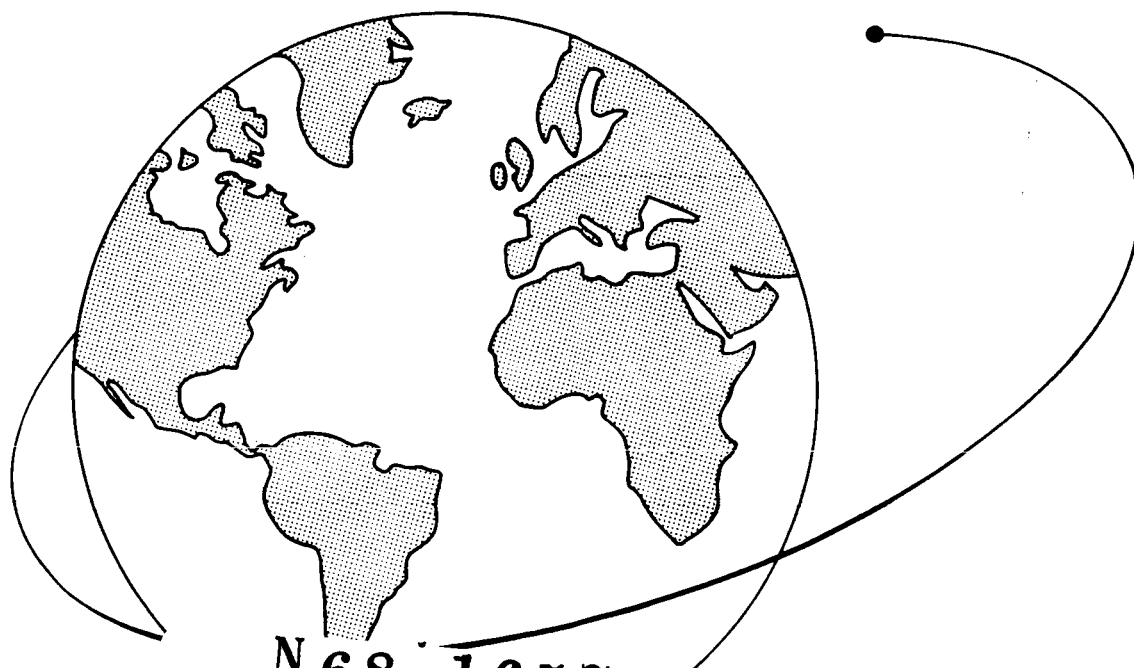


ON THE GRAVITY GRADIENT AT SATELLITE ALTITUDES

W. KÖHNLEIN



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W. Köhnlein

July 28, 1967

Smithsonian Institution
Astrophysical Observatory
Cambridge, Massachusetts 02138

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
ABSTRACT	v
1 INTRODUCTION	1
2 GRAVITY GRADIENT, COMPONENTS	3
3 NUMERICAL ANALYSIS	7
3.1 Shapes of the Equipotential Surfaces	7
3.2 Horizontal Gravity Gradient	11
3.3 Vertical Gravity Gradient	16
3.4 Accuracy of the Gravity Gradient	19
3.5 Constants and Coefficients Used	21
4 ACKNOWLEDGMENTS	24
REFERENCES	25
NUMBER MAPS 1 TO 7	26
BIOGRAPHICAL NOTE	51

LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1	Geocentric radii: Normalized difference.	10
2	Horizontal gravity gradient: Normalized difference	13
3	Vertical gravity gradient: Normalized difference.	18

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Geocentric radius (zonal part) in meters	8
2	Conversion factors k (for zonal part)	11
3	Horizontal gravity gradient (meridional, zonal part) in sec^{-2}	12
4	Anomalous range of the geocentric radius and the gravity gradient	15
5	Vertical gravity gradient (zonal part) in sec^{-2}	17
6	Spread between the zonal results (Kozai/Gaposchkin) — (Kaula CA) in sec^{-2}	20

LIST OF NUMBER MAPS

<u>Number Map</u>	<u>Page</u>
1 Shapes of the equipotential surfaces	27
2 Horizontal anomalous gravity gradient along $\lambda = \text{const}$	31
3 Horizontal anomalous gravity gradient along $\phi = \text{const}$	35
4 Total horizontal anomalous gravity gradient	39
5 Vertical anomalous gravity gradient	43
6 Horizontal and vertical spread of the gravity gradient; 0-km elevation	47
7 Horizontal and vertical spread of the gravity gradient; 10,000-km elevation	49

ABSTRACT

The horizontal and vertical components of the gravity gradient are computed along equipotential surfaces at altitudes of 0, 500, 1000, 5000, 10 000, 50 000, and 100 000 km, from Kozai's (1964) and Gaposchkin's (1966) harmonic coefficients. Accuracy estimates for the gravity gradients, as obtained from satellite orbits, are derived from a comparison with Kaula's (1966) CA solution.

RÉSUMÉ

Les composantes horizontales et verticales de la gravité sont calculées le long de surfaces équipotentielle aux altitudes 0, 500, 1000, 5000, 10 000, 50 000, et 100 000 km, à partir des coefficients harmoniques de Kozai (1964) et Gaposchkin (1966).

Des évaluations sur la précision des gradients de gravité, obtenus à partir des orbites de satellites, sont dérivées par comparaison avec la CA solution de Kaula (1966).

КОНСПЕКТ

Высчитаны по гармоническим коэффициентам Козая (1964) и Гапочкина (1966) горизонтальные и вертикальные составляющие градиента силы тяжести вдоль эквипотенциальных поверхностей на высотах в 0, 500, 1000, 5000, 10 000, 50 000 и 100 000 км. Оценки точности градиентов силы тяжести, полученных с помощью спутниковых орбит были выведены из сравнения с СА решением Каула (1966).

ON THE GRAVITY GRADIENT AT SATELLITE ALTITUDES

W. Köhnlein

1. INTRODUCTION

The earth's gravitational field is currently deduced from the perturbation of satellite orbits and the analysis of gravity anomalies, i. e., direct gravity measurements at the earth's surface. A third source may eventually become available, namely, the gravity gradients determined with gradiometers in orbiting satellites (Wollard, 1966). The purpose of this paper is to investigate the magnitude of the gravity gradient field components and their accuracies at present.*

However, one limitation should be mentioned: the gravity gradient field as derived from satellite orbits gives only a relatively smooth pattern because of the low-degree harmonics (up to 15, 14) used in the analysis. The actual disturbances near the surface of the earth can be several magnitudes larger, and it is that local short-periodic field that we would hope to measure by orbiting gradiometers. For example, let us consider a satellite altitude of about 160 km and a gravitational disturbance of about 100 mgal on the earth's surface in an area with a linear extension of a few hundred kilometers. Roughly speaking, this disturbance can be picked up by harmonic coefficients of degree 100 or so, resulting in a correspondingly larger (~ 100) effect than the low-order terms of, say, n below 10. At 160-km

This work was supported in part by grant NsG 87-60 from the National Aeronautics and Space Administration.

*In one sense, this is an extension, to one higher derivative, of previous presentations of the geopotential (Köhnlein, 1966a) obtained at satellite altitudes.

elevation we get approximately 1/10 of this magnitude, owing to the coefficient $(a/r)^n$ of equation (1) found in Section 2. At higher satellite altitudes (about 500 km and above) the measurable effect is well below the present accuracy of string gradiometers, i. e., 10^{-8} sec^{-2} .

2. GRAVITY GRADIENT, COMPONENTS

Let us denote the earth's gravitational potential in free space by

$$U = \frac{GM}{r} \left[1 + \sum_{n=2}^{\infty} \sum_{m=0}^n \left(\frac{a}{r} \right)^n (C_{nm} \cos m\lambda + S_{nm} \sin m\lambda) P_{nm}(\sin \phi) \right], \quad (1)$$

where GM is the gravitational constant times the mass of the earth, a is the equatorial radius of the earth, r is the geocentric radius, ϕ is the geocentric latitude, λ is the geocentric longitude, C_{nm}, S_{nm} are the harmonic coefficients, and $P_{nm}(\sin \phi)$ are the associated Legendre functions. Then we obtain the gravitation

$$g = \left[\left(\frac{\partial U}{\partial r} \right)^2 + \frac{1}{r^2} \left(\frac{\partial U}{\partial \phi} \right)^2 + \frac{1}{r^2 \cos^2 \phi} \left(\frac{\partial U}{\partial \lambda} \right)^2 \right]^{1/2} \quad (2)$$

Hence, the gravity gradient in question is

$$\nabla g = \frac{\partial g}{\partial x} i + \frac{\partial g}{\partial y} j + \frac{\partial g}{\partial z} k, \quad (3)$$

where x, y, z are rectangular coordinates (with the origin at the mass center of the earth), and i, j, k denote the unit vectors along their axes. To get a picture of the magnitude of the field components, we will project ∇g onto a local coordinate system that consists of the latitude and longitude curves of an equipotential surface and its normal, at the point $\vec{r}$ under consideration. We can then derive the horizontal gravity gradient components along $\phi = \text{const}$ and $\lambda = \text{const}$, respectively, on $U = \text{const}$ (see Köhnlein, 1967):

$$\nabla g_{\phi = \text{const}} = \left(\frac{\partial g}{\partial \lambda} - \frac{\partial g}{\partial r} \frac{\partial U / \partial \lambda}{\partial U / \partial r} \right) \left[r^2 \cos^2 \phi + \left(\frac{\partial U / \partial \lambda}{\partial U / \partial r} \right)^2 \right]^{-1/2}, \quad (4)$$

and

$$\nabla g_{\lambda = \text{const}} = \left(\frac{\partial g}{\partial \phi} - \frac{\partial g}{\partial r} \frac{\partial U / \partial \phi}{\partial U / \partial r} \right) \left[r^2 + \left(\frac{\partial U / \partial \phi}{\partial U / \partial r} \right)^2 \right]^{-1/2}, \quad (5)$$

which combined give a total horizontal gravity gradient

$$\nabla g_{\text{horiz}} \approx \left[(\nabla g_{\phi = \text{const}})^2 + (\nabla g_{\lambda = \text{const}})^2 \right]^{1/2}. \quad (6)$$

The approximate sign in equation (6) corresponds to the fact that the geocentric latitude and longitude curves on $U = \text{const}$ do not, in general, intersect perpendicularly. However, the deviation is so small that for practical purposes the equal sign can be taken instead.

Analogously (Köhnlein, 1967), we obtain the vertical component of the gravity gradient:

$$\nabla g_{\text{vert}} = - \frac{1}{g} \left(\frac{\partial U}{\partial r} \frac{\partial g}{\partial r} + \frac{1}{r} \frac{\partial U}{\partial \phi} \frac{\partial g}{\partial \phi} + \frac{1}{r^2 \cos^2 \phi} \frac{\partial U}{\partial \lambda} \frac{\partial g}{\partial \lambda} \right), \quad (7)$$

i. e., the variation of gravitation along the gradient line (plumb line) of $U = \text{const}$.

In the numerical analysis (Section 3) we treat the above expressions in two steps. First, we consider only the zonal rotationally symmetric part, and then we add to it a correction term that gives the combined zonal plus nonzonal contributions. This procedure has the advantage of handling mainly small numbers (see Number Maps).

The zonal part is obtained by setting all harmonic coefficients of order $m > 0$ to zero. Hence, we are dealing also with a local zonal coordinate system onto which the zonal gravity gradient is projected; the relation between the zonal and the combined zonal plus nonzonal gravitational fields is established by

$$U(r, \phi, \lambda, C_{nm}, S_{nm}) = \bar{U}(\bar{r}, \phi, C_{n0}) \quad , \quad (8)$$

with the bar denoting the zonal part. Thence the expressions for the horizontal components of ∇g follow:

$$\nabla \bar{g}_{\lambda} = \text{const} = \left(\frac{\partial \bar{g}}{\partial \phi} - \frac{\partial \bar{g}}{\partial \bar{r}} \frac{\partial \bar{U}/\partial \phi}{\partial \bar{U}/\partial \bar{r}} \right) \left[\bar{r}^2 + \left(\frac{\partial \bar{U}/\partial \phi}{\partial \bar{U}/\partial \bar{r}} \right)^2 \right]^{-1/2} \quad , \quad (9)$$

with the anomalous meridional correction

$$\delta \nabla g_{\lambda} = \text{const} = \nabla g_{\lambda} = \text{const} - \nabla \bar{g}_{\lambda} = \text{const} \quad (10)$$

and the anomalous correction along the geocentric latitude curves

$$\delta \nabla g_{\phi} = \text{const} = \nabla g_{\phi} = \text{const} \quad , \quad (11)$$

since

$$\nabla \bar{g}_{\phi} = \text{const} = 0 \quad . \quad (12)$$

From equations (10) and (11) we can compute an anomalous horizontal gravity gradient

$$\delta \nabla g_{\text{horiz}} \approx \left[(\delta \nabla g_{\lambda = \text{const}})^2 + (\delta \nabla g_{\phi = \text{const}})^2 \right]^{1/2}, \quad (13)$$

which gives the amount of deviation produced by the nonzonal harmonic coefficients ($m > 0$).

The vertical component of ∇g is also split up into a zonal part

$$\nabla \bar{g}_{\text{vert}} = -\frac{1}{\bar{g}} \left(\frac{\partial \bar{U}}{\partial \bar{r}} \frac{\partial \bar{g}}{\partial \bar{r}} + \frac{1}{\bar{r}^2} \frac{\partial \bar{U}}{\partial \phi} \frac{\partial \bar{g}}{\partial \phi} \right) \quad (14)$$

and a correction term

$$\delta \nabla g_{\text{vert}} = \nabla g_{\text{vert}} - \nabla \bar{g}_{\text{vert}}, \quad (15)$$

which follow directly from equation (7).

3. NUMERICAL ANALYSIS

The components of the gravity gradient are computed along equipotential surfaces $\bar{U} = \text{const}$ and $U = \text{const}$, at altitudes 0, 500, 1000, 5000, 10 000, 50 000, and 100 000 km above the earth's equator (zero elevation, for example, means only that $\bar{r}$ of $\bar{U} = \text{const}$ has the value $\bar{r} = 6,378,165$ m at $\phi = 0^\circ$). The harmonic coefficients used are Kozai's (1964) zonal and Gaposchkin's (1966) nonzonal sets, both of which are listed in Section 3.5. Kaula's (1966) CA solution, which is a combination of a satellite solution with gravity anomalies, serves for an accuracy estimate of the gravity gradients currently obtained at satellite altitudes.

3.1 Shapes of the Equipotential Surfaces

As mentioned in Section 2, we consider the zonal gravity gradient along the equipotential surface $\bar{U} = \text{const}$ and, analogously, the combined zonal plus nonzonal gravity gradients along $U = \text{const}$. Both surfaces have, in general, a different geocentric radius,

$$r(\phi, \lambda) \neq \bar{r}(\phi) \text{ for } U = \bar{U} ,$$

whose zonal part is given in Table 1 for the different altitudes. If we add the correction term

$$\Delta r(\phi, \lambda) = r(\phi, \lambda) - \bar{r}(\phi) , \tag{16}$$

shown in Number Maps 1, we obtain, in the geocentric direction ϕ, λ , the corresponding geocentric radius r of $U = \text{const}$.

Table 1. Geocentric radius (zonal part) in meters

ϕ°	Elevation						
	0 km	500 km	1 000 km	5 000 km	10 000 km	50 000 km	100 000 km
90	6 367 812	6 868 565	7 369 216	11 372 362	16 374 133	56 376 993.4	106 377 544.0
80	6 368 122	6 868 853	7 369 485	11 372 537	16 374 255	56 377 028.7	106 377 562.7
70	6 369 016	6 869 683	7 370 259	11 373 039	16 374 604	56 377 130.4	106 377 616.6
60	6 370 389	6 870 956	7 371 446	11 373 810	16 375 140	56 377 286.2	106 377 699.2
50	6 372 076	6 872 520	7 372 904	11 374 756	16 375 797	56 377 477.3	106 377 800.6
40	6 373 871	6 874 185	7 374 456	11 375 763	16 376 497	56 377 680.8	106 377 908.4
30	6 375 561	6 875 752	7 375 917	11 376 710	16 377 155	56 377 871.9	106 378 009.7
20	6 376 940	6 877 031	7 377 109	11 377 483	16 377 692	56 378 027.8	106 378 092.3
10	6 377 846	6 877 870	7 377 891	11 377 989	16 378 043	56 378 129.6	106 378 146.3
0	6 378 165	6 878 165	7 378 165	11 378 165	16 378 165	56 378 165.0	106 378 165.0
-10	6 377 853	6 877 877	7 377 897	11 377 991	16 378 044	56 378 129.7	106 378 146.3
-20	6 376 954	6 877 043	7 377 119	11 377 487	16 377 694	56 378 028.0	106 378 092.4
-30	6 375 574	6 875 763	7 375 927	11 376 715	16 377 157	56 377 872.1	106 378 009.8
-40	6 373 879	6 874 193	7 374 463	11 375 766	16 376 499	56 377 680.9	106 377 908.4
-50	6 372 079	6 872 522	7 372 905	11 374 756	16 375 797	56 377 477.3	106 377 800.6
-60	6 370 381	6 870 949	7 371 439	11 373 807	16 375 138	56 377 286.1	106 377 699.2
-70	6 368 993	6 869 663	7 370 242	11 373 033	16 374 601	56 377 130.1	106 377 616.6
-80	6 368 088	6 868 824	7 369 460	11 372 527	16 374 250	56 377 028.3	106 377 562.6
-90	6 367 775	6 868 533	7 369 189	11 372 351	16 374 128	56 376 993.0	106 377 543.9

Example: The geocentric radius r in $\phi = 30^\circ$, $\lambda = 110^\circ$, and at the altitude 500 km is:

$$\bar{r}(\phi) = 6\,875\,752 \text{ m zonal part (Table 1)}$$

$$\Delta r(\phi, \lambda) = \underline{\quad -10 \text{ m correction term (Number Map 1) \quad}}$$

$$r(\phi, \lambda) = 6\,875\,742 \text{ m}$$

The equatorial radii of Table 1 are obtained from the earth's equatorial radius $a = 6,378,165 \text{ m}$ by adding the corresponding elevations. At 0-km elevation, the equipotential surface $\bar{U} = \text{const}$ touches the earth only along the equator, while the polar regions (of $\bar{U} = \text{const}$) are about 11 km above the earth's surface. With increasing elevation, the flattening of $\bar{U} = \text{const}$ decreases monotonically (as shown in Figure 3 of Köhnlein, 1966b).

Figure 1 gives the difference between the zonal radii and the ellipsoidal radii of an ellipsoidal potential field $\bar{U}_e$ (see also Köhnlein, 1966a). The radii are related by the expression

$$\bar{U}(\bar{r}, \phi, C_{n0}) = U_e(r_e, \phi, K_n) \quad , \quad (17)$$

where the harmonic coefficients K_n are computed according to Köhnlein (1966a). This ellipsoidal field, although artificial, is a convenient tool for comparing an asymmetric field with a regular one. The anomalous differences of Figure 1, for example, immediately show the completely different pattern of the Northern Hemisphere from that of the Southern.

Example: The normalized difference $\bar{r} - r_e$ (Figure 1) in $\phi = 70^\circ$ at 1000-km elevation is 0.42, which we must multiply by the conversion factor $k = 16$ of Table 2 to get $\bar{r} - r_e$ in meters:

$$\bar{r} - r_e \approx 7 \text{ m (at 1000-km elevation) } .$$

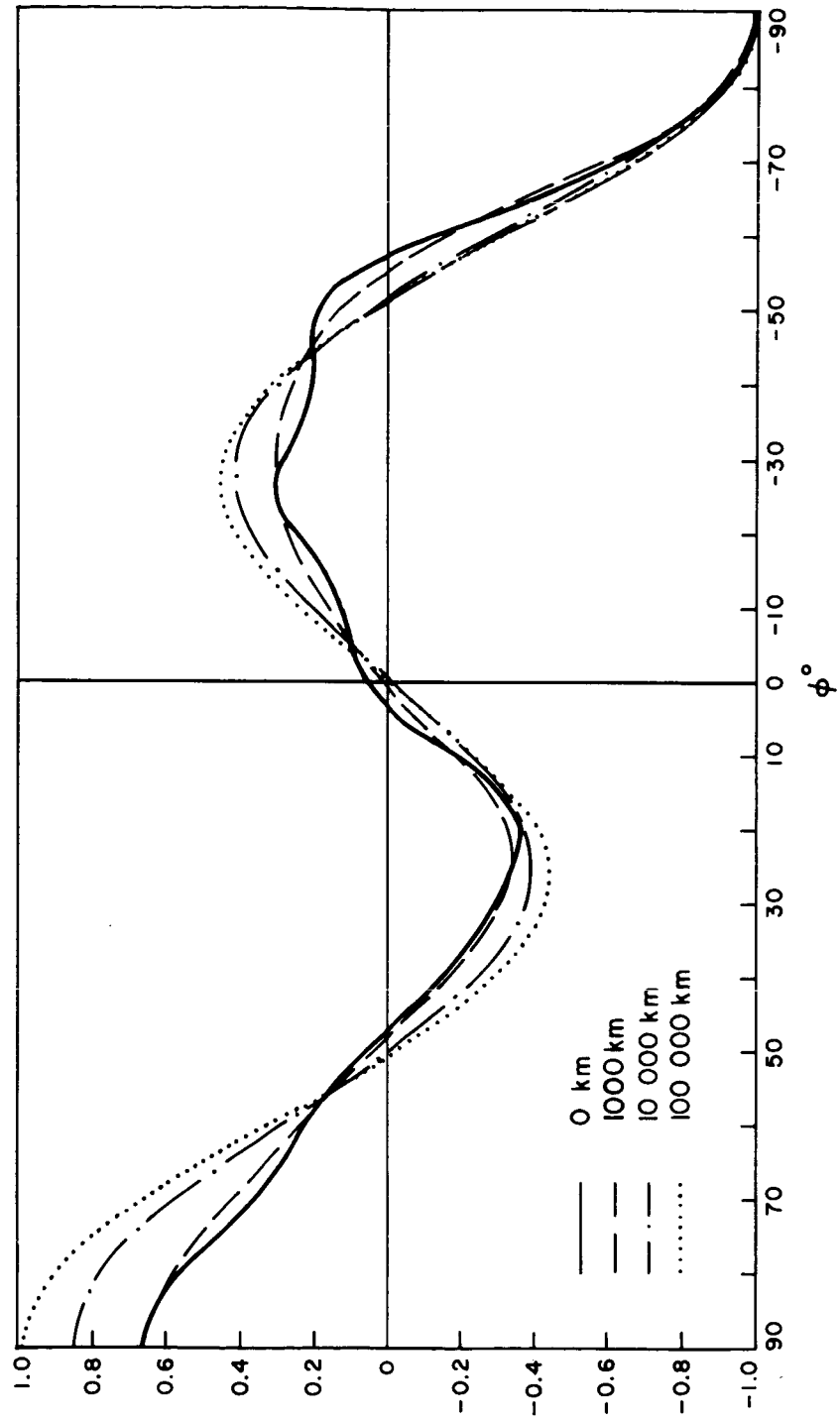


Figure 1. Geocentric radii: Normalized difference $(\bar{r} - r_e)$ (see Table 2).

Table 2. Conversion factors k (for zonal part) (see Figures 1, 2, and 3)*

k	Elevation			
	0 km	1000 km	10 000 km	100 000 km
Geocentric radii ($\bar{r} - r_e$) meters	23	16	2.7	0.059
Horizontal gravity gradient ($\nabla \bar{g}_{\lambda = \text{const}} - \nabla g_{e \lambda = \text{const}}$) sec^{-2}	7.1 E-11	1.8 E-11	6.6 E-14	7.6 E-19
Vertical gravity gradient ($\nabla \bar{g}_{\text{vert}} - \nabla g_{e \text{ vert}}$) sec^{-2}	1.0 E-10	3.6 E-11	2.3 E-13	2.6 E-18

3.2 Horizontal Gravity Gradient

The zonal (meridional) component of ∇g is shown in Table 3 for the different altitudes. The negative sign in the Northern Hemisphere indicates that with positively increasing latitude ϕ , the gravitation $\bar{g}$ along $\bar{U} = \text{const}$ decreases. Especially noteworthy is the rapid decrease of $\nabla \bar{g}_{\lambda = \text{const}}$ with higher elevations; compared to an ellipsoidal field U_e , we see from Figure 2 the strong anomalous pattern at zero elevation and the rather monotonic structure beyond 5000 km.

The meridional correction term $\delta \nabla g_{\lambda = \text{const}}$ is given in Number Map 2 as a function of the geocentric latitude and longitude at different elevations. This value, added to the meridional zonal part $\nabla \bar{g}_{\lambda = \text{const}}$, leads to the horizontal meridional component of ∇g on $U = \text{const}$.

* The normalized amplitudes of Figures 1, 2, and 3 have to be multiplied by the corresponding conversion factor k to obtain the actual differences.

Table 3. Horizontal gravity gradient (meridional, zonal part) in sec⁻²

ϕ°	$\nabla \bar{g}_\lambda = \text{const}$	Elevation							
		0 km	500 km	1000 km	5000 km	10 000 km	50 000 km	100 000 km	
90	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
80	- 82.5 E-11 *		- 57.2 E-11	- 405.6 E-12	- 470.1 E-13	- 761.8 E-14	-1579.7 E-17	- 6607.9 E-19	
70	-158.8 E-11		-109.1 E-11	- 769.4 E-12	- 884.2 E-13	-1432.2 E-14	-2969.0 E-17	-12419.3 E-19	
60	-217.0 E-11		-148.2 E-11	-1041.5 E-12	-1192.2 E-13	-1930.5 E-14	-4000.7 E-17	-16733.6 E-19	
50	-244.6 E-11		-168.0 E-11	-1183.4 E-12	-1356.8 E-13	-2196.6 E-14	-4550.2 E-17	-19030.5 E-19	
40	-245.9 E-11		-168.4 E-11	-1184.7 E-12	-1358.3 E-13	-2198.5 E-14	-4551.3 E-17	-19032.8 E-19	
30	-215.4 E-11		-147.9 E-11	-1042.3 E-12	-1196.5 E-13	-1935.6 E-14	-4003.6 E-17	-16739.9 E-19	
20	-160.4 E-11		-110.5 E-11	- 778.9 E-12	- 890.7 E-13	-1439.1 E-14	-2973.0 E-17	-12427.9 E-19	
10	- 91.2 E-11		- 61.0 E-11	- 424.3 E-12	- 476.6 E-13	- 768.4 E-14	-1583.4 E-17	- 6616.2 E-19	
0	0.4 E-11		- 0.2 E-11	- 3.2 E-12	- 3.5 E-13	- 4.0 E-14	- 2.5 E-17	- 5.4 E-19	
-10	87.2 E-11		59.1 E-11	413.9 E-12	470.7 E-13	761.7 E-14	1579.3 E-17	6607.0 E-19	
-20	158.5 E-11		109.7 E-11	774.5 E-12	888.0 E-13	1435.9 E-14	2971.0 E-17	12423.6 E-19	
-30	220.1 E-11		149.7 E-11	1049.8 E-12	1198.0 E-13	1937.2 E-14	4004.7 E-17	16742.3 E-19	
-40	245.2 E-11		168.6 E-11	1188.3 E-12	1363.6 E-13	2204.9 E-14	4555.3 E-17	19041.7 E-19	
-50	244.1 E-11		168.4 E-11	1189.0 E-12	1365.3 E-13	2206.6 E-14	4556.4 E-17	19044.0 E-19	
-60	223.3 E-11		151.4 E-11	1059.8 E-12	1202.8 E-13	1942.0 E-14	4007.5 E-17	16748.6 E-19	
-70	164.0 E-11		112.3 E-11	788.6 E-12	894.3 E-13	1442.4 E-14	2974.8 E-17	12432.0 E-19	
-80	84.6 E-11		58.7 E-11	416.0 E-12	476.3 E-13	767.8 E-14	1583.0 E-17	6615.2 E-19	
-90	0.0		0.0	0.0	0.0	0.0	0.0	0.0	

* E-11 means $\times 10^{-11}$, etc.

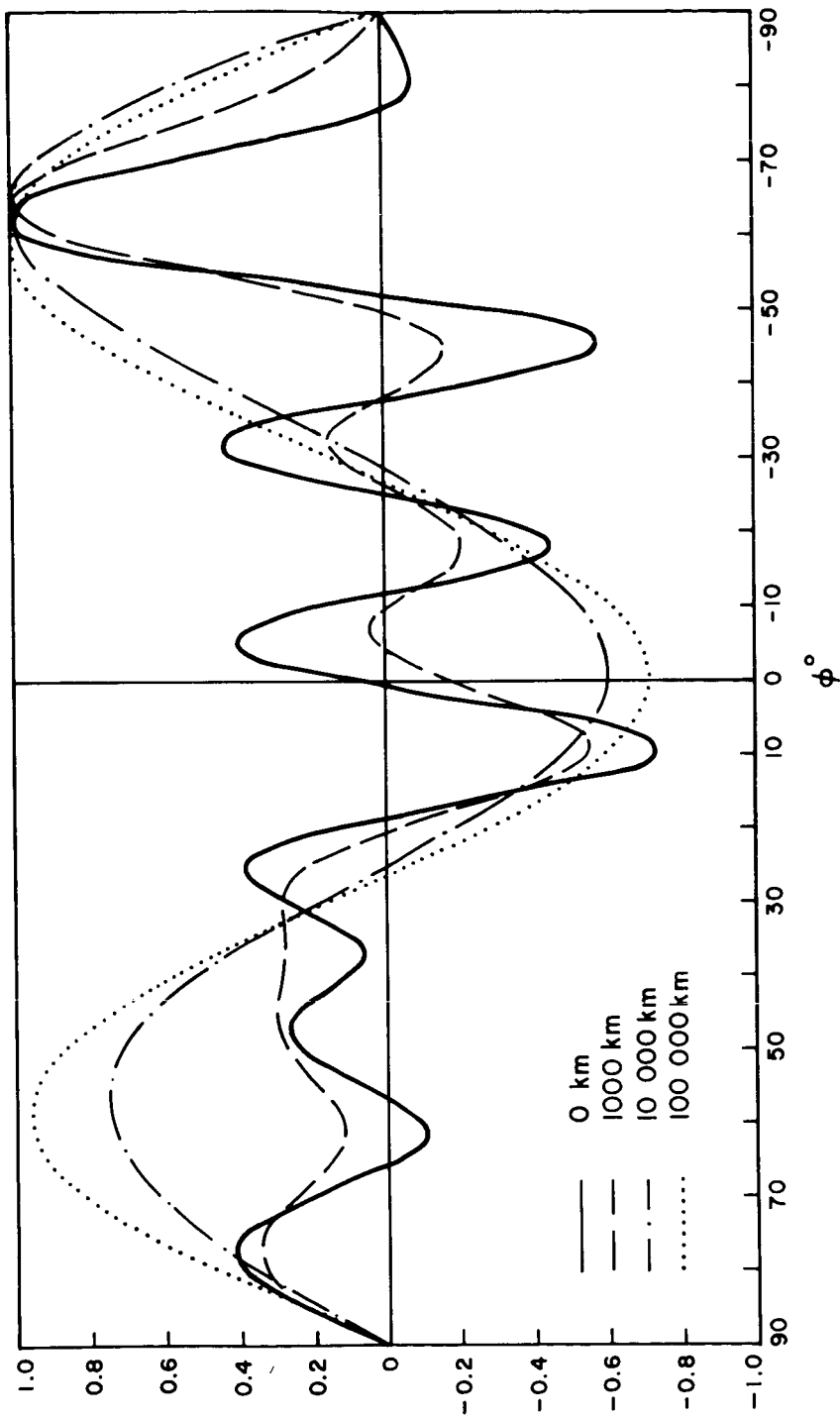


Figure 2. Horizontal gravity gradient: Normalized difference ($\nabla g_{\lambda} = \text{const} - \nabla g_e$, $\lambda = \text{const}$) (see Table 2).

Example: The horizontal meridional component of the gravity gradient at 1000-km elevation in $\phi = 30^\circ$, $\lambda = 70^\circ$ amounts to:

$$\begin{aligned}\overline{\nabla g}_\lambda = \text{const} &= -1042.3 \text{ E-12 sec}^{-2} \text{ (Table 3)} \\ \delta \nabla g_\lambda = \text{const} &= 13 \text{ E-12 sec}^{-2} \text{ (Number Map 2)} \\ \hline \nabla g_\lambda = \text{const} &= -1029 \text{ E-12 sec}^{-2}\end{aligned}$$

If we take the lows and the peaks at the various altitudes of Number Map 2, we get the pattern shown in Table 4. The amplitudes decrease by the power 7 from zero elevation to 100 000-km altitude; this decrease is much greater than that for the corrections Δr in Number Map 1. However, the steep drop of $\delta \nabla g_\lambda = \text{const}$ clearly occurs below 1000 km, although the magnitude remains quite the same between 0- and 500-km altitudes.

A similar pattern is found from the horizontal components along latitude curves. In Number Map 3 we have about the same magnitudes between 0- and 500-km altitudes and an analogous decrease from about 1000 km on upward. Table 4 gives the limits between which the amplitudes vary; at 100 000-km elevation the gradient components closely resemble the pattern of a triaxial field structure.

The nonzero (positive and negative) amplitudes at the poles are produced by the displacement of the astronomical pole relative to the geocentric pole (see Köhnelein, 1966a). However, the sum of the squares of $\delta \nabla g_\lambda = \text{const}$ and $\delta \nabla g_\phi = \text{const}$, hence $\delta \nabla g_{\text{horiz}}$, leads to a constant amount, as expected from a point value. The greatest amounts of the horizontal anomalous component $\delta \nabla g_{\text{horiz}}$ (see Number Map 3) are at places where the slopes of the gravity anomalies $\Delta g = g - \bar{g}$ are steepest. This is particularly the case in low altitudes, between Canada and Greenland, around the Himalayan area, the Indian Ocean, and the Antarctic. In higher altitudes the pattern again tends toward the triaxial field structure.

Table 4. Anomalous range of the geocentric radius and the gravity gradient

Elevation	0 km	500 km	1000 km	5000 km	10 000 km	50 000 km	100 000 km
Δr (m)	-93 73	-76 63	-64 55	-30 28	-18 18	-4.1 4.2	-2.1 2.1
$\delta \nabla g_{\lambda} = \text{const}$ (sec ⁻²)	E-11 -27 27	E-11 -12 13	E-12 -59 68	E-13 -22 22	E-14 -22 23	E-17 -22 22	E-19 -78 77
$\delta \nabla g_{\phi} = \text{const}$ (sec ⁻²)	E-11 -34 27	E-11 -14 12	E-12 -67 71	E-13 -20 30	E-14 -23 33	E-17 -33 39	E-18 -13 15
$\delta \nabla g_{\text{horiz}}$ (sec ⁻²)	34 E-11	14 E-11	72 E-12	30 E-13	33 E-14	39 E-17	15 E-18
$\delta \nabla g_{\text{vert}}$ (sec ⁻²)	E-11 -48 62	E-11 -24 31	E-11 -13 17	E-13 -66 75	E-14 -82 85	E-16 -11 11	E-18 -42 42

3.3 Vertical Gravity Gradient

This component is of special interest because it resembles almost the total amount of ∇g . The maximum angle included by ∇g and the gradient line (plumb line) is, at zero elevation and middle latitudes, slightly smaller than 3 arcmin and drops at 100 000 km to about 0.6 arcsec (as shown in Köhnlein, 1966b). The zonal part of the vertical gravity gradient is listed in Table 5 for the different altitudes; because the gravitation g is decreasing with increasing height, the sign of $\nabla \bar{g}_{\text{vert}}$ is negative throughout. Figure 3 demonstrates the asymmetry between the Northern and Southern Hemispheres: we have a low at the North Pole and a peak at the South Pole. These irregularities decrease, as usual, with increasing altitude, as seen from the size of the conversion factors in Table 2.

Number Map 5 gives the anomalous vertical components $\delta \nabla g_{\text{vert}}$; if these are added to the above zonal part, we obtain the vertical component of ∇g at $U = \text{const.}$

Example: The vertical gravity gradient in $\phi = 60^\circ$, $\lambda = 20^\circ$ at altitude 500 km amounts to:

$$\begin{aligned}\nabla \bar{g}_{\text{vert}} &= -0.244907 \text{ E-5 sec}^{-2} \quad (\text{Table 5}) \\ \delta \nabla g_{\text{vert}} &= -0.000009 \text{ E-5 sec}^{-2} \quad (\text{Number Map 5}) \\ \hline \nabla g_{\text{vert}} &= -0.244916 \text{ E-5 sec}^{-2}\end{aligned}$$

The anomalous gravity gradients are used in geophysics for the analysis of complex geological structures. Mass defects in the earth's crust are more easily recognized from these studies than from purely gravimetric data. According to Number Map 5 (zero elevation), the vertical anomalies $\delta \nabla g_{\text{vert}}$ are mostly positive above the continents and take negative values along the worldwide mountain chains. The biggest amounts are found near Hudson Bay, in Central Asia, at the south coast of India, and above the Antarctic (Köhnlein, 1967).

Table 5. Vertical gravity gradient (zonal part) in sec⁻²

$\nabla \bar{g}_{\text{vert}}$ ϕ°	Elevation									
	0 km	500 km	1000 km	5000 km	10 000 km	50 000 km	100 000 km			
90	-0.30 6754 E-5	-0.24 4655 E-5	-0.198 246 E-5	-0.540 9206 E-6	-0.181 41302 E-6	-0.4448 6573 E-8	-0.5622 32909 E-9			
80	-0.30 6796 E-5	-0.24 4684 E-5	-0.198 267 E-5	-0.540 9494 E-6	-0.181 41705 E-6	-0.4448 6657 E-8	-0.6622 33259 E-9			
70	-0.30 6920 E-5	-0.24 4771 E-5	-0.198 328 E-5	-0.541 0169 E-6	-0.181 42865 E-6	-0.4448 6897 E-8	-0.6622 34265 E-9			
60	-0.30 7120 E-5	-0.24 4907 E-5	-0.198 424 E-5	-0.541 1266 E-6	-0.181 44642 E-6	-0.4448 7266 E-8	-0.6622 35807 E-9			
50	-0.30 7364 E-5	-0.24 5075 E-5	-0.198 542 E-5	-0.541 2614 E-6	-0.181 46824 E-6	-0.4448 7718 E-8	-0.6622 37699 E-9			
40	-0.30 7622 E-5	-0.24 5252 E-5	-0.198 667 E-5	-0.541 4049 E-6	-0.181 49148 E-6	-0.4448 8199 E-8	-0.6622 39712 E-9			
30	-0.30 7868 E-5	-0.24 5420 E-5	-0.198 784 E-5	-0.541 5400 E-6	-0.181 51334 E-6	-0.4448 8652 E-8	-0.6622 41605 E-9			
20	-0.30 8063 E-5	-0.24 5555 E-5	-0.198 880 E-5	-0.541 6504 E-6	-0.181 53120 E-6	-0.4448 9021 E-8	-0.6622 43148 E-9			
10	-0.30 8199 E-5	-0.24 5647 E-5	-0.198 945 E-5	-0.541 7228 E-6	-0.181 54288 E-6	-0.4448 9262 E-8	-0.6622 44155 E-9			
0	-0.30 8251 E-5	-0.24 5681 E-5	-0.198 968 E-5	-0.541 7484 E-6	-0.181 54698 E-6	-0.4448 9346 E-8	-0.6622 44505 E-9			
-10	-0.30 8198 E-5	-0.24 5648 E-5	-0.198 945 E-5	-0.541 7237 E-6	-0.181 54297 E-6	-0.4448 9263 E-8	-0.6622 44156 E-9			
-20	-0.30 8072 E-5	-0.24 5559 E-5	-0.198 883 E-5	-0.541 6518 E-6	-0.181 53135 E-6	-0.4448 9022 E-8	-0.6622 43150 E-9			
-30	-0.30 7871 E-5	-0.24 5422 E-5	-0.198 786 E-5	-0.541 5414 E-6	-0.181 51351 E-6	-0.4448 8653 E-8	-0.6622 41607 E-9			
-40	-0.30 7620 E-5	-0.24 5252 E-5	-0.198 667 E-5	-0.541 4059 E-6	-0.181 49159 E-6	-0.4448 8200 E-8	-0.6622 39714 E-9			
-50	-0.30 7369 E-5	-0.24 5077 E-5	-0.198 543 E-5	-0.541 2616 E-6	-0.181 46825 E-6	-0.4448 7718 E-8	-0.6622 37699 E-9			
-60	-0.30 7120 E-5	-0.24 4907 E-5	-0.198 423 E-5	-0.541 1257 E-6	-0.181 44630 E-6	-0.4448 7265 E-8	-0.6622 35806 E-9			
-70	-0.30 6902 E-5	-0.24 4765 E-5	-0.198 324 E-5	-0.541 0146 E-6	-0.181 42839 E-6	-0.4448 6896 E-8	-0.6622 34262 E-9			
-80	-0.30 6782 E-5	-0.24 4676 E-5	-0.198 261 E-5	-0.540 9420 E-6	-0.181 41669 E-6	-0.4448 6654 E-8	-0.6622 33254 E-9			
-90	-0.30 6739 E-5	-0.24 4645 E-5	-0.198 239 E-5	-0.540 9167 E-6	-0.181 41262 E-6	-0.4448 6571 E-8	-0.6622 32904 E-9			

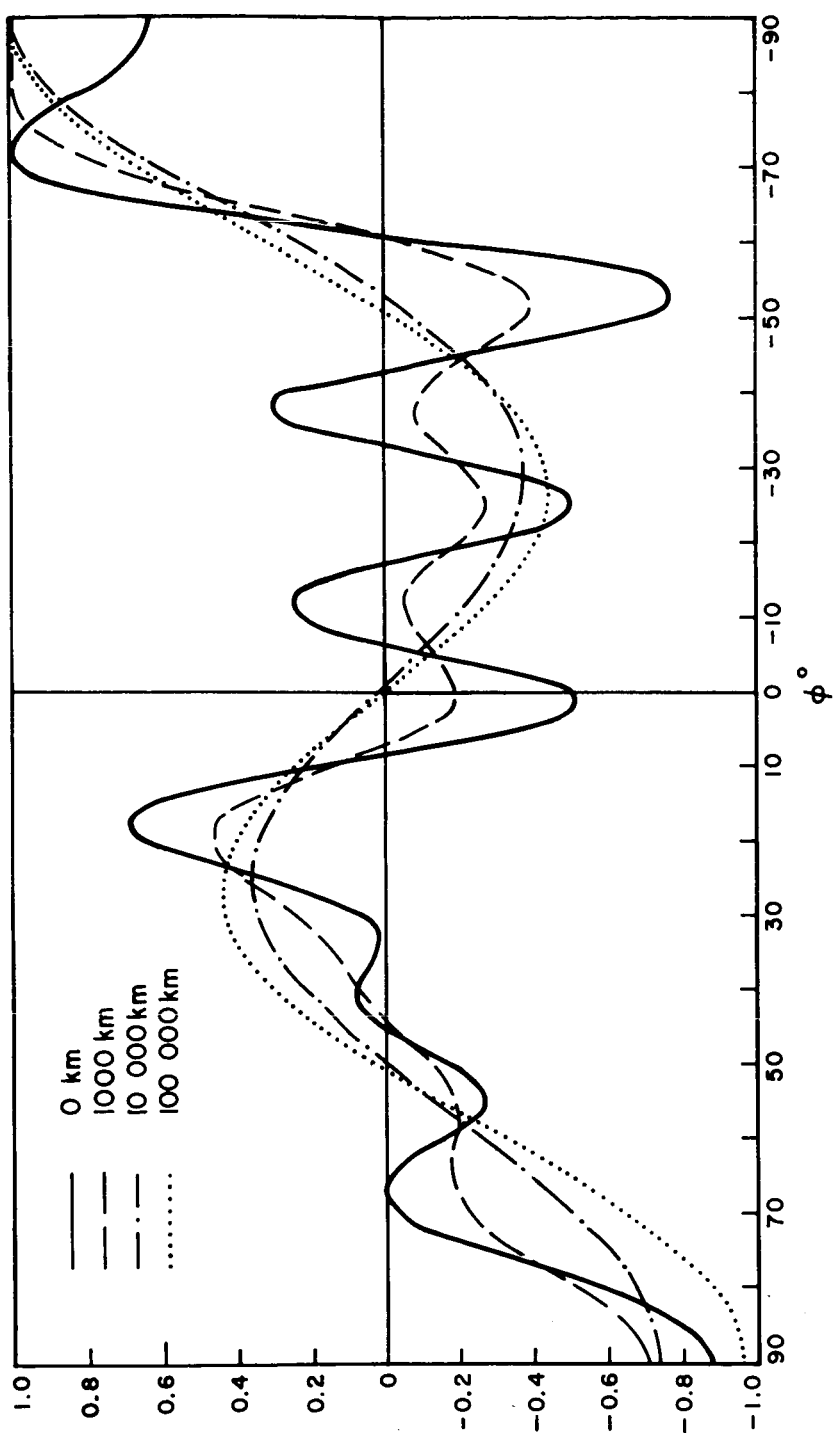


Figure 3. Vertical gravity gradient: Normalized difference $(\nabla g_{\text{vert}} - \nabla g_{e \text{ vert}})$ (see Table 2).

3.4 Accuracy of the Gravity Gradient

Theoretically, for the accuracy determination, we could use the uncertainty of the harmonic coefficients obtained from a least-squares adjustment. But such a procedure gives mostly internal accuracies biased by unknown systematic errors. Hence, we compute only the spread of the Kozai-Gaposchkin field toward the Kaula field; the latter was obtained by a combination of satellite solutions with free-air gravity anomalies.

The horizontal and vertical components of the gravity gradients are compared in the same points $\bar{r}$ along $\bar{U} = \text{const}$ and $U = \text{const}$ (as shown in Table 1 and Number Map 1). However, we restrict our computations to zero altitude and 10 000-km elevations because of the limited meaning of the accuracy estimates.

Table 6 shows the difference of the zonal gravity gradients along a meridian. The vertical component has the greatest discrepancy at the poles, while the horizontal component shows most of its spread around the equatorial zones. Of course, parts of the deviations are due to the fact that we compare gravitational fields with different degrees and orders (harmonic coefficients). However, Kaula's gravitational field, although only a full 7,2 solution, has the advantage of having all available free-air gravity anomalies included; it is, therefore, best suited for this procedure.

If we consider the discrepancies as errors, we can derive a standard deviation for

1. the horizontal gravity gradient (zonal):

$$\bar{m}_{\lambda} = \text{const} \quad \begin{cases} \pm 2.3 \text{ E-11 sec}^{-2} & \text{at 0 km} \\ \pm 5.9 \text{ E-16 sec}^{-2} & \text{at 10 000 km;} \end{cases}$$

2. the vertical gravity gradient (zonal):

$$\bar{m}_{\text{vert}} \quad \begin{cases} \pm 4.0 \text{ E-11 sec}^{-2} & \text{at 0 km} \\ \pm 1.4 \text{ E-15 sec}^{-2} & \text{at 10 000 km .} \end{cases}$$

Table 6. Spread between the zonal results (Kozai/Gaposchkin) --
(Kaula CA) in sec^{-2}

ϕ°	Elevation			
	0 km		10 000 km	
	Horizontal gravity gradient	Vertical gravity gradient	Horizontal gravity gradient	Vertical gravity gradient
90	0.0	- 5.2 E-11	0.0	1.4 E-15
80	2.1 E-11	- 2.7 E-11	-0.8 E-15	0.5 E-15
70	0.8 E-11	2.4 E-11	-0.8 E-15	-1.2 E-15
60	-1.3 E-11	0.2 E-11	-0.2 E-15	-2.2 E-15
50	0.7 E-11	- 0.5 E-11	0.4 E-15	-1.9 E-15
40	-0.8 E-11	0.7 E-11	0.7 E-15	-0.8 E-15
30	0.5 E-11	- 2.0 E-11	0.8 E-15	0.6 E-15
20	1.2 E-11	3.0 E-11	0.6 E-15	2.0 E-15
10	-3.4 E-11	- 0.6 E-11	-0.1 E-15	2.7 E-15
0	2.3 E-11	- 4.4 E-11	-1.0 E-15	1.7 E-15
-10	1.7 E-11	5.1 E-11	-1.1 E-15	-0.5 E-15
-20	-3.7 E-11	- 0.8 E-11	-0.3 E-15	-1.7 E-15
-30	2.6 E-11	- 2.5 E-11	0.5 E-15	-1.4 E-15
-40	-0.7 E-11	3.9 E-11	0.5 E-15	-0.4 E-15
-50	-2.1 E-11	- 4.1 E-11	0.1 E-15	0.0 E-15
-60	4.2 E-11	0.3 E-11	0.0 E-15	-0.2 E-15
-70	-1.8 E-11	5.7 E-11	0.4 E-15	0.1 E-15
-80	-5.1 E-11	- 5.6 E-11	0.6 E-15	1.4 E-15
-90	0.0	-11.8 E-11	0.0	2.2 E-15

Hence, the vertical zonal component seems to be less accurate than the meridional zonal gravity gradient.

Analogous considerations are applied to the combined zonal and nonzonal fields. In Number Maps 6 and 7 we give the differences of the Kozai-Gaposchkin sets relative to Kaula's gravity gradients. If we again compute standard deviations, considering the area represented by the individual numbers, we obtain for

1. the horizontal, meridional component:

$$m_{\lambda} = \text{const} \quad \begin{cases} \pm 7.1 \text{ E-11 sec}^{-2} & \text{at 0 km} \\ \pm 1.0 \text{ E-14 sec}^{-2} & \text{at 10 000 km;} \end{cases}$$

2. the horizontal component along latitude curves:

$$m_{\phi} = \text{const} \quad \begin{cases} \pm 7.2 \text{ E-11 sec}^{-2} & \text{at 0 km} \\ \pm 1.2 \text{ E-14 sec}^{-2} & \text{at 10 000 km;} \end{cases}$$

3. the vertical component:

$$m_{\text{vert}} \quad \begin{cases} \pm 1.4 \text{ E-10 sec}^{-2} & \text{at 0 km} \\ \pm 4.2 \text{ E-14 sec}^{-2} & \text{at 10 000 km.} \end{cases}$$

Again, the vertical component appears to have greater uncertainty than the horizontal components; however, the relative accuracy referred to the full range of Table 4 gives for all components the same percentage, namely, approximately 12%.

3.5 Constants and Coefficients Used

In the above analysis, we used the following constants:

$$a = 6\,378\,165 \text{ m, the earth's equatorial radius,}$$

$$GM = 3.986032 \times 10^{20} \text{ cm}^3 \text{ sec}^{-2},$$

and

$$K_2 = -0.108264 \times 10^{-2}$$

$$K_4 = 0.21 \times 10^{-5}.$$

Also, the following zonal harmonic coefficients by Kozai and Kaula and nonzonal harmonic coefficients by Gaposchkin and Kaula were used:

Zonal Harmonic Coefficients (normalized)

	Kozai (1964) $\times 10^6$	Kaula (1966) $\times 10^6$
$\bar{C}_{20}$	-484.174	-484.17
$\bar{C}_{30}$	0.962	0.97
$\bar{C}_{40}$	0.550	0.54
$\bar{C}_{50}$	0.063	0.04
$\bar{C}_{60}$	- 0.179	- 0.18
$\bar{C}_{70}$	0.086	0.11
$\bar{C}_{80}$	0.065	
$\bar{C}_{90}$	0.012	
$\bar{C}_{10\ 0}$	0.012	
$\bar{C}_{11\ 0}$	- 0.063	
$\bar{C}_{12\ 0}$	0.071	
$\bar{C}_{13\ 0}$	0.022	
$\bar{C}_{14\ 0}$	- 0.033	

Nonzonal Harmonic Coefficients (normalized)

Gaposchkin (1966)			
n	m	$\bar{C}_{nm}$ $\times 10^6$	$\bar{S}_{nm}$ $\times 10^6$
2	2	2.379	-1.351
3	1	1.936	0.266
3	2	0.734	-0.538
3	3	0.561	1.620
4	1	-0.572	-0.469
4	2	0.330	0.661
4	3	0.851	-0.190
4	4	-0.053	0.230
5	1	-0.079	-0.103
5	2	0.631	-0.232
5	3	-0.520	0.007
5	4	-0.265	0.064
5	5	0.156	-0.592
6	1	-0.047	-0.027
6	2	0.069	-0.366
6	3	-0.054	0.031
6	4	-0.044	-0.518
6	5	-0.313	-0.458
6	6	-0.040	-0.155
7	1	0.197	0.156
7	2	0.364	0.163
7	3	0.250	0.018
7	4	-0.152	-0.102
7	5	0.076	0.054
7	6	-0.209	0.063
7	7	0.055	0.096
8	1	-0.075	0.065
8	2	0.026	0.039
8	3	-0.037	0.004
8	4	-0.212	-0.012
8	5	-0.053	0.118
8	6	-0.017	0.318
8	7	-0.0087	0.031
8	8	-0.248	0.102
9	1	0.117	0.012
9	2	-0.0040	0.035
10	01	0.105	-0.126
10	02	-0.105	-0.042
10	03	-0.065	0.030
10	04	-0.074	-0.111
11	01	-0.053	0.015
12	01	-0.163	-0.071
12	02	-0.103	-0.0051
13	12	-0.058	0.048
13	13	-0.075	0.010
14	01	-0.015	0.0053
15	12	-0.062	0.058
15	13	-0.063	-0.066
15	14	0.0083	-0.0201

Kaula CA (1966)			
n	m	$\bar{C}_{nm}$ $\times 10^6$	$\bar{S}_{nm}$ $\times 10^6$
2	2	2.42	-1.36
3	1	1.79	0.18
3	2	0.78	-0.75
3	3	0.57	1.42
4	1	-0.56	-0.46
4	2	0.30	0.60
4	3	0.92	-0.19
4	4	-0.06	0.32
5	1	0.00	-0.02
5	2	0.44	-0.28
5	3	-0.31	0.03
5	4	0.02	0.11
5	5	0.10	-0.49
6	1	-0.10	0.10
6	2	-0.01	-0.28
6	3	0.09	0.04
6	4	-0.19	-0.43
6	5	-0.17	-0.60
6	6	-0.05	-0.26
7	1	0.06	0.07
7	2	0.29	0.08

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REFERENCES

GAPOSCHKIN, E. M.

1966. Tesseral harmonic coefficients and station coordinates from the dynamic method. In Geodetic Parameters for a 1966 Smithsonian Institution Standard Earth, ed. by C. A. Lundquist and G. Veis, Smithsonian Astrophys. Obs. Spec. Rep. No. 200, vol. 2, pp. 105-258.

KAULA, W. M.

1966. Test of satellite determinations of the gravity field against gravimetry and their combination. Presented at COSPAR Intl. Space Science Symp., Vienna, Austria, May.

KÖHNLEIN, W.

- 1966a. The geometric structure of the earth's gravitational field. In Geodetic Parameters for a 1966 Smithsonian Institution Standard Earth, ed. by C. A. Lundquist and G. Veis, Smithsonian Astrophys. Obs. Spec. Rep. No. 200, vol. 3, pp. 21-101.
- 1966b. Geometric structure of the earth's gravitational field as derived from artificial satellites. Smithsonian Astrophys. Obs. Spec. Rep. No. 198, 109 pp.
1967. Gravity gradients on the earth's surface as deduced from satellite orbits. Smithsonian Astrophys. Obs. Spec. Rep. No. 249, 22 pp.

KOZAI, Y.

1964. New determination of zonal harmonics coefficients of the earth's gravitational potential. Smithsonian Astrophys. Obs. Spec. Rep. No. 165, 38 pp.

WOLLARD, C. P., Chairman

1966. Space research directions for the future. Part II. Working Group on Physical Sciences, Natl. Acad. Sci., pp. 184-188.

REMARKS TO NUMBER MAPS 1 TO 7

Geocentric latitude ϕ : first column on the left of each table; Northern Hemisphere +, Southern Hemisphere - .

Geocentric longitude λ : first line on the top of each table (to be multiplied by 10); east of Greenwich +, west of Greenwich - .

Number Map 1. Shapes of the equipotential surfaces

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	-0	-0	-0	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	-2	-2	-1	-1	0	0	1	1	2	2	3	3	4	4	5	5	4	4	3	2	1	0	-1	-2	-3	-3	-4	-4	-4	-4	-4	-3	-3	-2	-2	-2	-2
80	-4	-4	-4	-4	-3	-3	-2	-1	1	2	4	7	9	10	12	12	12	11	10	8	5	3	0	-3	-5	-7	-9	-9	-9	-8	-6	-5	-5	-4	-4	-4	-4
75	-4	-5	-7	-8	-8	-9	-9	-9	-8	-6	-3	2	7	12	17	21	23	22	20	17	13	8	3	-2	-8	-12	-15	-16	-16	-13	-10	-7	-5	-4	-4	-4	
70	-2	-5	-8	-10	-12	-14	-16	-17	-18	-17	-12	-5	4	14	24	31	34	35	34	31	27	21	14	6	-3	-12	-20	-25	-26	-23	-18	-11	-5	0	2	1	-2
65	-4	-1	-5	-9	-12	-16	-19	-24	-27	-27	-23	-14	-0	15	29	39	44	45	43	39	33	26	17	6	-7	-19	-30	-36	-37	-31	-21	-9	2	8	10	8	4
60	9	3	-2	-6	-10	-14	-19	-25	-31	-34	-31	-21	-4	15	32	44	50	50	46	41	35	26	16	3	-12	-27	-39	-46	-46	-37	-22	-5	9	17	19	15	9
55	10	3	-2	-6	-9	-12	-16	-22	-29	-34	-34	-24	-6	16	35	47	52	50	46	41	34	25	13	-1	-16	-32	-45	-52	-50	-38	-20	-0	15	22	22	17	10
50	5	-1	-6	-10	-12	-14	-16	-19	-25	-31	-32	-24	-6	17	37	49	52	49	45	40	33	24	13	-1	-17	-31	-44	-51	-48	-36	-16	4	18	23	20	12	5
45	-3	-7	-12	-17	-20	-22	-20	-18	-21	-26	-29	-23	-8	15	36	48	52	48	44	41	36	26	15	1	-13	-26	-39	-47	-43	-31	-11	9	19	21	15	5	-3
40	-7	-9	-15	-22	-28	-31	-26	-19	-18	-22	-26	-25	-12	10	32	44	49	46	43	43	39	29	19	5	-9	-20	-34	-42	-36	-24	-5	14	21	20	12	-0	-7
35	-4	-4	-12	-22	-32	-38	-31	-20	-16	-19	-25	-28	-21	1	23	37	45	43	40	44	40	30	21	7	-8	-17	-33	-40	-31	-18	2	22	26	23	15	0	-4
30	2	4	-4	-16	-31	-40	-34	-20	-13	-15	-23	-31	-30	-11	12	29	40	39	35	40	38	26	19	4	-12	-20	-37	-43	-27	-12	10	31	33	29	21	6	2
25	9	12	6	-8	-26	-38	-33	-19	-9	-10	-19	-31	-36	-22	2	22	35	36	30	35	33	20	13	-3	-20	-30	-47	-49	-26	-5	20	40	40	37	28	12	9
20	13	15	12	0	-21	-34	-30	-18	-6	-4	-12	-26	-37	-29	-5	17	33	35	28	31	27	13	5	-12	-31	-43	-60	-56	-25	3	30	48	47	44	33	16	13
15	14	15	15	4	-18	-30	-29	-18	-4	1	-4	-17	-32	-31	-9	15	32	34	27	27	23	9	-3	-21	-42	-59	-74	-62	-24	11	40	54	53	50	36	19	14
10	14	13	15	5	-15	-26	-28	-19	-4	4	5	-6	-25	-29	-12	12	30	33	27	25	18	4	-11	-31	-52	-73	-85	-66	-24	19	49	58	57	55	40	23	14
5	17	13	16	6	-12	-23	-26	-19	-6	6	12	-4	-17	-26	-15	7	25	28	24	21	13	-1	-18	-39	-60	-82	-92	-69	-23	24	53	60	62	61	47	30	17
0	23	16	16	6	-9	-18	-23	-18	-7	5	16	11	-10	-23	-19	-1	17	19	15	6	7	-24	-44	-62	-84	-93	-69	-23	24	52	60	66	68	57	40	23	
-5	30	20	15	6	-8	-15	-18	-16	-7	4	17	15	-5	-20	-21	-10	6	9	9	9	0	-13	-27	-44	-58	-77	-86	-66	-24	18	45	56	66	73	66	49	30
-10	36	22	13	4	-9	-14	-14	-15	-7	3	14	17	-1	-17	-21	-15	-2	4	5	7	0	-14	-25	-37	-48	-63	-74	-61	-28	6	31	46	60	73	71	54	36
-15	39	22	10	0	-14	-16	-13	-15	-8	1	9	16	3	-14	-18	-16	-6	4	7	11	5	-9	-19	-26	-33	-45	-58	-55	-35	-11	12	31	49	67	68	54	39
-20	38	20	7	-3	-19	-19	-13	-16	-9	0	5	15	6	-10	-13	-13	-6	8	14	18	14	-0	-10	-13	-17	-27	-42	-49	-43	-28	-8	12	34	56	60	50	38
-25	36	19	5	-5	-22	-22	-15	-17	-8	0	3	13	9	-6	-8	-10	-5	12	21	25	23	9	-1	-1	-2	-11	-28	-43	-49	-42	-26	-6	19	42	48	43	36
-30	31	17	5	-7	-23	-24	-16	-16	-7	1	3	12	9	-4	-6	-8	-4	13	24	29	28	17	8	10	11	2	-15	-36	-50	-50	-37	-18	6	29	35	35	31
-35	23	12	2	-9	-23	-24	-17	-15	-6	2	3	10	8	-3	-6	-8	-5	11	23	29	30	23	17	20	22	13	-4	-27	-46	-50	-41	-25	-3	16	23	24	23
-40	11	3	-5	-13	-24	-24	-18	-13	-5	1	3	7	6	-1	-5	-7	-3	9	22	28	31	28	26	29	31	23	6	-18	-38	-45	-39	-26	-8	6	11	12	11
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Δr in meters. 0-km elevation.

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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-80	-18	-19	-19	-18	-17	-15	-12	-10	-7	-4	-1	2	4	6	9	10	12	13	14	15	16	16	15	14	12	10	8	5	2	-2	-5	-9	-12	-15	-17	-18	
-85	-9	-10	-10	-10	-9	-8	-7	-6	-4	-3	-1	0	2	3	5	6	7	8	8	9	9	9	8	8	7	5	4	2	1	-1	-3	-5	-6	-8	-9	-9	
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Δr in meters. 1000-km elevation.

-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
85	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	1	1	1	1	2	2	2	2	2	1	1	1	0	0	-0	-0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
80	-2	-2	-2	-2	-2	-2	-2	-1	-1	-0	1	2	2	3	4	4	4	4	4	3	2	1	0	-0	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
75	-2	-3	-3	-3	-4	-4	-4	-3	-3	-2	1	2	3	5	6	7	7	7	6	4	3	1	0	-1	-2	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	-2	-2
70	-2	-3	-3	-4	-5	-5	-5	-5	-5	-3	-2	0	2	4	6	8	9	10	10	9	8	6	4	1	-1	-3	-4	-5	-5	-4	-4	-3	-2	-1	-2	-2	
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60	-0	-2	-4	-5	-7	-8	-9	-9	-8	-7	-5	-2	2	5	9	12	14	15	15	14	11	8	4	0	-3	-6	-8	-9	-8	-7	-6	-4	-2	0	1	1	-0
55	1	-1	-4	-6	-8	-9	-10	-10	-10	-8	-6	-3	1	5	10	13	16	17	17	16	13	9	4	-0	-5	-8	-10	-11	-10	-7	-4	-1	1	3	3	1	
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45	4	1	-3	-6	-9	-11	-13	-13	-12	-11	-8	-5	-1	4	10																						

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
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-45	1	-0	-2	-4	-5	-6	-6	-6	-5	-4	-2	-1	1	2	4	5	6	7	8	7	7	5	3	1	-1	-3	-5	-5	-5	-4	-2	-0	1	2	3	3	1	
-50	-0	-1	-3	-4	-5	-6	-6	-5	-5	-3	-2	-1	1	2	4	5	6	7	8	7	7	6	4	2	-0	-2	-3	-4	-4	-3	-2	-1	-0	1	1	1	-0	
-55	-1	-2	-3	-4	-5	-5	-5	-5	-4	-3	-2	-0	1	2	4	5	6	7	7	7	7	6	4	3	1	-0	-2	-3	-3	-3	-2	-2	-1	-1	-0	-1		
-60	-2	-3	-4	-4	-5	-5	-5	-4	-4	-3	-1	-0	1	2	4	5	6	6	7	7	7	6	5	4	3	2	0	-1	-2	-2	-2	-2	-2	-2	-2	-2		
-65	-3	-3	-4	-4	-4	-4	-4	-4	-4	-3	-2	-1	-0	1	2	3	4	5	6	6	6	5	4	3	2	1	0	-1	-1	-2	-2	-2	-2	-2	-2	-3	-3	
-70	-3	-3	-4	-4	-4	-4	-4	-4	-3	-2	-2	-1	0	1	2	3	4	4	5	5	5	4	3	3	2	1	1	0	-1	-1	-2	-2	-2	-2	-3	-3	-3	
-75	-3	-3	-3	-3	-3	-3	-3	-3	-2	-2	-1	-1	0	1	2	3	3	4	4	4	4	3	3	3	2	2	1	1	0	-0	-1	-1	-2	-2	-2	-2	-3	-3
-80	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	0	0	1	1	2	2	2	3	3	3	3	2	2	2	1	1	1	0	-0	-1	-1	-1	-2	-2	-2	-2	-2
-85	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	-0	-1	-1	-1	-1	-1	-1	-1	
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Δr in meters. 10 000-km elevation.

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
85	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
80	-1	-1	-1	-1	-2	-2	-2	-2	-2	-1	-1	-0	1	1	2	2	3	3	3	2	2	1	0	-0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
75	0	-1	-1	-2	-3	-3	-4	-4	-4	-3	-2	-0	1	2	3	4	5	5	4	3	2	1	-0	-1	-2	-2	-2	-2	-2	-1	-0	0	1	1	1	0	0	
70	1	0	-1	-3	-4	-5	-6	-6	-6	-4	-3	-1	1	3	5	6	7	8	7	6	5	3	1	-1	-3	-4	-4	-4	-3	-2	-1	0	1	2	2	1	0	
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20	30	21	11	-1	-13	-22	-29	-32	-32	-28	-21	-12	-1	9	19	27	32	33	30	24	14	2	-11	-23	-32	-37	-37	-33	-24	-12	1	14	25	33	37	36	30	
15	32	23	12	-1	-13	-23	-30	-33	-33	-29	-22	-13	-2	9	20	28	33	34	31	24	14	1	-12	-24	-34	-39	-39	-34	-25	-13	2	15	27	35	39	38	32	
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-35	19	13	6	-2	-10	-17	-21	-23	-23	-20	-15	-8	-0	7	15	20	24	25	23	18	12	3	-6	-14	-20	-24	-25	-23	-17	-9	-1	8	16	21	24	23	19	
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-45	13	8	3	-3	-9	-13	-17	-18	-17	-15	-11	-6	0	6	12	16	19	20	19	15	10	4	-3	-9	-14	-17	-18	-16	-13	-7	-1	5	10	14	16	15	13	
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-65	2	0	-1	-3	-5	-7	-7	-8	-7	-6	-4	-2	1	4	6	8	9	9	9	8	6	4	1	-1	-3	-4	-5	-4	-3	-3	-1	0	2	3	3	3	2	
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-85	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0	-0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	-0	-0	-0	-0	-0	-0	-1	-1	-1	-1	
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
80	0	-0	-0	-0	-1	-1	-1	-1	-1	-1	-0	-0	0	0	1	1	1	1	1	1	1	0	0	-0	-0	-0	-1	-1	-0	-0	-0	-0	0	0	0	0	0
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65	2	1	0	-1	-2	-3	-4	-4	-4	-3	-2	-1	0	2	3	4	5	5	4	3	2	1	-0	-1	-2	-3	-3	-4	-3	-3	-2	-0	1	2	3	3	2
60	4	2	1	-1	-3	-4	-5	-6	-5	-5	-3	-2	0	2	4	5	6	6	6	4	3	1	-1	-3	-4	-5	-5	-5	-4	-2	-0	1	3	4	4	4	
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35	12	8	4	-1	-5	-9	-12	-14	-13	-12	-9	-5	-0	5	9	12	14	14	13	10	6	1	-4	-9	-12	-14	-14	-13	-9	-5	-0	5	9	12	14	13	12
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20	16	12	6	-0	-6	-12	-15	-17	-17	-15	-11	-6	-0	5	11	15	17	18	16	12	7	0	-6	-12	-16	-19	-19	-16	-12	-6	0	7	12	17	19	18	16
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-25	14	10	5	-0	-6	-10	-14	-16	-15	-14	-10	-6	-0	5	10	13	16	16	14	11	6	1	-5	-10	-14	-16	-17	-15	-11	-6	0	6	11	15	16	16	14
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-45	8	5	2	-1	-4	-7	-9	-10	-10	-8	-6	-3	0	3	6	9	10	10	9	7	5	1	-2	-6	-8	-9	-10	-9	-7	-4	-0	3	6	8	9	9	8
-50	6	4	2	-1	-4	-6	-7	-8	-8	-7	-5	-3	0	3	5	7	9	9	8	6	4	1	-2	-4	-6	-8	-8	-7	-5	-3	-0	2	5	6	7	7	6
-55	5	3	1	-1	-3	-5	-6	-7	-6	-6	-4	-2	0	3	5	6	7	7	7	5	3	1	-1	-3	-5	-6	-6	-6	-4	-3	-0	2	4	5	5	5	5
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-65	2	1	0	-1	-2	-3	-4	-4	-4	-3	-2	-1	0	2	3	4	4	4	4	3	2	1	-0	-1	-2	-3	-3	-3	-2	-1	-0	1	2	2	3	2	2
-70	1	1	-0	-1	-1	-2	-2	-3	-2	-2	-1	-1	0	1	2	3	3	3	3	2	2	1	0	-1	-1	-2	-2	-2	-2	-1	-0	0	1	1	1	1	1
-75	0	0	-0	-1	-1	-1	-2	-2	-1	-1	-1	-0	0	1	1	2	2	2	2	2	1	1	0	-0	-1	-1	-1	-1	-1	-1	-0	0	0	1	1	1	0
-80	0	-0	-0	-0	-1	-1	-1	-1	-1	-1	-0	-0	0	0	1	1	1	1	1	1	0	0	0	0	-0	-0	-0	-0	-0	-0	-0	-0	0	0	0	0	0
-85	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$\Delta r \times 10^{-1}$ meters. 100 000-km elevation.

Number Map 2. Horizontal anomalous gravity gradient along $\lambda = \text{const}$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
90	-6	-7	-8	-9	-10	-10	-9	-8	-7	-6	-5	-3	-2	-0	2	3	5	6	7	8	9	10	10	10	9	8	7	6	5	3	2	0	-2	-3	-5	-6		
85	-0	-1	-2	-3	-3	-4	-5	-6	-6	-6	-5	-5	-4	-2	-1	1	2	3	4	5	5	5	5	4	4	4	4	3	2	2	1	1	0	-0	-0			
80	6	7	7	7	7	6	5	5	4	3	1	-1	-3	-5	-7	-7	-8	-8	-7	-7	-7	-7	-6	-4	-2	-0	2	3	4	4	3	3	3	3	4	6		
75	4	6	8	9	10	11	12	13	14	14	12	8	3	-3	-9	-12	-15	-15	-16	-16	-16	-15	-14	-12	-8	-3	2	6	8	7	5	2	-0	-2	-1	1	4	
70	-6	-3	-0	1	3	5	8	12	17	20	20	16	9	1	-6	-11	-14	-14	-13	-13	-12	-12	-10	-7	-2	3	9	13	13	11	5	-2	-7	-11	-11	-9	-6	
65	-13	-11	-10	-9	-9	-7	-3	2	8	14	17	15	10	3	-3	-6	-6	-4	-2	-1	-0	0	2	4	7	11	14	16	15	10	2	-6	-13	-16	-17	-15	-13	
60	-8	-8	-10	-11	-12	-13	-12	-10	-5	1	5	6	4	1	-1	-1	2	6	9	9	10	10	10	11	11	11	11	11	9	4	-1	-7	-11	-11	-10	-9	-8	
55	7	3	1	-1	-4	-7	-11	-14	-14	-11	-8	-5	-4	-4	-3	1	5	9	11	10	9	9	9	8	5	1	-0	-1	-2	-3	-4	-4	-2	2	5	7	7	
50	19	14	12	12	10	7	0	-9	-14	-15	-13	-10	-7	-6	-4	0	2	5	5	1	-0	1	-1	-2	-6	-12	-13	-12	-12	-8	-4	-1	7	14	18	21	19	
45	18	12	14	16	18	18	12	0	-7	-10	-10	-6	-2	-2	-1	2	0	1	0	-7	-9	-9	-7	-11	-11	-13	-20	-18	-15	-16	-9	-3	0	10	16	18	21	
40	5	-1	3	8	13	18	14	5	-1	-4	-3	2	8	8	7	7	2	1	1	-8	-9	-6	-12	-11	-11	-18	-13	-9	-13	-6	-2	-3	6	8	6	10	5	
35	-9	-14	-11	-6	1	9	8	3	-0	-1	1	7	15	17	13	11	5	3	6	-1	-2	2	-5	-4	-2	-9	-2	1	-7	-3	-7	-1	-3	-7	-4	-9		
30	-14	-16	-17	-16	-8	-3	-1	-1	-3	-4	-1	4	14	19	15	11	6	4	9	7	5	9	4	3	6	3	9	8	-2	-3	-6	-8	-4	-9	-11	-9	-14	
25	-7	-6	-12	-15	-9	-8	-6	-1	-5	-7	-5	-3	5	14	10	4	2	-0	4	8	7	8	8	7	9	13	15	9	0	-7	-10	-4	-3	-7	-4	-4	-7	
20	4	8	-3	-6	-3	-7	-3	2	-2	-7	-10	-12	-6	5	4	-4	-4	-6	-5	3	3	1	8	7	8	19	17	6	0	-11	-13	0	-0	-2	6	3	4	
15	10	15	4	2	1	-4	2	6	3	-3	-11	-16	-12	-4	0	-6	-8	-8	-11	-3	-1	-4	6	8	7	21	16	3	-0	-14	-14	3	-0	-1	9	4	10	
10	6	10	4	4	-0	-4	3	6	6	2	-11	-15	-13	-8	2	-1	-4	-2	-7	-3	2	3	6	9	7	19	13	1	-1	-13	-11	2	-3	-2	1	-3	6	
5	-4	-1	1	2	-5	-6	-1	1	6	5	-7	-11	-9	-7	5	9	5	9	4	3	8	5	8	10	7	11	7	0	-2	-8	-5	-2	-7	-8	-12	-12	-4	
0	-10	-8	0	-0	-6	-7	-7	-4	3	4	-1	-6	-5	-4	6	15	14	16	14	9	12	12	8	7	2	-2	-3	-2	0	-3	-7	-12	-19	-16	-10			
-5	-11	-6	4	0	-1	-4	-10	-4	1	3	7	-1	-3	-1	2	13	16	13	13	8	10	4	-2	-6	-15	-14	-6	0	10	11	1	-2	-9	-17	-12	-11		
-10	-8	-1	8	3	7	3	-7	1	1	2	13	3	-4	-0	-5	4	10	1	0	-0	-4	1	-2	-10	-14	-22	-21	-7	6	19	19	10	6	-2	-5	-3	-8	
-15	-5	2	7	4	12	7	-2	5	2	1	14	4	-5	-2	-10	-7	1	-11	-14	-10	-15	-9	-6	-14	-17	-20	-20	-5	13	25	25	19	14	7	7	3	-5	
-20	-4	-0	0	1	9	7	2	5	0	-1	8	3	-5	-4	-10	-10	-3	-13	-19	-13	-17	-12	-5	-11	-13	-13	-14	-2	16	25	24	22	15	12	13	5	-4	
-25	-3	-5	-7	-2	2	3	3	0	-3	-3	0	2	-3	-3	-4	0	-4	-10	-7	-8	-8	-2	-5	-7	-6	-9	-2	12	16	16	15	11	11	12	2	-3		
-30	-1	-6	-8	-3	-5	-1	2	-4	-4	-4	-5	2	-1	5	5	6	8	3	3	3	-2	-2	-4	-5	-7	-5	1	3	4	3	2	8	7	1	-1			
-35	6	-0	-1	1	-6	-2	-5	-2	-1	-4	5	6	1	7	7	6	12	11	8	7	0	-5	-5	-5	-7	-8	-9	-8	-8	-6	-6	-4	4	5	4	6		
-40	13	9	8	7	-3	-1	3	-3	2	4	1	7	7	-0	2	-2	5	7	5	4	-3	-10	-8	-7	-6	-6	-8	-11	-11	-10	-9	-5	4	5	9	13		
-45	17	15	13	10	-0	-1	1	-1	3	6	4	7	5	-4	-6	-10	-12	-6	-2	-1	-1	-5	-10	-7	-3	-1	0	-2	-7	-8	-7	-2	4	7	12	17		
-50	15	14	12	7	-1	-3	-3	-3	1	3	2	3	2	3	-0	-7	-12	-15	-17	-11	-6	-3	-1	-2	-3	1	5	7	7	3	-3	-5	-5	-4	0	7	11	15
-55	10	10	8	4	-2	-5	-6	-4	-3	-3	-3	-5	-8	-10	-12	-11	-7	-2	2	4	5	6	9	11	11	7	2	-4	-7	-6	-4	0	4	6	8	10		
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-65	8	9	9	10	9	8	6	3	-1	-4	-6	-6	-4	-2	0	2	3	4	4	4	3	2	2	1	-1	-5	-10	-15	-17	-16	-12	-6	0	4	6	7	8	
-70	6	7	9	11	14	15	14	12	8	4	-1	0	1	2	2	0	-3	-5	-7	-8	-9	-9	-10	-11	-13	-15	-14	-12	-7	-2	2	5	6	6	6	6		
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-80	-16	-17	-15	-12	-8	-3	1	4	7	8	8	7	6	4	2	-2	-1	-3	-4	-5	-5	-4	-1	2	5	8	10	11	11	10	8	4	-0	-5	-10	-14	-16	
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-90	-22	-25	-26	-27	-27	-26	-25	-22	-19	-16	-11	-7	-2	2	7	12	16	19	22	25	26	27	27	26	25	22	19	16	12	7	2	-2	-7	-12	-16	-19	-22	

$$\delta \nabla g_{\lambda} = \text{const} \times 10^{-11} \text{ sec}^{-2}, \text{ 0-km elevation.}$$

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0 -24-10 3 2 -7-13-13 -3 7 7 -5-19-21-11 10 29 33 31 24 19 22 22 18 11 1 -7-10 -6 1 8 11 3-11-26-38-36-24
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-25 1 -5 -4 2 6 8 7 1 -3 -1 5 7 -2 -9 -9 -7 -3 -9-19-20-23-24-24-29-35-38-35-13 20 42 48 44 38 36 31 14 1
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-40 36 29 22 14 -0 -2 0 -3 1 5 5 12 10 1 -5 -8 -2 2 8 2-11-22-21-16-15-18-22-26-25-19-12 2 19 27 33 36
-45 43 40 32 20 4 -2 -2 -2 3 7 7 10 5 -8-17-22-22-11 -2 7 1-10-16-13 -6 -3 -7-16-26-29-24-15 0 17 28 37 43
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-65 13 14 15 16 17 16 14 10 5 -0 -5 -7 -7 -6 -5 -4 -3 -2 -1 -0 1 2 4 6 4 -2-11-22-29-29-22-12 -1 17 12 13 13
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$$\delta \nabla g_{\lambda} = \text{const} \times 10^{-12} \text{ sec}^{-2}. \text{ 1000-km elevation.}$$

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80 1 1 2 3 5 5 6 6 6 5 3 1 -2 -6 -8-11-13-14-14-12-10 -8 -4 -1 2 5 7 8 9 8 7 5 3 3 2 1 1 1
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-60 7 6 4 3 2 1 1 1 1 2 2 1 0 -1 -3 -4 -5 -4 -3 -2 0 2 3 3 3 2 0 -3 -6 -8 -9 -7 -4 -0 3 6 7 7
-65 1 0 -1 -1 -1 -1 -0 0 1 1 1 0 -1 -2 -2 -1 -0 1 1 3 4 5 6 6 5 3 0 -3 -5 -7 -7 -5 -3 -1 0 1 1
-70 -6 -6 -6 -6 -5 -4 -3 -1 0 1 1 2 2 1 1 2 2 3 4 6 7 8 9 9 8 6 3 0 -2 -4 -5 -6 -6 -5 -5 -6 -6
-75 -12-12-12-11 -9 -8 -6 -4 -2 -0 1 2 3 4 4 5 6 7 8 9 11 11 12 12 11 9 6 3 1 -2 -4 -6 -8 -9-10-11-12
-80 -16-16-16-15-13-11 -9 -7 -4 -2 0 2 4 6 7 8 10 11 12 13 14 15 14 13 11 8 6 2 -1 -4 -7 -9-12-14-15-16
-85 -18-19-18-18-16-14-12-10 -7 -4 -1 2 4 7 9 11 13 14 16 17 17 17 16 14 12 9 6 3 -0 -4 -7-10-13-15-17-18
-90 -18-19-19-18-17-16-14-11 -9 -6 -3 1 4 7 10 13 15 17 18 19 19 18 17 16 14 11 9 6 3 -1 -4 -7-10-13-15-17-18

$$\delta \nabla g_{\lambda} = \text{const} \times 10^{-13} \text{ sec}^{-2}. \text{ 5000-km elevation.}$$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	10	10	9	8	7	5	4	2	1	-1	-3	-4	-6	-7	-8	-9	-10	-10	-10	-9	-8	-7	-5	-4	-2	-1	1	3	4	6	7	8	9	10	10	10	
85	7	7	7	7	7	6	5	4	2	-0	-3	-5	-7	-8	-9	-11	-12	-13	-13	-12	-11	-9	-6	-4	-2	1	3	4	6	7	7	7	7	7	7		
80	4	4	5	6	7	8	8	7	6	5	2	-0	-3	-7	-10	-12	-14	-15	-15	-14	-12	-9	-6	-3	1	3	5	7	7	6	5	4	3	3	4		
75	1	2	4	5	7	8	9	9	8	7	5	2	-2	-5	-9	-12	-14	-16	-16	-15	-12	-9	-5	-1	3	6	8	9	8	7	5	4	2	0	-0	1	
70	-2	0	2	4	6	8	9	9	9	8	6	3	0	-4	-8	-11	-14	-15	-16	-14	-12	-8	-4	0	4	7	9	10	9	7	4	1	-1	-3	-3	-2	
65	-3	-1	1	4	6	8	9	9	9	9	7	5	2	-2	-6	-10	-12	-14	-14	-13	-11	-7	-3	1	6	9	10	10	9	6	2	-2	-4	-6	-5	-3	
60	-5	-2	1	3	5	7	8	8	9	8	7	6	3	0	-4	-7	-10	-12	-12	-11	-9	-6	-2	3	7	10	11	10	8	4	-1	-5	-7	-9	-8	-7	
55	-6	-3	-0	2	4	6	7	7	7	7	7	6	5	2	-1	-4	-7	-9	-9	-9	-7	-4	-0	4	7	10	11	10	6	2	-3	-8	-10	-11	-10	-8	
50	-7	-4	-1	1	3	4	5	5	5	5	6	6	6	4	1	-1	-4	-5	-6	-6	-4	-2	2	5	8	11	11	9	5	-1	-6	-10	-13	-13	-12	-9	
45	-7	-5	-2	0	2	3	3	3	3	3	4	6	6	6	4	2	-0	-2	-3	-2	-1	1	4	7	10	11	11	8	3	-3	-8	-13	-15	-15	-13	-10	
40	-8	-6	-3	-1	1	2	2	1	1	1	2	4	6	6	6	4	2	-0	-2	-3	-2	-1	1	4	7	10	11	11	8	3	-3	-8	-13	-15	-15	-13	
35	-9	-7	-5	-3	-1	0	-0	-1	-2	-1	0	3	6	7	8	7	6	4	4	4	4	4	4	6	8	10	12	13	11	7	1	-6	-12	-16	-17	-15	-12
30	-10	-8	-6	-4	-2	-1	-2	-3	-3	-3	-2	1	5	7	9	9	8	7	6	6	6	6	6	8	10	12	13	11	7	1	-6	-12	-16	-17	-15	-12	
25	-10	-8	-7	-5	-3	-3	-3	-4	-5	-5	-4	-1	3	7	9	10	9	9	8	8	8	9	10	12	13	13	11	7	1	-6	-11	-15	-16	-16	-14	-12	
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15	-10	-8	-7	-5	-4	-4	-4	-5	-6	-7	-6	-4	0	4	8	10	11	10	10	10	9	9	10	10	10	10	8	5	1	-3	-6	-9	-11	-12	-12	-11	
10	-8	-7	-6	-5	-4	-4	-4	-5	-6	-7	-7	-5	-2	2	6	9	10	10	10	9	8	8	7	7	6	6	5	4	2	-1	-3	-5	-7	-8	-9	-8	
5	-6	-5	-4	-4	-4	-4	-4	-5	-6	-6	-6	-3	1	5	8	9	10	9	8	7	6	4	3	2	1	1	2	2	2	2	1	0	-2	-4	-6	-7	-6
0	-4	-3	-3	-2	-3	-3	-3	-4	-5	-6	-5	-4	-1	3	6	8	8	7	6	4	2	0	-2	-3	-4	-3	-1	2	4	6	5	3	-2	-3	-4	-4	
-5	-0	-1	-1	-1	-1	-2	-2	-3	-3	-4	-5	-5	-4	-2	1	4	6	6	5	4	1	-1	-4	-7	-9	-9	-7	-3	2	6	9	10	9	6	3	1	-0
-10	3	2	2	1	0	-1	-2	-2	-2	-3	-3	-4	-4	-3	-1	2	4	4	3	1	-2	-5	-8	-11	-14	-14	-11	-6	1	7	12	14	11	8	5	3	
-15	7	6	4	3	2	0	-1	-1	-1	-1	-2	-3	-4	-4	-2	0	1	2	1	-1	-4	-8	-12	-15	-18	-18	-15	-9	-1	8	14	17	18	16	13	10	7
-20	11	9	7	5	3	1	0	-0	-0	-1	-2	-4	-4	-3	-1	-1	-2	-4	-7	-10	-14	-18	-20	-20	-17	-11	-2	7	14	19	20	20	17	14	11		
-25	15	12	9	6	4	2	1	1	1	1	-0	-2	-3	-5	-5	-4	-3	-4	-5	-8	-12	-16	-19	-22	-22	-19	-13	-4	5	13	19	22	22	21	18	15	
-30	18	14	11	7	5	3	1	1	1	0	-1	-3	-5	-6	-6	-5	-5	-5	-6	-9	-12	-16	-19	-21	-22	-19	-14	-6	2	11	17	21	23	23	21	18	
-35	19	16	12	8	5	3	2	1	2	2	1	-1	-3	-5	-6	-7	-6	-6	-6	-9	-11	-15	-17	-20	-20	-19	-15	-8	0	8	15	20	23	23	22	19	
-40	19	16	12	8	5	3	2	1	2	2	1	-0	-3	-5	-7	-7	-7	-6	-6	-7	-10	-12	-15	-17	-18	-17	-14	-10	-3	4	11	17	21	22	22	19	
-45	18	15	11	8	5	2	1	1	1	2	1	-0	-2	-5	-6	-7	-6	-6	-5	-5	-7	-9	-11	-13	-15	-15	-14	-10	-5	1	8	14	18	20	20	18	
-50	15	12	9	6	3	2	1	1	1	1	0	-2	-4	-5	-6	-5	-4	-3	-3	-4	-5	-7	-9	-11	-12	-12	-10	-7	-1	4	10	14	16	17	15		
-55	11	9	6	4	2	0	0	0	0	1	1	-0	-1	-3	-4	-4	-4	-2	-1	-0	0	-1	-3	-5	-7	-9	-10	-9	-7	-3	1	6	9	12	12	11	
-60	6	4	2	0	-1	-2	-2	-1	-0	0	0	0	-1	-1	-2	-2	-1	0	2	3	4	4	3	1	-1	-3	-5	-7	-8	-7	-5	-2	2	4	6	7	6
-65	0	-1	-2	-3	-4	-4	-4	-3	-2	-1	0	0	0	0	0	1	1	2	3	5	6	7	7	5	3	1	-2	-4	-6	-6	-5	-4	-2	0	1	1	0
-70	-5	-6	-7	-7	-7	-7	-6	-4	-3	-2	-0	1	1	2	3	4	5	7	8	10	10	11	10	9	7	4	1	-1	-3	-5	-6	-5	-5	-5	-5	-5	
-75	-10	-11	-11	-11	-10	-9	-8	-6	-4	-3	-1	1	3	4	6	7	9	10	12	13	13	11	9	7	4	1	-1	-4	-5	-7	-8	-8	-9	-10	-10		
-80	-14	-14	-14	-14	-13	-12	-10	-8	-6	-4	-1	1	3	6	8	10	11	13	14	15	16	16	13	11	9	6	3	0	-3	-5	-8	-9	-11	-12	-13	-14	
-85	-16	-17	-17	-16	-15	-13	-12	-9	-7	-4	-1	1	4	7	9	12	14	15	16	17	17	16	14	12	10	7	4	1	-2	-5	-8	-10	-12	-14	-15	-16	
-90	-17	-18	-18	-17	-16	-14	-12	-10	-7	-5	-1	2	5	8	10	13	14	16	17	18	18	17	16	14	12	10	7	5	1	-2	-5	-8	-10	-13	-14	-16	-17

$$\delta \nabla g_{\lambda} = \text{const} \times 10^{-14} \text{ sec}^{-2}. \text{ 10 000-km elevation.}$$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	7	7	7	7	6	5	4	3	2	1	-1	-2	-3	-4	-5	-6	-7	-7	-7	-7	-7	-6	-5	-4	-3	-2	-1	1	2	3	4	5	6	7	7	7	
85	4	5	6	7	7	7	6	5	3	1	-1	-3	-5	-7	-9	-10	-10	-10	-9	-8	-7	-5	-3	-1	0	1	2	3	3	3	3	3	3	4	4		
80	1	3	4	5	7	9	9	8	6	3	1	-2	-6	-8	-10	-12	-13	-12	-11	-9	-6	-4	-1	2	3	5	5	5	4	3	2	1	-0	-0	0	1	
75	-2	0	3	5	8	10	11	10	8	5	2	-2	-6	-9	-12	-14	-14	-12	-9	-6	-2	2	5	7	8	8	7	5	2	-2	-2	-4	-4	-4	-2		
70	-6	-3	1	4	7	10	12	12	10	7	3	-1	-5	-9	-12	-15	-15	-12	-9	-5	-0	4	8	10	11	10	8	5	2	-2	-5	-7	-8	-7	-6		
65	-9	-5	-1	3	7	10	13	13	11	8	4	-0	-5	-9	-12	-15	-16	-15	-12	-8	-4	2	7	11	13	14	12	9	5	1	-4	-8	-11	-12	-11	-9	
60	-12	-8	-3	2	6	10	13	14	14	12	9	5	1	-4	-8	-12	-14	-15	-14	-12	-8	-2	3	9	13	16	16	14	10	5	-0	-6	-11	-14	-15	-14	
55	-14	-10	-5	1	6	10	12	14	14	12	10	6	2	-3	-7	-11	-13	-14	-14	-11	-6	-1	5	11	15	18	18	15	11	5	-2	-8	-13	-16	-18	-17	
50	-16	-11	-6	-1	5	9	12	13	13	12	10	6	2	-2	-6	-10	-12	-13	-12	-9	-5	1	7	12	17	19	19	16	11	5	-3	-9	-15	-19	-20	-19	
45	-17	-13	-7	-2	3	8	11	12	12	11	9	6	3	-1	-5	-8	-10	-11	-10	-8	-4	2	8	13	18	20	19	16	11	4	-3	-10	-16	-20	-21	-20	
40	-18	-13	-8	-3	2	6	9	11	11	10	9	6	3	0	-3	-6	-8	-9	-8	-6	-2	3	9	14	18	20	19	16	11	4	-4	-11	-17	-20	-22	-21	
35	-18	-13	-8	-3	1	5	8	9	9	9	8	6	3	1	-2	-4	-6	-7	-6	-4	-1	4	9	14	17	19	18	15	10	3	-4	-11	-17	-20	-21	-20	
30	-17	-13	-8	-4	0																																

```

-18-17-16-15-14-13-12-11-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
90 17 17 17 16 14 13 10 8 5 2 -1 -4 -7-10-12-14-16-17-17-17-16-14-12-10 -8 -5 -2 1 4 7 10 12 14 15 17 17
85 6 9 12 15 18 20 20 19 17 12 7 0 -7-13-19-24-27-28-27-25-21-16-10 -4 1 5 7 9 9 8 7 5 4 3 3 4 6
80 -5 0 7 14 21 26 29 30 27 22 14 5 -6-16-25-32-37-38-36-31-24-15 -5 4 12 17 20 19 17 12 6 0 -5 -9-10 -9 -5
75 -17 -9 1 12 23 31 37 39 37 31 21 9 -4-18-30-39-45-46-43-36-25-13 0 13 23 29 32 30 24 15 5 -5-14-21-23-22-17
70 -29-18 -5 10 24 35 43 46 45 38 27 13 -3-19-33-44-51-52-49-39-26-11 6 21 33 41 43 39 30 18 3-11-24-32-36-35-29
65 -39-26-10 7 24 38 48 52 51 44 32 17 -1-18-35-47-55-57-52-41-26 -8 12 29 43 51 52 47 36 20 1-17-32-43-48-47-39
60 -48-34-16 4 23 39 50 56 55 48 36 20 1-18-35-49-57-59-54-42-25 -5 17 36 51 60 61 54 40 21 -1-22-40-53-59-57-48
55 -56-40-20 1 21 39 51 58 57 51 39 22 3-16-34-48-57-59-53-41-23 -1 21 42 58 67 67 59 43 21 -3-27-47-61-67-65-56
50 -62-45-24 -2 19 38 51 57 58 52 40 24 5-14-32-46-55-57-52-39-21 2 25 46 62 71 71 62 44 21 -5-30-52-67-74-72-62
45 -65-48-27 -5 17 35 48 56 56 51 39 24 6-12-29-43-51-53-48-36-18 4 28 49 65 73 73 63 45 20 -7-33-55-70-77-75-65
40 -66-49-29 -7 14 32 45 52 53 48 38 24 7-10-26-39-47-49-44-32-15 7 29 49 65 73 72 62 43 19 -8-34-56-71-78-76-66
35 -64-49-29 -8 11 28 40 47 48 44 35 23 8 -7-22-33-41-43-38-27-11 8 29 48 62 70 69 59 41 17 -8-33-54-69-75-74-64
30 -60-46-28 -9 9 24 35 41 42 39 31 21 8 -5-18-28-34-36-32-23 -8 9 28 45 58 64 63 53 37 15 -8-31-51-64-70-69-60
25 -53-41-26-10 6 19 28 34 35 32 26 18 8 -3-13-22-27-29-25-18 -5 9 25 40 51 56 55 47 32 13 -8-28-45-57-62-61-53
20 -45-35-22 -9 3 14 22 26 27 25 21 14 7 -2 -9-16-20-21-19-13 -3 9 21 33 42 46 45 38 26 11 -7-23-37-47-52-51-45
15 -34-27-18 -8 1 9 15 18 19 18 15 10 5 -0 -5-10-13-14-12 -8 -1 7 16 25 31 34 33 28 20 8 -5-18-28-36-39-39-34
10 -22-18-12 -6 -0 4 8 10 10 10 8 6 4 1 -2 -4 -6 -6 -6 -3 0 5 10 15 19 21 21 18 12 5 -3-11-18-23-25-25-22
5 -9 -8 -6 -4 -2 -0 1 1 2 2 2 2 2 2 2 1 1 1 1 1 2 3 4 5 7 7 8 7 5 2 -1 -4 -7 -9-10-10 -9
0 4 3 1 -1 -3 -5 -6 -7 -7 -6 -4 -2 -0 2 5 6 7 7 6 5 2 -0 -3 -5 -6 -7 -6 -5 -3 -1 2 3 5 6 6 5 4
-5 17 13 7 1 -4 -9-12-14-15-13-11 -7 -2 3 8 11 13 14 12 8 3 -3 -9-15-19-20-19-16-10 -4 4 11 16 20 21 20 17
-10 30 22 13 4 -5-13-18-21-22-20-16-11 -4 3 10 16 19 19 17 12 4 -6-15-24-30-33-32-27-18 -6 6 17 27 33 35 34 30
-15 41 31 19 6 -6-16-24-28-29-26-21-14 -5 4 13 20 24 25 22 15 4 -8-21-32-41-45-43-36-24 -9 7 23 36 45 48 47 41
-20 50 39 24 8 -7-19-29-34-35-32-26-17 -6 5 15 23 29 30 26 18 5-10-25-39-50-55-53-45-30-12 8 27 44 55 59 58 50
-25 58 44 27 9 -8-22-33-39-40-37-29-19 -7 5 17 27 33 34 30 21 7-10-28-45-57-62-61-51-35-14 9 31 49 62 68 66 58
-30 63 48 30 10 -9-25-36-43-44-40-32-21 -8 6 20 30 37 38 34 23 8-10-30-48-61-68-66-56-39-17 9 33 53 67 74 72 63
-35 66 50 31 10-10-27-40-46-47-43-34-22 -7 8 22 33 40 42 37 26 10-10-30-49-64-71-70-60-42-18 8 33 55 70 77 75 66
-40 66 50 30 8-12-29-42-49-50-45-36-22 -7 9 24 36 43 45 40 29 12 -8-29-49-64-71-71-61-43-20 7 32 54 69 77 75 66
-45 63 48 28 7-14-31-43-50-51-46-36-22 -6 10 26 38 46 47 43 32 15 -5-27-46-61-70-69-60-43-21 5 30 52 67 74 72 63
-50 58 43 24 4-16-32-44-50-51-45-35-21 -5 12 27 40 47 49 45 34 18 -2-23-42-57-65-66-58-42-21 3 27 47 61 68 67 58
-55 51 38 20 1-17-33-44-50-49-44-33-19 -3 13 28 41 48 50 46 35 20 1-18-37-51-59-60-53-40-21 1 23 41 54 61 60 51
-60 43 30 15 -3-19-33-43-47-47-41-31-17 -1 14 29 41 48 50 46 36 22 5-13-30-44-52-53-48-36-20 -1 18 34 46 51 50 43
-65 33 22 9 -6-20-32-40-44-43-37-27-14 0 15 29 39 46 48 45 36 24 9 -8-23-35-42-44-41-31-18 -3 13 26 36 40 39 33
-70 22 14 3-10-21-31-37-40-38-32-23-11 2 15 28 37 43 45 42 35 25 12 -2-15-26-32-35-33-26-16 -4 8 18 25 29 28 22
-75 12 5 -4-13-21-28-32-34-32-26-18 -8 4 15 25 34 39 41 39 33 25 15 3 -7-16-22-25-24-20-14 -6 2 10 15 17 16 12
-80 1 -4 -9-15-20-24-27-27-24-19-12 -4 5 14 22 29 33 34 33 30 24 16 8 1 -6-11-14-15-14-11 -6 -2 2 4 5 4 1
-85 -9-12-14-17-19-20-20-18-16-11 -6 -0 6 12 18 22 25 27 27 25 22 18 13 8 3 -1 -4 -6 -7 -7 -7 -6 -6 -6 -6 -7 -9
-90 -19-19-19-18-16-14-12 -9 -6 -3 0 4 7 10 12 15 16 18 19 19 19 18 16 14 12 9 6 3 -0 -4 -7-10-12-15-16-18-19

```

$$\delta \nabla g_{\lambda} = \text{const} \times 10^{-19} \text{ sec}^{-2}. \text{ 100 000-km elevation.}$$

Number Map 3. Horizontal anomalous gravity gradient along $\phi = \text{const}$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	7	6	5	3	2	0	-2	-3	-5	-6	-7	-8	-9	-10	-10	-9	-8	-7	-6	-5	-3	-2	-0	2	3	5	6	7	8	9	10	10	9	8	7	6	6
85	6	5	5	4	4	3	1	-0	-2	-4	-6	-7	-8	-9	-10	-10	-9	-8	-7	-5	-4	-2	-0	1	2	3	4	5	6	6	7	7	6	6	6	6	6
80	2	3	3	4	4	3	2	1	-0	-1	-2	-3	-4	-6	-7	-7	-7	-5	-4	-2	-1	-1	-1	-1	1	2	3	4	4	4	3	2	2	2	2	2	2
75	-3	-1	1	2	3	3	2	1	1	2	4	6	6	5	2	-1	-3	-4	-4	-3	-2	-1	-3	-5	-7	-8	-7	-5	-1	3	6	6	5	2	-1	-3	-3
70	-7	-5	-2	0	1	-1	-2	-3	-2	1	7	12	15	14	10	4	-0	-3	-3	-2	-2	-2	-5	-9	-12	-14	-13	-8	-1	6	11	12	8	3	-3	-6	-7
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-90	-16	-11	-7	-2	2	7	12	16	19	22	25	26	27	27	26	25	22	19	16	11	7	2	-2	-7	-12	-16	-19	-22	-25	-26	-27	-27	-26	-25	-22	-19	-16

$$\delta \nabla g_{\phi} = \text{const} \times 10^{-11} \text{ sec}^{-2}. \text{ 0-km elevation.}$$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	-1	-2	-2	-2	-2	-2	-2	-2	-1	0	1	2	2	2	2	1	1	1	
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-80	-28	-10	8	23	35	43	47	48	46	42	38	33	28	24	20	16	14	13	13	14	15	14	12	7	-0	-10	-21	-32	-43	-53	-61	-66	-67	-64	-56	-43	-30
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-90	-28	-19	-10	0	10	19	28	36	43	49	53	56	56	56	53	49	43	36	28	19	10	-0	-10	-19	-28	-36	-43	-49	-53	-56	-56	-56	-53	-49	-43	-36	-28

$$\delta \nabla g_{\phi} = \text{const} \times 10^{-12} \text{ sec}^{-2}. \text{ 1000-km elevation.}$$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
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$$\delta \nabla g_{\phi} = \text{const} \times 10^{-14} \text{ sec}^{-2} \cdot 10 \text{ 000-km elevation.}$$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
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-25	-7	-9	-11	-11	-9	-7	-4	-1	2	5	7	9	10	9	8	6	3	-1	-4	-7	-10	-11	-11	-10	-7	-3	2	6	9	12	12	11	9	5	1	-3	-7
-30	-6	-9	-10	-10	-9	-7	-4	-1	2	5	7	9	9	9	8	6	3	-0	-4	-7	-9	-11	-11	-9	-7	-3	1	5	9	11	11	10	8	5	1	-3	-6
-35	-6	-8	-9	-9	-8	-6	-4	-1	2	5	7	8	9	9	7	5	3	-0	-4	-7	-9	-10	-10	-9	-6	-3	1	5	8	10	10	10	8	5	1	-3	-6
-40	-5	-7	-9	-9	-8	-6	-3	-1	2	5	7	8	9	8	7	5	3	-0	-3	-6	-8	-9	-9	-8	-6	-3	1	4	7	9	9	9	7	4	1	-2	-5
-45	-5	-7	-8	-8	-7	-5	-3	-0	2	4	6	8	8	8	7	5	2	-0	-3	-6	-8	-9	-9	-8	-6	-3	0	3	6	8	8	8	6	4	1	-2	-5
-50	-4	-6	-7	-7	-6	-5	-3	-0	2	4	6	7	8	7	6	5	2	-0	-3	-5	-7	-8	-8	-7	-5	-3	0	3	5	7	7	7	5	3	1	-2	-4
-55	-4	-5	-6	-6	-5	-4	-2	0	2	4	6	7	7	7	6	4	2	-0	-2	-5	-6	-7	-7	-6	-5	-3	-0	2	4	6	6	6	5	3	0	-2	-4
-60	-3	-5	-5	-5	-5	-3	-2	0	2	4	5	6	7	6	5	4	2	-0	-2	-4	-5	-6	-6	-6	-4	-3	-1	2	3	4	5	5	4	2	0	-2	-3
-65	-3	-4	-4	-4	-4	-3	-1	0	2	4	5	6	6	6	5	4	2	0	-2	-3	-5	-5	-6	-5	-4	-2	-1	1	2	3	4	4	3	2	0	-1	-3
-70	-2	-3	-3	-3	-3	-2	-1	1	2	3	4	5	5	5	4	3	2	0	-1	-3	-4	-4	-5	-4	-3	-2	-1	0	1	2	3	2	2	1	-0	-1	-2
-75	-2	-2	-2	-2	-2	-1	-0	1	2	3	4	4	4	4	4	3	2	0	-1	-2	-3	-4	-4	-4	-3	-2	-1	-0	1	1	1	1	1	0	-0	-1	-2
-80	-1	-1	-1	-1	-1	-0	0	1	2	3	3	4	4	4	3	2	1	0	-1	-2	-3	-3	-3	-3	-2	-2	-1	-1	-0	0	0	0	0	-0	-1	-1	-1
-85	-1	-1	-1	-0	0	0	1	1	2	2	3	3	3	3	2	2	1	0	-0	-1	-1	-2	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
-90	-0	0	0	1	1	1	1	2	2	2	2	2	2	2	1	1	1	0	-0	-0	-1	-1	-1	-1	-1	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	-1	-0

$$\delta \nabla g_{\phi} = \text{const} \times 10^{-18} \text{ sec}^{-2}. \text{ 100 000-km elevation.}$$

Number Map 4. Total horizontal anomalous gravity gradient

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
90	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
85	6	6	5	5	5	5	5	6	6	7	8	9	10	10	10	10	9	9	8	7	6	5	5	5	5	6	6	7	7	7	7	7	6	6	6	6	6	
80	6	7	8	8	8	7	6	5	4	3	2	2	4	6	9	10	10	10	9	8	7	7	7	6	4	2	1	2	4	5	6	5	5	4	4	5	6	
75	5	6	8	10	11	11	12	13	14	14	13	10	7	6	9	13	15	16	16	16	16	15	14	13	10	8	7	7	8	8	8	7	5	2	1	3	5	
70	9	6	2	1	3	5	8	13	17	20	21	20	17	14	12	12	14	14	14	13	12	12	11	11	13	15	15	15	13	12	12	11	11	11	11	9		
65	15	13	10	9	9	8	8	10	12	14	18	22	23	21	15	9	6	5	4	3	2	3	7	12	17	20	21	18	15	15	18	19	18	17	17	17	15	
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55	9	5	1	2	4	7	13	19	21	15	8	13	22	21	13	2	8	12	12	10	9	10	10	12	12	13	12	5	7	17	24	22	13	3	7	11	9	
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40	9	3	5	8	13	19	19	8	6	8	6	2	15	18	7	7	5	11	3	12	11	6	12	14	11	18	21	10	13	6	15	6	10	8	12	13	9	
35	15	14	12	7	6	9	17	10	4	6	7	9	18	24	14	11	5	12	8	13	9	2	7	12	7	9	22	2	8	7	17	7	11	3	13	10	15	
30	21	16	18	17	14	3	16	10	4	8	9	11	14	26	16	11	7	14	10	18	12	9	9	14	10	3	27	10	5	8	20	8	13	10	16	13	21	
25	17	6	13	16	17	8	14	10	5	10	11	13	6	21	14	6	6	13	4	19	13	8	13	16	12	13	30	15	8	9	22	5	11	10	13	8	17	
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15	12	16	8	11	12	4	4	11	8	5	13	20	18	10	15	10	9	13	12	11	6	5	8	13	7	23	21	18	16	16	16	10	3	1	17	4	12	
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-45	17	15	13	11	4	7	2	2	6	7	4	8	7	6	6	11	13	12	5	4	3	5	12	13	5	6	14	20	15	8	9	10	9	4	8	12	17	
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-65	10	9	14	18	19	16	11	5	1	4	6	6	6	4	1	3	6	8	7	5	3	5	7	7	4	5	11	16	18	16	12	7	10	15	17	14	10	
-70	10	7	14	20	24	23	20	15	10	5	3	3	3	2	2	4	6	6	6	6	8	11	13	13	12	12	13	15	15	14	12	14	19	22	21	17	10	
-75	12	3	8	16	21	24	24	21	18	14	11	8	6	4	2	2	4	6	9	11	14	16	16	15	12	8	5	6	10	15	20	25	28	28	26	20	12	
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-90	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	

$\delta \nabla g_{\text{horiz}} \times 10^{-11} \text{ sec}^{-2}$. 0-km elevation.

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
85	2	2	2	2	2	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
80	1	2	2	2	3	3	3	3	2	2	2	1	1	2	3	4	4	5	5	5	4	4	4	3	3	2	2	2	3	3	3	3	2	2	1	1	1
75	1	2	2	3	3	4	4	5	6	6	6	5	5	4	5	6	6	7	7	7	6	6	6	5	5	5	4	4	4	4	4	4	3	2	2	1	1
70	4	3	2	1	1	2	3	5	7	8	9	9	9	8	7	6	6	6	6	5	5	5	5	6	7	7	8	7	6	6	6	6	5	5	5	4	4
65	6	5	4	3	3	3	4	4	5	6	8	10	11	10	8	5	3	3	3	2	2	3	4	7	8	9	9	8	7	8	9	9	8	7	7	6	6
60	4	4	3	3	4	5	6	7	6	3	3	8	11	11	8	3	1	3	4	4	4	4	5	7	8	9	8	5	8	11	11	8	5	4	5	4	
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50	8	6	5	5	4	3	1	5	8	7	5	9	10	5	0	3	5	3	1	1	2	3	4	5	6	7	8	5	7	8	5	7	10	8	4	5	8
45	7	5	5	6	7	7	5	0	5	6	4	3	8	9	4	1	3	4	1	2	3	3	4	6	6	9	10	7	7	6	8	6	3	6	8	9	
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35	5	5	5	3	3	4	7	4	2	4	4	3	8	11	8	5	3	5	3	4	2	0	2	4	2	4	8	1	4	3	7	4	3	2	5	4	
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20	5	3	2	6	7	3	4	5	2	4	7	8	4	6	7	4	2	5	2	5	3	2	4	6	6	10	11	7	7	6	8	2	3	1	6	2	
15	4	6	2	5	6	2	3	5	3	2	7	10	7	4	8	5	3	5	3	3	2	1	4	6	6	11	9	8	9	8	7	3	2	2	6		
10	2	5	4	5	5	2	1	5	4	1	5	10	9	3	7	6	2	3	2	1	2	2	4	6	6	10	7	10	11	5	5	2	3	6	3		
5	2	4	3	4	3	1	4	4	3	3	5	9	9	3	6	8	4	5	3	2	4	5	4	5	6	6	8	3	11	12	2	5	3	8	6		
0	5	4	3	3	3	3	3	3	3	3	5	7	9	3	4	9	7	7	5	4	5	5	5	4	4	7	2	11	12	8	2	4	3	6	9		
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-80	10	9	8	8	9	9	10	10	9	9	8	7	6	5	4	3	2	2	2	3	3	4	4	4	4	4	6	7	9	11	13	14	14	13	12		
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	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
85	8	8	7	7	6	6	6	6	7	7	8	9	10	11	13	14	15	16	16	16	16	16	15	15	14	14	14	14	14	13	13	12	11	10	9	8	
80	3	4	6	8	10	12	13	15	15	16	15	15	15	17	19	22	24	26	27	27	26	25	24	22	21	19	18	18	18	17	15	13	10	7	4	3	
75	8	7	7	9	12	15	19	24	28	30	31	31	30	29	29	30	32	33	34	33	33	32	31	31	30	30	29	27	26	25	24	23	20	16	13	10	8
70	20	16	12	9	9	12	17	23	30	36	41	45	45	43	38	33	30	29	28	28	29	32	36	39	41	40	36	33	34	35	35	32	28	25	23	20	
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$\delta \nabla g_{\text{horiz}} \times 10^{-12} \text{ sec}^{-2}$. 1000-km elevation.

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-75	2	2	2	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	2	2	2	2	1	1	2	2	2	2	2	
-80	1	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	2	2	2	1	1	1	0	0	0	1	1	1	1	
-85	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	
-90	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

$\delta \nabla_{g_{\text{horiz}}} \times 10^{-18} \text{ sec}^{-2}$. 100 000-km elevation.

Number Map 5. Vertical anomalous gravity gradient

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	-8	-9	-10	-11	-12	-13	-13	-13	-12	-11	-9	-7	-4	-1	2	5	8	10	12	13	14	14	13	13	11	10	8	6	5	3	1	-2	-4	-5	-6	-8	
80	-3	-4	-6	-8	-11	-13	-15	-16	-17	-16	-14	-12	-9	-5	-1	3	8	11	14	16	16	15	14	12	10	9	8	6	5	4	3	1	-2	-1	-2	-3	
75	7	8	8	6	2	-1	-4	-6	-7	-8	-9	-10	-11	-11	-10	-8	-5	-1	2	3	2	1	-1	-2	-1	1	4	6	8	8	7	5	3	3	4	6	7
70	10	14	16	15	13	11	10	11	12	13	10	4	-4	-13	-19	-22	-22	-19	-17	-16	-16	-18	-19	-17	-12	-4	5	13	17	17	12	6	1	-1	0	5	10
65	-1	6	10	10	10	10	14	20	28	34	32	23	8	-9	-23	-31	-32	-29	-26	-24	-25	-25	-20	-11	3	17	28	32	28	16	2	-10	-17	-16	-9	-1	
60	-17	-9	-6	-5	-6	-4	3	15	30	42	45	37	18	-5	-23	-31	-31	-26	-20	-17	-17	-17	-15	-9	2	16	32	44	45	36	17	-6	-25	-34	-26	-17	
55	-20	-16	-15	-16	-19	-18	-13	-1	17	35	42	36	18	-6	-23	-28	-24	-14	-6	-3	-2	-2	-0	6	14	25	39	49	48	36	13	-13	-32	-40	-38	-29	-20
50	-5	-7	-8	-11	-17	-20	-20	-15	0	18	27	25	9	-14	-27	-27	-19	-5	4	3	4	7	6	11	17	21	32	41	38	29	10	-15	-27	-29	-24	-12	-5
45	18	10	10	6	-1	-3	-12	-19	-11	4	11	13	1	-22	-32	-27	-19	-4	5	-3	-3	2	-1	4	8	2	14	25	21	20	8	-13	-13	-9	-2	15	18
40	32	17	21	22	18	20	5	-14	-12	-1	4	10	3	-22	-32	-25	-22	-7	3	-16	-17	-7	-17	-9	-4	-21	-4	12	3	14	8	-14	-1	7	11	33	32
35	27	6	17	22	25	36	19	-7	-9	-0	5	16	17	-10	-23	-15	-20	-7	6	-24	-26	-9	-28	-18	-10	-38	-11	10	-8	13	9	-19	3	10	7	35	27
30	10	-15	1	8	19	38	21	-5	-9	-0	8	24	33	10	-10	3	-14	-4	16	-20	-24	-0	-29	-18	-6	-42	-7	18	-12	14	7	-27	1	0	-8	24	10
25	-4	-28	-16	-11	9	29	14	-7	-14	-6	8	25	44	28	2	5	-8	-1	26	-9	-16	11	-22	-13	2	-35	6	28	-11	12	1	-32	-2	-10	-18	15	-4
20	-5	-22	-23	-23	4	19	6	-7	-19	-14	2	17	42	38	7	2	-9	-6	24	-1	-11	15	-14	-8	8	-19	21	34	-9	5	-10	-30	-2	-15	-14	15	-5
15	6	-3	-20	-22	8	13	6	-0	-18	-19	-7	3	31	37	7	-8	-18	-15	11	-3	-12	7	-8	-4	9	1	35	34	-6	-8	-24	-22	-1	13	2	21	6
10	17	15	-15	-15	12	10	12	8	-11	-16	-18	-12	18	30	6	-17	-28	-23	-6	-9	-14	-4	-4	2	10	22	48	32	-4	-23	-37	-13	0	-10	14	23	17
5	21	20	-14	-9	10	6	17	13	-3	-9	-27	-23	8	20	10	-14	-31	-20	-11	-13	-10	-8	1	12	14	38	58	31	-3	-35	-46	-11	-5	-13	11	15	21
0	14	12	-15	-9	2	-1	13	9	1	-3	-32	-30	4	14	18	-0	-23	-5	0	-8	3	1	8	22	19	43	62	30	-5	-40	-48	-15	-14	-22	-7	-0	14
-5	2	-2	-13	-10	-4	-7	2	3	1	0	-28	-32	2	13	23	18	-6	12	19	3	16	15	14	27	19	34	54	27	-9	-37	-42	-21	-21	-33	-28	-14	2
-10	-8	-2	-5	-11	-1	-7	-10	2	0	1	-16	-30	-0	16	21	28	9	18	28	9	19	24	15	20	11	14	36	22	-10	-25	-29	-21	-20	-40	-41	-18	-8
-15	-13	3	7	-8	12	0	-18	8	1	0	2	-27	-6	18	10	23	16	8	20	4	6	20	12	7	-4	-6	15	16	-1	-4	-10	-10	-11	-39	-39	-14	-13
-20	-18	7	12	-7	27	10	-18	18	3	-3	17	-23	-14	18	-3	10	14	-10	-2	-9	-15	8	8	-6	-16	-19	0	15	20	12	10	4	-30	-26	-7	-18	
-25	-23	4	7	-9	33	15	-16	23	2	-7	22	-21	-20	15	-11	0	12	-23	-21	-19	-29	-3	9	-10	-22	-21	-7	14	32	40	29	27	15	-21	-13	-4	-23
-30	-28	-5	-5	-14	30	15	-12	19	-3	-13	16	-20	-22	13	-8	2	18	-19	-24	-19	-29	-5	12	-8	-22	-20	-11	12	40	47	36	34	17	-14	-5	-6	-28
-35	-28	-12	-14	-16	21	11	-9	11	-8	-16	7	-17	-18	13	3	12	27	-3	-13	-9	-19	-1	13	-7	-23	-23	-17	6	35	42	31	29	12	-11	-2	-8	-28
-40	-18	-10	-12	-11	14	9	-4	5	-8	-13	3	-10	-9	13	12	21	32	11	-0	-1	-9	-1	6	-13	-29	-30	-24	-3	24	30	21	17	3	-9	-1	-5	-18
-45	-2	1	-1	-0	12	8	0	3	-3	-5	4	-1	1	11	12	17	24	12	2	-1	-7	-6	-7	-22	-36	-35	-27	-7	15	21	14	8	-2	-7	2	3	-2
-50	14	15	12	9	11	6	0	1	1	3	9	6	3	4	2	3	5	0	-4	-6	-10	-12	-16	-27	-35	-32	-20	-2	15	18	12	4	-3	-3	6	12	14
-55	24	24	20	13	6	-1	-5	-4	-1	4	9	6	1	-5	-10	-12	-11	-11	-10	-8	-8	-10	-14	-21	-24	-20	-9	6	16	17	10	2	-3	-0	10	19	24
-60	30	30	24	14	2	-8	-13	-13	-9	-3	1	0	-5	-11	-17	-19	-17	-12	-6	-1	2	-1	-3	-8	-11	-9	-2	6	11	10	4	-2	4	2	12	23	30
-65	37	38	31	20	6	-6	-14	-17	-15	-11	-8	-8	-11	-14	-17	-16	-12	-5	3	9	11	10	5	-1	-7	-9	-8	-6	-5	-6	-8	-9	-5	5	17	29	37
-70	47	49	45	35	21	8	-2	-9	-12	-13	-13	-14	-15	-14	-11	-6	-0	5	9	9	6	-1	-9	-16	-22	-25	-27	-26	-24	-20	-13	-3	11	26	39	47	
-75	55	58	56	49	39	28	17	8	0	-5	-8	-11	-12	-13	-12	-10	-8	-5	-3	-3	-6	-11	-17	-25	-32	-38	-41	-41	-39	-33	-24	-12	2	18	33	46	55
-80	49	53	53	50	45	38	29	21	14	7	2	-3	-6	-9	-11	-12	-13	-14	-16	-18	-21	-26	-30	-35	-39	-41	-42	-39	-35	-27	-18	-6	19	31	42	49	
-85	27	30	31	31	29	27	23	20	15	11	7	3	-0	-4	-7	-9	-12	-15	-17	-19	-21	-23	-25	-26	-26	-26	-24	-22	-18	-13	-7	-1	6	12	18	23	27
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$\delta \nabla_{\text{g}_{\text{vert}}} \times 10^{-11} \text{ sec}^{-2}$. 0-km elevation.

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	-2	-2	-3	-3	-3	-4	-4	-4	-4	-3	-2	-2	-1	0	0	0	1	2	3	3	3	4	4	4	3	3	3	2	2	1	1	0	0	-1	-1	-2	
80	-0	-1	-1	-2	-2	-3	-4	-4	-4	-4	-4	-4	-4	-3	-2	-1	0	1	2	3	3	3	3	3	3	4	4	3	2	2	1	1	0	0	-0		
75	2	3	3	2	2	1	0	0	-0	-1	-1	-2	-4	-5	-5	-6	-5	-4	-3	-3	-2	-2	-1	0	2	4	5	5	4	3	2	1	1	1	1	2	
70	2	4	5	5	5	5	6	7	7	6	3	-1	-5	-9	-11	-11	-11	-10	-9	-9	-8	-7	-6	-2	2	6	9	10	9	7	3	0	-2	-2	0		
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55	-8	-6	-5	-6	-6	-6	-4	1	9	16	19	16	7	-4	-12	-16	-14	-10	-6	-5	-4	-3	-1	2	7	13	19	24	23	18	7	-5	-13	-17	-16	-12	
50	-2	-2	-2	-3	-5	-6	-6	-4	2	10	14	12	4	-7	-14	-16	-12	-7	-3	-2	-2	-0	1	3	7	10	16	20	20	15	5	-6	-12	-13	-10	-5	
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40	12	8	8	9	9	9	3	-5	-4	1	5	7	3	-8	-14	-14	-11	-5	-2	-7	-9	-6	-8	-5	-3	-6	1	8	6	8	3	5	-3	0	4	12	12
35	11	4	6	9	12	15	8	-2	-4	-0	4	4	9	-2	-10	-10	-10	-4	-0	-10	-11	-7	-12	-9	-7	-13	-3	6	2	6	2	7	-2	1	4	13	11
30	6	-3	0	4	11	16	10	-2	-5	-1	5	12	16	6	-4	-5	-7	-3	3	-8	-11	-5	-12	-9	-6	-14	-1	8	5	0	-10	-3	-1	-10	6		
25	1	-9	-7	-3	6	14	8	-2	-6	-3	4	13	20	14	2	-1	-5	-2	6	-5	-8	-1	-9	-7	-3	-10	4	12	0	3	-3	-13	-4	-5	6	1	
20	0	-8	-10	-8	4	10	6	-2	-8	-7	0	9	20	18	5	-1	-6	-4	6	-2	-6	1	-6	-4	1	-3	11	15	0	-1	-8	-14	-5	-7	-4	6	
15	4	-2	-10	-9	3	8	5	0	-8	-9	-4	3	16	18	5	-4	-10	-7	2	-3	-5	0	-3	-1	4	6	19	17	0	-7	-14	-12	-4	-6	0	8	
10	8	4	-7	4	6	7	3	5	-9	-9	-4	10	15	5	-6	-13	-10	-3	-5	-6	-2	-1	3	7	15	25	18	0	-13	-19	-11	-5	-6	3	9	8	
5	9	6	-6	-5	3	4	7	5	-2	-7	-13	-10	5	12	7	-5	-13	-9	-4	-5	-4	0	7	2	7	11	21	30	18	-1	-18	-23	-11	-7	-8	1	6
0	5	4	-6	-5	1	1	5	4	-0	-4	-15	-13	2	9	9	1	-8	-3	0	-2	1	2	6	11	13	23	31	18	-2	-20	-24	-13	-10	-13	-6	-0	5
-5	0	1	-5	-5	-1	-1	1	2	0	-3	-13	-15	-0	8	11	8	-1	4	7	2	6	8	8	12	12	19	27	16	-3	-18	-21	-14	-13	-18	-15	-7	0
-10	-4	-1	-3	-4	0	-2	-3	1	-2	-9	-14	-2	8	11	11	5	7	10	4	7	10	9	10	7	11	19	13	-2	-11	-15	-12	-12	-20	-20	-10	-4	
-15	-7	-0	1	-2	5	1	-5	3	1	-1	-3	-12	-4	8	8	11	7	4	6	2	3	8	7	4	0	1	10	10	3	-2	-5	-5	-8	-19	-20	-10	-7
-20	-9	0	3	-1	10	4	-4	5	2	-1	-2	-10	-6	6	3	7	7	-2	-2	-4	-5	3	5	-1	-1	-6	-6	3	9	10	6	4	-2	-15	-15	-8	-9
-25	-10	-1	1	-1	12	7	-3	7	1	-2	4	-9	-8	4	-0	3	6	-6	-8	-9	-11	1	3	-4	-10	-10	2	8	16	19	15	12	4	-10	-10	-7	-10
-30	-12	-4	-3	-3	11	7	-2	6	-1	4	3	-8	-8	4	0	4	7	-5	-10	-10	-12	-3	5	-5	-12	-11	-5	7	19	23	19	16	6	-6	-6	-6	-12
-35	-11	-6	-5	-3	8	6	-1	3	-2	-5	0	-7	-6	4	3	7	10	-0	-6	-7	-9	-3	2	-6	-13	-14	-8	4	18	22	18	15	6	-4	-3	-6	-11
-40	-7	-5	-4	-2	6	5	0	2	-3	-4	-1	-4	-3	4	6	10	12	4	-2	-4	-6	-3	-2	-9	-16	-16	-11	1	13	17	14	10	3	-2	-3	-7	
-45	-0	1	1	2	6	4	1	1	-1	-2	1	-1	-1	1	4	5	8	9	4	0	-3	-5	-5	-6	-12	-18	-18	-12	2	9	13	10	6	1	-1	1	-0
-50	7	7	6	6	5	3	1	-0	-0	1	2	1	1	1	1	2	2	0	-2	-4	-5	-7	-9	-14	-17	-16	-10	-1	7	10	8	4	1	0	3	6	7
-55	12	13	11	8	5	1	-1	-2	-1	1	2	1	-1	-2	-4	-4	-4	-4	-4	-4	-6	-8	-12	-13	-12	-7	0	6	8	5	2	1	2	6	10	12	
-60	16	17	14	10	5	-0	-4	-5	-4	-2	-1	-1	-3	-5	-7	-8	-7	-5	-4	-2	-1	-2	-5	-7	-9	-8	-5	3	2	0	1	3	8	13	16		
-65	20	24	20	18	7	1	-3	-5	-5	-4	-4	-6	-7	-8	-8	-6	-4	-1	1	1	0	-2	-5	-7	-10	-8	-7	-5	4	-3	-2	0	5	11	16	20	
-70	23	24	22	18	13	7	-2	-4	-4	-5	-6	-7	-7	-7	-7	-5	-3	-1	0	0	-2	-4	-7	-10	-12	-13	-12	-11	-10	-7	1	7	14	19	23		
-75	24	26	22	22	18	13	9	5	1	-1	-3	-5	-6	-6	-6	-6	-5	-5	-4	-5	-7	-9	-12	-15	-16	-17	-17	-15	-13	-9	4	2	8	15	21	24	
-80	20	22	22	21	19	16	12	9	6	3	1	-1	-3	-4	-5	-6	-6	-7	-8	-8	-10	-11	-13	-15	-16	-16	-15	-13	-10	-6	-2	3	9	13	17	20	
-85	11	12	12	12	11	9	8	6	4	3	1	-0	-2	-3	-4	-5	-6	-7	-8	-9	-9	-10	-10	-10	-10	-9	-8	-7	-5	-3	-0	2	5	7	9	11	
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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$\delta \nabla g_{\text{vert}} \times 10^{-11} \text{ sec}^{-2}$. 1000-km elevation.

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
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-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$\delta \nabla g_{\text{vert}} \times 10^{-14} \text{ sec}^{-2}$. 10 000-km elevation.

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	-0	-0	-0	-0	-0	-0	-1	-1	-1	-0	-0	-0	-0	-0	-0	-0	0	0	0	0	0	0	0	0	0	0
80	1	1	1	1	1	1	1	1	1	1	0	-0	-0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0	-0	-0	0	0	0	0	0	0	0	0	0	0	1
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0	-35	-25	-13	0	12	23	30	33	33	29	22	13	2	-8	-19	-27	-32	-34	-31	-24	-14	-1	13	26	36	41	42	37	27	13	-2	-17	-30	-39	-42	-41	-35
-5	-34	-24	-12	0	12	22	29	33	32	28	22	13	2	-8	-18	-26	-31	-33	-30	-24	-13	-1	13	25	35	41	41	36	26	13	-2	-17	-29	-38	-42	-40	-34
-10	-33	-24	-12	0	12	22	28	32	31	28	21	12	2	-8	-18	-26	-31	-32	-30	-23	-13	-1	12	24	34	39	40	35	26	13	-2	-16	-28	-36	-40	-39	-33
-15	-31	-22	-11	1	12	21	27	30	30	26	20	12	2	-8	-17	-25	-30	-31	-29	-22	-13	-1	11	23	32	37	38	33	24	12	-1	-15	-26	-34	-38	-36	-31
-20	-28	-20	-10	1	11	20	26	29	28	25	19	11	2	-8	-17	-24	-28	-30	-27	-22	-13	-2	10	21	29	34	35	31	23	12	-1	-13	-24	-31	-35	-34	-28
-25	-25	-18	-8	2	11	19	24	27	26	23	17	10	1	-8	-16	-22	-27	-28	-26	-21	-13	-3	8	18	26	31	32	28	21	11	-0	-12	-21	-28	-31	-30	-25
-30	-22	-15	-7	2	11	18	23	25	24	21	16	9	1	-7	-15	-21	-25	-26	-24	-20	-12	-3	7	16	23	28	28	26	19	10	0	-10	-19	-25	-27	-26	-22
-35	-19	-13	-5	3	10	17	21	23	22	19	14	8	0	-7	-14	-20	-23	-24	-23	-19	-12	-4	5	13	20	24	25	22	17	9	1	-8	-16	-21	-23	-22	-19
-40	-15	-10	-3	3	10	15	19	20	19	17	12	6	-0	-7	-13	-18	-21	-22	-21	-17	-12	-4	3	10	16	20	21	19	15	8	1	-6	-13	-17	-19	-18	-15
-45	-12	-7	-2	4	9	14	17	18	17	14	10	5	-1	-6	-12	-16	-19	-20	-19	-16	-11	-5	2	8	13	16	17	16	12	7	1	-5	-10	-13	-15	-14	-12
-50	-8	-5	-0	4	9	12	14	15	14	12	9	4	-1	-6	-11	-14	-17	-18	-17	-14	-10	-5	0	5	10	13	14	13	10	6	2	-3	-7	-10	-11	-10	-8
-55	-5	-3	1	4	8	10	12	13	12	10	7	3	-1	-5	-9	-12	-14	-15	-14	-12	-9	-5	-1	3	7	9	10	10	8	5	2	-2	-5	-7	-8	-7	-5
-60	-3	-1	2	4	7	9	10	10	9	8	5	2	-1	-5	-8	-10	-12	-12	-12	-10	-8	-5	-2	2	4	6	7	7	6	4	2	-1	-3	-4	-5	-4	-3
-65	-1	0	2	4	6	7	8	8	7	6	4	1	-1	-4	-6	-8	-9	-10	-10	-9	-7	-5	-2	0	2	4	5	5	4	3	2	0	-1	-2	-2	-2	-1
-70	0	1	2	4	5	5	6	6	5	4	2	1	-1	-3	-5	-6	-7	-7	-7	-5	-4	-2	-1	1	2	3	3	3	2	2	1	-0	0	-1	-0	0	0
-75	1	2	2	3	3	4	4	4	3	2	1	0	-1	-2	-3	-4	-5	-5	-5	-4	-3	-2	-1	0	1	1	2	2	1	1	1	1	1	1	1	1	1
-80	1	2	2	2	2	2	2	2	2	1	1	0	-1	-1	-2	-3	-3	-3	-3	-3	-2	-2	-1	-1	0	1	1	1	1	1	1	1	1	1	1	1	1
-85	1	1	1	1	1	1	1	1	1	1	0	0	-0	-0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0	0	0	0	0	1	1	1	1	1	1
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$\delta \nabla g_{\text{vert}} \times 10^{-18} \text{ sec}^{-2}$. 100 000-km elevation.

Number Map 6. Horizontal and vertical spread of the gravity gradient;
0-km elevation

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	7	9	10	10	11	11	11	10	9	8	7	5	4	2	-0	-2	-4	-6	-7	-9	-10	-10	-11	-11	-10	-9	-8	-7	-5	-4	-2	0	2	4	6	7	
85	-3	-2	0	2	4	5	7	8	9	8	8	6	4	2	-1	-3	-5	-7	-8	-9	-8	-7	-6	-5	-4	-3	-3	-3	-3	-3	-3	-4	-4	-3	-3		
80	-12	-12	-11	-10	-8	-6	-3	-2	-1	0	1	1	2	2	1	1	0	-1	-1	0	1	3	4	5	6	5	3	1	-1	-2	-4	-5	-6	-8	-9	-11	-12
75	-10	-12	-12	-12	-11	-11	-10	-11	-12	-10	-4	-4	-0	3	5	5	6	7	8	9	11	12	12	10	7	3	-1	-4	-5	-5	-4	-4	-4	-6	-8	-10	
70	-2	0	-1	-2	-3	-4	-7	-11	-15	-17	-18	-15	-9	-3	2	5	6	6	6	7	9	10	10	9	6	2	-2	-6	-8	-7	-4	1	5	7	6	5	
65	13	12	11	11	10	8	4	-1	-8	-13	-15	-14	-9	-4	0	1	1	-1	-1	0	0	0	-2	-3	-6	-8	-9	-9	-6	-0	6	12	15	16	15	13	
60	12	13	13	14	15	14	12	8	3	-2	-5	-5	-2	0	1	-2	-5	-8	-9	-8	-7	-8	-10	-10	-10	-8	-7	-6	-4	-2	3	8	11	13	12	12	
55	-1	2	3	4	5	6	8	10	9	7	6	5	6	6	3	-2	-7	-10	-9	-7	-6	-9	-10	-11	-8	-3	1	2	3	2	2	3	2	0	-1	-2	-1
50	-13	-9	-9	-10	-9	-8	-4	3	7	9	10	10	9	9	6	-0	-4	-5	-4	2	3	-1	-3	-4	-1	7	10	10	10	4	-0	-3	-8	-12	-13	-15	-13
45	-13	-9	-12	-15	-17	-19	-13	-4	1	5	8	7	6	7	5	0	-0	0	3	11	11	6	6	3	5	15	15	13	12	4	-3	-4	-11	-13	-12	-15	-13
40	-1	3	-2	-7	-12	-17	-13	-6	-2	1	3	1	-2	0	0	-2	0	2	3	12	12	6	8	5	6	15	12	8	10	1	-3	-1	-6	-4	-0	-4	-1
35	11	14	9	5	0	-6	-5	-1	0	0	-1	-4	-8	-8	-5	-6	-2	-1	-4	4	4	-2	2	1	0	9	3	-1	4	-2	-3	3	0	6	11	8	11
30	11	12	12	12	7	4	5	3	3	2	-1	-4	-10	-13	-8	-6	-4	-9	-7	-6	-10	-6	-4	-5	-1	-7	-9	-2	-4	-1	2	1	8	11	8	11	
25	0	-2	4	8	5	8	8	3	5	4	1	0	-5	-11	-6	-1	-1	-1	-6	-10	-9	-10	-9	-6	-6	-9	-13	-10	-6	-1	1	-3	-2	3	-0	-1	0
20	-10	-15	-4	1	0	7	6	0	3	4	4	6	2	-4	-0	8	7	7	5	-4	-3	-0	-4	-1	-1	-12	-13	-6	-5	5	6	-6	-4	-3	-11	-9	-10
15	-12	-16	-5	-3	-1	6	2	-2	0	2	7	10	8	3	4	13	15	13	15	6	4	10	3	4	5	-11	-10	-1	-1	12	12	-5	-2	-4	-12	-7	-12
10	-5	-7	-0	-2	2	6	0	-1	-3	-2	7	9	8	6	2	9	14	10	14	8	4	11	5	4	6	-9	-7	1	2	14	13	1	4	1	-3	2	-5
5	4	4	4	1	5	5	1	-0	-5	-6	2	3	1	2	-5	-3	3	-1	1	1	-5	1	1	-1	2	-5	-6	-1	2	10	9	5	7	5	7	9	4
0	8	9	2	0	2	1	1	-1	-6	-8	-5	-4	-6	-6	-11	-15	-10	-12	-12	-10	-13	-11	-6	-4	-2	-0	-2	-3	0	1	1	5	5	11	10	8	
-5	8	6	3	-2	-5	-5	1	-3	-5	-6	-11	-8	-7	-9	-9	-15	-15	-11	-13	-12	-12	-14	-7	-2	0	7	5	-1	-2	-7	-6	2	0	2	7	4	8
-10	6	2	-5	-3	-11	-9	0	-5	-1	0	-11	-4	-1	-6	1	-4	-8	2	0	-2	0	-5	-3	4	6	12	12	3	-3	-10	-9	-2	-4	-1	-1	-2	6
-15	6	1	-2	-1	-12	-10	-1	-5	3	7	-5	2	8	2	11	9	4	16	17	11	14	6	2	8	9	12	15	7	-4	-10	-9	-6	-6	-4	-7	-2	6
-20	6	4	4	2	-8	-7	-2	-3	6	12	4	7	12	7	12	13	7	18	22	15	16	9	0	4	4	5	11	6	-5	-8	-7	-5	-7	-11	-4	6	
-25	3	5	7	3	-2	-4	-5	-0	6	11	9	6	8	5	2	3	0	5	11	6	5	2	-6	-6	-5	-4	3	2	-5	-5	-4	-3	-7	-10	-2	3	
-30	-2	3	5	1	3	-2	-6	2	3	5	8	1	-1	-1	-9	-10	-10	-11	-6	-7	-8	-6	-9	-10	-8	-2	1	-0	1	1	1	1	5	-7	-2	-2	
-35	-6	-1	0	-2	5	2	-4	2	-0	-1	4	-4	-7	-4	-12	-13	-11	-16	-13	-11	-11	-6	-3	-6	-6	-4	-1	3	5	7	7	8	7	-1	-1	-2	-6
-40	-7	-4	-4	-2	8	6	0	3	-3	-5	-1	-7	-7	-1	-5	-3	-0	-6	-6	-3	-3	3	8	4	1	1	1	3	7	9	9	11	10	5	4	-0	-7
-45	-5	-5	-4	-0	10	10	5	4	-3	-7	-5	-7	-5	4	6	10	13	8	5	6	5	9	13	8	3	-0	-2	-1	3	4	5	9	9	7	7	2	-5
-50	-3	-4	-3	2	10	12	8	5	-2	-6	-6	-6	-2	5	10	14	16	11	7	5	4	5	6	2	-4	-8	-9	-8	-4	-2	-1	2	4	5	6	3	-3
-55	-3	-4	-3	1	6	9	7	4	-0	-3	-4	-3	-1	2	5	6	6	2	-2	-5	-6	-6	-6	-8	-12	-13	-12	-10	-6	-5	-4	-2	-1	1	2	0	-3
-60	-6	-7	-7	-5	-1	1	1	1	0	0	0	0	-1	-2	4	-6	-9	-12	-13	-13	-11	-10	-10	-10	-8	-5	-2	1	1	-1	-3	-4	-4	-3	-4	-6	
-65	-8	-10	-11	-11	-10	-8	-7	-4	-1	2	3	3	2	-1	-4	-7	-9	-10	-10	-9	-7	-4	-1	1	3	6	9	12	12	9	4	-0	-4	-6	-6	-7	-8
-70	-7	-8	-11	-12	-14	-14	-12	-9	-5	-0	3	4	4	2	0	-2	-2	-1	1	4	8	11	14	16	17	19	19	16	12	7	1	-3	-5	-6	-6	-7	
-75	1	-0	-3	-5	-8	-10	-10	-8	-6	-2	1	3	4	4	5	5	7	9	12	15	18	20	20	20	19	18	16	13	10	7	3	0	-1	-1	-0	1	1
-80	12	11	8	5	3	1	-1	-1	0	1	2	3	4	5	6	8	10	11	13	13	13	11	9	7	4	2	-0	-2	-3	-3	-1	1	4	7	10	12	
-85	18	20	20	20	18	16	13	11	9	7	5	4	3	2	1	1	0	-0	-1	-2	-3	-5	-6	-8	-10	-11	-12	-12	-11	-9	-6	-2	3	7	11	15	18
-90	14	16	18	19	19	19	18	17	16	13	11	8	5	1	-2	-5	-8	-11	-14	-16	-18	-19	-19	-19	-18	-17	-16	-13	-11	-8	-5	-1	2	5	8	11	14

$$\left(\nabla_{\text{Kozai}}^g - \nabla_{\text{Kaula CA}}^g \right) \times 10^{-11} \text{ sec}^{-2}.$$

Gaposchkin $\lambda = \text{const}$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	-8	-7	-5	-4	-2	0	2	4	6	7	9	10	10	11	11	11	10	9	8	7	5	4	2	-0	-2	-4	-6	-7	-9	-10	-10	-11	-11	-10	-9	-8	
85	-7	-8	-8	-8	-7	-5	-3	-0	3	6	8	11	13	14	14	13	12	10	7	4	1	-1	-3	-4	-5	-5	-5	-5	-5	-5	-5	-5	-6	-7	-7	-4	
80	-4	-6	-8	-10	-10	-9	-7	-4	-1	2	5	8	10	11	12	12	10	8	4	1	-3	-5	-6	-5	-4	-2	-1	0	1	1	0	0	-1	-2	-4		
75	-0	-3	-7	-9	-10	-9	-6	-4	-1	0	1	1	3	4	6	8	7	5	2	-2	-5	-7	-6	-3	0	3	5	6	5	3	2	1	2	3	3	2	
70	3	-0	-4	-7	-7	-5	-2	1	2	1	-2	-5	-5	-4	-0	3	4	3	-0	-4	-6	-7	-4	-0	5	9	11	9	6	1	-2	-3	-1	2	5	5	
65	5	2	-2	-5	-4	-1	3	7	8	4	-2	-9	-11	-10	-4	1	4	3	-0	-4	-6	-6	-3	2	7	11	12	10	4	-3	-8	-9	-6	-0	5	7	
60	5	1	-2	-4	-3	1	7	12	13	8	-1	-10	-14	-12	-4	2	6	4	-1	-4	-5	-4	-1	3	6	10	11	8	1	-7	-13	-13	-9	-2	4	7	
55	3	-0	-3	-5	-3	1	6	12	14	10	0	-9	-14	-10	-1	6	8	5	-1	-5	-4	-2	-0	2	3	6	8	5	-0	-7	-14	-14	-8	-1	5	7	
50	0	-2	-3	-5	-3	-1	2	8	13	9	0	-7	-13	-8	3	9	10	6	-4	-7	-2	0	1	2	-2	0	6	4	1	-3	-12	-11	-4	0	6	6	
45	-3	-3	-1	-4	-2	-4	2	9	6	-0	-6	-12	-7	7	11	9	5	-8	-10	1	2	2	3	-7	-4	7	3	4	3	-9	-7	1	-0	6	7		
40	-7	-2	3	-2	1	-2	-9	-3	6	3	-1	-3	-11	-8	9	11	7	6	-11	-14	5	3	1	5	-12	-8	11	2	6	10	-9	-4	5	3	7		
35	-10	-1	7	1	5	-0	-12	-5	5	2	-1	-1	-9	-9	9	10	4	7	-13	-18	9	4	-1	8	-16	-10	16	-0	6	15	-11	-4	6	8	7		
30	-13	0	7	3	9	0	-12	-5	4	4	1	2	-6	-10	7	9	1	8	-12	-21	12	4	4	-11	-18	-11	21	-3	5	18	-14	-3	5	13	7		
25	-12	0	4	4	10	-1	-10	-4	3	5	2	3	-1	-11	4	9	-0	10	-9	-22	13	4	7	-11	-18	-9	22	-6	3	16	-15	-2	3	15	9		
20	-9	-1	-2	5	9	-4	-6	-3	2	7	2	3	-3	-9	-1	7	0	9	-5	-19	11	5	7	-8	-14	-5	20	-8	1	11	-12	2	-1	13			
15	-4	-4	-8	6	5	-6	-3	-2	0	5	0	3	6	-7	-5	4	1	8	-2	-14	7	6	-4	-4	-9	1	14	-9	-2	5	-5	6	-5	-8			
10	2	-7	-11	7	1	-6	1	-2	0	3	-3	3	7	-5	-7	-1	3	7	-1	-9	4	5	1	0	-4	7	7	-9	-5	-2	3	9	-8	2			
5	5	-9	-10	7	-2	-4	3	-2	3	-1	-7	5	6	-3	-5	-6	3	8	-3	-4	2	3	4	-2	-1	12	3	10	-8	-7	8	10	-9	1			
0	5	-9	-7	6	-3	-2	3	-1	6	-2	-10	6	6	-2	-2	-8	3	9	-5	-2	3	-0	5	-3	-1	14	2	-11	-10	-8	9	-9	0	6			
-5	3	-6	-4	-4	-1	-3	2	2	7	-1	-10	5	7	-2	1	-7	1	11	-6	-2	5	-3	2	-4	-4	13	4	-11	-11	-7	6	7	-6				
-10	0	-0	-3	4	2	-8	2	5	4	-3	-9	1	9	-2	1	-3	-3	9	-4	-0	5	7	-2	-3	-5	-6	11	8	-8	-9	4	2	5	-7			
-15	-2	-6	-4	6	7	-15	2	7	-3	9	-6	-6	-12	-3	-2	3	-6	4	-0	5	7	2	-6	-7	-7	8	11	-3	-4	-2	-1	5	-5				
-20	-4	9	-6	10	-12	-10	1	6	-10	12	-4	-13	15	-3	7	-7	-8	-3	4	-4	8	8	-7	-10	7	5	11	3	0	-2	-2	5	-6				
-25	-6	9	-7	14	-15	-22	1	4	-15	13	-1	-16	16	-1	-10	10	-9	-9	6	-2	8	14	-5	-12	-6	3	9	8	4	-3	-2	5	-7				
-30	-7	-7	5	-17	-16	-20	-1	0	-17	12	1	-14	-16	2	-9	11	-8	-13	5	0	7	17	-3	-14	-6	0	10	6	4	-1	5	-6	-0				
-35	-8	3	-3	17	-15	-3	-3	-16	8	3	-9	15	5	-5	9	-7	-14	3	0	1	7	16	-1	-14	-7	-2	3	10	5	-5	-1	4	-3				
-40	-7	0	-14	-12	-10	-4	-5	-12	5	3	-4	12	6	-2	6	-16	-10	0	2	5	12	-1	-13	-8	3	2	8	4	-5	-2	3	0	6				
-45	-6	-2	-1	9	8	-5	-4	-5	7	4	4	-1	7	4	-1	3	-5	-9	-1	2	5	8	-1	-10	-6	-2	2	6	2	-6	-3	1	3	8			
-50	-4	-3	-2	4	3	-3	-2	-2	-1	4	3	0	-2	-0	-3	-1	-4	-5	-0	3	5	5	-0	-6	-4	0	3	4	-1	-7	-6	-1	3	8			
-55	-1	-4	-4	-2	-1	-2	-0	2	4	6	4	-1	-3	-5	-6	-4	-3	-1	2	5	6	5	1	-2	-1	2	3	2	4	-8	-8	-4	3	8			
-60	1	-4	-6	-6	-5	-3	1	5	7	7	4	-1	-5	-7	-7	-4	-1	2	5	7	7	5	2	-0	0	1	1	2	-6	-10	-9	-4	2	8			
-65	3	-3	-8	-10	-9	-5	-1	4	7	7	5	0	-4	-5	-5	-2	2	5	7	7	6	3	-0	-2	-3	-2	-3	-5	-7	-8	-6	-1	5	10			
-70	5	-2	-7	-11	-11	-9	-4	0	3	4	3	1	-2	-3	-2	1	3	5	6	5	3	-1	-4	-6	-7	-7	-6	-6	-5	4	0	5	14				
-75	8	1	-5	-10	-12	-11	-9	-6	-3	-2	-1	-1	-2	-1	-1	1	2	3	2	0	-2	-5	-8	-9	-9	-8	-6	-3	0	4	9	14					
-80	12	5	-1	-6	-10	-12	-12	-11	-10	-9	-7	-6	-6	-5	-4	-3	-3	-4	-5	-7	-8	-9	-9	-9	-8	-5	-2	3	7	12	17	21	23				
-85	14	9	4	-1	-5	-8	-11	-12	-13	-13	-13	-12	-12	-11	-10	-10	-10	-9	-8	-7	-5	-2	1	5	10	14	18	19	21	23	24	21	18	14			
-90	13	11	8	5	1	-2	-5	-8	-11	-14	-16	-18	-19	-19	-18	-17	-16	-13	-11	-8	-5	-1	2	5	8	11	14	16	18	19	19	18	17	16			

$$\left(\begin{array}{c} \nabla_{\text{Kozai}}^g \\ \text{Gaposchkin} \end{array} - \nabla_{\text{Kaula CA}}^g \right)_{\text{vert}} \times 10^{-11} \text{ sec}^{-2}.$$

Number Map 7. Horizontal and vertical spread of the gravity gradient;
10,000-km elevation

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
90	-10	-9	-9	-8	-7	-6	-5	-4	-2	-1	0	1	3	5	6	7	8	9	10	9	9	8	8	6	5	4	2	0	-1	-3	-5	-6	-7	-8	-9	-9	-10
85	-7	-6	-5	-5	-4	-4	-4	-4	-3	-2	-1	0	2	4	6	7	9	11	12	12	12	9	6	4	1	-2	-5	-7	-9	-9	-10	-9	-9	-8	-7		
80	-4	-2	-2	-2	-2	-3	-3	-5	-6	-6	-5	-4	-2	-0	2	5	7	10	12	13	14	13	11	8	4	0	-4	-8	-10	-12	-12	-11	-9	-7	-5	-4	
75	-1	1	1	1	0	-1	-3	-5	-6	-8	-8	-8	-7	-6	-4	-2	1	3	7	10	13	15	16	14	11	6	1	-5	-9	-12	-13	-12	-10	-8	-5	-2	-1
70	1	2	2	2	2	1	-1	-4	-6	-8	-9	-9	-8	-7	-6	-5	-4	-2	2	6	11	15	17	17	14	9	3	-4	-9	-12	-13	-12	-9	-5	-2	0	1
65	2	2	2	2	2	2	0	-2	-4	-7	-8	-8	-8	-7	-6	-5	-8	-8	-7	-4	1	8	14	18	19	17	13	6	-1	-8	-11	-12	-10	-6	-3	-0	1
60	1	0	0	1	2	2	2	1	-1	-3	-5	-6	-6	-6	-7	-10	-12	-12	-9	-3	4	12	17	20	20	16	9	1	-5	-9	-10	-8	-4	-1	1	1	1
55	-1	-2	-2	-1	0	2	4	5	4	1	-1	-2	-3	-4	-7	-11	-15	-17	-14	-7	1	9	15	19	20	17	11	4	-3	-7	-7	-5	-2	1	1	0	-1
50	-3	-5	-4	-3	-1	3	6	9	9	7	4	2	0	-2	-6	-11	-17	-19	-17	-10	-2	6	12	16	17	16	12	5	-0	-4	-2	1	2	1	1	-3	
45	-5	-6	-6	-4	-1	4	9	13	14	12	9	5	2	-1	-5	-11	-17	-19	-18	-12	-5	2	6	10	12	12	9	5	1	-1	-1	2	4	4	1	-2	-5
40	-5	-6	-5	-3	0	5	11	16	18	17	13	8	3	-0	-5	-10	-15	-17	-16	-12	-7	-3	-0	2	4	3	2	1	1	3	6	7	6	2	-2	-5	
35	-5	-6	-4	-2	2	7	13	19	21	20	15	9	4	-0	-4	-8	-11	-13	-13	-11	-9	-8	-7	-7	-6	-5	-4	-3	0	4	8	10	11	9	4	-1	-5
30	-4	-4	-2	0	4	8	14	20	22	21	17	10	4	-1	-3	-5	-6	-8	-9	-9	-10	-12	-14	-15	-15	-13	-9	-2	6	12	15	15	12	6	0	-4	
25	-1	-2	-1	2	5	9	14	18	21	20	16	10	3	-1	-2	-2	-1	-2	-4	-7	-11	-16	-20	-22	-23	-23	-20	-13	-3	8	16	19	18	15	9	3	-1
20	1	-0	1	2	4	7	11	14	17	17	14	9	3	-2	-2	1	4	4	1	-4	-12	-19	-24	-27	-28	-28	-25	-16	-3	9	18	22	21	17	12	6	1
15	5	2	1	1	1	3	5	8	10	12	11	7	2	-2	-2	2	7	9	5	-2	-11	-20	-26	-28	-29	-29	-25	-16	-3	10	19	22	22	19	14	9	5
10	8	5	1	-1	-3	-3	-2	0	3	6	7	5	1	-2	-2	3	9	12	9	0	-10	-19	-25	-27	-27	-26	-22	-14	-2	9	17	20	20	18	15	12	8
5	11	7	1	-5	-9	-11	-10	-8	-4	-0	3	3	0	-2	-1	4	10	14	11	3	-8	-17	-22	-22	-21	-19	-15	-9	-1	7	13	16	16	15	14	11	
0	13	8	0	-8	-15	-18	-15	-10	-5	-1	1	0	-1	-1	-4	11	15	14	6	-5	-14	-18	-17	-13	-10	-7	-3	1	5	7	9	10	11	13	14	11	
-5	12	8	-1	-11	-19	-24	-24	-20	-15	-8	-2	1	1	0	1	5	12	16	15	8	-1	-9	-12	-10	-6	-1	2	3	3	2	1	1	2	5	9	12	12
-10	10	6	-3	-13	-22	-27	-27	-23	-16	-9	-3	1	3	3	4	7	12	17	17	11	3	-4	-6	-4	1	7	10	9	4	-1	4	-5	-5	-2	3	8	10
-15	6	3	-4	-14	-21	-26	-27	-23	-16	-9	-2	2	5	6	7	9	13	16	17	13	6	1	-1	0	5	11	15	13	6	-1	-7	-10	-10	-8	-3	3	6
-20	0	-1	-6	-13	-19	-22	-23	-20	-14	-8	-2	3	7	8	9	11	13	15	15	13	8	5	3	4	7	13	16	15	9	-0	-7	-12	-13	-12	-8	-3	0
-25	-5	-5	-7	-10	-14	-16	-17	-16	-12	-7	-2	3	7	10	11	12	12	13	12	11	9	7	5	5	7	12	16	16	10	2	-5	-11	-14	-14	-12	-8	-5
-30	-10	-8	-8	-7	-7	-9	-10	-11	-10	-7	-3	2	7	10	12	12	10	9	8	8	8	6	7	5	6	9	13	15	12	5	-1	-7	-11	-14	-13	-12	-10
-35	-12	-11	-7	-7	-4	-1	-1	-4	-6	-8	-7	-5	-0	5	10	12	11	8	5	3	4	6	7	5	4	6	10	13	12	8	3	-3	-8	-12	-13	-13	-12
-40	-14	-11	-6	-1	4	5	2	-3	-7	-8	-7	-3	3	8	10	9	5	1	-1	0	3	6	7	5	3	6	10	11	10	5	0	-5	-9	-12	-14	-14	
-45	-13	-10	-5	2	8	9	5	-0	-6	-9	-9	-5	1	6	8	7	2	-2	-4	-3	2	5	7	5	2	2	4	7	10	9	6	2	-3	-7	-10	-12	-13
-50	-10	-7	-2	5	10	11	7	1	-6	-9	-10	-6	-1	3	5	4	-0	-4	-6	-4	0	5	6	5	3	1	2	5	7	7	5	2	-2	-5	-8	-10	-10
-55	-6	-4	1	7	11	11	7	1	-5	-9	-10	-7	-3	1	2	1	-2	-5	-7	-4	0	4	6	6	4	2	2	3	4	4	3	0	-2	-5	-6	-7	-6
-60	-2	1	5	9	11	11	7	2	-4	-8	-9	-7	-4	-4	-2	-1	-2	-4	-6	-6	-4	0	4	6	6	5	3	2	1	1	1	-1	-2	-3	-4	-4	-2
-65	2	5	9	11	12	11	8	3	-2	-5	-7	-6	-5	-3	-3	-4	-4	-5	-6	-6	-3	0	4	6	6	5	3	1	-1	-2	-3	-4	-4	-4	-2	-0	2
-70	6	9	12	13	14	12	9	5	1	-2	-4	-5	-5	-5	-5	-5	-6	-6	-5	-3	-0	2	4	4	3	1	-1	-3	-4	-5	-6	-6	-5	-3	-0	3	6
-75	9	12	14	15	15	13	11	7	4	1	-1	-3	-4	-5	-6	-6	-6	-6	-5	-4	-2	0	1	1	0	-1	-3	-5	-6	-7	-7	-6	-4	-1	2	6	9
-80	10	13	15	16	15	14	12	10	7	4	1	-1	-3	-4	-5	-6	-6	-6	-6	-5	-4	-3	-3	-4	-5	-6	-6	-7	-7	-6	-5	-2	1	4	7	10	
-85	10	12	14	14	14	14	12	11	9	6	4	2	-1	-2	-4	-5	-6	-7	-8	-8	-8	-8	-8	-8	-8	-8	-8	-7	-6	-4	-2	0	3	5	8	10	
-90	9	10	11	12	12	12	11	10	9	8	6	4	2	-0	-2	-4	-6	-8	-9	-10	-11	-12	-12	-12	-11	-10	-9	-8	-6	-4	-2	0	2	4	6	8	

$$\left(\begin{array}{c} \nabla^g_{\text{Kozai}} \\ \nabla^g_{\text{Kaula CA}} \\ \nabla^g_{\text{Gaposchkin}} \end{array} \right) \times 10^{-15} \text{ sec}^{-2}.$$

$\lambda = \text{const}$

	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
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	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
85	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
80	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
75	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
70	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
65	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
60	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
55	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
50	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
45	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
40	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
35	-3	-3	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
30	-3	-3	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
25	-3	-3	-3	-3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
20	-3	-4	-4	-3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
15	-3	-3	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
10	-3	-3	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
5	-2	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
0	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	
-5	0	-1	-2	-3	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	
-10	2	-1	-2	-4	-4	-2	-1	-4	-7	-7	-6	-3	-1	-4	-5	-4	-3	-1	-1	-1	-1	-2	-3	-4	-3	-3	-4	-6	-7	-5	-1	-3	-6	-8	-8	-6	-3	
-15	2	-0	-3	-5	-6	-5	-1	-2	-5	-6	-6	-3	-0	-3	-4	-3	-2	0	1	0	-2	-4	-4	-3	-2	-3	-5	-5	-4	-1	-2	-5	-7	-8	-7	-5	2	
-20	3	0	-3	-6	-8	-7	-4	0	-4	-6	-5	-3	0	-3	-4	-3	-0	2	2	1	-1	-3	-4	-3	-2	-2	-3	-4	-4	-1	-2	-3	-4	-6	-7	-6	-5	3
-25	3	-0	-4	-7	-9	-9	-6	-1	-3	-5	-5	-4	1	-2	-3	-2	1	3	4	3	-0	-3	-4	-3	-1	-1	-2	-3	-3	-1	1	3	5	6	5	4	3	
-30	2	-1	-4	-8	-10	-10	-7	-2	-2	-5	-5	-4	1	-1	-2	-1	2	4	5	3	1	-2	-3	-2	-1	0	-0	-1	-2	-1	1	2	4	4	4	3	2	
-35	1	-1	-5	-8	-10	-10	-7	-3	1	-4	-5	-4	2	0	-1	0	3	5	5	4	1	-2	-3	-2	-0	1	1	-0	-1	-0	1	2	3	3	3	2	1	
-40	-0	-2	-5	-8	-10	-10	-7	-3	1	-3	-4	-4	2	1	0	1	3	5	5	4	2	-1	-2	-1	-0	1	1	1	0	0	1	2	2	2	2	1	-0	
-45	-1	-3	-6	-8	-10	-9	-7	-3	0	-3	-4	-3	2	1	1	2	3	5	5	4	2	-0	-1	-1	0	1	2	1	1	1	2	2	2	2	1	0	-1	
-50	-2	-4	-6	-8	-9	-8	-6	-3	-0	-2	-3	-3	2	2	2	2	4	5	5	4	2	0	-1	-1	0	1	2	2	2	2	2	2	2	2	1	0	-1	
-55	-3	-5	-6	-8	-8	-7	-6	-3	-1	1	2	2	2	2	2	3	4	4	4	3	2	0	-0	0	1	2	2	3	3	3	3	3	2	1	-0	-2	-3	
-60	-4	-5	-6	-7	-7	-6	-5	-3	-1	0	1	2	2	2	2	3	4	3	3	3	2	1	0	0	1	1	2	2	3	3	3	3	2	1	-1	-2	-4	
-65	-4	-5	-6	-6	-6	-5	-4	-3	-2	-1	0	1	1	2	2	3	3	3	3	3	2	1	1	1	1	2	2	3	3	3	3	2	1	0	-1	-2	-4	
-70	-3	-4	-5	-5	-5	-5	-4	-3	-2	-1	-0	0	1	1	2	2	2	3	2	2	2	2	1	1	2	2	2	2	3	3	3	2	1	-0	-1	-2	-3	
-75	-3	-3	-4	-4	-4	-4	-3	-3	-2	-2	-1	-0	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	0	-1	-2	
-80	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	-0	-0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	-0	-1	-2	
-85	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0	-0	-0	-0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	-0	-1	-1	
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

$$\left(\begin{array}{c} \nabla_{\text{Kozai}}^g \\ \nabla_{\text{Gaposchkin}}^g \end{array} - \nabla_{\text{Kaula CA}}^g \right)_{\text{vert}} \times 10^{-14} \text{ sec}^{-2}.$$

BIOGRAPHICAL NOTE

WALTER KÖHNLEIN received his degrees from the Technological Institute in Munich and the Technological Institute in Braunschweig, Germany, in 1958 and 1962, respectively.

He worked for a year at Ohio State University, Columbus, Ohio, before joining SAO in 1963. In 1965 he became an associate of the Harvard College Observatory.

Dr. Köhnlein's work at Smithsonian includes studies of the figure of the earth and its gravitational field by means of artificial satellites.