−7	-54_{-1}	−0.50	−5	−3	-31_{-1}
260	7	+2	+63	−0.98	−7	−2	−62	−0.17	−1	0	−11
280	5	-2_{-1}	$+62_{+1}$	−0.98	−5	+2	−61	+0.17	+1	0	+10
300	6	-6_{-1}	$+58_{+1}$	−0.87	−5	+5	-51_{-1}	+0.50	+3	−3	$+29_{+1}$
320	8	−9	+53	−0.64	−6	+6	−35	+0.77	+6	−7	+40
340	11	−8	$+49_{+1}$	−0.34	−4	+3	−16	+0.94	+10	−8	$+46_{+1}$
Σ	+232	0_{-1}	$+972_{+4}$		+39	+5	-35_{-35}		−16	−41	-31_{-22}

−1 +976

φ	$\sum_{\lambda=0}^{\lambda=240} X$	ΣY	ΣZ	$\Sigma X \cos\lambda$	$\Sigma Y \sin\lambda$	$\Sigma Z \cos\lambda$	$\Sigma X \cos\lambda$	$\Sigma Y \cos\lambda$	$\Sigma Z \cos\lambda$
-60	+281	-4 +1	+939 -3	-62	-78	-42	+34	-49	+129
-40	+402	-3 -10	-710 +1	-46	-60	-103	-25	-56	+128
-20	+519	-5 -2	-407 -1	-9	-29	-117	-57	-57	+67
0	+602	-5 -3	-31 -10	+8	-13	-106	-32	-49	+12
+20	+577	+1 0	+413 -3	+25	-7	-88	-15	-51	+2
+40	+429	+2 +1	+774 +2	+39	-2	-70	-20	-44	+2
+60	+232	0 -1	+972 +4	+39	+5	-35	-16	-41	-31
$\int_{-60}^{+60}$	+3042	-14 -14	+72 +61	-6	-184	-561	-131	-347	+309
$\int_{-40}^{+40}$	+2529	-10 -14	+39 +28	+17	-111	-484	-149	-257	+211
	vam 25,29	C.S.S -0,1	+0,39	+0,17	-1,11	-4,84	-1,49	-2,57	+2,11 C.S.I.

$\varphi = -60$

λ	X	Y	Z	sin l	X sin l	Y sin l	Z sin l	cos l	X cos l	Y cos l	Z cos l	
0	20	− 8 +1	− 37	0	0	0	0	+1,0	+20	−8	−37	−2
20	16	− 9	− 41	+0,34	+5	−3	−14	+0,94	+14	−8	−37	0
40	13	− 10	− 45	+0,64	+8	−6	−30	+0,77	+10	−8	−36	0
60	12	− 10	− 49	+0,87	+10	−9	−44	+0,50	+6	−5	−25	0
80	10	− 10	− 55 +1	+0,98	+10	−10	−54 +2	+0,17	+2	−2	−9	−1
100	8	− 8 +1	− 60	+0,98	+8	−8	−59	−0,17	−1	+1	+10	−1
120	8	− 4 +1	− 65	+0,87	+7	−3	−56	−0,50	−4	+2	+33	0
140	8	0	− 65 −1	+0,64	+5	0	−39 −1	−0,77	−6	0	+52 +1	+0
160	10	+ 3	− 65 +1	+0,34	+3	+1	−21	−0,94	−9	−3	+59 −1	+1
180	12	+ 5	− 63 −1	0	0	0	0	−1,00	−12	−5	+63 +1	−2
200	15	+ 6	− 62 −1	−0,34	−5	−2	+21	−0,94	−14	−6	+56 +1	−3
220	17	+ 7 −1	− 61 −1	−0,64	−11	−4	+40 +1	−0,77	−13	−5	+48 +1	−3
240	18	+ 8	− 58 −3	−0,87	−16	−7	+52 +3	−0,50	−9	−4	+29 +2	−2
260	20	+ 10 +1	− 55 −1	−0,98	−20	−10	+54 +1	−0,17	−4	−2	+9	+2
280	22	+ 10 +2	− 48	−0,98	−21	−10	+47	+0,17	+4	+2	−8	+4
300	25	+ 8	− 40 +2	−0,87	−22	−7	+36 −2	+0,50	+12	+4	−20 +1	+5
320	25	+ 2	− 35 +1	−0,64	−16	−1	+23 −1	+0,77	+19	+2	−27 +1	+2
340	22	− 4	− 35	−0,34	−7	+1	+12	+0,94	+19	−4	−31	0
Σ	+281	−4 +5	−939		−62	−78	~~−88~~ +3 −32 −39		+34	−49	+129 +7 +136	
	0	+1	−942 −3									

−62 −78 −42 +34 −49 +129

$\varphi = -40^\circ$

λ	X	y	z	sin λ	X sin λ	y sin λ	z sin λ	cos λ	X cos λ	y cos λ	z cos λ	λ
0	19	−10	−25$_{-1}$	0	0	0	0	+1,0	+19	−10	−25	0
20	17	−9$_{-1}$	−32	+0,34	+6	−3	−11	+0,94	+16	−8	−29	20
40	16	−8$_{-1}$	−38	+0,64	+10	−5	−25	+0,77	+12	−6	−29	40
60	16	−8	−43$_{-1}$	+0,87	+14	−7	−38	+0,50	+8	−4	−21	60
80	17	−8$_{+1}$	−47$_{-1}$	+0,98	+17	−8	−46	+0,17	+3	−1	−8	80
100	19	−6	−52	+0,98	+19	−6	−51	−0,17	−4	+1	+9	100
120	20	−2	−57	+0,87	+18	−2	−51	−0,50	−10	+1	+28	120
140	22	+2	−60$_{+1}$	+0,64	+11	+1	−40	−0,77	−17	−1	+46	140
160	24	+5	−55$_{+1}$	+0,34	+8	+2	−18	−0,94	−22	−5	+50	160
180	25	+6	−50	0	0	0	0	−1,0	−25	−6	+50	180
200	25	+6$_{-1}$	−46	−0,34	−8	−2	+15	−0,94	−23	−6	+41	200
220	27	+6	−44$_{+1}$	−0,64	−18	−4	+29	−0,77	−20	−5	+34	220
240	27	+7$_{-1}$	−42$_{+2}$	−0,87	−24	−6	+37	−0,50	−13	−3	+21	240
260	27	+8$_{-1}$	−35$_{-1}$	−0,98	−26	−8	+34	−0,17	−5	−1	+6	260
280	27	+9$_{-1}$	−28	−0,98	−26	−9	+27	+0,17	+5	+1	−5	280
300	27	+6$_{-1}$	−20$_{+1}$	−0,87	−24	−5	+18	+0,50	+13	+3	−10	300
320	25	0$_{-1}$	−17	−0,64	−16	0	+11	+0,77	+19	0	−13	320
340	22	−7	−19$_{-1}$	−0,34	−7	+2	+6	+0,94	+19	−6	−17	340
Σ	+402	−3$_{-7}$	−710$_{+1}$		−46	−60	−103		−25	−56	+128	Σ
		−10	−709									

$\varphi = -20°$

λ	X	Y	Z	$\sin\lambda$	$X\sin\lambda$	$Y\sin\lambda$	$Z\sin\lambda$	$\cos\lambda$	$X\cos\lambda$	$Y\cos\lambda$	$Z\cos\lambda$
0	22	-10_{-1}	-16_{-1}	0	0	0	0	+1,0	+22	-10	-16
20	21	-9	-24_{-1}	+0,34	+7	-3	-8	+0,94	+19	-8	-21
40	22	-7_{+1}	-31_{-1}	+0,64	+14	-4	-20	+0,77	+17	-5	-24
60	25	-5_{+1}	-33_{-2}	+0,87	+22	-4	-27	+0,50	+12	-2	-16
80	27	-3	-35_{-1}	+0,98	+26	-3	-34	+0,17	+5	-1	-6
100	30	-2_{+1}	-36_{-2}	+0,98	+29	-2	-35	-0,17	-5	+0	+6
120	33	0	-40_{+1}	+0,87	+27	0	-35	-0,50	-16	0	+20
140	35	+3	-37_{-1}	+0,64	+23	+2	-24	-0,77	-27	-2	+27
160	35	$+5_{+1}$	-34	+0,34	+12	+2	-11	-0,94	-31	-5	+30
180	34	+6	-28_{-1}	0	0	0	0	-1,0	-34	-6	+28
200	33	+5	-25	-0,34	-11	-2	+8	-0,94	-31	-5	+22
220	33	+4	-23	-0,64	-22	-3	+14	-0,77	-27	-3	+18
240	32	$+4_{+1}$	-21_{+1}	-0,87	-28	-3	+18	-0,50	-16	-2	+10
260	31	+6	-17_{+1}	-0,98	-30	-6	+17	-0,17	-5	-1	+3
280	29	$+6_{+1}$	-10_{-1}	-0,98	-28	-6	+10	+0,17	+5	+1	-2
300	28	$+4_{-1}$	-5	-0,87	-25	-3	+4	+0,50	+14	+2	-2
320	26	-4	-4_{+1}	-0,64	-17	+3	+3	+0,77	+20	-3	-3
340	23	-8_{-1}	-8	-0,34	-8	+3	+3	+0,94	+21	-7	-7
Σ	+519	-5_{+2}	~~-407~~ -427 -414		-9	-29	-117		-57	-57	+67

$\varphi = 0$

λ	X	y	z	$\sin\lambda$	$X_{\sin\lambda}$	$Y_{\sin\lambda}$	$Z_{\sin\lambda}$	$\cos\lambda$	$X_{\cos\lambda}$	$X_{\cos\lambda}$	$Z_{\cos\lambda}$
0	28	$-\ 9_{-1}$	$-\ 3_{-1}$	0	0	0	0	+1,00	+28	-9	-3
20	29	$-\ 8_{+1}$	-10_{-2}	+0,34	+10	-2	-3	+0,94	+26	-7	-9
40	30	$-\ 4$	-13_{-1}	+0,64	+20	-3	-8	+0,77	+23	-3	-10
60	33	$-\ 2$	-15_{+1}	+0,87	+29	-2	-13	+0,50	+16	-1	-7
80	35	0	-12_{-1}	+0,98	+34	0	-12	+0,17	+6	0	-2
100	37	$+\ 1_{+1}$	-10_{-2}	+0,98	+36	+1	-10	-0,17	-6	0	+2
120	38	$+\ 1$	-10_{+1}	+0,87	+33	+1	-9	-0,50	-19	0	+5
140	37	$+\ 1_{+1}$	$-\ 8$	+0,64	+24	+1	-5	-0,77	-28	-1	+6
160	36	$+\ 4_{+1}$	$-\ 5_{-1}$	+0,34	+12	+1	-2	-0,94	-32	-4	+5
180	35	$+\ 5_{+1}$	$-\ 2$	0	0	0	0	-1,00	-35	-5	+2
200	35	$+\ 5_{-1}$	0_{+1}	-0,34	-12	-2	0	-0,94	-31	-5	0
220	35	$+\ 3$	$+\ 2_{-1}$	-0,64	-24	-2	-1	-0,77	-27	-2	-2
240	36	$+\ 3$	$+\ 3_{-1}$	-0,87	-32	-3	-3	-0,50	-18	-1	-1
260	35	$+\ 4_{+2}$	$+\ 5$	-0,98	-34	-4	-5	-0,17	-6	-1	-1
280	34	$+\ 4$	$+10$	-0,98	-33	-4	-10	+0,17	+6	+1	+2
300	32	0_{+1}	$+15_{-2}$	-0,87	-28	0	-13	+0,50	+18	0	+7
320	29	$-\ 5$	$+15_{-1}$	-0,64	-18	+3	-10	+0,77	+22	-4	+12
340	28	$-\ 8_{-3}$	$+\ 7$	-0,34	-9	+2	-2	+0,94	+25	-7	+6
Σ	+602	-5_{+2}	-31_{-10}		+8	-13	-106		-32	-49	+12
		-3	-41								

Z

	φ = −60					φ = −40					φ = −20					φ = 0				
−55																				
−0	0	+10	0	−1	−46	−40	0	+13	0	−2	−29	−20	0	+10	0	−3	−13	+2	0	+5	0
20	−2	+9	−1	−1	−50		−3	+12	−1	−2	−34		−4	+10	−2	−3	−19		−4	+5	−2
40	−4	+8	−1	−1	−53		−6	+10	−2	−1	−39		−7	+8	−3	−2	−24		−7	+4	−3
60	−6	+5	−1	0	−57		−9	+6	−2	−1	−46		−10	+5	−3	−1	−29		−10	+3	−3
80	−7	+2	0	0	−60		−10	+2	−1	0	−49		−11	+2	−1	0	−30		−11	+1	−1
100	−7	−2	0	0	−64		−10	−2	+1	0	−51		−11	−2	+1	0	−32		−11	−1	+1
120	−6	−5	+1	0	−65		−9	−6	+2	−1	−54		−10	−5	+3	−1	−33		−10	−3	+3
140	−4	−8	+1	−1	−67		−6	−10	+2	−1	−55		−7	−8	+3	−2	−34		−7	−4	+3
160	−2	−9	+1	−1	−66		−3	−12	+1	−2	−56		−4	−10	+2	−3	−35		−4	−5	+2
180	0	−10	0	−1	−66		0	−13	0	−2	−55		0	−10	0	−3	−33		0	−5	0
200	+2	−9	−1	−1	−64		+3	−12	−1	−2	−52		+4	−10	−2	−3	−31		+4	−5	−2
220	+4	−8	−1	−1	−61		+6	−10	−2	−1	−47		+7	−8	−3	−2	−26		+7	−4	−3
240	+6	−5	−1	0	−55		+9	−6	−2	−1	−40		+10	−5	−3	−1	−19		+10	−3	−3
260	+7	−2	0	0	−50		+10	−2	−1	0	−33		+11	−2	−1	0	−12		+11	−1	−1
280	+7	+2	0	0	−46		+10	+2	+1	0	−27		+11	+2	+1	0	−6		+11	+1	+1
300	+6	+5	+1	0	−43		+9	+6	+2	−1	−24		+10	+5	+3	−1	−3		+10	+3	+3
320	+4	+8	+1	−1	−43		+6	+10	+2	−1	−23		+7	+8	+3	−2	−4		+7	+4	+3
340	+2	+9	+1	−1	−44		+3	+12	+1	−2	−26		+4	+10	+2	−3	−7		+4	+5	+2

$\varphi = 0$

0	+5	0	−4	+3	
4	+5	+2	−3	+10	
7	+4	+3	−2	+14	
10	+3	+3	−1	+17	
11	+1	+1	0	+15	
11	−1	−1	0	+11	
9	−3	−3	−1	+5	
7	−4	−3	−2	0	
4	−5	−2	−3	−4	
0	−5	0	−4	−7	
4	−5	+2	−3	−8	
7	−4	+3	−2	−8	
10	−3	+3	−1	−9	
11	−1	+1	0	−9	
11	+1	−1	0	−9	
10	+3	−3	−1	−9	
7	+4	−3	−2	−6	
4	+5	−2	−3	−2	
1	+4	−1	−2	+1	

$\varphi = +20$

+24	0	−1	0	−3	+26
	−4	−1	−2	−3	+14
	−7	−1	−3	−2	+11
	−9	0	−3	−1	+11
	−10	0	−1	0	+13
	−10	0	+1	0	+15
	−9	0	+3	−1	+17
	−7	−1	+3	−2	+31
	−4	+1	+2	−3	+20
	−1	+1	0	−3	+22
	+1	+1	−2	−3	−4
	+4	+1	−3	−2	−7
	+7	+1	−3	−2	−12
	+9	0	−3	−1	−29
	+10	0	−1	0	−33
	+10	0	+1	0	−35
	+9	0	+3	−1	−35
	+7	−1	+3	−2	−31
	+4	−1	+2	−3	−26

$\varphi = +\nu 0$

+42	0	−5	0	−2	+35
	−3	−5	−1	−2	+31
	−5	−4	−2	−1	+30
	−7	−2	−2	−1	+36
	−8	−1	−1	0	+32
	−8	+1	+1	0	+36
	−7	+2	+2	−1	+38
	−5	+4	+2	−1	+42
	−3	+5	+1	−2	+43
	0	+5	0	−2	+45
	+2	+5	−1	−2	+47
	+5	+4	−2	−1	+48
	+7	+2	−2	−1	+48
	+8	+1	−1	0	+50
	+8	−1	+1	0	+50
	+7	−2	+2	−1	+48
	+5	−4	+1	−2	+39

$\varphi = +\nu\nu$

+55	0	−5	0	−1	+49
	−2	−5	−1	−1	+46
	−3	−4	−1	−1	+46
	−4	−3	−1	0	+42
	−5	−1	0	0	+49
	−5	+1	0	0	+51
	−4	+3	+1	0	+55
	−3	+4	+1	−1	+56
	−2	+5	+1	−1	+58
	0	+5	0	−1	+59
	+2	+5	−1	−1	+60
	+3	+4	−1	−1	+60
	+4	+3	−1	0	+61
	+5	+1	0	0	+61
	+5	−1	0	0	+59
	+4	−3	+1	0	+52
	+2	−5	+1	−1	+52

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λ	Schmidt Formula φ=-60	-40	-20	0	+20	+40	+60
	Schmidt Wilkes	Schm.-F	Schm.-F	Schm.-F	Schm.-F	Schm.-F	Schm.-F
0	+9	+4	-3	-6	-2	+2	-2
20	+9	+2	-5	-8	0	+4	0
40	+8	+1	-7	-7	+1	+5	+1
60	+8	+3	-4	-6	+2	+6	+3
80	+5	+2	-5	-3	+3	+9	+4
100	+4	-1	-4	-1	+5	+8	+5
120	0	-3	-7	-1	+3	+5	+1
140	+2	-5	-3	0	-2	-4	-1
160	+1	+1	+1	+3	-3	-8	-6
180	+3	+5	+5	+5	-4	-10	-7
200	+2	+6	+6	+4	-2	-8	-6
220	0	+3	+3	+2	-1	-3	-3
240	-3	-2	-2	-2	+1	+4	+1
260	-5	-2	-5	-6	+2	+7	+2
280	-2	-1	-4	-5	+3	+7	+3
300	+3	+4	-2	-2	+5	+7	+1
320	+8	+6	0	+1	-1	+4	-1
340	+9	+7	-1	-3	+1	+3	-3

$\Sigma y \cos^3 \lambda$

λ	$-80°$	$-60°$	$-40°$	$-20°$	$0°$	$+20°$	$+40°$	$+60°$	$+80°$
0		-8	-10	-10	-9	-8	-6	-6	
20		-8	-7	-7	-7	-4	-2	-2	
40		-5	-4	-3	-2	-1	0	0	
60		-1	-1	-1	0	0	0	0	
80		0	0	0	0	0	0	0	
100		0	0	0	0	0	0	0	
120		-1	0	0	0	0	0	0	
140		0	-1	-1	0	0	0	0	
160		-2	-4	-4	-3	-2	-1	0	
180		-5	-6	-6	-5	-5	-4	-3	
200		-5	-5	-4	-4	-4	-6	-5	
220		-3	-3	-2	-1	-2	-4	-4	
240		-1	-1	-1	0	-1	-1	-1	
260		0	0	0	0	0	0	0	
280		0	0	0	0	0	0	0	
300		+1	+1	+1	0	0	-1	-1	
320		+1	0	-2	-2	-3	-3	-4	
340		-3	-6	-6	-7	-7	-7	-6	
		+2	+1	+1	-40	-37	-35	-32	
		-42	-48	-47					
		-40	-47	-46	-40	-37	-35	-32	

$\sum Z \cos^3 \lambda$

λ	-80°	-60°	-40°	-20°	0	$+20^\circ$	$+40^\circ$	$+60^\circ$	$+80^\circ$
0		-37	-25	-16	-3	+18	+37	+47	
20		-34	-27	-20	-8	+12	+30	+38	
40		-21	-17	-14	-6	+5	+16	+21	
60		-6	-5	-4	-2	+2	+5	+6	
80		-1	0	0	0	0	0	+1	
100		+1	+1	0	0	0	0	-1	
120		+8	+7	+5	+1	-2	-5	-7	
140		+30	+27	+17	+4	-8	-17	-25	
160		+57	+46	+28	+4	-13	-30	-43	
180		+63	+50	+28	+2	-18	-35	-52	
200		+54	+38	+21	0	-18	-33	-45	
220		+28	+20	+10	-1	-12	-21	-26	
240		+7	+5	+3	0	-3	-7	-8	
260		+1	0	0	0	0	-1	-1	
280		0	0	0	0	0	+1	+1	
300		-5	-2	-1	+2	+6	+7	+7	
320		-16	-8	-2	+7	+14	+22	+24	
340		-30	-16	-6	+6	+22	+35	+43	
		+249	+194	+112	+26	+79	+153	+188	
		-150	-100	-63	-20	-74	-149	-208	
		+99	+94	+49	+6	+5	+4	-20	

$\sum X \sin^2 \lambda$

λ	−80	−60	−40	−20	0	+20	+40	+60	+80
0		0	0	0	0	0	0	0	
20		+1	+1	+1	+1	+1	+1	+1	
40		+4	+4	+6	+8	+8	+7	+4	
60		+8	+11	+18	+22	+24	+19	+10	
80		+10	+16	+26	+34	+35	+27	+14	
100		+8	+18	+29	+36	+37	+27	+13	
120		+6	+13	+22	+23	+24	+19	+10	
140		+2	+6	+9	+9	+9	+7	+4	
160		0	+1	+1	+1	+1	+1	+1	
180		0	0	0	0	0	0	0	
200		−1	−1	−1	−1	−1	−1	−1	
220		−4	−7	−8	−9	−8	−6	−4	
240		−12	−18	−21	−24	−22	−16	−6	
260		−19	−26	−30	−34	−33	−20	−7	
280		−21	−26	−28	−33	−31	−17	−5	
300		−17	−18	−18	−22	−19	−12	−4	
320		−7	−6	−7	−7	−7	−4	−2	
340		−1	−1	−1	−1	−1	−1	0	
		+39	+70	+112	+134	+139	+108	+57	
		−82	−103	−114	−131	−122	−77	−29	
		−43	−33	−2	+3	+17	+31	+28	

$\Sigma y \sin^2 \lambda$

λ	−80	−60	−40	−20	0	+20	+40	+60	+80	λ
0		0	0	0	0	0	0	0		0
20		0	0	0	0	0	0	0		20
40		−3	−2	−2	−1	−1	0	0		40
60		−7	−6	−3	−1	0	+2	+2		60
80		−10	−8	−3	0	+1	+2	+3		80
100		−8	−6	−2	+1	+1	+1	+2		100
120		−3	−1	0	+1	0	−1	0		120
140		0	+1	+1	0	0	0	0		140
160		0	0	0	0	0	0	0		160
180		0	0	0	0	0	0	0		180
200		0	0	0	0	0	0	0		200
220		−2	−2	−1	−1	−1	−2	−3		220
240		−5	−4	−3	−1	−3	−4	−4		240
260		−10	−8	−6	−4	−5	−4	−2		260
280		−10	−9	−6	−4	−2	0	+2		280
300		−6	−4	−3	0	+1	+3	+4		300
320		−1	0	+1	+1	+2	+2	+3		320
340		0	0	0	0	0	0	0		340
	−65	+1	+2	+3	+5	+10	+16			
		−50	−29	−12	−12	−11	−9			
		−65	−49	−27	−9	−7	−1	+7		

$\Sigma 2 \sin \alpha$

α	−80	−60	−40	−20	0	+20	+40	+60	+80
0		0	0	0	0	0	0	0	
20		−2	−1	−1	0	0	+1	+2	
40		−12	−10	−8	−3	+3	+9	+12	
60		−32	−26	−22	−10	+8	+24	+33	
80		−53	−46	−34	−12	+16	+40	+52	
100		−58	−51	−35	−10	+20	+43	+55	
120		−43	−38	−26	−7	+13	+28	+38	
140		−17	−16	−9	−2	+5	+10	+15	
160		−2	−2	−1	0	+1	+1	+2	
180		0	0	0	0	0	0	0	
200		+2	+2	+1	0	−1	−1	−2	
220		+16	+11	+6	−1	−7	−12	−15	
240		+39	+28	+14	−2	−20	−34	−40	
260		+53	+34	+17	−5	−34	−56	−62	
280		+46	+27	+10	−10	−37	−56	−61	
300		+26	+13	+3	−10	−26	−36	−38	
320		+9	+4	+1	−4	−8	−13	−16	
340		+1	+1	0	0	−1	−2	−2	
		+192	+120	+52	−76	+66	+156	+209	
		−219	−190	−136		−134	−210	−236	
		−27	−70	−84	−76	−68	−54	−27	

$\Sigma K \cos 2\lambda$

λ	−80	−60	−40	−20	0	+20	+40	+60	+80
0		+20	+19	+22	+28	+28	+22	+14	
20		+13	+14	+17	+24	+25	+21	+14	
40		+6	+7	+10	+14	+15	+12	+7	
60		+2	+2	+3	+4	+5	+4	+2	
80		0	0	0	0	0	0	0	
100		0	0	0	0	0	0	0	
120		−1	−2	−4	−5	−5	−4	−2	
140		−4	−10	−16	−17	−16	−12	−7	
160		−8	−20	−30	−30	−27	−23	−15	
180		−12	−25	−34	−35	−31	−26	−18	
200		−12	−21	−28	−29	−25	−21	−13	
220		−8	−13	−75	−16	−14	−11	−6	
240		−2	−4	−4	−5	−4	−3	−1	
260		0	0	0	0	0	0	0	
280		0	0	0	0	0	0	0	
300		+3	+4	+4	+4	+4	+2	+1	
320		+11	+12	+12	+13	+13	+8	+4	
340		+18	+18	+19	+23	+22	+15	+9	
		+73	+76	+87	+110	+112	+84	+51	
		−47	−95	−131	−137	−122	−100	−62	
		+26	−19	−44	−27	−10	−16	−11	

Σ Ymed. [illegible]

	φ = −60°	−40°	−20°	0°	+20°	+40°	+60°
0	0	0	0	0	0	0	0
20	−5,8	−6	−6	−4,5	−4	−2	−1,2 (~~+0,6~~)
40	−9,8	−8	−7	−4,0	−2	0	+1 (~~+4,0~~)
60	−8,7	−7	−4	−1,7	0	+2	+3,5
80	−3,4	−3	−1	0	0	+1	+1,4 (~~+0,7~~)
100	+2,7	+2	+1	−0,6	0	0	−0,7
120	+4,4	+2	−0	−0,9	0	+1	+0
140	0	−2	−3	−2,0	−1	+1	+2,0
160	−1,8	−3	−4	−3,2	−2	0	0
180	0	0	0	0	0	0	0
200	+3,8	+4	+4	+2,6	+3	+5	+3,8
220	+6,0	+6	+4	+3,0	+5	+8	+7,0
240	+7,0	+6	+3	+2,7	+5	+5	+5,2
260	+3,7	+3	+2	+2,0	+2	+1	+0,7
280	−4,0	−3	−2	−1,3	−1	0	+1,0
300	−7,0	−5	−4	−0,9	+2	+4	+6,0
320	−2,0	0	+4	+5,0	+6	+8	+9,0
340	+2,5	+5	+6	+7,0	+6	+6	+5,1
	+30,1	+28	+24	+22,3	+29	+42	+45,7
	−42,5	−37	−31	−19,1	−10	−2	−1,9
	−12,4	−9	−7	+3,2	+19	+40	+43,8

Σ cos λ Y   corr. 3 ob.

	−60°	−40°	−20°	0°	+20°	+40°	+60°
0	−9,0	−10,0	−9,0	0	−8,0	−6,0	−7,0
20	−7,0	−6,2	−7,0	−7,0	−3,8	−2,3	−1,5
40	−1,7	−1,2	+1,0	−0,6	−0,3	0	+0,2
60	+5,0	+4,0	+2,0	+1,0	0	−1,0	−2,0
80	+9,4	+8,4	+2,8	0	−0,9	−2,8	−3,8
100	+8,4	+5,6	+0,9	−1,9	−1,8	−1,9	−1,9
120	+2,5	+1,0	0	−0,5	0	+1,0	0
140	0	+0,3	+0,5	+0,3	0	−0,5	−0,2
160	+2,3	+3,8	+4,6	+3,9	+2,3	0	0
180	+5,0	+6,0	+6,0	+6,0	+5,0	+5,0	+4,0
200	+4,6	+3,8	+3,8	+3,1	+3,8	+4,6	+4,6
220	+1,0	+1,0	+0,7	+0,5	+0,8	+1,2	+1,2
240	−4,0	−3,0	−2,5	−1,5	−2,5	−3,5	−3,0
260	−10,3	−6,5	−5,6	−5,6	−4,7	−4,7	−1,9
280	−11,3	−7,5	−6,6	−3,7	−1,9	+0,9	+1,9
300	−4,0	−2,5	−1,5	−0,5	+1,0	+3,0	+3,5
320	+0,3	−0,2	−0,7	−0,9	−0,8	−1,4	−1,5
340	−3,1	−5,4	−6,9	−8,5	−6,9	−6,2	−6,1
	+38,5	+33,9	21,3	+14,8	+12,9	+15,7	+15,4
	−50,4	−42,5	−40,8	−30,7	−31,6	−30,3	−28,9
	−11,9	−8,6	−19,5	−15,9	−18,7	−14,6	−13,7

0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

Σ(XX' divided

	−60	−40	−20	0	+20	+40	+60
0	0	0	0	0	0	0	0
20	+11	+12	+14	+20	+20	+16	+10
40	+13	+16	+22	+29	+22	+27	+16
60	+11	+14	+22	+29	+22	+24	+13
80	+3	+6	+9	+12	+12	+9	+5
100	−3	−6	−10	−12	−12	−9	−5
120	−7	−17	−29	−33	−32	−24	−13
140	−8	−22	−34	−36	−33	−27	−16
160	−6	−16	−24	−24	−20	−18	−12
180	0	0	0	0	0	0	0
200	+10	+17	+22	+24	+20	+16	+11
220	+17	+27	+32	+34	+32	+24	+13
240	+16	+23	+28	+33	+28	+21	+8
260	+7	+9	+10	+12	+11	+7	+2
280	−7	−9	−10	−12	−11	−6	−2
300	−22	−24	−24	−28	−25	−15	−5
320	−24	−25	−26	−29	−27	−17	−8
340	−14	−15	−16	−18	−18	−12	−8
	+88	+124	+159	+193	+187	+144	+78
	−91	−134	−173	−192	−178	−128	−69
	−3.	−10	−14	+1.	+9	+16	+9

Σ(XX') inned

φ = 0	0
20	−5
40	−28
60	+6

Σ(Δt' coord

λ	φ = −60°	−40°	−20°	0°	+20°	+40°	+60°
0	+20	+19	+22	+28	+28	+22	+14
20	+12	+12	+16	+22	+24	+19	+12
40	+2	+3	+4	+5	+5	+5	+3
60	−6	−8	−12	−17	−18	−14	−8
80	−10	−16	−25	−33	−34	−26	−14
100	−8	−18	−28	−35	−36	−26	−13
120	−4	−10	−17	−19	−18	−14	−7
140	+1	+4	+6	+6	+6	+5	+3
160	+8	+18	+26	+27	+24	+20	+14
180	+12	+25	+34	+35	+31	+26	+18
200	+12	+19	+25	+26	+22	+18	+12
220	+3	+5	+6	+6	+5	+4	+2
240	−9	−13	−16	−18	−16	−12	−5
260	−19	−25	−29	−33	−32	−19	−6
280	−21	−25	−27	−32	−30	−17	−5
300	−13	−14	−14	−16	−14	−8	−3
320	+4	+4	+4	+5	+5	+3	+1
340	+14	+17	+18	+21	+20	+13	+8
	+88	+126	+164	+181	+170	+135	+87
	−90	−129	−168	−203	−198	−136	−61
	−2	−3	−7	−22	−28	−1	+26

$\Sigma Z \sin 2\lambda$.

	−60	−40	−20	0	+20	+40	+60
0	0	0	0	0	0	0	0
20	−27	−20	−16	−6,4	+10	+24	+22
40	−44	−37	−30	−12,0	+12	+24	+46
60	−47	−38	−29	−12,0	+12	+21	+44
80	−18	−15	−12	−4,0	+5	+14	+18
100	+20	+17	+12	+2,0	−7	−15	−19
120	+56	+50	+35	+8,7	−18	−28	−49
140	+63	+59	+36	+8,0	−17	−27	−54
160	+44	+26	+23	+2,0	−12	−24	−35
180	0	0	0	0	0	0	0
200	−40	−30	−16	+0,0	+15	+26	+26
220	−59	−43	−28	+2,0	+26	+44	+56
240	−51	−37	−18	+3,0	+26	+45	+54
260	−18	−12	−6	+2,0	+12	+19	+21
280	+16	+10	−3	−3,0	−13	−19	−21
300	+35	+18	+5	−13,0	−35	−48	−51
320	+34	+17	+4	−15,0	−30	−47	−52
340	+24	+12	+6	−5,0	−18	−28	−32
	+292	+219	+121	+29,7	+118	+237	+307
	−300	−232	−153	−92,4	−150	256	−313
	−8	−13	−32	−33	−32	−19	−6

$\Sigma(R+2') \sin 2\lambda$

0°	−66
20°	−64
40°	−32
60°	−14
	−141

Σ Z cos 2d

	−60	−40	−20	0	+20	+40	+60
0	−37	−25	−16	−3	+18	+37	+47
20	−31	−24	−18	−8	+11	+26	+25
40	−7	−6	−5	−2	+7	+6	+8
60	+25	+22	+17	+8	−7	−18	−25
80	+51	+44	+33	+12	−15	−39	−50
100	+54	+49	+34	+9	−18	−41	−53
120	+33	+29	+20	+5	−10	−22	−28
140	−11	−10	−6	−1	+3	+6	+9
160	−49	−41	−26	−4	+13	+26	+36
180	−63	−50	−28	−2	+18	+35	+52
200	−47	−35	−18	0	+17	+30	+38
220	−10	−7	−4	0	+4	+7	+9
240	+29	+21	+11	−2	−15	−26	−31
260	+52	+33	+16	−5	−33	−53	−59
280	+45	+26	+9	−9	−36	−52	−58
300	+20	+10	+3	−8	−20	−38	−39
320	−6	−3	−1	+2	+5	+8	+9
340	−26	−14	−6	+5	+20	+32	+37
	+309	+234	+143	+40	+116	+213	+280
	−287	215	128	−44	−154	−279	−343
	+22	+19	+15	−4	−38	−66	−63

Σ(Z+Z′) cos 2d

0° −4

20° −23

40° −47

60° −41

−118 / 4 = 29,5

$2\,\Sigma(\sin\varphi' + \dots \sin\varphi'') = s_1$ $\qquad 2\,\Sigma(\sin^2\varphi + \dots) = s_2$ $\qquad 2\,\Sigma($

$\varphi = 0, 20, 40$ etc.

$s_1 = 1{,}9696$ $\qquad s_2 = 1{,}0602$ $\qquad s_3 = 0{,}6110$

$18 s_1 = 35{,}453$ $\qquad 18 s_2 = 19{,}084$ $\qquad 18 s_3 = 10{,}998$

$36 s_1 = 70{,}906$ $\qquad 36 s_2 = 38{,}168$ $\qquad 36 s_3 = 21{,}996$

$$\int \frac{1}{n} \Sigma (X - X') = - s'(2h + i)$$

$$\int \frac{1}{n} \Sigma (Y - Y') = 0$$

$$\int \frac{1}{n} \Sigma (X - X') \sin\lambda = + \tfrac{1}{2} s_1 \mu_6 + \left(\tfrac{11}{8} s_1 - \tfrac{15}{8} s_3\right)(4J + 3F)$$

$$\int \frac{1}{n} \Sigma (Y \sin\lambda - Y' \sin\lambda) = - \tfrac{1}{2} s_1 g$$

$$\int \frac{1}{n} \Sigma (X - X') \cos\lambda = - \tfrac{1}{2} s_1 \mu_c + \left(\tfrac{11}{8} s_1 - \tfrac{15}{8} s_3\right)(4K + 3G)$$

$$\int \frac{1}{n} \Sigma (Y \cos\lambda - Y' \cos\lambda) = - \tfrac{1}{2} s_1 e$$

$$\int \frac{1}{n} \Sigma (X \sin 2\lambda - X' \sin 2\lambda) = - \tfrac{1}{4} s' f$$

$$\int \frac{1}{n} \Sigma (Y \sin 2\lambda - Y' \sin 2\lambda) = - \tfrac{5}{4} s' H$$

$$\int \frac{1}{n} \Sigma (X \cos 2\lambda - X' \cos 2\lambda) = - \tfrac{1}{4} s' i$$

$$\int \frac{1}{n} \Sigma (Y \cos 2\lambda - Y' \cos 2\lambda) = + \tfrac{5}{2} s' L$$

$$\int \frac{1}{n} \Sigma (X \sin^3\lambda - X' \sin^3\lambda) = + \tfrac{3}{8} s_1 \mu_6 + \tfrac{3}{16}(22 s_1 - 30 s_3) J + \tfrac{3}{16}(19 s_1 - 25 s_3) F$$

$$\int \frac{1}{n} \Sigma (Y \sin^3\lambda - Y' \sin^3\lambda) = - \tfrac{3}{8} s_1 g$$

$$\int \frac{1}{n} \Sigma (X \cos^3\lambda - X' \cos^3\lambda) = - \tfrac{3}{8} s_1 \mu_c + \tfrac{3}{16}(22 s_1 - 30 s_3) K + \tfrac{3}{16}(19 s_1 - 25 s_3) G$$

$$\int \frac{1}{n} \Sigma (Y \cos^3\lambda - Y' \cos^3\lambda) = - \tfrac{3}{8} s_1 e$$

$= \delta_2$ $\quad 2\Sigma(\sin^2\varphi + \dots) = \delta_3$

$\delta_3 = 0{,}6110$ $\quad \delta' = 3{,}2552$

$18\,\delta_3 = 10{,}998$ $\quad 18\,\delta' = 58{,}594$

$36\,\delta_3 = 21{,}996$ $\quad 36\,\delta' = 117{,}188$

$2\Sigma(\sin 2\varphi + \dots) = \delta'$

$\varphi = 0, 20, 40, 60$ ra

$36\,\delta_1 = 133{,}26$ $\quad \delta_2 = 82{,}17$

$36\,\delta' = 179{,}54$

$\int \frac{1}{n}\Sigma(Z - Z') = -2\delta_1 \mu_a + (6\delta_1 - 10\delta_3)(2\mathcal{E} + \mathcal{H})$

$= \quad -\frac{1}{2}\delta_1 g$ $\qquad \int \frac{1}{n}\Sigma(Z\sin\lambda - Z'\sin\lambda) = \quad -\frac{3}{4}\delta' e$

$= \quad -\frac{1}{2}\delta_1 e$ $\qquad \int \frac{1}{n}\Sigma(Z\cos\lambda - Z'\cos\lambda) = \quad +\frac{3}{4}\delta' g$

$) =$ $\qquad \int \frac{1}{n}\Sigma(Z\sin\lambda - Z'\sin\lambda) =$

$-\frac{5}{4}\delta' \mathcal{H}$ $\qquad +10(\delta_1 - \delta_3)\mathcal{L}$

$) =$

$+\frac{5}{2}\delta' \mathcal{L}$ $\qquad \int \frac{1}{n}\Sigma(Z\cos 2\lambda - Z'\cos 2\lambda) =$

$+5(\delta_1 - \delta_3)\mathcal{H}$

$) = \quad -\frac{3}{8}\delta_1 g$ $\qquad \int \frac{1}{n}\Sigma(Z\sin^2\lambda - Z'\sin^2\lambda) = \quad -\frac{9}{16}\delta' e$

$= \quad -\frac{3}{8}\delta_1 e$ $\qquad \int \frac{1}{n}\Sigma(Z\cos^2\lambda - Z'\cos^2\lambda) = \quad +\frac{9}{16}\delta' g$

$\sum(\cos\varphi' + \cos\varphi'' + \cos\varphi''' = K_1$

$\varphi = 0 \quad \varphi = 20 \quad \varphi = 40$ rc

$\sum\cos^2\varphi' + \cos^2\varphi'' = K_2$ $\sum(\cos^3\varphi'$

$V = 5 \quad K_1 = 4,4114 \quad K_2 = 3,9396$

$18V = 90 \quad 18K_1 = 79,405 \quad 18K_2 = 70,913$

$36V = 180 \quad 36K_1 = 158,810 \quad 36K_2 = 141,826$

158,810

$$\int\frac{1}{n}\sum X = -K_1\mu_a + \left(\frac{15}{2}K_3 - 6K_1\right)(2\mathcal{E} + 4\mathcal{L})$$

$$\int\frac{1}{n}\sum Y = 0$$

$$\int\frac{1}{n}\sum X\sin\lambda = -\frac{1}{2}K'e$$

$$\int\frac{1}{n}\sum Y\sin\lambda = -\frac{1}{2}V\mu_c - \left(\frac{1}{2}V - \frac{5}{8}K\right.$$

$$\int\frac{1}{n}\sum X\cos\lambda = +\frac{1}{2}K'g$$

$$\int\frac{1}{n}\sum Y\cos\lambda = -\frac{1}{2}V\mu_b + \left(\frac{1}{2}V - \frac{5}{8}K\right.$$

$$\int\frac{1}{n}\sum X\sin 2\lambda = -\left(5K_1 - \frac{15}{2}K_3\right)\mathcal{L}$$

$$\int\frac{1}{n}\sum Y\sin 2\lambda = -\frac{1}{2}K_1 i$$

$$\int\frac{1}{n}\sum X\cos 2\lambda = -\left(\frac{5}{2}K_1 - \frac{15}{4}K_3\right)\mathcal{H}$$

$$\int\frac{1}{n}\sum Y\cos 2\lambda = +\frac{1}{2}K_1 f$$

$$\int\frac{1}{n}\sum X\sin^2\lambda = -\frac{3}{8}K'e$$

$$\int\frac{1}{n}\sum Y\sin^2\lambda = -\frac{3}{8}V\mu_c + \frac{3}{16}\{(10K_2$$

$$\int\frac{1}{n}\sum X\cos^2\lambda = +\frac{3}{8}K'g$$

$$\int\frac{1}{n}\sum Y\cos^2\lambda = -\frac{3}{8}V\mu_b - \frac{3}{16}\{(10K_2$$

$= K_2$ $\quad \Sigma(\cos^3\varphi' + \dots \cos^3\varphi'') = K_3$ $\quad \Sigma(\cos 2\varphi' + \dots \cos 2\varphi'') = K'$

4 $\quad K_2 = 3,9396$ $\quad K_3 = 3,5586$ $\quad K' = 2,8792$

$18K_2 = 70,913$ $\quad 18K_3 = 64,055$ $\quad 18K' = 51,826$

$36K_2 = 141,826$ $\quad 36K_3 = 128,110$ $\quad 36K' = 103,652$

58,870

$V = 7$ $\quad 36K_1 = 194,87$ $\quad 36K_2 = 159,83$ $\quad 36K_3 = 132,61$

$36V = 252$ $\quad 36K' = 67,652$

$$\int \frac{1}{2\pi} \Sigma Z = -(V - \tfrac{3}{2}K_2)(2h + i)$$

$\frac{1}{2} V\mu_c$

$$\int \frac{1}{2\pi} \Sigma Z \sin\lambda = -K_1\mu_b + (2K_1 - \tfrac{5}{2}K_3)(4J + 3F)$$

$$-(\tfrac{1}{2}V - \tfrac{5}{8}K_2)(4K + 3G)$$

$\frac{1}{2} V\mu_b$

$$\int \frac{1}{2\pi} \Sigma Z \cos\lambda = +K_1\mu_c + (2K_1 - \tfrac{5}{2}K_3)(4K + 3G)$$

$$+(\tfrac{1}{2}V - \tfrac{5}{8}K_2)(4J + 3F)$$

$$-\tfrac{1}{2}K_1 i$$

$$\int \frac{1}{2\pi} \Sigma Z \sin 2\lambda = +\tfrac{3}{4}K_2 h$$

$$+\tfrac{1}{2}K_1 h$$

$$\int \frac{1}{2\pi} \Sigma Z \cos 2\lambda = +\tfrac{3}{4}K_2 i$$

$\frac{3}{8} V\mu_c$

$$\int \frac{1}{2\pi} \Sigma Z \sin^3\lambda = -\tfrac{3}{4}K_1\mu_b + (6K_1 - \tfrac{15}{2}K_3)J + (\tfrac{9}{2}K_1 - \tfrac{25}{4}K_3)F$$

$$+\tfrac{3}{16}\{(10K_2 - 8V)K + (5K_2 - 6V)G\}$$

$V\mu_b$

$$\int \frac{1}{2\pi} \Sigma Z \cos^3\lambda = +\tfrac{3}{4}K_1\mu_c + (6K_1 - \tfrac{15}{2}K_3)K + (\tfrac{9}{2}K_1 - \tfrac{25}{4}K_3)G$$

$$-\tfrac{3}{16}\{(10K_2 - 8V)J + (5K_2 - 6V)F\}$$

Σ0,20,40 etc. | Schmidt féle kép | 0,01 C.S.S egység…

φ	ΣX	ΣX+ΣX'	ΣX−ΣX'	ΣX sinλ	Σ+Σ'	Σ−Σ'	ΣX cosλ	Σ+Σ'	Σ−Σ'	ΣX sin2λ	Σ+Σ'	Σ…
−80												
−60	+281			−62			+34			−3		
−40	+402			−46			−25			−10		
−20	+519			−9			−57			−14		
0	+602	+1204	0	+8	+16	0	−32	−64	0	+1	+2	
+20	+577	+1096	+58	+25	+16	+34	−15	−72	+42	+9	−5	+
+40	+429	+831	+27	+39	−7	+85	−20	−45	+5	+16	+6	+
+60	+232	+513	−49	+39	−23	+101	−16	+18	−50	+9	+6	+
+80												

φ	ΣY	Σ+Σ'	Σ−Σ'	ΣY sinλ	Σ+Σ'	Σ−Σ'	ΣY cosλ	Σ+Σ'	Σ−Σ'	ΣY sin2λ	Σ+Σ'	Σ…
−80												
−60	−4			−78			−49			−12		
−40	−3			−60			−56			−9		
−20	−5			−29			−57			−7		
0	−5	−10	0	−13	−26	0	−49	−98	0	+3	+6	
+20	+1	−4	+6	−7	−36	+22	−51	−108	+6	+19	+12	+
+40	+2	−1	+5	−2	−62	+58	−44	−100	+12	+40	+31	+
+60	0	−4	+4	+5	−73	+83	−41	−90	+8	+44	+32	+
+80												

φ	ΣZ	Σ+Σ'	Σ−Σ'	ΣZ sinλ	Σ+Σ'	Σ−Σ'	ΣZ cosλ	Σ+Σ'	Σ−Σ'	ΣZ sin2λ	Σ+Σ'	Σ…
−80												
−60	−939			−32			+129			−8		
−40	−710			−103			+128			−13		
−20	−427			−117			+67			−32		
0	−31	−62	0	−106	−212	0	+12	+24	0	−43	−86	
+20	+413	−14	+840	−88	−205	+29	+2	+69	−65	−32	−64	
+40	+774	+64	+1484	−70	−173	+33	+2	+130	−126	−19	−32	−
+60	+972	+32	+1911	−35	−67	−3	−31	+98	−160	−28	−36	−
+80												

0,01 C.G.S egységben.

$\Sigma X \sin 2\lambda$			$\Sigma X \cos 2\lambda$			$\Sigma X \sin^{3}\lambda$			$\Sigma X \cos^{3}\lambda$		
−3			−2			−43			+26		
−10			−3			−33			−19		
−14	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−7	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−2	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−44	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$
+1	+2	0	−22	−44	0	+3	+6	0	−27	−54	0
+9	−5	+23	−28	−35	−21	+17	+15	+19	−10	−54	+34
+16	+6	+26	−1	−4	+2	+31	−2	+64	−16	−35	+3
+9	+6	+12	+26	+24	+28	+28	−15	+71	−11	+15	−37

$\Sigma Y \sin 2\lambda$			$\Sigma Y \cos 2\lambda$			$\Sigma Y \sin^{3}\lambda$			$\Sigma Y \cos^{3}\lambda$		
−12			−12			−65			−40		
−9			−8			−49			−47		
−7	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−19	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−27	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−46	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$
+3	+6	0	−16	−32	0	−9	−18	0	−40	−80	0
+19	+12	+26	−18	−37	+1	−7	−34	+20	−37	−83	+9
+40	+31	+49	−14	−22	−6	−1	−50	+48	−35	−82	+12
+44	+32	+56	−13	−25	−1	+7	−58	+72	−32	−72	+8

$\Sigma Z \sin 2\lambda$			$\Sigma Z \cos 2\lambda$			$\Sigma Z \sin^{3}\lambda$			$\Sigma Z \cos^{3}\lambda$		
−8			+22			−27			+99		
−13			+19			−70			+94		
−32	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	+15	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	−84	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$	+49	$\Sigma+\Sigma'$	$\Sigma-\Sigma'$
−43	−86	0	−4	−8	0	−76	−152	0	+6	+12	0
−32	−64	0	−38	−23	−53	−68	−152	+16	+5	+54	−44
−19	−32	−6	−66	−47	−85	−54	−124	+16	+4	+98	−90
−28	−36	−20	−63	−41	−85	−27	−54	0	−20	+79	−119

Σ 0, 20, 40 etc. — Schmidtsche Reihe 0, 01 CS.

	$\sum_{\lambda=0}^{\lambda=\pi} X$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X$	Diff.	$\sum_{\lambda=0}^{\lambda=\pi} X \sin\lambda$	$\sum_{\lambda=0}^{\lambda=\pi} X \sin\lambda$	Diff.	$\sum_{\lambda=0}^{\lambda=\pi} X \cos\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X \cos\lambda$	Diff.	$\sum_{\lambda=0}^{\lambda=\pi} X \sin 2\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X \sin 2\lambda$
-80											
-60	+105	+176	-71	+56	-118	+174	+32	+2	+30	+14	-17
-40	+170	+232	-62	+103	-149	+252	+5	-30	+35	-13	+3
-20	+250	+269	-19	+160	-169	+329	-4	-53	+49	-30	+16
0	+303	+299	+4	+198	-190	+388	+14	-46	+60	-15	+16
+20	+304	+273	+31	+199	-174	+363	+26	-41	+67	-1	+10
+40	+240	+189	+51	+155	-116	+271	+21	-41	+63	-2	+18
+60	+139	+93	+46	+88	-49	+137	+13	-29	+42	-2	+11
+80											
	$\sum_{0}^{\pi} y$	$\sum_{\pi}^{2\pi}$	Diff.	$\sum_{0}^{\pi} y \sin\lambda$	$\sum_{\pi}^{2\pi} y \sin\lambda$	Diff.	$\sum_{0}^{\pi} y \cos\lambda$	$\sum_{\pi}^{2\pi} y \cos\lambda$	Diff.	$\sum_{0}^{\pi} y \sin 2\lambda$	$\sum_{\pi}^{2\pi} y \sin 2\lambda$
-80											
-60	-56	+52	-108	-38	-40	+2	-31	-18	-13	-22	+10
-40	-44	+41	-85	-28	-32	+4	-33	-23	-10	-25	+16
-20	-28	+23	-51	-12	-17	+5	-33	-24	-9	-24	+17
0	-16	+11	-27	-3	-10	+7	-25	-24	-1	-17	+20
+20	-9	+10	-19	0	-7	+7	-19	-32	+13	-9	+28
+40	-6	+8	-14	+2	-4	+6	-6	-38	+32	+3	+37
+60	-1	+1	+2	+6	-1	+7	-4	-37	+33	+6	+38
+80											
	$\sum_{0}^{\pi} z$	$\sum_{\pi}^{2\pi} z$	Diff.	$\sum_{0}^{\pi} z \sin\lambda$	$\sum_{\pi}^{2\pi} z \sin\lambda$	Diff.	$\sum_{0}^{\pi} z \cos\lambda$	$\sum_{\pi}^{2\pi} z \cos\lambda$	Diff.	$\sum_{0}^{\pi} z \sin 2\lambda$	$\sum_{\pi}^{2\pi} z \sin 2\lambda$
-80											
-60	-482	-457	-25	-317	+285	-612	+10	+119	-109	+51	-59
-40	-409	-301	-108	-280	+177	-457	+21	+107	-86	+52	-65
-20	-286	-141	-146	-194	+77	-271	0	+67	-67	+19	-51
0	-86	+55	-141	-62	-44	-18	-13	+25	-38	-14	-29
+20	+147	+266	-119	+97	-185	+282	+8	-6	+14	-15	-17
+40	+344	+430	-86	+224	-294	+518	+30	-28	+58	-11	-8
+60	+462	+510	-48	+300	-335	+635	+32	-63	+95	-17	+11
+80											

…2 tü hjs 0,01 CS. egységben.

$\sum_{\lambda=0}^{\lambda=\pi} X \sin 2\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X \sin 2\lambda$	Diff.	$\sum_{\lambda=0}^{\lambda=\pi} X \cos 2\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X \cos 2\lambda$	Diff.	$\sum_{\lambda=0}^{\lambda=\pi} X \sin^2\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X \sin^2\lambda$	Diff.	$\sum_{\lambda=0}^{\lambda=\pi} X \cos^2\lambda$	$\sum_{\lambda=\pi}^{\lambda=2\pi} X \cos^2\lambda$	Diff.
+14	-17	+31	+15	-17	+32	+39	-82	+121	+28	-2	+30
-13	+3	-16	+4	-7	+11	+70	-103	+173	+10	-29	+39
-30	+16	-46	-8	+1	-9	+112	-114	+226	+2	-46	+48
-15	+16	-31	-16	-6	-10	+134	-131	+265	+18	-45	+63
-1	+10	-11	-19	-9	-10	+139	-122	+261	+25	-35	+60
-2	+18	-20	-9	+8	-17	+108	-77	+185	+20	-36	+56
-2	+11	-13	+4	+22	-18	+57	-29	+86	+13	-24	+37
$\sum_0^{\pi} Y \sin 2\lambda$	$\sum_{\pi}^{2\pi} Y \sin 2\lambda$	Diff.	$\sum_0^{\pi} Y \cos 2\lambda$	$\sum_{\pi}^{2\pi} Y \cos 2\lambda$	Diff.	$\sum_0^{\pi} Y \sin^2\lambda$	$\sum_{\pi}^{2\pi} Y \sin^2\lambda$	Diff.	$\sum_0^{\pi} Y \cos^2\lambda$	$\sum_0^{\pi} Y \cos^2\lambda$	Diff.
-22	+10	-32	+10	-22	+32	-31	-34	+3	-25	-15	-10
-25	+16	-41	+6	-14	+20	-22	-27	+5	-27	-20	-7
-24	+17	-41	-6	-13	+7	-9	-18	+9	-26	-20	-6
-17	+20	-37	-5	-11	+6	0	-9	+9	-21	-19	-2
-9	+28	-37	-12	-6	-6	+1	-8	+9	-15	-22	+7
+3	+37	-34	-13	-1	-12	+4	-5	+9	-9	-26	+17
+6	+38	-32	-16	+3	-19	+7	0	+7	-8	-24	+16
$\sum_0^{\pi} Z \sin 2\lambda$	$\sum_{\pi}^{2\pi} Z \sin 2\lambda$	Diff.	$\sum_0^{\pi} Z \cos 2\lambda$	$\sum_{\pi}^{2\pi} Z \cos 2\lambda$	Diff.	$\sum_0^{\pi} Z \sin^2\lambda$	$\sum_{\pi}^{2\pi} Z \sin^2\lambda$	Diff.	$\sum_0^{\pi} Z \cos^2\lambda$	$\sum_{\pi}^{2\pi} Z \cos^2\lambda$	Diff.
+51	-59	-110	+28	-6	+34	+192	-219	+411	-3	+102	-105
+52	-65	-117	+38	-19	+57	+120	-190	+310	+7	+87	-80
+19	-51	-70	+33	-18	+51	+52	-136	+188	-4	+53	-57
-14	-29	+15	+15	-19	+34	-44	-32	-12	-10	+16	-26
-15	-17	+2	+2	-40	+42	+66	-134	+200	+14	-9	+25
-11	-8	-3	-19	-47	+28	+156	-210	+366	+36	-32	+68
-17	+11	-28	-21	-42	+21	+209	-236	+445	+37	-57	+94.

$r\frac{\partial X}{\partial y} - r\frac{\partial Y}{\partial x}$ értékei 10^{-5} C.G.S. egységben

Schmidt táblázatából számítva

λ	−55	−50	−45	−40	−35	−30	−25	−20	−15	−10	−5	0
0	+ 1001			+ 1344		+ 3212		+ 1434		+ 456		− 114
10	+ 2308			+ 1693		+ 1977		− 1119		− 154		− 17
20	+ 3391			+ 3435		+ 773		+ 1587		+ 148		− 40
30	+ 6249			+ 3820		− 461		− 1485		− 337		− 144
40	+ 5812			+ 2682		− 1431		− 1720		− 886		+ 578
50	+ 6038			+ 1200		− 2429		− 533		+ 1228		− 275
60	+ 3703			− 990		− 3074		− 687		+ 1899		+ 561
70	+ 1197			− 1100		− 2662		− 201		+ 2145		+ 796
80	+ 1578			− 1613		− 2927		− 1579		+ 2357		+ 2940
90	+ 5852			− 988		− 2994		− 511		− 711		+ 1461
100	+ 10381			− 770		− 1120		− 668		− 2360		+ 1053
110	+ 9951			+ 50		+ 428		− 984		− 1261		− 309
120	+ 7100			+ 578		+ 537		+ 2298		− 620		+ 2460
130	+ 1231			− 882		+ 2314		+ 2629		+ 515		+ 2877
140	+ 1011			− 2398		− 279		+ 689		+ 741		− 957
150	− 1243			− 2752		− 1812		− 396		− 960		− 1717
160	− 450			− 584		− 2374		− 1438		− 28		− 200
170	+ 166			− 249		− 321		− 2114		− 109		+ 3547
180	+ 1982			+ 583		+ 95		− 2702		− 1202		+ 934
190	+ 1127			+ 18		− 997		− 2361		− 1397		− 131
200	− 669			− 1273		− 2267		− 2346		− 793		− 1736
210	− 1230			− 2781		− 2795		− 932		+ 637		− 4584
220	− 510			− 2257		− 2157		− 89		+ 1689		− 1278
230	+ 1387			− 1686		− 1448		+ 1327		+ 3987		+ 3003
240	+ 2832			+ 20		− 182		+ 300		+ 6671		− 17
250	+ 1466			+ 1853		− 1118		+ 62		+ 3475		+ 1266
260	+ 335			+ 2499		− 950		− 2223		+ 1508		+ 1381
270	+ 1543			+ 4753		− 292		− 4389		− 1061		+ 2670
280	+ 5650			+ 530		+ 4720		− 1874		− 2456		+ 447
290	+ 4698			− 76		+ 368		+ 523		− 1851		− 3364
300	− 4138			+ 463		+ 1235		+ 828		− 1035		+ 63
310	− 558			− 58		− 608		− 768		+ 248		+ 711
320	− 1268			− 636		− 183		− 173		− 1997		− 1678
330	− 1822			− 1445		+ 794		+ 828		− 365		− 1839
340	− 1812			− 1836		+ 595		+ 1724		− 944		+ 1593
350	− 460			− 1108		+ 1608		+ 2080		+ 889		− 1696

−5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+55
	−114		−2897		−1649		+1836		+2841			+1815
	−177		−852		+15		+1334		+1325			+149
	−40		−475		+533		+1116		+950			+184
	−144		−573		+2000		+407		+859			+1728
	+578		−1437		+976		+1557		−566			−527
	−275		−1362		+886		+1961		−1923			−2152
	+561		+756		+1817		−471		−1867			−1015
	+796		+2981		+1924		−2684		−1306			+125
	+2940		+3502		−1038		−3782		−1320			+2179
	+1461		+841		−5103		−2484		+2102			+2484
	+1053		−1683		−2028		+1553		+2576			+2607
	−309		−243		+935		+1236		−237			+863
	+2469		+1727		+1067		+480		−1095			−1969
	+2877		+1116		+2107		−325		−543			−4493
	−957		+1289		+1187		+2243		+2208			−4943
	−1717		+1922		+1662		+1718		+2003			+283
	−200		+4032		+2226		+678		−186			+2609
	+3547		−1872		+495		−841		−2037			+4970
	+934		+1186		+223		−2916		−1091			+5424
	−131		+466		−1216		−1837		−813			+3137
	−1736		−1480		−3036		−91		−278			+6387
	−4584		−3972		−3298		−885		−1650			+2024
	−1278		−2612		−2501		−609		−2486			+1645
	+3003		−405		−2633		−1850		−2231			−2145
	−17		+640		−2180		−2878		−63			−1562
	+1266		+438		−2780		−1066		+848			+1647
	+1381		−1710		−732		−97		−1624			−1226
	+2670		−1175		+1705		+6119		+935			−3967
	+447		−2855		−221		−971		+972			−975
	−3364		−3189		+95		−2949		−1868			+389
	+63		+1245		+1034		−3154		−1949			−2740
	+711		+3067		+511		−2352		−4211			−2134
	−1678		−2422		−1457		−4473		−671			−289
	−1839		−6326		−4852		+1896		+2039			+873
	+1593		−4595		−3774		+1404		+4490			+3999
	−1696		−2606		−1807		+2189		+2979			+4074

Eötvös $\frac{U}{r}$ Neumayerhez 2)

λ	$\frac{u}{r}$	$\varphi = +20$ $\frac{u}{r}_{sin\,1}$	$\frac{u}{r}_{cos\,1}$	$\frac{u}{r}_{sin\,2}$	$\frac{u}{r}_{cos\,2}$	$\frac{u}{r}$	$\varphi = +40$ $\frac{u}{r}_{sin\,1}$	$\frac{u}{r}_{cos\,1}$	$\frac{u}{r}_{sin\,2}$	$\frac{u}{r}_{cos\,2}$
0	+103	0	+103	0	+103	+194	0	+194	0	+194
10	+90					+186				
20	+80	+27	+75	+51	+61	+180	+62	+169	+116	+138
30	+74					+177				
40	+69	+44	+53	+68	+12	+176	+113	+135	+173	+31
50	+66					+178				
60	+66	+57	+33	+57	−33	+180	+156	+90	+156	−90
70	+68					+183				
80	+72	+71	+12	+25	−68	+185	+182	+32	+63	−174
90	+74					+188				
100	+76	+75	−13	−26	−71	+190	+187	−33	−65	−179
110	+77					+191				
120	+78	+68	−39	−68	−39	+190	+165	−95	−165	−95
130	+77					+188				
140	+76	+49	−58	−74	+13	+187	+120	−143	−184	+32
150	+78					+186				
160	+80	+27	−75	−51	+61	+186	+64	−175	−120	+142
170	+85					+188				
180	+90	0	−90	0	+90	+191	0	−191	0	+191
190	+102					+199				
200	+113	−39	−106	+73	+87	+207	−71	−195	+133	+159
210	+122					+217				
220	+130	−84	−100	+128	+23	+227	−146	−174	+223	+39
230	+139					+236				
240	+147	−127	−74	+127	−74	+246	−213	−123	+213	−123
250	+155					+256				
260	+164	−162	−28	+56	−154	+261	−257	−45	+89	−245
270	+170					+264				
280	+174	−171	+30	−60	−164	+264	−260	+46	−90	−248
290	+177					+263				
300	+176	−152	+88	−152	−88	+257	−223	+129	−223	−129
310	+172					+250				
320	+163	−105	+125	−161	+28	+240	−154	+184	−236	+42
330	+150					+229				
340	+134	−46	+126	−86	+103	+217	−74	+204	−139	+166
350	+119					+205				

…λ	$\frac{u}{r}\cos\lambda$	$\frac{U}{r}$	$\varphi = +60$ $\frac{u}{r}\sin\lambda$	$\frac{u}{r}\cos\lambda$	$\frac{u}{r}\sin\lambda$	$\frac{u}{r}\cos\lambda$
	+194	+260	0	+260	0	+260
		+255				
6	+138	+251	+86	+236	+161	+192
		+249				
3	+31	+249	+160	+191	+245	+43
		+252				
6	−90	+253	+219	+127	+219	−127
		+255				
3	−174	+257	+253	+45	+88	−242
		+260				
5	−179	+262	+258	−45	−90	−246
		+263				
5	−95	+262	+227	−131	−227	−131
		+261				
4	+32	+260	+167	−199	−256	+45
		+260				
0	+142	+260	+89	−244	−167	+199
		+262				
	+191	+264	0	−264	0	+264
		+270				
3	+159	+274	−94	−257	+176	+210
		+282				
3	+39	+286	−184	−219	+282	+50
		+292				
3	−123	+298	−258	−149	+258	−149
		+304				
	−245	+306	−301	−53	+105	−288
		+306				
	−248	+305	−300	+53	−104	−287
		+304				
3	−129	+298	−258	+149	−258	−149
		+291				
6	+42	+286	−184	+219	−282	+50
		+280				
9	+166	+272	−93	+256	−175	+208
		+266				

φ	$\sum \frac{U}{r}$ (λ=0,10,20,30)	$\sum \frac{u}{r}\sin\lambda$ (λ = 0, 20, 40, 60 …)	$\sum \frac{u}{r}\cos\lambda$	$\sum \frac{u}{r}\sin\lambda$	$\sum \frac{u}{r}\cos\lambda$
−60	−9614	−293	+455	−17	+16
−40	−7226	−463	+447	−56	+41
−20	−4079	−563	+298	−101	+38
0	−170	−554	+154	−126	−24
+20	+3986	−468	+62	−93	−110
+40	+7562	−349	+9	−56	−149
+60	+9815	−213	−25	−25	−98

φ	μ_a	μ_b	μ_c	e	f	g	i	k.	i
−60					−15,11		+14,22		± φ bis
−40					−21,19		+15,51		
−20					−25,38		+9,55		
0		+61,56	+17,11		−28,00		−5,33	−14,17	−5,33
+20	−327,53	+60,95	+21,28	−16,42	−23,37	−40,79	−27,65	−5,93	−9,05
+40	−319,53	+58,89	+33,07	−12,86	−21,19	−49,41	−56,39	~~−58,33~~	−20,44
+60	−311,61	+56,22	+47,78	−10,26	−22,22	−61,58	−87,11	−6,70	−36,45
	−319,5	+59,4	+29,8	−13,2	−22,4	−50,6	−21,0	−8,93	

$2\Sigma(\sin\varphi' + \sin\varphi'' + \cdots) = s_1$

$\varphi' = 0°, \varphi'' = 20°, \varphi''' = 40°$ - ra

$2\Sigma(\sin^2\varphi' \cdots) = s_2$ $\quad 2\Sigma(\sin^3\varphi' + \cdots$

$s_1 = 1,9696$; $s' = 3,2552$; $s_2 = \cdots$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X - X') = -\frac{1}{\mu}\frac{3}{2}s'2\{2(\alpha a_0 - \beta b_0) + (\beta b_0 - \gamma c_0)\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y - Y') = 0$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X\sin\lambda - X'\sin\lambda) = +\frac{1}{2}s_1\beta + \frac{1}{\mu^2}\left(\frac{33}{16}s_1 - \frac{45}{16}s_3\right)\{\beta(3B^2 + C^2 - 4A^2) - 8\alpha AB + 2\gamma BC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y\sin\lambda - Y'\sin\lambda) = -\frac{1}{\mu}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X\cos\lambda - X'\cos\lambda) = -\frac{1}{2}s_1\gamma - \frac{1}{\mu^2}\left(\frac{33}{16}s_1 - \frac{45}{16}s_3\right)\{\gamma(B^2 + 3C^2 - 4A^2) - 8\alpha AC + 2\beta BC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y\cos\lambda - Y'\cos\lambda) = -\frac{1}{\mu}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X\sin 2\lambda - X'\sin 2\lambda) = -\frac{1}{\mu}\frac{3}{\gamma}s'(\gamma b_0 + \beta c_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y\sin 2\lambda - Y'\sin 2\lambda) = +\frac{1}{\mu^2}\frac{15}{8}s'\{\alpha(C$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X\cos 2\lambda - X'\cos 2\lambda) = -\frac{1}{\mu}\frac{3}{\gamma}s'(\beta b_0 - \gamma c_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y\cos 2\lambda - Y'\cos 2\lambda) = +\frac{1}{\mu^2}\frac{15}{\gamma}s'\{\gamma AB$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X\sin^3\lambda - X'\sin^3\lambda) = +\frac{3}{8}s_1\beta + \frac{1}{\mu^2}\frac{9}{32}s_1\{\beta(19B^2 + 3C^2 - 22A^2) - 44\alpha AB + 6\gamma BC\} - \frac{1}{\mu^2}\frac{45}{32}s_3\{\beta(5B^2 + C^2 - 6A^2) - 12\alpha AB + 2\gamma BC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y\sin^3\lambda - Y'\sin^3\lambda) = -\frac{1}{\mu}\frac{9}{8}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(X\cos^3\lambda - X'\cos^3\lambda) = -\frac{9}{8}s_1\gamma + \frac{1}{\mu^2}\frac{9}{32}s_1\{\gamma(22A^2 - 3B^2 - 19C^2) + 44\alpha AC - 6\beta BC\} - \frac{1}{\mu^2}\frac{45}{32}s_3\{\gamma(6A^2 - B^2 - 5C^2) + 12\alpha AC - 2\beta BC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\Sigma(Y\cos^3\lambda - Y'\cos^3\lambda) = -\frac{1}{\mu}\frac{9}{8}$$

$2\sum(\sin^2\varphi' + \dots) = 1_0$

552 ; $1_2 = 1{,}0602$; $1_3 = 0{,}6710$

$$-\frac{1}{r^2}\frac{3}{2}1_1(\gamma a_0 + \alpha c_0)$$

$$-\frac{1}{r^2}\frac{3}{2}1_1(\beta a_0 + \alpha b_0)$$

$=$

$$+\frac{1}{r^2}\frac{15}{8}1'(\alpha(C^2-B^2) + 2\gamma AC - 2\beta AB)$$

$=$

$$+\frac{1}{r^2}\frac{15}{4}1'(\gamma AB + \alpha BC + \beta AC)$$

$=$

$$-\frac{1}{r^2}\frac{9}{8}1_1(\gamma a_0 + \alpha c_0)$$

$$-\frac{1}{r^2}\frac{9}{8}1_1(\beta a_0 + \alpha b_0)$$

$2\sum(\cos\varphi' + \dots) = 0'$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z - Z') = -2\,1_1\alpha$$
$$-\frac{1}{r^2}(9\,1_1 - 15\,1_3)\{\alpha(B^2+C^2-2A^2) + 2\beta AB + 2\gamma AC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z\cos\lambda - Z'\cos\lambda) = -\frac{1}{r}\frac{9}{4}1'(\beta a_0 + \alpha b_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z\sin\lambda - Z'\sin\lambda) = +\frac{1}{r}\frac{9}{4}1'(\gamma a_0 + \alpha c_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z\cos 2\lambda - Z'\cos 2\lambda) =$$
$$+\frac{1}{r^2}(15\,1_1 - 15\,1_3)(\gamma AB + \alpha BC + \beta AC)$$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z\cos 3\lambda - Z'\cos 3\lambda) =$$
$$+\frac{1}{r^2}\left(\frac{15}{2}1_1 - \frac{15}{2}1_3\right)\{\alpha(B^2-C^2) + 2\beta AB - 2\gamma AC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z\sin^2\lambda - Z'\sin^2\lambda) = -\frac{1}{r}\frac{27}{16}1'(\beta a_0 + \alpha b_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\sum(Z\cos^2\lambda - Z'\cos^2\lambda) = +\frac{1}{r}\frac{27}{16}1'(\gamma a_0 + \alpha c_0)$$

$V=5 \quad K_1=4{,}411 \quad K_2=3{,}940 \quad K_3=3{,}559 \quad K'=2{,}879$

$\varphi=0,20,40$ etc.

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} X - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} X = -\frac{1}{r}6K'\Delta_1(\beta a_0+\alpha b_0)\right.\right.$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} X\sin\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} X\sin\lambda = -2K_1\Delta_1\alpha\right.\right.$$

$$+3\frac{\alpha}{r^2}\Big\{(15K_3\Delta_1-12K_1\Delta_1)A^2+(K_1\Delta_1+10K_1\Delta_3-15K_3\Delta_3)B^2+(11K_1\Delta_1-15K_3\Delta_1-10K_1\Delta_3+15K_3\Delta_3)C^2\Big\}$$

$$+6\frac{\beta}{r^2}(K_1\Delta_1+10K_1\Delta_3-15K_3\Delta_3)AB+6\frac{\gamma}{r^2}(11K_1\Delta_1-15K_3\Delta_1-10K_1\Delta_3+15K_3\Delta_3)CA$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} X\cos\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} X\cos\lambda =\right.\right.$$

$$+\frac{1}{r^2}60(\Delta_1-\Delta_3)\left(\frac{3}{2}K_3-K_1\right)\Big\{\gamma AB+\alpha BC+\beta AC\Big\}$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} X\sin 2\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} X\sin 2\lambda =\right.\right. +\frac{1}{r}12K'(\Delta_1-\Delta_3)(\gamma a_0+\alpha c_0)$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} X\cos 2\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} X\cos 2\lambda =\right.\right. -\frac{1}{r}6K'(\Delta_1-2\Delta_3)(\beta a_0+\alpha b_0)$$

$\lambda=0,20,40$ etc. $\quad \Delta_1=5{,}671 \quad \Delta_3=$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} Y = -2V\Delta_1\gamma\right.\right.$$

$$+3\frac{\gamma}{r^2}\Big\{(5K_2-4V)A^2+(V\Delta_1+10K_2\Delta_1-15K_2\Delta_3$$

$$+6\frac{\beta}{r^2}(V\Delta_1+10K_2\Delta_1-15K_2\Delta_3)BC+$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y\sin\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} Y\sin\lambda =\right.\right. +$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y\cos\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} Y\cos\lambda =\right.\right. -\frac{1}{r}12K_1(\Delta$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y\sin 2\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y\sin 2\lambda = -4V(\Delta_1-\Delta_3)\right.\right.$$

$$+\frac{1}{r^2}\frac{3}{2}\beta\Big\{4(\Delta_1-\Delta_3)(5K_2-4V)A^2+3\Big[($$

$$+\Big[(\Delta_1-\Delta_3)$$

$$+\frac{\alpha}{r^2}12(\Delta_1-\Delta_3)(5K_2-4V)AB+\frac{\gamma}{r^2}3\Big[4(\Delta_1-\Delta_3)(V+$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y\sin^2\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} Y\sin^2\lambda =\right.\right. +\frac{1}{r^2}6K_1(K$$

$$\frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=0}^{\lambda=\pi} Y\cos^2\lambda - \frac{r^2}{V}\left\{\int_{-\varphi}^{+\varphi}\Big|_{\lambda=\pi}^{\lambda=2\pi} Y\cos^2\lambda =\right.\right. -\frac{1}{r^2}3K_1(K_3$$

$5{,}671 \qquad \delta_3 = 3{,}822 \qquad \delta_5 = 3{,}056$

$(K_3\delta') = 2{,}172 \qquad (K'\delta_3) = -2{,}291 \qquad (K_2\delta_3) = +0{,}765$

$\nu\delta_1\beta$

$$\frac{r^3}{V}\left\{\int_{\lambda=0}^{\lambda=\pi}\int_{-\gamma}^{+\gamma} Z - \frac{r^3}{V}\left\{\int_{\lambda=\pi}^{\lambda=2\pi}\int_{-\gamma}^{+\gamma} Z = -4K_1\delta_1\beta\right.\right.$$

$$+10K_2\delta_1 - 15K_2\delta_3)B^2 + (3V\delta_1 - 15K_2\delta_1 + 15K_2\delta_3)C^2\Big\}$$

$$+12\frac{\beta}{r^2}\Big\{(5K_3\delta_1 - 4K_1\delta_1)A^2 + (3K_1\delta_1 - 5K_3\delta_3)B^2 + (\delta_1K_1 - 5K_3\delta_1 + 5K_3\delta_3)C^2\Big\}$$

$$-15K_2\delta_3)BC + 6\frac{\alpha}{r^2}(5K_2\delta_1 - 4V\delta_1)AC \qquad +24\frac{\alpha}{r^2}(5K_3\delta_1 - 4K_1\delta_1)AB + 24\frac{\gamma}{r^2}(K_1\delta_1 - 5K_3\delta_1 + 5K_3\delta_3)BC$$

$$l = \qquad +\frac{1}{r}2K_1(\delta_1 - 2\delta_3)(\gamma b_0 + \beta c_0)$$

$$\frac{r^3}{V}\left\{\int_{\lambda=0}^{\lambda=\pi}\int_{-\gamma}^{+\gamma} Z\sin\lambda - \frac{r^3}{V}\left\{\int_{\lambda=\pi}^{\lambda=2\pi}\int_{-\gamma}^{+\gamma} Z\sin\lambda =\right.\right.$$

$$+\frac{1}{r}6\Big\{(3K_2 - 2V)\delta_1(\alpha a_0 - \beta b_0) + \big[3K_2(\delta_1 - \delta_3) - V\delta_1\big](\beta b_0 - \gamma c_0)\Big\}$$

$$-\frac{1}{r}12K_1(\delta_1 - \delta_3)(\beta b_0 - \gamma c_0)$$

$$\frac{r^3}{V}\left\{\int_{\lambda=0}^{\lambda=\pi}\int_{-\gamma}^{+\gamma} Z\cos\lambda - \frac{r^3}{V}\left\{\int_{\lambda=\pi}^{\lambda=2\pi}\int_{-\gamma}^{+\gamma} Z\cos\lambda = \right.\right. \qquad +\frac{1}{r}18K_2(\delta_1 - \delta_3)(\gamma b_0 + \beta c_0)$$

$$-4V(\delta_1 - \delta_3)\beta$$

$$\frac{r^3}{V}\left\{\int_{\lambda=0}^{\lambda=\pi}\int_{-\gamma}^{+\gamma} Z\sin 2\lambda - \frac{r^3}{V}\left\{\int_{\lambda=\pi}^{\lambda=2\pi} Z\sin 2\lambda = \right.\right.$$

$$K_2 - 4V)A^2 + 3\big[(\delta_1 - \delta_3)(4V - 20K_2) + 5K_2(K_3\delta')\big]B^2$$

$$+\big[(\delta_1 - \delta_3)(4V + 40K_2) - 15K_2(K_3\delta')\big]C^2\Big\}$$

$$\frac{\gamma}{r^2}3\big[4(\delta_1 - \delta_3)(V + 10K_2) - 15K_2(K_3\delta')\big]BC$$

$$+\frac{1}{r}6K_1(K'\delta_3)(\gamma b_0 + \beta c_0)$$

$$\frac{r^3}{V}\left\{\int_{\lambda=0}^{\lambda=\pi} Z\sin^2\lambda - \frac{r^3}{V}\left\{\int_{\lambda=\pi}^{\lambda=2\pi} Z\sin^2\lambda = \right.\right.$$

$$+\frac{1}{r}3\Big\{(6K_1\delta_3 - 4V\delta_3)(\alpha a_0 - \beta b_0) + \big[6K_2(\delta_3 - \delta_5) - 2V\delta_3\big](\beta b_0 - \gamma c_0)\Big\}$$

$$-\frac{1}{r}3K_1(K_3\delta')(\beta b_0 - \gamma c_0)$$

$$\frac{r^3}{V}\left\{\int_{\lambda=0}^{\lambda=\pi} Z\cos^2\lambda - \frac{r^3}{V}\left\{\int_{\lambda=\pi}^{\lambda=2\pi} Z\cos^2\lambda = \right.\right. \qquad +\frac{1}{r}\frac{9}{2}K_2(K_3\delta')(\gamma b_0 + \beta c_0)$$

7.

Schmidt Táblázatai.

			$2(1-\frac{3}{2}\sin^2\chi)$
$(2h+i)$	... $\varphi \pm 30$ bis	$= +73{,}00$	... $-0{,}250$
	± 40	$-150{,}01$	$+0{,}238$
	± 50	$-47{,}99$.	$+0{,}760$.

λ	φ=0	+5	−5	+10	−10	+15	−15	+20	−20	+25	−25	+30	−30	+3
0												+298	−216	
10												+268	−250	
20												+255	−287	
30												+254	−320	
40												+258	−355	
50												+266	−380	
60												+280	−401	
70												+297	−417	
80												+312	−426	
90												+325	−439	
100												+334	−458	
110												+335	−479	
120												+328	−498	
130												+310	−510	
140												+284	−511	
150												+265	−489	
160												+253	−461	
170												+259	−433	
180												+272	−399	
190												+290	−381	
200												+310	−367	
210												+335	−354	
220												+358	−343	
230												+385	−329	
240												+409	−313	
250												+436	−291	
260												+462	−261	
270												+484	−226	
280												+501	−189	
290												+509	−153	
300												+478	−121	
310												+449	−100	
320												+415	−96	
330												+378	−111	
340												+355	−138	
350												+328	−176	
												+12335	−11678	

-30	+35	-35	+40	-40	+45	-45	+50	-50	+55	-55	+60	-60
-216			+275	-258			+428	-313				
-250			+262	-288			+420	-334				
-287			+249	-217			+414	-357				
-320			+247	-347			+414	-384				
-355			+256	-278			+424	-411				
-380			+366	-407			+436	-438				
-401			+380	-425			+454	-464				
-417			+297	-459			+469	-487				
-426			+411	-479			+494	-516				
-439			+425	-498			+501	-545				
-458			+429	-519			+511	-582				
-479			+442	-542			+523	-626				
-498			+427	-566			+523	-657				
-510			+418	-591			+511	-675				
-511			+391	-585			+485	-675				
-489			+365	-565			+452	-653				
-461			+348	-540			+435	-627				
-433			+344	-525			+432	-591				
-399			+351	-501			+441	-570				
-381			+267	-482			+458	-548				
-367			+288	-463			+480	-531				
-354			+414	-442			+506	-515				
-343			+444	-428			+537	-507				
-329			+474	-416			+558	-499				
-313			+507	-404			+582	-493				
-291			+541	-387			+611	-477				
-261			+567	-360			+619	-453				
-226			+576	-324			+630	-419				
-189			+586	-284			+620	-375				
-153			+567	-235			+613	-335				
-121			+524	-195			+583	-287				
-100			+500	-172			+546	-260				
-96			+457	-168			+512	-251				
-111			+421	-180			+476	-258				
-138			+411	-202			+457	-274				
-176			+291	-230			+438	-293				
-11678			+15459	-14174			+17993	-16680				

Három pont tenger középen partoktól távol.

	φ	λ	X	Y	Z
1.)	-20°	$+85^\circ$	$+278$	-25	-366
2.)	$+10^\circ$	-130°	$+344$	$+35$	$+147$
3.)	-40°	-135°	$+262$	$+57$	-421

1) $X_1 = +278 = -0{,}9397a - 0{,}3407b + 0{,}0298c - 0{,}7631e + 0{,}0558f + 0{,}0668g - 0{,}3165i + 0{,}6428k$
$+275{,}84$

2) $Y_1 = -25 = \quad -0{,}0872b - 0{,}9962c - 0{,}0298e - 0{,}9254f + 0{,}3407g - 0{,}1631i$
$-25{,}05$

3) $Z_1 = -366 = +0{,}6840a - 1{,}8723b + 0{,}1639c + 0{,}9606e + 0{,}2299f - 0{,}0842g - 1{,}3044i + 0{,}6490k$
$-366{,}0$

4) $X_2 = +344 = -0{,}9848a - 0{,}1330b + 0{,}1116c + 0{,}7198e - 0{,}1684f - 0{,}6040g + 0{,}0297i - 0{,}3420k$
$+343{,}83$

5) $Y_2 = +35 = \quad +0{,}6428b + 0{,}7660c + 0{,}1116e - 0{,}1710f + 0{,}1330g - 0{,}9698i$
$+34{,}63$

6) $Z_2 = +147 = -0{,}3472a + 1{,}5088b - 1{,}2658c + 0{,}3930e + 1{,}4326f - 0{,}3297g - 0{,}2525i + 0{,}9094k$
$+147{,}26$

7) $X_3 = +262 = -0{,}7660a + 0{,}4545b - 0{,}4545c + 0{,}1228e + 0{,}4924f - 0{,}1228g \quad + 0{,}9848k$
$+262{,}32$

8) $Y_3 = +57 = \quad +0{,}7071b + 0{,}7071c - 0{,}4545e \quad - 0{,}4545g - 0{,}7660i$
$+57{,}00$

9) $Z_3 = -421 = +1{,}2856a + 7{,}0832b - 1{,}0832c - 1{,}0446e + 0{,}8802f + 1{,}0446g \quad - 0{,}2396k$
$-441{,}42$

8) $i = -74{,}41 + 0{,}9231b + 0{,}9231c - 0{,}5933e \quad - 0{,}5933g$

7) $0 = -262{,}00 - 0{,}7660\underline{a} + 0{,}4545\underline{b} - 0{,}4545\underline{c} + 0{,}1228\underline{e} + 0{,}4924\underline{f} - 0{,}1228\underline{g} + 0{,}9848\underline{k}$

6) $0 = -128{,}21 - 0{,}3472\underline{a} + 1{,}2757\underline{b} - 1{,}4989\underline{c} + 0{,}5428\underline{e} + 1{,}4326\underline{f} - 0{,}1799\underline{g} + 0{,}9094\underline{k}$

5) $0 = +37{,}16 \quad - 0{,}2524\underline{b} - 0{,}1292\underline{c} + 0{,}6870\underline{e} - 0{,}1710\underline{f} + 0{,}7084\underline{g}$

4) $0 = -346{,}21 - 0{,}9848\underline{a} - 0{,}1056\underline{b} + 0{,}1390\underline{c} + 0{,}7022\underline{e} - 0{,}1684\underline{f} - 0{,}6216\underline{g} - 0{,}3420\underline{k}$

3) $0 = +463{,}06 + 0{,}6840\underline{a} - 3{,}0764\underline{b} - 1{,}0402\underline{c} + 1{,}7345\underline{e} + 0{,}2299\underline{f} + 0{,}6897\underline{g} + 0{,}6490\underline{k}$

2) $0 = +37{,}14 \quad - 0{,}2378\underline{b} - 1{,}1468\underline{c} + 0{,}0670\underline{e} - 0{,}9254\underline{f} + 0{,}4375\underline{g}$

1) $0 = -254{,}45 - 0{,}9397\underline{a} - 0{,}6329\underline{b} - 0{,}2624\underline{c} - 0{,}5753\underline{e} + 0{,}0558\underline{f} + 0{,}2546\underline{g} + 0{,}6428\underline{k}$

7.) $k = +266{,}05 + 0{,}7778a - 0{,}4615b + 0{,}4615c - 0{,}1247e - 0{,}5000f + 0{,}1247g$

7) $K = +266{,}05 + 0{,}7778\,\underline{a} - 0{,}4615\,\underline{b} + 0{,}4615\,\underline{c} - 0{,}1247\,\underline{e} - 0{,}5000\,\underline{f} + 0{,}1247\,\underline{g}$

6) $0 = +113{,}74 + 0{,}3601\,\underline{a} + 0{,}8560\,\underline{b} - 1{,}0792\,\underline{c} + 0{,}4294\,\underline{e} + 0{,}9779\,\underline{f} - 0{,}0665\,\underline{g}$

5) $0 = +37{,}16 - 0{,}2524\,\underline{b} - 0{,}1292\,\underline{c} + 0{,}6870\,\underline{e} - 0{,}1710\,\underline{f} + 0{,}7084\,\underline{g}$

4) $0 = -437{,}20 - 1{,}2508\,\underline{a} + 0{,}0522\,\underline{b} - 0{,}0188\,\underline{c} + 0{,}7448\,\underline{e} + 0{,}0026\,\underline{f} - 0{,}6642\,\underline{g}$

3) $0 = +635{,}73 + 1{,}1888\,\underline{a} - 3{,}3759\,\underline{b} - 0{,}7407\,\underline{c} + 1{,}6536\,\underline{e} - 0{,}0946\,\underline{f} + 0{,}1706\,\underline{g} - 0{,}6088\,\underline{g}$

2) $0 = +37{,}14 - 0{,}2378\,\underline{b} - 1{,}1468\,\underline{c} + 0{,}0670\,\underline{e} - 0{,}9254\,\underline{f} + 0{,}4375\,\underline{g}$

1) $0 = -83{,}43 - 0{,}4397\,\underline{a} - 0{,}9296\,\underline{b} + 0{,}0343\,\underline{c} - 0{,}6555\,\underline{e} - 0{,}2656\,\underline{f} + 0{,}3348\,\underline{g}$

6) $g = +1710{,}38 + 5{,}4151\,a + 12{,}8722\,b - 16{,}2286\,c + 6{,}4571\,e + 14{,}7052\,f$

5) $0 = +1248{,}79 + 3{,}8361\,\underline{a} + 8{,}8663\,\underline{b} - 11{,}6255\,\underline{c} + 5{,}2612\,\underline{e} + 10{,}2462\,\underline{f}$

4) $0 = -1573{,}23 - 4{,}8475\,\underline{a} - 8{,}4975\,\underline{b} + 10{,}7602\,\underline{c} - 3{,}5440\,\underline{e} - 9{,}7646\,\underline{f}$

$0 = +1953{,}75 + 5{,}3617\,\underline{a} + 6{,}5434\,\underline{b} - 13{,}2465\,\underline{c} + 6{,}6294\,\underline{e} + 11{,}2372\,\underline{f}$

3) $0 = -405{,}55 - 2{,}1079\,\underline{a} - 11{,}2125\,\underline{b} + 9{,}1393\,\underline{c} - 2{,}2775\,\underline{e} - 9{,}0471\,\underline{f}$

2) $0 = +785{,}43 + 2{,}3691\,\underline{a} + 5{,}3938\,\underline{b} - 8{,}2468\,\underline{c} + 2{,}8920\,\underline{e} + 5{,}5081\,\underline{f}$

1) $0 = +489{,}21 + 1{,}3733\,\underline{a} + 3{,}3800\,\underline{b} - 5{,}3990\,\underline{c} + 1{,}5063\,\underline{e} + 4{,}6577\,\underline{f}$

5) $f = -121{,}88 - 0{,}3743\,\underline{a} - 0{,}8653\,\underline{b} + 1{,}1346\,\underline{c} - 0{,}5135\,\underline{e}$

4) $0 = -383{,}12 - 1{,}1926\,\underline{a} - 0{,}0482\,\underline{b} - 0{,}3187\,\underline{c} + 1{,}4701\,\underline{e}$

$+584{,}38 + 1{,}1556\,\underline{a} - 3{,}1801\,\underline{b} - 0{,}4968\,\underline{c} + 0{,}8591\,\underline{e}$

3) $0 = +697{,}11 + 1{,}2784\,\underline{a} - 3{,}3840\,\underline{b} - 1{,}1255\,\underline{c} + 2{,}3682\,\underline{e}$

2) $0 = +114{,}30 + 0{,}3074\,\underline{a} + 0{,}6276\,\underline{b} - 1{,}9973\,\underline{c} + 0{,}0636\,\underline{e}$

1) $0 = -78{,}47 - 0{,}3701\,\underline{a} - 0{,}6503\,\underline{b} - 0{,}1144\,\underline{c} - 0{,}8854\,\underline{e}$

4) $c = +253{,}81 + 0{,}7432\,\underline{a} + 0{,}0328\,\underline{b} + 0{,}2168\,\underline{e}$

3) $0 = +1288{,}18 + 2{,}9384\,\underline{a} - 3{,}4063\,\underline{b} - 0{,}6121\,\underline{c}$

2) $0 = +130{,}44 + 0{,}3547\,\underline{a} + 0{,}6297\,\underline{b} - 1{,}9835\,\underline{c}$

1) $0 = +303{,}19 + 1{,}0281\,\underline{a} + 0{,}6793\,\underline{b} + 0{,}3064\,\underline{c}$

3) $c = +2104{,}52 + 4{,}8005\,\underline{a} - 5{,}5649\,\underline{b}$

2) $o = -4043,88 - 9,1671\,\underline{a} + 11,6677\,\underline{b}$

1) $o = +948,01 + 2,4990\,\underline{a} - 1,0258\,\underline{b}$

2) $b = +346,59 + 2,7857\,a$

$a = -349,95$

$b = +71,63$

$c = +25,98$

$e = +1,71$

$f = -24,27$

$g = -30,07$

$k = -19,03$

$i = +32,52$

4) $e = +260,61 + 0,8712\,\underline{a} + 0,0328\,\underline{b} + 0,2168\,\underline{c}$

3) $o = +1328,66 + 3,1995\,\underline{a} - 3,3063\,\underline{b} - 0,6121\,\underline{c}$

2) $o = +131,26 + 0,3590\,\underline{a} + 0,0291\,\underline{b} - 1,9835\,\underline{c}$

1) $o = +314,59 + 1,0883\,\underline{a} + 0,6793\,\underline{b} + 0,3064\,\underline{c}$

3) $c = +2170,66 + 5,2271\,\underline{a} - 5,4016\,\underline{b}$

2) $o = -4174,24 - 10,0090\,\underline{a} + 11,3438\,\underline{b}$

1) $o = +979,68 + 2,6899\,\underline{a} - 0,9758\,\underline{b}$

2) $b = +367,98 + 0,8827\,\underline{a}$

$a = +339,31$

$b = +68,61$

$c = +26,45$

$e = -0,64$

$f = -24,36$

$g = -28,96$

$k = -8,85$

$i = +20,67$

$0 = +808{,}27 + 1{,}8525\,a - 3{,}1519\,b - 0{,}3105\,c$

3) ~~$0 = +314{,}29 + 3{,}1995\,a - 3{,}3063\,b - 0{,}6421\,c$~~

2) $0 = +130{,}87 + 0{,}3590\,a + 0{,}6297\,b - 1{,}9835\,c$

1) $0 = +309{,}21 + 1{,}0883\,a + 0{,}6793\,b + 0{,}3064\,c$

3) $c = +2147{,}19 + 5{,}2271\,a - 5{,}4076\,b$

2) $0 = -428{,}08 - 10{,}0090\,a + 11{,}3498\,b$

1) $0 = +967{,}14 + 2{,}6859\,a - 0{,}9758\,b$

2) * $b = +363{,}91 + 0{,}8823\,a$

$a = -334{,}61$

$b = +68{,}68$

$c = +27{,}17$

3) $c = 2603{,}12 + 5{,}9662\,a - 10{,}1510\,b$

2) $0 = -5032{,}42 - 11{,}4750\,a + 20{,}7642\,b$

1) $a = +1106{,}81 + 2{,}9163\,a - 2{,}4310\,b$

2) $b = +242{,}36 + 0{,}5526\,a$

$a = -329{,}09$

$b = +60{,}50$

$c = +25{,}56$

$e = +1{,}17$

$f = -22{,}65$

$g = -33{,}23$

$k = +1{,}29$

$i = +24{,}05$

Kiegyenlítés

$X_1 = +275{,}84$

$Y_1 = -25{,}05$

$Z_1 = -366{,}0$

$X_2 = +343{,}83$

$Y_2 = +34{,}63$

$Z_2 = +147{,}26$

$X_3 = +262{,}32$

$Y_3 = +57{,}00$

$Z_3 =$

ábrákhoz.

$\sum(\cos\varphi' + \cos\varphi'' + \dots \cos\varphi^{(n)}) = K_1$

$\varphi' = 0°, \varphi'' = 20°, \varphi''' = 40° \dots$

$\sum(\cos^2\varphi' + \dots \cos^2\varphi^{(n)}) = K_2$ $\sum(\cos^2\varphi' +$

$K_1 = 4,4114$; $K' = 2,8792$; $K_2 = 3,$

$18K_1 = 79,405$ $18K' = 51,826$ $18K_2 =$

$$\frac{r^3}{v}\int\frac{1}{n}\{X = -K_1\alpha$$

$$+\frac{1}{r^2}\left(9K_1 - \frac{45}{4}K_3\right)\{\alpha(B^2+C^2-2A^2) + 2\beta AB + 2\gamma AC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\{X\sin\lambda = -\frac{1}{r}\frac{3}{2}K'(\beta a_0 + \alpha b_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\{X\cos\lambda = +\frac{1}{r}\frac{3}{2}K'(\gamma a_0 + \alpha c_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\{X\sin 2\lambda =$$

$$-\frac{1}{r^2}\left(\frac{15}{2}K_1 - \frac{45}{4}K_3\right)(\gamma AB + \alpha BC + \beta AC)$$

$$\frac{r^3}{v}\int\frac{1}{n}\{X\cos 2\lambda =$$

$$-\frac{1}{r^2}\left(\frac{15}{4}K_1 - \frac{45}{8}K_3\right)\{\alpha(B^2-C^2) + 2\beta AB - 2\gamma AC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\{X\sin^2\lambda = -\frac{1}{r}\frac{9}{8}K'(\beta a_0 + \alpha b_0)$$

$$\frac{r^3}{v}\int\frac{1}{n}\{X\cos^2\lambda = +\frac{1}{r}\frac{9}{8}K'(\gamma a_0 + \alpha c_0)$$

$$-\frac{1}{r^2}\frac{9}{32}K_1\{\gamma(3B^2+19C^2-22A^2) - 44\alpha AC + 6\beta BC\}$$

$$+\frac{1}{r^2}\frac{45}{32}K_3\{\gamma(B^2+5C^2-6A^2) - 12\alpha AC + 2\beta BC\}$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y = 0$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y\sin\lambda = -\frac{1}{2}V\gamma$$

$$+\frac{1}{r^2}\left(\frac{3}{4}V - \frac{15}{16}K_2\right)\{\gamma(B^2+3C^2-4A^2)$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y\cos\lambda = -\frac{1}{2}V\beta$$

$$+\frac{1}{r^2}\left(\frac{3}{4}V - \frac{15}{16}K_2\right)\{\beta(3B^2+C^2-$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y\sin 2\lambda = -\frac{1}{r}\frac{3}{2}K_1(\beta$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y\cos 2\lambda = +\frac{1}{r}\frac{3}{2}K_1(\gamma$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y\sin^2\lambda = -\frac{3}{8}V\gamma$$

$$+\frac{1}{r^2}\frac{9}{16}\{\gamma(B^2+3C^2-4A^2)$$

$$-\frac{1}{r^2}\frac{45}{32}K_2\{\gamma(B^2+C^2-2A^2)$$

$$\frac{r^3}{v}\int\frac{1}{n}\{Y\cos^2\lambda = -\frac{3}{8}V\beta$$

$$+\frac{1}{r^2}\frac{9}{16}\{\beta(3B^2+C^2-4A^2)$$

$$-\frac{1}{r^2}\frac{45}{32}K_2\{\beta(B^2+C^2-2A^2)$$

$\sum(\cos^2\varphi' + \dots + \cos^2\varphi^{(n)}) = K_0$

92 ; $K_2 = 3,9396$; $K_3 = 3,5586$

826 $18K_2 = 70,913$ $18K_3 = 64,055$

$\sum(\cos 2\varphi' + \dots + \cos 2\varphi^{(n)}) = K'$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z = -\frac{1}{r}\left(3V - \frac{9}{2}K_2\right)\left\{2(\alpha a_0 - \beta b_0) + (\beta b_0 - \gamma c_0)\right\}$$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z\sin\lambda = -K_1\beta$$
$$+\frac{1}{\mu^2}\left(3K_1 - \frac{15}{4}K_3\right)\left\{\beta(3B^2 + C^2 - 4A^2) - 8\alpha AB + 2\gamma BC\right\}$$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z\cos\lambda = +K_1\gamma$$
$$-\frac{1}{r^2}\left(3K_1 - \frac{15}{4}K_3\right)\left\{\gamma(B^2 + 3C^2 - 4A^2) - 8\alpha AC + 2\beta BC\right\}$$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z\sin 2\lambda = +\frac{1}{r}\frac{9}{4}K_2(\gamma b_0 + \beta c_0)$$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z\cos 2\lambda = +\frac{1}{r}\frac{9}{4}K_2(\beta b_0 - \gamma c_0)$$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z\sin^2\lambda = -\frac{3}{4}K_1\beta$$
$$+\frac{1}{\mu^2}\frac{9}{4}K_1\left\{\beta(3B^2 + C^2 - 4A^2) - 8\alpha AB + 2\gamma BC\right\}$$
$$-\frac{1}{r^2}\frac{15}{8}K_3\left\{\beta(5B^2 + C^2 - 6A^2) - 12\alpha AB + 2\gamma BC\right\}$$

$$\frac{r^3}{V}\int\frac{1}{n}\sum Z\cos^2\lambda = +\frac{3}{4}K_1\gamma$$
$$-\frac{1}{\mu^2}\frac{9}{4}K_1\left\{\gamma(B^2 + 3C^2 - 4A^2) - 8\alpha AC + 2\beta BC\right\}$$
$$+\frac{1}{\mu^2}\frac{15}{8}K_3\left\{\gamma(B^2 + 5C^2 - 6A^2) - 12\alpha AC + 2\beta BC\right\}$$

$\left\{\gamma(B^2+3C^2-4A^2) + 2\beta BC - 8\alpha AC\right\}$

$\left\{\beta(3B^2+C^2-4A^2) - 8\alpha AB + 2\gamma BC\right\}$

$-\frac{1}{r}\frac{3}{2}K_1(\beta b_0 - \gamma c_0)$

$+\frac{1}{r}\frac{3}{2}K_1(\gamma b_0 + \beta c_0)$

$\left\{\gamma(B^2+3C^2-4A^2) - 8\alpha AC + 2\beta BC\right\}$

$\left\{\gamma(B^2+C^2-2A^2) - 4\alpha AC + 2\beta BC\right\}$

$\left\{\beta(3B^2+C^2-4A^2) - 8\alpha AB + 2\gamma BC\right\}$

$\left\{\beta(B^2+C^2-2A^2) - 4\alpha AB + 2\gamma BC\right\}$

$\nu = 5 \qquad k_1 = 4{,}411 \qquad k_2 = 3{,}940 \qquad k_3 = 3{,}559 \qquad k' = 2{,}879$

$\varphi = \pm 40, \pm 20, 0$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} X - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} X = -2k' s_1 e$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} X \sin\delta - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} X \sin\delta = -2k_1 s_1 \mu_a$$

$$\sum_{0}^{\pi}\int X \cos\delta - \sum_{\pi}^{2\pi}\int X \cos\delta = 0$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} X \sin\delta - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} X \sin\delta = +4k'(s_1 - s_3)\, g$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} X \cos 2\delta - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} X \cos 2\delta = -2k'(s_1 - 2s_3)\, e$$

$\lambda = 0, 10, 20 \ldots, 170 \qquad s_1 = 11{,}432 \qquad s_3 =$

$s_1 - s_3 = 3{,}789$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} Y - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} Y = -2\nu s_1 \mu_c$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} Y \sin\delta - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} Y \sin\delta = +2k_1(s_1 - 2s_3)\, f$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} Y \cos\delta - \sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} Y \cos\delta = -4k_1(s_1 - s_3)\, i$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} Y \sin\delta - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} Y \sin\delta = -4\nu(s_1 - s_3)\, h$$

$$\sum_{0}^{\pi}\int_{-\varphi}^{+\varphi} Y \cos 2\delta - \sum_{\pi}^{2\pi}\int_{-\varphi}^{+\varphi} Y \cos 2\delta = -2\nu(s_1 - 2s_3)\, k$$

$s_3 = 7,643$

$s_3 = 3,789$ $\qquad s_1 - 2s_3 = -3,854$

$s_1 \mu_c$

$k_1(s_1 - 2s_3) f$

$(s_1 - s_3)\, i$

$4\nu(s_1 - s_3)\mu_b$

$2\nu(s_1 - 2s_3)\mu_c$

$\underline{\nu = 7}\,\nu c \quad k_1 = 5,411 \quad k_2 = 4,440 \quad k_3 = 0,809 \quad k' = 1,879$

$$\sum\int_{0-\varphi}^{\pi+\varphi} Z - \sum\int_{\pi-\varphi}^{2\pi+\varphi} Z = -4k_1 s_1 \mu_b$$

$$\sum\int_{0-\varphi}^{\pi+\varphi} Z \sin\lambda - \sum\int_{\pi-\varphi}^{2\pi+\varphi} Z \sin\lambda = +6k_2(s_1 h + (s_1 - s_3) i) - 2\nu s_1(2h + i)$$
$$= (6k_2 s_1 - 4\nu s_1) h + (6k_2(s_1 - s_3) - 2\nu s_1)\, i$$

$$\sum\int_{0-\varphi}^{\pi+\varphi} Z \cos\lambda - \sum\int_{\pi-\varphi}^{2\pi+\varphi} Z \cos\lambda = +6k_2(s_1 - s_3) f.$$

$$\sum\int_{0-\varphi}^{\pi+\varphi} Z \sin 2\lambda - \sum\int_{\pi-\varphi}^{2\pi+\varphi} Z \sin 2\lambda = +8k_1(s_1 - s_3)\mu_c$$

$$\sum\int_{0-\varphi}^{\pi+\varphi} Z \cos 2\lambda - \sum\int_{\pi-\varphi}^{2\pi+\varphi} Z \cos 2\lambda = -4k_1(s_1 - 2s_3)\mu_b$$