MARINER 9 CONTROL NET OF MARS: JUNE 1973

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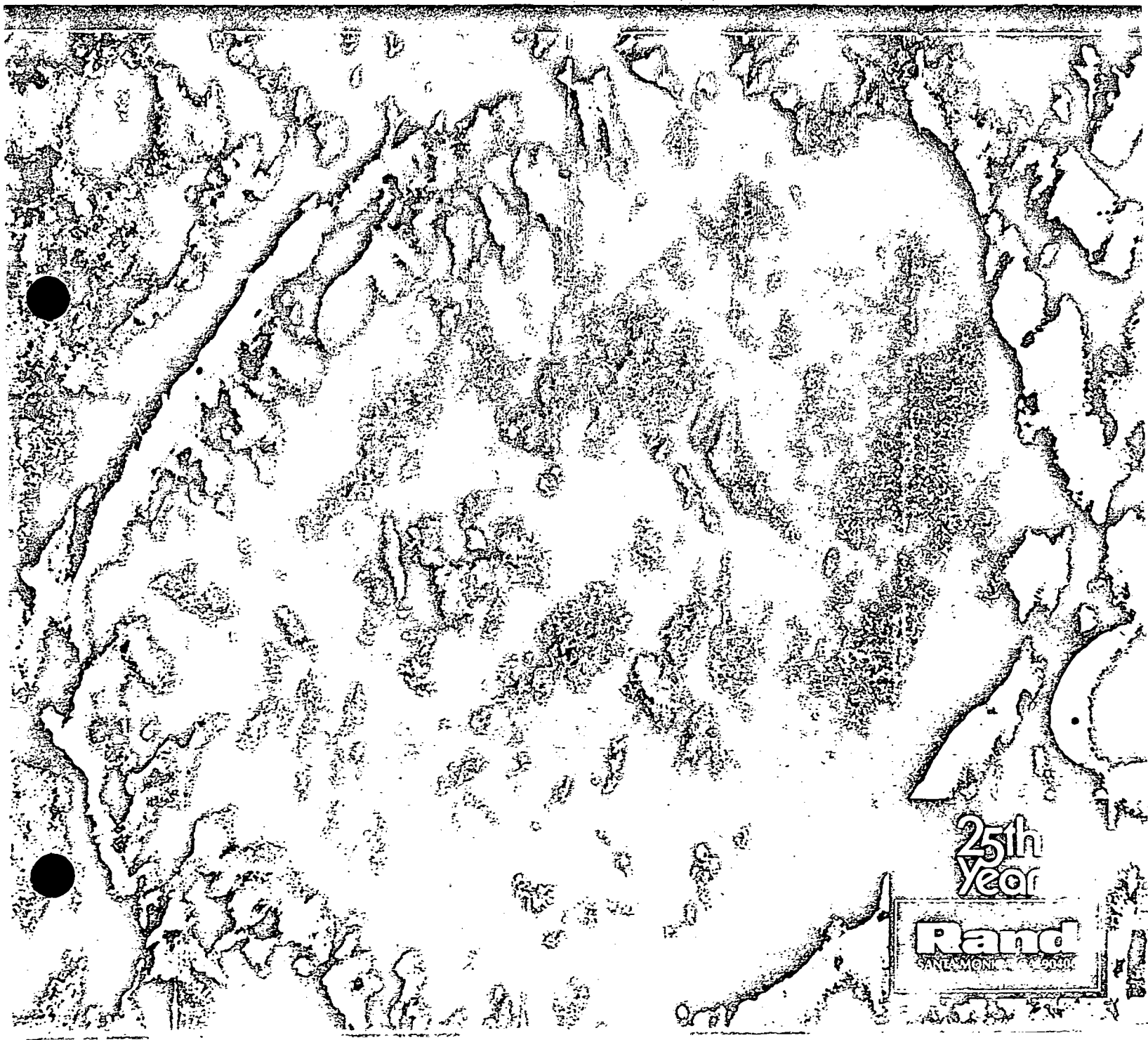
MERTON E. DAVIES R-1309-JPL JUNE 1973



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PREFACE

As a member of the Mariner 9 Television Science Team, the author participated in the planning, operational, and data analysis phases of the mission. A particular concern was in acquiring and using optimum pictures for photogrammetrically establishing a geodetic control net of Mars. Most of the plans came to an end with the loss of Mariner 8 and the presence of the severe dust storm on Mars when Mariner 9 first went into orbit. The years of planning, coupled with studies and frequent communications with other experimenters on the project, permitted an efficient restructuring of the picture sequence during operations. However, some gaps in low-resolution coverage could not be avoided and filling these holes in the control net has proved to be a formidable task. At this time, most of the thirty 1:5,000,000 USGS quadrangles contain a great many points; however, there are still some in which the control points are far from uniformly distributed.

The work on the control net started early in 1972, shortly after Mariner 9 went into orbit, and has continued ever since. The progress in the growth of the control net can be monitored by noting the number of control points contained in the computations: August 1972, 809 points; November 1972, 1205 points; April 1973, 1340 points; and June 1973, 1645 points. This is the last report that will be issued while the Mariner 9 project is still active. Work will continue, since Mars is a large planet and many improvements to the net are still needed.

SUMMARY

The latitude and longitude are reported for 1645 primary points in the control net of Mars as of June 1973. The new Mariner 9 areographic coordinates system was used in performing the computations.

CONTENTS

I. INTRODUCTION

This paper is the fourth in a series designed to report on the status of the control net of Mars that is derived from the Mariner 9 photographs. The first of this series reported on computations current to August 1972,[1] the second on computations as of November 1972,[2] and the third on computations as of April 1973.[3] The reports were issued in this manner so that the Mariner 9 cartographic work could proceed in parallel with the development of the control net. It has become clear through this process that the changes in the coordinates of control points become smaller as the net increases in size. The purpose of this report is to present results from photogrammetric computations using 9804 measurements of 1645 points on 660 Mariner 9 pictures. The photogrammetric methods are basically the same as those developed for the reduction of the Mariner 6 and 7 pictures[4] and will not be reviewed here.

II. THE MARINER 9 COORDINATE SYSTEM

The Mariner 9 Geodesy/Cartography group agreed upon the use of a new areographic coordinate system for the Mariner 9 products that defines a new direction of the spin axis of Mars, a new prime meridian of Mars, and the reference spheroid, which is used in the conversion of areocentric coordinates into areographic coordinates.[5] The direction of the pole referenced to the mean equator and equinox of 1950.0 is

$$\alpha_0 = 317^\circ.32 \qquad \delta_0 = 52^\circ.68 \qquad (1950.0)$$

All of the Mariner 9 cartographic products use areographic coordinates referred to a spheroid with an equatorial radius of 3393.4 km and a polar radius of 3375.8 km.[5] The areographic latitude, ϕ', of a point is defined as the angle between the normal to the reference spheroid and the equatorial plane. The areocentric latitude, ϕ, of a point is defined as the angle between the radius vector to the point and the equatorial plane. If the point lies on the reference spheroid of equatorial radius a and polar radius c the latitudes of the point are related by

$$\tan \phi = \left(\frac{c}{a}\right)^2 \tan \phi'$$

The prime meridian of Mars passes through the center of the small crater Airy-0, which lies within the large crater Airy. The latitude of Airy-0 is approximately $-5^\circ.1$.

III. COORDINATES OF FEATURES

The surface features that are most commonly used for control points are the centers of small craters because they can be easily recognized and measured under a variety of view and illumination angles. After the measurements are made in pixels (picture elements) on high-pass filtered versions of the television frames, the measurements are corrected for optical and electronic distortions, and are then scaled to millimeters in the focal plane (image coordinates).[6] The focal length of the camera lens is 52.267 mm.

The current control net computations use 9804 measurements of 1645 points on 660 television frames. Each point is measured on at least two frames, and the overdetermination (for the least-squares computations) is improved when points are measured on many frames. The geographical distribution of the points on Mars can be seen in Fig. 1, which shows the locations of the equatorial points between north and south latitude 65°. Figure 2 shows the locations of points in the north and south polar regions. Some of the control points have been identified in previous reports on the control net[1,2] and many of them are marked on the U.S. Geological Survey's set of 1:5,000,000 semi-controlled photomosaics.

Standard techniques of analytical areotriangulation are used to compute corrections to approximate values of the variables by the method of least squares. In the control net computations, the latitude and longitude of each point and the three orientation angles of the camera station are determined in a single block solution. Each point thus contributes two unknowns and each picture three unknowns. The current computation of 1645 points on 660 pictures involved 9804 observation equations and 5270 normal equations. The normal equations were solved by the conjugate gradient method using a program written by Richard Clasen of The Rand Corporation. Although this method is very efficient in the solution of the large sparse matrices, it does not invert the matrix and so does not yield a solution for the standard errors of the

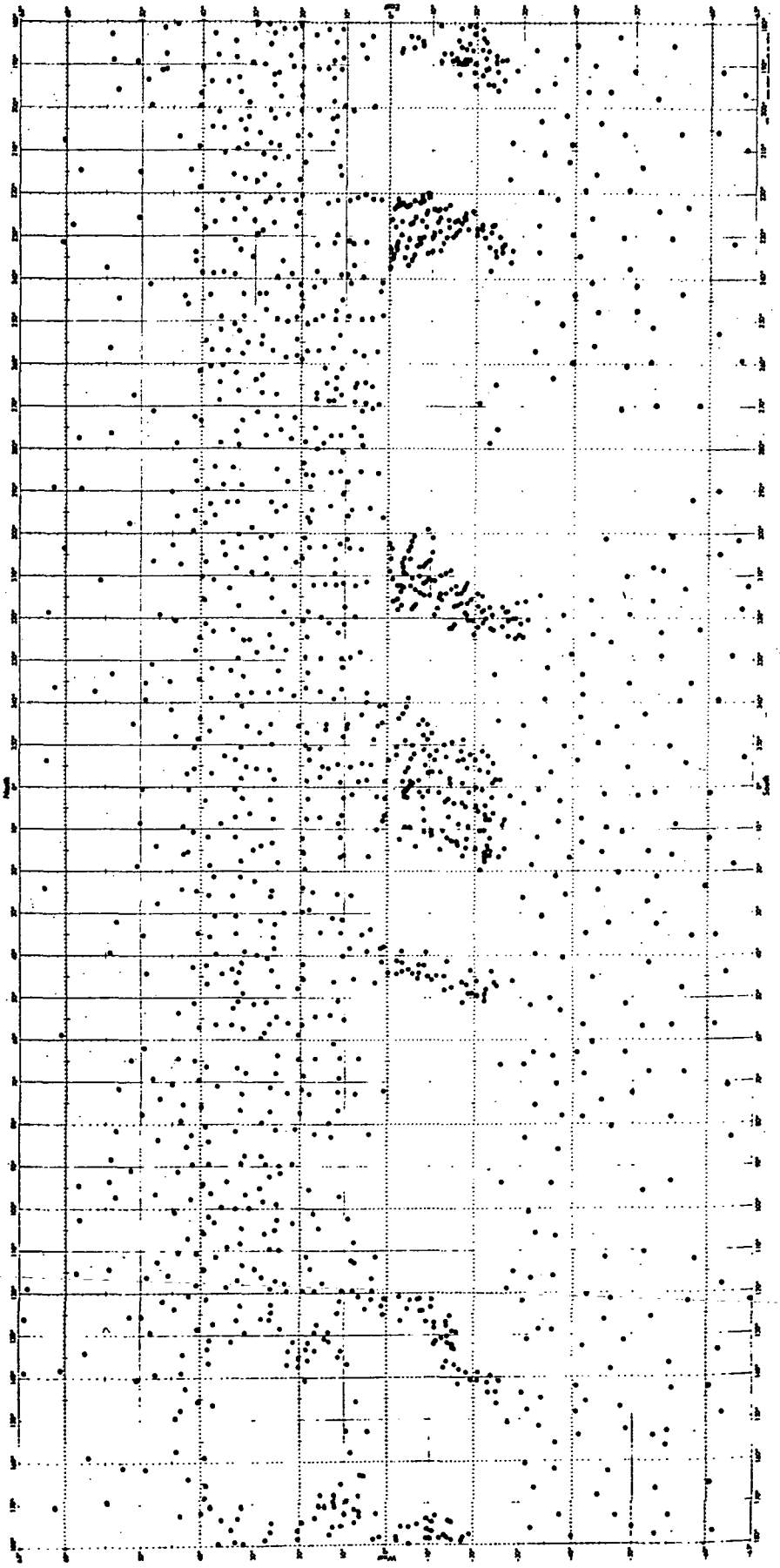
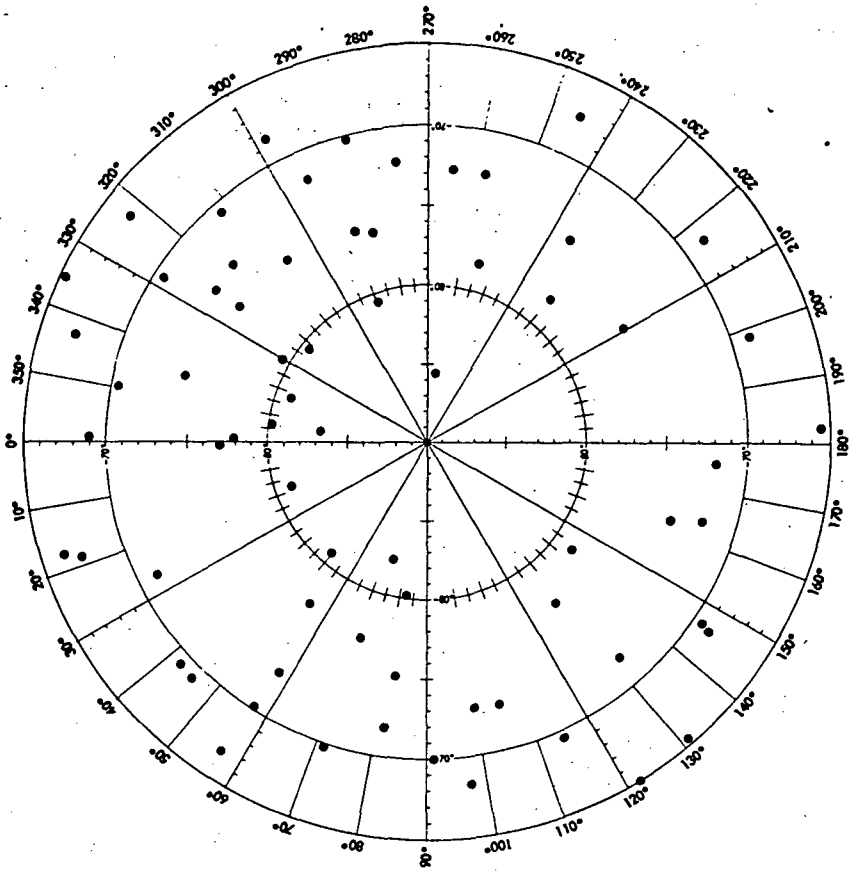
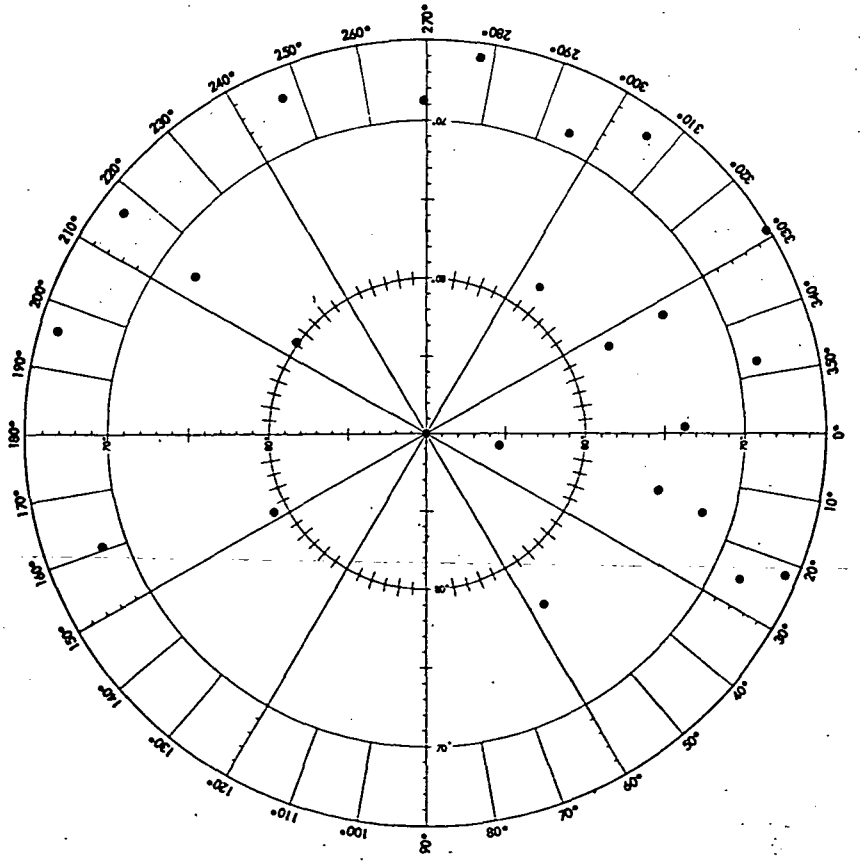


Fig. 1 — Points of the primary control net between 65° north and south latitude
(Mercator projection)



SOUTH POLAR REGION



NORTH POLAR REGION

Fig. 2 — Points of the primary control net in north and south polar regions (stereographic projection)

coordinates of the control points. The standard error of the residuals was 0.01444 mm, about one pixel.

The areocentric radii at the control points are derived from the radii measured by the occultation experiment[7,8] by interpolation for the elevation above the reference spheroid, given in Table 1. The elevation at each 10-deg interval in Table 1 was interpolated from the nearest three occultation elevations. The coordinates of the camera stations come from the Supplementary Experimenter Data Record (SEDR), which is published by the Mariner 9 Science Data Team at the Jet Propulsion Laboratory.

The areocentric coordinates of the 1645 control points are given in Table 2, together with the number of pictures measured of each point. The areographic coordinates of the 1645 control points are given in Table 3; the elevations are measured above the reference spheroid and should not be confused with customary elevations measured with respect to a geoid. Thus, for example, these elevations could not be used to indicate the direction of water flow (if liquid water existed on the surface).

The control net computations contain a determination of the right ascension of the prime meridian of Mars, V. The results confirmed the value of V previously reported[5]

$$V = 148^{\circ}.24 + 350^{\circ}.892017 \quad (JD - 2433282.5)$$

where JD is the Julian Date in ephemeris time.

Table 1

SURFACE ELEVATIONS ABOVE REFERENCE SPHEROID AT 10° INTERVALS (AREOCENTRIC)

Derived from occultation experiment radii
(in kilometers)

Latitude	West Longitude																	
	170	160	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	0
90	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
80	-1.23	-0.59	-0.56	-0.44	0.05	-0.28	-0.22	-0.19	-0.22	-0.37	-0.57	-0.68	-0.88	-0.79	-0.77	-0.72	-0.88	-0.59
70	-2.11	-2.23	-0.62	-0.30	0.01	0.02	-0.38	-0.27	-0.15	-1.32	-1.63	-1.87	-1.96	-0.80	-0.75	-0.70	-0.65	-1.08
60	-2.59	-1.91	-1.51	-1.37	-0.92	-1.18	-0.91	-0.91	-1.07	-0.92	-1.32	-2.04	-2.82	-2.95	-3.03	-2.83	-2.36	-2.05
50	-2.08	-1.75	-1.61	-0.84	0.26	0.53	1.22	0.23	0.39	0.58	-0.51	-0.92	-1.63	-2.12	-2.37	-2.47	-1.83	-1.59
40	-1.77	-1.81	-0.70	-0.34	1.45	1.49	3.63	1.68	1.52	1.76	0.34	-0.27	-0.67	-1.53	-1.79	-1.47	-1.31	-1.15
30	-1.14	-1.86	-1.17	-0.16	1.44	3.77	3.29	3.14	2.86	2.94	1.19	0.39	0.29	-0.94	-1.44	-0.87	-1.01	-0.69
20	-0.60	-0.94	-0.92	0.44	3.30	5.09	6.19	4.16	4.19	3.32	2.82	1.99	0.56	0.08	-0.68	-0.36	-0.39	-0.23
10	-0.74	0.10	0.14	3.02	5.55	6.40	8.01	5.61	5.44	4.25	3.65	2.70	1.56	1.03	0.09	0.15	0.25	0.23
0	0.68	1.15	1.22	2.96	6.64	9.75	9.82	7.06	6.70	5.18	4.48	3.41	2.56	1.97	0.85	0.64	0.99	1.05
-10	1.99	2.01	2.31	3.63	6.28	8.39	9.30	8.93	8.36	6.77	5.52	5.43	3.35	2.24	1.55	1.07	1.90	1.82
-20	3.30	3.06	3.79	4.56	6.60	8.48	8.78	9.06	8.24	8.36	8.09	7.28	3.23	2.42	1.76	1.50	2.60	2.58
-30	3.37	3.91	4.38	4.13	6.68	6.66	7.54	9.37	8.46	7.71	6.92	6.48	4.75	3.01	2.30	2.94	3.63	3.26
-40	4.59	4.37	4.67	5.25	5.11	6.45	7.09	6.23	6.09	5.89	5.33	4.09	3.95	3.39	2.78	3.21	3.12	3.97
-50	4.95	4.85	5.15	4.56	5.03	5.54	6.92	5.86	4.87	4.71	3.78	3.72	3.92	3.76	3.26	3.49	3.61	3.09
-60	5.75	5.48	3.53	4.41	4.67	4.70	4.42	4.13	4.57	3.71	3.54	3.43	4.02	3.81	3.94	3.92	3.80	3.70
-70	5.92	4.95	4.27	4.13	4.32	4.35	4.33	4.23	4.29	3.97	3.37	3.37	3.95	4.22	4.29	4.10	3.99	3.90
-80	4.31	4.09	4.08	4.42	4.08	4.10	4.19	3.93	3.70	3.60	4.03	3.90	3.70	3.72	3.75	4.15	4.30	4.00
-90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90

Latitude	West Longitude																	
	350	340	330	320	310	300	290	280	270	260	250	240	230	220	210	200	190	180
90	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
80	3.28	1.01	2.66	2.79	1.26	0.87	0.28	0.16	0.06	-0.50	-0.83	-1.20	-1.57	-1.95	-2.32	-0.90	-1.01	-1.12
70	0.38	-1.01	0.78	1.53	1.61	1.48	0.30	0.08	-0.11	-0.67	-0.62	-0.64	-0.65	-1.41	-1.55	-1.42	-1.89	-2.00
60	-0.57	-1.74	-0.71	-1.19	-0.84	-1.34	0.23	-0.39	-1.52	-1.55	-1.72	-1.86	-1.54	-1.86	-2.80	-2.14	-2.20	-2.15
50	-0.24	-1.11	-0.30	0.63	0.81	1.29	0.92	1.09	1.37	1.10	-0.68	-1.43	-1.56	-1.49	-1.46	-1.77	-1.78	-1.65
40	-0.75	0.24	1.57	2.44	2.42	2.04	1.47	1.14	1.13	0.60	0.87	-0.01	0.38	-0.47	0.05	0.70	0.23	-1.51
30	-0.12	0.76	2.15	3.62	3.25	2.39	2.04	1.71	1.92	1.45	1.37	0.68	1.07	-0.27	0.71	2.88	0.95	-1.42
20	0.51	1.36	2.78	4.54	3.97	2.93	2.62	2.30	2.75	3.04	1.46	1.36	0.62	-0.34	0.79	-0.47	-0.17	-0.39
10	1.27	2.08	3.92	5.34	4.69	3.79	3.43	3.16	3.56	3.47	2.22	2.05	0.96	0.05	-0.33	0.20	-0.76	-1.34
0	2.12	2.94	4.70	5.27	5.47	4.63	4.06	4.02	4.37	3.61	2.98	2.77	0.91	-0.10	0.05	0.0	-0.32	0.12
-10	3.00	3.43	4.85	5.44	6.18	5.41	5.45	5.50	4.67	4.53	3.44	3.36	2.26	2.19	1.50	1.97	1.98	1.14
-20	3.91	4.33	4.58	3.93	3.79	3.72	2.86	2.95	2.96	4.03	3.69	3.67	4.04	2.89	2.70	3.14	3.19	2.58
-30	4.53	4.51	4.79	4.22	0.03	-1.23	-0.57	-0.09	1.03	2.39	3.58	3.95	3.81	3.43	3.79	4.71	3.99	3.68
-40	5.13	5.10	4.57	3.87	-0.82	-3.30	-2.85	-0.27	1.86	2.18	3.82	3.96	3.80	4.44	4.64	4.31	4.44	4.17
-50	5.73	5.70	4.16	4.19	0.07	-1.73	-1.23	0.41	2.53	2.50	3.52	3.83	3.78	4.62	5.40	5.19	4.61	4.89
-60	6.33	5.08	4.50	3.08	0.96	0.29	1.10	2.13	3.21	3.88	3.43	3.51	3.38	4.71	5.13	5.13	4.54	5.51
-70	6.92	5.42	3.79	3.15	2.66	1.92	2.58	2.91	3.29	3.75	3.47	3.84	4.21	4.38	5.15	4.67	4.04	5.89
-80	7.10	5.56	3.18	3.18	3.45	3.51	3.57	3.57	3.59	3.60	3.10	3.17	3.24	4.60	4.29	5.16	5.27	5.52
-90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90

Table 2

AREOCENTRIC COORDINATES OF THE CONTROL POINTS

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
0	-5.13	0.0	3394.7	1
26	-15.66	3.80	3394.4	2
27	-14.40	2.52	3394.5	2
28	-20.24	4.41	3393.9	2
31	-5.89	359.05	3394.8	4
33	-4.07	356.36	3395.1	2
34	-8.63	0.54	3394.7	3
35	-4.72	2.63	3394.7	3
37	0.65	358.49	3394.5	2
38	-3.84	0.97	3394.7	4
49	-76.96	0.80	3380.7	6
66	-80.16	353.51	3382.2	9
70	-75.57	324.21	3380.2	8
71	-75.26	307.73	3379.9	8
138	-79.63	330.09	3379.6	8
147	-69.48	42.60	3382.1	4
148	-66.81	56.81	3382.1	3
149	-71.03	26.40	3381.8	3
150	-41.58	7.29	3389.0	6
153	-37.50	2.97	3390.3	4
160	-80.96	340.84	3382.7	9
161	-77.97	358.90	3380.8	3
162	-73.88	324.14	3380.5	8
163	-78.64	143.44	3380.8	4
166	-72.06	176.27	3383.2	7
167	-72.03	163.87	3382.6	8
168	-58.78	7.52	3384.2	6
171	-72.58	258.10	3381.0	8
172	-72.70	264.66	3380.9	8
176	-83.21	353.23	3381.4	6
177	-81.16	19.15	3380.3	7
180	-48.71	10.50	3387.0	4
181	-39.48	16.33	3389.4	5
182	-53.51	32.37	3385.6	6
183	-47.82	20.04	3387.1	5
184	-31.35	101.06	3397.3	3
186	-26.07	93.95	3398.8	3
187	-33.17	75.53	3394.9	4
189	-25.87	66.28	3397.2	4
190	-42.09	68.01	3390.3	6
191	-43.60	60.24	3389.0	5
192	-51.74	56.88	3386.3	5
193	-50.07	72.69	3387.1	6
194	-45.15	74.16	3389.4	5

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
195	-51.66	96.70	3387.9	2
196	-80.89	48.31	3380.0	3
197	-82.27	73.17	3380.0	3
198	-66.84	17.22	3382.5	6
199	-69.43	146.19	3382.2	7
200	-41.84	195.97	3390.0	4
201	-49.82	190.97	3387.8	4
202	-55.42	185.13	3386.3	3
203	-50.17	175.58	3387.9	4
204	-40.12	177.88	3390.3	4
205	-26.32	168.37	3393.6	5
206	-32.27	186.21	3392.4	5
207	-33.47	202.73	3392.5	2
208	-33.84	210.10	3392.0	5
209	-26.94	217.18	3393.1	5
210	-27.66	207.99	3393.3	4
211	-32.95	227.50	3392.0	4
212	-38.55	212.41	3391.0	5
213	-43.04	225.63	3389.3	6
214	-39.65	229.61	3390.0	5
215	-23.13	237.56	3394.5	2
216	-67.23	343.00	3384.2	3
221	-76.44	283.95	3380.0	2
222	-75.84	289.68	3380.0	6
223	-80.61	290.02	3379.8	13
224	-78.46	254.11	3379.8	2
229	-70.46	349.78	3384.6	10
232	-69.02	359.47	3382.0	11
233	-74.13	344.62	3383.6	9
234	-68.73	298.10	3379.9	2
236	-80.46	320.99	3379.5	7
237	-74.29	235.18	3380.8	4
238	-85.57	264.36	3379.7	2
239	-78.07	230.55	3380.0	3
240	-75.86	210.79	3381.7	4
242	-63.78	317.61	3382.0	14
243	-66.81	322.89	3381.9	13
244	-70.67	311.68	3380.5	12
245	-64.64	312.43	3381.1	14
246	-70.25	235.08	3380.6	6
248	-61.94	148.61	3383.4	5
249	-55.13	152.29	3386.1	4
250	-60.37	142.22	3384.3	4
251	-65.34	131.25	3383.3	8

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
252	-64.91	122.03	3383.5	6
253	-69.65	114.93	3382.3	6
254	-68.35	97.48	3382.4	3
255	-70.14	92.20	3382.1	5
256	-72.85	105.65	3381.6	5
257	-71.94	81.99	3381.4	5
258	-72.02	131.89	3381.7	11
259	-77.12	128.55	3380.8	6
261	-58.52	111.47	3385.4	3
262	-53.06	125.09	3387.3	5
263	-46.62	120.92	3389.8	7
264	-42.42	119.78	3391.6	6
265	-30.23	122.36	3395.6	5
266	-36.47	128.43	3393.0	5
267	-23.57	114.92	3396.8	2
268	-55.43	78.03	3385.5	3
269	-62.57	70.82	3383.0	2
270	-62.26	44.01	3383.5	7
271	-30.60	65.49	3395.4	3
272	-27.92	52.96	3391.0	5
273	-32.12	51.73	3393.2	4
274	-20.26	45.72	3394.2	4
275	-33.14	39.67	3391.2	3
276	-43.58	34.40	3388.5	3
277	-52.49	41.36	3386.1	7
278	-30.26	25.91	3391.5	5
279	-32.17	18.60	3391.3	5
280	-38.79	25.66	3389.4	3
281	-53.57	20.93	3385.6	5
282	-59.83	23.44	3384.1	5
283	-45.84	9.55	3387.7	5
284	-63.75	259.35	3383.1	5
285	-62.83	231.31	3383.4	7
286	-48.72	260.08	3385.9	6
287	-20.86	269.52	3394.1	3
288	-23.03	278.80	3392.8	2
289	-61.15	252.65	3383.5	7
290	-44.33	248.28	3388.4	5
291	-32.73	245.44	3391.9	4
292	-32.52	256.74	3391.1	4
293	-49.08	237.78	3387.1	6
294	-39.91	243.39	3389.5	4
295	-49.00	219.01	3388.0	6
296	-63.89	209.91	3384.3	11

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
297	-27.69	233.25	3393.5	5
298	-33.54	219.38	3391.8	6
299	-43.54	215.13	3389.7	5
300	-48.08	205.97	3388.8	3
301	-44.21	203.45	3389.6	5
303	-43.40	189.80	3389.6	4
304	-63.83	197.00	3384.0	9
305	-69.85	71.78	3381.4	5
306	-76.94	71.29	3380.5	6
307	-53.04	197.07	3387.2	3
308	-40.07	185.65	3390.4	3
309	-47.28	183.16	3388.5	4
310	-32.42	195.72	3392.8	4
312	-60.81	177.15	3385.6	6
313	-68.96	198.58	3382.7	7
314	-32.26	175.91	3392.1	4
315	-47.60	172.67	3388.6	5
316	-33.03	165.87	3392.0	4
317	-60.41	165.27	3385.7	4
318	-46.51	162.13	3388.8	6
319	-36.96	161.31	3391.3	4
320	-42.09	132.12	3390.6	4
321	-61.70	133.11	3384.3	6
322	-33.93	151.64	3392.3	3
323	-49.22	152.62	3388.3	5
324	-55.02	156.04	3386.4	5
325	-34.63	144.60	3392.3	2
326	-31.19	160.01	3392.6	4
327	-42.79	145.14	3390.2	6
328	-55.39	136.55	3386.1	4
329	-46.93	137.74	3388.8	5
330	-33.25	128.99	3394.3	3
331	-38.76	11.69	3390.8	5
332	-32.04	116.47	3395.3	2
333	-36.77	115.36	3393.9	6
334	-45.79	126.62	3389.7	7
335	-38.83	0.23	3391.4	6
336	-45.77	1.58	3387.8	6
337	-55.96	8.54	3385.0	4
338	-60.17	11.91	3383.9	6
339	-28.00	2.14	3392.5	3
340	-32.94	352.32	3392.5	4
341	-47.66	345.79	3389.3	6
342	-57.55	354.12	3386.0	6

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
343	-34.82	339.14	3392.4	4
344	-25.38	344.15	3394.5	3
345	-23.24	352.66	3394.4	2
346	-49.30	335.58	3383.3	6
347	-61.29	339.01	3384.9	9
348	-35.10	331.70	3392.3	4
349	-24.52	333.05	3394.9	3
350	-41.78	337.94	3390.6	5
351	-40.41	325.16	3388.3	6
352	-56.47	339.69	3386.4	4
353	-59.00	322.72	3384.0	6
354	-26.99	324.11	3394.1	4
355	-35.49	322.89	3391.6	3
356	-67.66	245.26	3381.8	4
357	-70.57	327.96	3381.3	9
358	-65.31	335.50	3383.6	5
359	-72.92	57.37	3380.9	4
361	-71.91	294.60	3380.0	8
362	-72.26	276.36	3380.6	8
363	-68.73	216.84	3383.0	3
364	-54.10	329.09	3386.1	4
365	-69.11	45.44	3382.1	7
366	-70.23	56.94	3381.3	2
367	-73.39	317.23	3380.3	7
368	-80.26	82.05	3379.9	7
369	-67.58	18.89	3382.4	2
375	-57.20	312.96	3382.4	6
376	-43.51	323.77	3389.2	4
377	-43.28	315.44	3387.0	4
378	-30.83	316.32	3391.4	4
379	-33.85	314.66	3389.7	3
380	-53.00	316.93	3384.9	4
381	-45.53	305.01	3383.0	3
382	-77.36	54.44	3380.4	5
383	-75.14	82.33	3380.8	6
384	-72.97	100.06	3381.5	3
385	-52.74	153.83	3387.1	5
386	-61.37	305.17	3380.7	5
387	-61.29	290.05	3381.1	2
388	-54.13	309.18	3382.1	3
389	-59.00	270.02	3383.6	3
390	-50.16	247.86	3386.6	3
391	-48.07	271.09	3385.8	3
392	-43.56	255.91	3387.9	5

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
393	-35.87	263.86	3389.3	5
394	-24.82	265.27	3393.0	3
397	-24.35	275.60	3392.3	2
400	9.96	136.94	3395.3	3
401	10.83	135.37	3398.9	3
403	19.17	140.81	3392.1	2
404	20.63	137.16	3406.7	3
405	18.50	131.83	3416.4	3
406	21.97	131.52	3400.6	2
407	23.07	136.59	3405.8	3
408	11.76	124.90	3398.4	2
409	11.26	121.80	3398.8	2
410	10.76	119.37	3399.2	2
411	16.12	127.48	3396.6	2
413	19.50	119.84	3396.6	3
414	24.42	128.06	3393.3	2
415	8.33	119.63	3400.1	3
416	6.98	120.80	3400.5	2
417	3.65	121.55	3401.5	2
418	16.76	119.21	3397.6	3
419	15.22	117.49	3398.3	2
420	23.26	119.45	3395.4	2
421	23.56	117.46	3395.4	2
422	3.03	111.32	3402.6	2
423	7.91	112.90	3401.1	2
424	24.59	109.92	3395.2	2
425	18.83	111.13	3397.8	2
426	17.48	114.21	3398.0	2
427	9.54	102.44	3399.2	4
428	3.56	107.87	3400.8	2
429	16.69	103.39	3397.3	2
430	8.55	112.24	3401.0	2
433	11.33	97.67	3398.1	2
434	16.67	101.06	3396.8	2
435	18.08	95.21	3396.1	2
436	21.88	103.32	3395.8	2
437	25.07	102.58	3394.3	2
438	25.32	98.91	3393.8	3
439	24.31	91.64	3394.0	2
440	26.50	92.19	3393.3	3
441	27.53	89.55	3392.8	2
442	28.27	87.85	3392.5	4
443	24.33	89.83	3394.0	2
444	21.92	89.35	3394.8	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
445	21.41	81.00	3394.4	4
446	13.07	83.30	3396.8	3
447	13.64	79.85	3396.3	3
449	4.47	82.59	3398.4	2
450	16.65	82.29	3395.8	2
451	20.12	77.23	3394.5	2
452	28.24	79.55	3392.4	3
453	25.23	81.11	3393.4	3
454	11.49	76.93	3396.6	2
455	1.27	72.02	3397.9	2
456	7.71	72.96	3397.1	2
457	11.71	72.45	3396.3	4
458	11.33	69.08	3396.2	2
459	19.94	71.04	3394.3	5
460	17.99	72.62	3394.8	2
461	19.38	68.47	3394.2	3
462	26.76	71.22	3391.7	4
463	23.13	72.27	3393.2	3
464	20.60	64.22	3393.5	4
465	25.10	63.69	3391.7	3
466	16.65	64.32	3394.6	3
467	11.30	64.45	3395.8	3
468	6.80	64.23	3396.5	2
470	12.74	60.73	3395.1	2
471	20.62	58.57	3392.9	2
472	13.17	54.07	3394.3	3
473	10.10	55.43	3395.0	2
475	11.44	50.78	3394.2	2
476	16.40	54.42	3393.5	2
477	19.97	56.26	3392.8	2
478	22.90	55.97	3391.8	2
479	20.22	47.78	3391.7	3
480	24.64	47.11	3390.5	2
481	19.24	45.31	3391.9	3
482	12.86	45.90	3393.6	2
483	19.42	42.07	3391.7	2
484	10.56	40.12	3393.8	2
485	7.51	46.05	3394.7	2
486	2.57	46.35	3395.5	2
487	19.44	29.91	3390.8	2
488	10.74	34.90	3393.3	4
489	11.91	25.41	3392.6	4
490	8.34	25.35	3393.3	2
491	17.18	24.92	3391.5	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
492	19.70	24.02	3390.9	2
493	23.50	26.81	3389.8	2
494	26.71	25.75	3388.8	3
495	19.37	15.74	3391.1	4
496	25.08	17.46	3389.6	2
497	19.58	12.08	3391.1	2
498	19.01	19.99	3391.2	2
500	11.17	17.27	3392.8	3
501	4.82	16.34	3393.8	2
502	11.05	12.12	3392.9	2
503	10.16	16.10	3393.0	2
504	10.86	6.65	3393.0	4
505	0.37	6.86	3394.4	3
506	15.74	7.20	3392.0	2
507	18.90	7.44	3391.3	4
508	25.76	7.62	3389.4	3
509	16.27	2.63	3391.5	2
510	10.06	2.70	3393.1	2
511	8.53	1.52	3393.4	2
512	10.99	358.79	3393.0	4
513	5.00	358.06	3394.1	3
514	15.31	357.81	3392.3	3
515	18.55	358.17	3391.6	3
516	13.29	355.29	3393.0	2
517	8.79	355.08	3393.8	3
518	5.79	354.39	3394.4	2
519	11.36	354.69	3393.4	3
520	18.16	353.22	3392.1	2
521	14.86	355.09	3392.7	3
522	15.26	350.83	3392.9	2
523	0.29	2.72	3394.4	3
524	2.19	2.53	3394.2	3
525	6.68	358.22	3393.8	3
526	1.96	38.57	3395.0	3
527	4.95	36.92	3394.7	3
528	4.05	33.71	3394.3	3
529	6.10	35.03	3394.1	2
530	8.99	37.28	3393.8	3
531	10.42	31.38	3393.0	4
532	15.30	34.71	3392.3	3
533	18.09	29.03	3391.2	3
534	12.49	30.98	3392.6	3
535	9.61	346.32	3394.5	2
536	9.20	345.63	3394.6	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
537	14.15	344.95	3393.7	2
538	12.64	338.92	3394.6	3
539	14.38	346.11	3393.5	2
540	10.41	348.12	3394.2	2
542	18.44	347.03	3392.5	2
543	20.46	345.51	3392.1	2
544	21.86	338.15	3392.4	2
545	11.16	336.88	3395.3	2
546	5.18	338.83	3395.9	2
547	10.72	331.90	3396.3	2
548	11.03	329.73	3396.6	3
549	15.77	337.28	3394.2	2
550	19.34	336.48	3393.3	3
551	18.76	332.96	3394.0	2
552	19.19	329.11	3394.5	2
553	24.21	336.75	3392.0	3
554	27.03	337.35	3391.0	4
555	6.72	328.08	3397.6	2
556	9.19	328.81	3397.1	2
557	10.21	321.57	3397.9	3
558	11.92	323.51	3397.3	2
560	15.84	329.62	3395.4	2
561	18.95	324.64	3395.3	2
562	19.50	320.50	3395.9	4
563	23.33	328.39	3393.4	2
564	26.10	327.57	3392.7	4
567	7.64	319.71	3398.6	2
568	10.04	317.42	3398.0	2
569	10.12	311.64	3397.6	2
570	13.74	320.99	3397.3	2
571	15.46	319.80	3397.0	2
572	18.48	318.19	3396.1	2
573	17.38	312.11	3396.1	3
574	22.01	321.04	3395.0	2
575	23.57	318.67	3394.7	2
577	7.53	312.30	3398.1	3
578	4.93	311.34	3398.4	2
579	12.16	309.67	3397.1	2
580	12.14	305.71	3396.7	2
581	11.30	302.58	3396.6	3
582	12.15	311.96	3397.2	2
583	14.89	312.31	3396.7	2
584	21.59	312.38	3394.9	2
585	25.89	310.79	3393.6	3

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
586	19.86	305.94	3394.9	2
587	21.06	307.05	3394.7	2
588	19.37	301.31	3394.5	3
589	6.29	303.86	3397.6	4
590	9.04	303.22	3397.1	4
591	9.88	301.39	3396.8	3
592	9.84	295.70	3396.5	4
593	8.90	294.28	3396.6	3
594	14.85	303.45	3395.9	2
595	18.43	303.12	3395.0	3
596	17.99	298.02	3394.7	3
597	17.85	294.80	3394.6	4
598	23.24	304.04	3393.8	2
599	26.52	300.60	3392.5	3
600	23.61	293.38	3393.0	3
601	25.50	294.50	3392.5	4
602	18.82	296.38	3394.4	3
603	19.04	286.11	3394.0	4
604	18.33	289.15	3394.3	3
605	13.70	293.88	3395.6	2
606	9.83	287.54	3396.2	2
607	10.54	290.62	3396.2	2
608	4.55	294.12	3397.2	2
609	1.32	296.38	3397.7	2
610	6.81	285.43	3396.7	2
611	2.94	285.63	3397.2	2
612	11.17	285.31	3395.9	2
613	10.97	280.66	3395.8	2
614	11.11	277.16	3395.9	2
615	17.05	286.35	3394.6	2
616	13.61	285.61	3395.4	2
617	19.83	283.40	3393.8	2
618	19.55	278.61	3393.8	3
619	23.22	287.53	3393.0	2
620	25.43	294.39	3392.2	2
621	22.42	277.85	3393.0	3
622	24.68	275.41	3392.4	3
623	17.14	275.09	3394.6	3
624	16.79	280.05	3394.5	2
625	15.23	278.83	3394.9	2
626	13.43	277.15	3395.4	2
628	8.11	275.08	3396.5	2
629	6.37	276.69	3396.8	2
631	6.10	279.49	3396.7	2

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
632	18.15	350.84	3392.3	2
633	19.05	350.11	3392.1	2
634	3.82	270.39	3397.3	2
635	2.80	269.78	3397.5	2
636	5.94	268.99	3397.0	2
637	6.35	270.62	3397.0	2
638	8.07	268.47	3396.7	2
639	3.42	266.55	3397.3	2
640	4.71	264.82	3397.0	2
641	8.10	266.56	3396.7	3
642	7.84	264.73	3396.7	3
643	16.89	268.38	3394.9	2
644	14.21	268.73	3395.5	2
645	13.17	268.68	3395.8	2
646	12.25	263.34	3395.9	4
647	12.51	266.01	3395.9	2
648	11.08	267.87	3396.2	2
649	10.38	261.59	3396.3	2
650	13.03	256.37	3395.3	3
651	14.57	264.32	3395.5	2
652	15.03	260.57	3395.4	2
653	16.79	266.48	3395.0	2
654	20.12	258.89	3394.1	2
655	21.09	258.09	3393.7	3
656	28.42	256.12	3390.9	2
657	26.46	256.63	3391.7	3
658	23.69	258.40	3392.8	2
659	19.27	250.69	3393.1	2
660	20.83	254.45	3393.2	2
661	18.71	257.44	3394.3	2
662	16.53	257.04	3394.7	2
663	12.55	249.19	3394.5	3
664	11.65	253.24	3395.2	2
665	7.76	257.06	3396.2	2
666	6.05	258.19	3396.5	2
667	2.73	257.39	3396.7	2
668	12.63	247.62	3394.5	3
669	9.93	248.72	3395.0	2
670	6.58	249.51	3395.6	2
671	4.56	248.07	3395.9	2
672	1.97	248.27	3396.2	2
673	11.55	239.10	3394.5	3
674	11.29	244.65	3394.7	2
675	15.76	248.93	3393.8	2

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Table 2--continued

Point	Latitude, $\phi°$	W.Longitude, $\lambda°$	Radius, km	No. of Frames
676	17.14	249.61	3393.5	2
677	20.42	241.20	3392.6	3
678	20.11	243.74	3392.7	2
679	20.00	246.38	3392.7	2
680	21.72	248.81	3392.4	2
681	23.50	250.10	3392.0	2
682	26.00	249.43	3391.3	3
683	27.58	247.59	3390.8	2
684	22.66	238.96	3391.9	2
685	23.22	242.11	3391.8	2
686	25.58	239.79	3391.0	3
687	18.02	242.03	3393.2	2
688	17.13	238.15	3393.3	2
689	17.09	231.89	3392.7	3
690	13.18	241.78	3394.3	2
691	15.33	240.28	3393.8	2
692	10.05	238.96	3394.8	3
693	9.13	241.04	3395.1	3
694	8.63	236.94	3394.8	2
695	8.61	231.55	3394.1	3
696	6.37	239.72	3395.4	2
697	2.27	242.67	3396.0	2
698	1.92	240.75	3396.0	2
699	9.91	231.02	3393.9	2
700	5.96	231.32	3394.3	2
701	12.32	229.76	3393.4	2
702	12.33	221.16	3392.7	4
703	21.68	227.48	3391.4	2
704	21.12	224.83	3391.3	2
705	21.49	222.02	3390.9	3
706	29.72	229.44	3390.0	3
707	26.14	221.85	3389.4	3
708	28.97	228.29	3390.0	3
709	27.09	221.12	3389.6	4
710	9.72	221.46	3393.1	2
711	7.99	220.60	3393.1	2
712	5.90	220.59	3393.3	2
713	3.85	221.63	3393.4	2
714	2.31	221.40	3393.5	2
715	11.84	215.48	3392.6	2
716	12.01	213.38	3392.6	2
717	14.72	222.46	3392.4	2
718	20.25	220.64	3391.0	3
719	20.44	217.74	3391.1	2

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
720	19.90	213.11	3391.8	2
721	24.59	221.68	3390.2	2
722	23.50	211.59	3391.2	2
723	26.59	211.81	3390.4	2
724	27.30	208.31	3390.6	3
725	25.32	209.10	3391.0	3
726	26.31	202.36	3391.3	3
727	21.52	206.45	3391.5	3
728	20.55	200.87	3391.0	5
729	18.94	206.57	3391.8	2
730	17.17	200.27	3391.6	3
731	13.66	208.24	3392.5	2
732	13.00	205.42	3392.5	2
733	13.82	202.46	3392.4	2
734	13.01	201.44	3392.5	3
735	4.37	199.87	3393.4	2
736	8.88	200.40	3393.1	2
737	10.99	199.63	3392.9	2
738	13.45	198.73	3392.3	2
739	13.27	193.19	3392.1	2
740	12.02	190.97	3392.1	3
741	23.65	201.75	3391.3	3
742	27.25	200.54	3391.6	4
743	20.47	197.22	3391.0	2
744	20.52	195.10	3391.0	2
745	20.33	190.60	3391.1	4
746	17.16	191.09	3391.5	2
747	15.15	190.41	3391.8	2
748	13.11	189.40	3391.9	2
749	12.65	184.86	3391.7	2
750	11.53	181.49	3391.6	4
751	20.59	185.54	3391.0	2
752	20.63	181.11	3390.8	4
753	3.29	178.33	3393.1	3
754	1.92	178.11	3393.3	3
755	2.71	172.33	3393.5	3
756	13.37	178.01	3391.5	2
757	13.15	175.86	3391.6	3
758	17.58	182.87	3391.3	2
759	14.83	181.60	3391.4	2
760	20.36	178.62	3390.8	2
761	20.47	177.08	3390.8	2
762	19.72	174.84	3390.9	2
763	22.21	181.23	3390.3	2

AREOCENTRIC

Table 2-continued

Point	Latitude, $\phi°$	W.Longitude, $\lambda°$	Radius, km	No. of Frames
764	24.47	181.30	3389.7	2
765	26.37	182.61	3389.3	2
766	27.71	180.52	3388.5	3
768	13.81	170.07	3391.7	3
769	12.72	169.45	3391.9	2
770	12.71	168.42	3391.9	3
771	5.53	163.38	3393.6	2
772	6.73	163.05	3393.4	3
773	10.10	152.57	3393.0	3
774	5.05	152.82	3393.9	3
775	7.72	145.47	3394.7	2
780	11.46	188.82	3392.0	2
781	6.19	188.19	3392.6	2
782	2.87	183.32	3392.9	2
783	6.83	185.82	3392.4	2
785	7.52	174.85	3392.4	3
786	6.38	173.18	3392.8	3
787	6.38	177.07	3392.5	3
788	10.89	175.33	3391.8	3
789	9.79	172.34	3392.0	3
790	16.02	173.23	3391.4	2
791	9.41	169.29	3392.3	3
792	7.50	171.76	3392.6	3
793	15.88	170.60	3391.4	2
794	15.46	167.99	3391.5	2
795	10.83	165.00	3392.4	2
796	6.86	168.41	3393.0	2
797	8.96	157.59	3393.2	2
798	11.79	170.28	3391.9	3
799	26.33	345.75	3390.4	4
800	-26.15	9.25	3392.6	4
801	-26.73	7.65	3392.5	4
802	-24.21	6.05	3393.1	2
803	-26.87	14.78	3392.3	5
804	-23.82	15.05	3392.8	4
805	-22.98	9.11	3393.3	2
806	-18.39	4.66	3394.1	3
807	-16.96	8.42	3394.3	2
808	-23.31	7.78	3393.2	2
809	-22.92	7.53	3393.4	3
810	-22.82	4.40	3393.4	2
811	-21.12	5.63	3393.7	2
812	-22.52	6.25	3393.5	2
813	-18.99	1.33	3394.0	3

AREOCENTRIC

Table 2--continued

Point	Latitude, $\phi°$	W.Longitude, $\lambda°$	Radius, km	No. of Frames
814	-17.54	3.61	3394.2	2
815	-13.90	3.25	3394.5	3
817	-12.40	1.23	3394.6	2
818	-14.90	358.86	3394.5	3
819	-8.62	2.62	3394.7	3
820	-9.59	0.74	3394.7	3
822	-10.60	356.21	3395.1	3
823	-7.59	358.49	3394.9	3
824	-14.19	6.95	3394.5	2
825	-4.63	0.51	3394.7	3
826	-4.22	2.40	3394.7	3
827	-5.36	358.71	3394.8	3
828	-3.75	358.46	3394.8	4
829	-8.57	5.15	3394.7	3
830	-10.64	11.76	3394.5	2
831	-10.36	10.38	3394.6	2
832	-8.91	10.66	3394.6	3
833	-6.89	14.16	3394.4	2
834	-5.11	9.61	3394.7	2
835	-4.20	9.49	3394.6	3
836	-3.08	12.21	3394.5	2
837	1.33	8.19	3394.3	3
838	2.53	10.41	3394.1	2
839	-12.41	14.97	3394.2	2
840	-16.67	13.47	3393.9	2
841	-16.18	12.55	3394.1	2
842	-14.05	11.90	3394.3	2
843	-15.23	13.50	3394.1	2
844	-18.79	9.34	3394.1	2
845	-13.08	10.11	3394.5	2
846	-8.81	7.48	3394.7	2
847	-22.28	10.62	3393.4	2
848	-18.56	12.19	3393.8	2
849	-18.19	14.55	3393.6	2
850	-22.98	13.99	3393.0	2
851	-17.67	16.20	3393.5	2
852	-22.51	16.51	3392.9	2
853	-22.23	15.37	3393.0	3
854	-20.24	14.62	3393.4	2
856	-21.61	10.37	3393.6	3
857	-23.42	16.20	3392.8	2
858	-22.51	17.54	3392.8	2
859	-21.30	19.71	3392.8	2
861	-25.34	16.91	3392.5	4

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
862	[illegible]	2.80	3393.3	2
863	-21.93	0.31	3393.6	2
864	-21.38	355.87	3394.3	3
865	-20.20	-0.07	3393.9	2
866	-17.50	358.97	3394.3	2
867	-14.84	358.09	3394.7	3
868	-16.60	353.93	3395.0	3
869	-12.54	356.17	3395.0	2
870	-11.85	351.85	3395.6	3
871	-11.09	353.95	3395.4	2
872	-9.67	356.55	3395.1	3
873	-5.14	355.50	3395.2	2
874	-8.98	354.79	3395.3	2
875	-5.84	353.25	3395.5	2
876	-6.39	352.30	3395.6	2
877	-2.07	350.14	3395.6	2
878	-2.42	352.20	3395.4	2
879	-0.65	353.53	3395.2	2
880	3.21	348.52	3395.3	2
881	3.95	354.67	3394.6	2
882	-25.83	358.15	3393.3	2
883	-23.94	358.98	3393.5	2
884	-23.05	356.52	3393.9	2
885	-24.79	358.11	3393.4	3
886	-27.07	354.30	3393.5	3
887	-20.14	353.18	3394.8	3
888	-24.31	354.39	3394.0	2
889	-22.49	355.26	3394.2	2
890	-18.43	355.36	3394.7	2
891	-17.74	353.24	3395.0	2
892	-19.13	351.98	3395.1	3
893	-13.90	352.85	3395.4	2
894	-12.98	350.53	3395.7	2
895	-15.06	349.17	3395.7	2
896	-8.71	351.10	3395.7	2
897	-9.96	352.71	3395.5	2
898	-10.36	347.39	3396.0	3
899	-9.18	348.73	3395.9	2
900	-5.88	350.09	3395.8	2
901	-8.48	347.61	3396.0	2
902	-9.16	345.07	3396.1	2
903	-8.32	343.98	3396.2	3
904	-7.54	345.61	3396.1	3
905	-4.54	341.03	3396.4	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
906	-3.83	342.55	3396.3	2
907	-2.71	343.84	3396.1	2
908	-17.10	351.34	3395.3	2
909	-17.63	348.55	3395.5	2
910	-21.80	351.17	3394.8	2
911	-23.70	12.00	3393.0	2
912	-4.10	349.00	3395.8	2
913	2.53	345.23	3395.6	2
914	1.47	344.44	3395.8	2
915	2.08	340.60	3396.1	2
916	0.72	340.18	3396.3	2
917	6.18	342.61	3395.4	2
918	5.08	339.90	3395.8	2
919	5.05	337.65	3396.2	2
920	-24.31	195.78	3394.1	3
921	-25.01	188.73	3393.8	3
922	-28.33	190.72	3393.3	4
923	-22.39	194.14	3394.3	4
924	-2.56	178.94	3393.8	2
925	-2.20	178.07	3393.8	2
926	-3.60	175.56	3394.1	2
927	-7.02	175.31	3394.3	2
928	-5.20	175.81	3394.2	2
929	-9.39	178.53	3394.1	2
930	-10.12	178.55	3394.1	2
931	-10.66	176.47	3394.3	3
932	-9.29	176.16	3394.3	2
933	-10.63	174.46	3394.5	2
934	-9.27	173.68	3394.5	2
935	-11.11	172.98	3394.6	2
936	-14.34	174.06	3394.5	2
937	-15.13	174.52	3394.5	2
938	-11.66	180.27	3394.1	2
939	-12.48	178.37	3394.2	2
940	-13.60	177.43	3394.3	2
941	-14.18	178.16	3394.2	2
942	-15.20	178.41	3394.2	2
946	-15.62	183.73	3394.3	2
947	-16.59	180.96	3394.1	2
948	-17.43	178.92	3394.1	3
949	-16.19	185.00	3394.4	2
950	-17.25	185.79	3394.4	2
951	-18.57	184.26	3394.3	2
952	-18.95	186.38	3394.4	3

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
954	-20.05	185.86	3394.3	3
955	-21.27	183.40	3394.0	2
956	-17.05	186.41	3394.6	2
957	-21.74	184.37	3394.0	2
958	-22.61	186.16	3394.0	2
959	-22.03	187.82	3394.2	2
960	-23.89	187.54	3393.9	2
961	-23.85	188.75	3394.0	3
962	-21.62	190.50	3394.3	3
963	-17.86	180.28	3394.0	2
964	-19.56	180.59	3394.0	2
965	-19.22	181.83	3394.1	2
966	-20.94	180.41	3393.8	2
969	-22.30	190.64	3394.2	2
970	-24.20	191.04	3394.0	2
971	-23.60	194.17	3394.1	2
972	-25.63	193.27	3393.9	2
973	-17.61	189.16	3394.6	2
974	-18.18	188.47	3394.6	2
975	-19.43	189.32	3394.5	2
976	-19.17	191.48	3394.6	2
977	-12.57	187.08	3394.6	3
978	-13.88	186.83	3394.6	2
979	-14.03	188.62	3394.7	2
980	-14.98	187.73	3394.6	2
981	-15.66	189.54	3394.8	2
982	-16.58	188.50	3394.6	2
988	-19.52	194.66	3394.5	2
989	-21.15	191.92	3394.4	2
991	-15.75	191.46	3394.8	2
992	-16.56	189.59	3394.7	2
993	-11.68	188.64	3394.8	2
994	-7.50	185.34	3394.3	2
995	-2.62	186.76	3393.7	2
996	-2.71	185.80	3393.7	2
997	-7.15	184.70	3394.2	2
999	-3.63	184.00	3393.8	2
1000	-4.98	185.77	3394.0	2
1001	-4.49	183.67	3393.9	2
1002	-6.13	183.72	3394.1	2
1003	-5.19	179.98	3393.9	2
1004	-23.91	139.55	3394.9	3
1005	-25.06	145.98	3394.4	3
1006	-24.95	143.35	3394.5	4

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1007	-23.45	143.21	3394.9	3
1008	-21.00	140.44	3395.6	2
1009	-20.77	138.56	3395.9	2
1010	-23.07	140.93	3395.1	3
1011	-25.58	141.64	3394.4	2
1012	-18.57	138.77	3396.2	3
1013	-19.70	140.49	3395.9	2
1014	-16.87	141.38	3396.0	2
1015	-16.71	137.97	3396.6	2
1016	-15.62	136.93	3396.9	2
1017	-13.58	136.58	3397.2	2
1018	-13.19	137.85	3396.9	2
1019	-14.68	133.12	3397.9	2
1020	-14.28	131.93	3398.2	2
1021	-13.47	130.06	3398.8	2
1022	-10.95	131.83	3398.6	2
1023	-10.37	132.29	3398.5	2
1024	-12.29	130.71	3398.7	2
1025	-30.53	143.22	3393.1	4
1026	-31.79	147.66	3392.9	4
1027	-27.68	150.54	3393.8	3
1028	-14.53	129.38	3398.9	2
1029	-15.39	129.48	3398.7	2
1030	-13.54	127.61	3400.0	2
1031	-14.34	125.51	3400.8	2
1032	-13.26	126.67	3400.6	2
1033	-10.91	128.28	3400.1	2
1034	-10.68	126.94	3401.1	2
1035	-10.12	123.05	3400.6	3
1036	-8.65	126.08	3400.2	3
1037	-7.53	123.95	3400.8	3
1038	-8.20	123.92	3400.7	3
1039	-17.45	178.06	3394.1	2
1040	-19.09	177.38	3394.1	2
1041	-9.95	121.44	3400.9	2
1042	-6.89	121.60	3401.5	2
1043	-7.09	120.10	3401.8	2
1044	-5.10	121.83	3401.8	2
1045	-4.42	123.55	3401.4	2
1046	-3.12	126.38	3400.8	2
1047	0.85	121.01	3402.6	2
1048	-2.50	120.49	3402.6	2
1049	1.95	122.77	3401.8	2
1050	5.50	123.50	3400.5	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1051	3.70	119.21	3401.9	3
1052	4.17	116.66	3401.9	2
1053	1.16	124.78	3401.4	3
1054	-15.47	133.11	3397.8	2
1056	-14.76	131.95	3398.2	2
1060	-24.35	43.66	3393.5	3
1061	-22.25	47.53	3394.2	6
1062	-24.73	45.91	3393.7	2
1063	-25.65	47.21	3393.8	2
1064	-22.44	48.88	3394.3	3
1065	-22.80	50.45	3394.5	2
1067	-17.70	50.82	3395.3	2
1069	-21.01	49.22	3394.4	3
1070	-18.69	46.53	3394.5	2
1071	-18.73	48.31	3394.7	2
1072	-19.38	48.64	3394.5	2
1074	-19.02	43.06	3394.2	2
1075	-13.42	47.65	3395.5	2
1076	-15.22	47.18	3395.2	3
1079	-17.42	45.60	3394.7	2
1080	-11.97	44.68	3395.4	3
1081	-13.69	44.50	3395.2	2
1082	-10.80	45.61	3395.6	3
1083	-14.22	40.94	3394.7	2
1084	-7.24	45.66	3395.3	2
1085	-9.93	44.58	3395.6	3
1086	-7.67	43.50	3395.6	2
1087	-9.03	41.86	3395.4	2
1088	-7.67	42.14	3395.5	3
1089	-5.07	43.20	3395.6	2
1090	-6.18	43.63	3395.7	2
1091	-9.58	38.72	3395.0	2
1092	-3.77	41.39	3395.5	2
1093	-3.80	38.64	3395.3	2
1094	-2.15	43.96	3395.7	2
1095	-3.43	43.47	3395.7	2
1096	1.29	41.18	3395.3	3
1097	-0.22	43.54	3395.6	2
1098	0.07	37.17	3395.1	3
1099	-2.47	40.60	3395.4	2
1100	-26.36	231.91	3393.8	2
1101	-24.73	235.25	3394.2	2
1102	-24.65	233.76	3394.2	2
1103	-25.87	232.53	3393.9	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1104	-28.55	234.25	3393.3	4
1105	-25.69	233.90	3393.9	4
1106	-27.95	236.37	3393.4	3
1107	-25.54	230.45	3394.0	2
1108	-23.79	229.46	3394.4	2
1109	-22.12	230.50	3394.9	2
1110	-23.26	232.86	3394.6	2
1111	-21.89	227.68	3394.7	2
1112	-24.25	227.85	3394.2	2
1113	-23.18	227.74	3394.4	2
1114	-23.65	227.22	3394.3	2
1115	-20.16	228.54	3395.1	2
1116	-18.23	228.22	3395.2	2
1117	-21.91	228.61	3394.8	2
1118	-20.45	229.87	3395.2	2
1119	-15.35	230.25	3395.4	2
1120	-17.36	227.11	3395.1	2
1121	-15.81	229.28	3395.3	2
1122	-16.62	228.02	3395.2	2
1123	-16.48	226.10	3395.1	2
1124	-15.55	226.89	3395.1	2
1125	-14.16	226.15	3395.1	2
1126	-14.46	228.17	3395.2	2
1127	-18.06	224.85	3394.9	2
1128	-19.36	224.36	3394.8	2
1129	-17.35	225.67	3395.0	2
1130	-17.78	226.03	3395.0	2
1131	-12.50	225.76	3395.1	2
1132	-11.82	226.93	3395.1	2
1133	-10.41	229.14	3395.1	3
1134	-10.20	229.52	3395.1	3
1135	-14.22	223.23	3395.0	2
1136	-12.41	223.73	3395.0	2
1137	-12.18	224.34	3395.1	3
1138	-13.43	223.73	3395.0	2
1139	-11.32	223.86	3395.1	2
1141	-9.03	225.24	3395.0	2
1142	-9.33	224.23	3395.0	2
1143	-13.51	230.10	3395.3	2
1144	-10.54	230.33	3395.2	3
1145	-13.15	231.99	3395.4	2
1146	-12.37	228.94	3395.2	2
1147	-8.30	230.59	3395.2	2
1148	-7.42	230.85	3395.2	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1150	-3.92	227.98	3395.0	2
1151	-3.00	226.04	3394.9	2
1152	-3.05	227.08	3395.0	2
1153	-3.06	221.55	3394.8	2
1154	-3.42	222.34	3394.9	2
1155	-3.58	220.07	3395.0	2
1156	-3.56	221.00	3395.0	2
1157	-3.24	223.04	3394.5	2
1158	-4.70	223.42	3394.4	2
1160	-3.30	222.24	3394.6	2
1161	-7.79	223.61	3394.3	2
1162	-5.92	227.03	3394.8	2
1163	-6.32	225.41	3394.8	2
1164	-5.52	227.61	3394.8	2
1165	-3.08	222.35	3394.1	2
1166	-2.35	223.12	3394.0	2
1167	-1.09	226.16	3394.1	2
1168	-1.85	223.76	3394.0	2
1169	-7.83	232.46	3395.4	3
1170	-10.45	233.77	3395.5	2
1171	-12.27	234.14	3395.6	2
1172	-9.25	234.74	3395.6	2
1173	-8.72	234.46	3395.6	2
1175	-4.93	236.93	3395.9	2
1176	-6.08	235.83	3395.8	2
1177	-5.20	230.91	3395.0	2
1178	-6.85	232.44	3395.3	2
1179	-4.60	232.78	3395.3	2
1180	-3.23	229.89	3394.7	2
1181	-2.32	231.58	3394.9	2
1182	-2.29	232.79	3395.1	2
1183	-1.28	234.48	3395.3	2
1184	-1.67	236.43	3395.7	2
1185	-1.10	233.14	3395.0	2
1186	2.21	233.55	3394.9	2
1187	4.08	235.28	3395.1	2
1188	3.60	237.68	3395.7	2
1189	3.41	226.68	3394.0	2
1190	2.34	221.40	3393.4	2
1191	1.88	228.22	3394.1	2
1192	3.08	222.83	3393.6	2
1193	-29.15	321.59	3393.5	4
1194	-28.59	325.67	3393.8	4
1195	-31.30	321.08	3392.8	5

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1196	-30.36	324.91	3393.3	5
1197	-29.41	324.61	3393.6	5
1199	-28.86	317.13	3392.4	4
1200	32.67	89.23	3390.8	3
1201	31.88	96.23	3391.3	3
1202	32.25	87.00	3391.0	3
1203	33.84	81.84	3390.4	3
1204	38.68	83.91	3388.4	3
1205	39.45	80.30	3388.1	5
1206	40.13	75.70	3387.2	4
1207	41.94	89.58	3386.9	5
1208	41.95	82.68	3387.0	2
1209	43.88	78.82	3386.1	4
1210	43.47	74.91	3385.8	3
1211	40.64	69.64	3386.2	5
1212	48.88	68.86	3382.9	4
1213	47.28	73.58	3384.0	4
1215	27.05	76.71	3392.4	3
1216	33.12	76.32	3390.1	4
1217	32.59	72.67	3389.7	3
1218	37.26	70.71	3387.6	2
1219	39.28	66.23	3386.5	3
1220	41.28	64.70	3385.6	4
1221	44.36	64.11	3384.4	3
1222	45.36	69.94	3384.4	3
1223	44.04	53.17	3384.0	2
1224	40.35	56.89	3385.6	2
1225	37.47	56.36	3386.6	2
1226	39.09	41.97	3385.1	4
1227	41.34	50.91	3384.9	2
1228	38.96	46.49	3385.5	3
1229	33.81	66.40	3388.5	2
1230	31.99	67.11	3389.3	2
1231	25.86	67.87	3391.8	3
1232	26.86	55.95	3390.5	3
1233	27.86	57.63	3390.2	2
1234	28.66	59.45	3389.9	2
1235	25.15	53.94	3390.9	2
1236	32.16	56.58	3388.6	2
1237	34.35	56.57	3387.8	2
1238	34.09	52.14	3387.3	2
1239	33.22	50.46	3388.1	2
1240	32.16	48.56	3388.3	3
1241	27.23	50.25	3390.1	3

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1242	26.16	43.24	3389.7	2
1243	26.89	40.14	3389.2	3
1244	29.90	51.15	3389.3	2
1245	33.72	46.29	3387.5	3
1246	33.02	43.62	3387.4	3
1247	34.03	42.95	3387.0	3
1248	32.26	41.02	3387.4	3
1249	31.80	38.90	3387.4	2
1250	36.11	43.36	3386.4	2
1251	41.72	42.14	3384.1	3
1252	38.28	35.00	3385.0	3
1253	40.66	34.50	3384.2	4
1254	37.17	39.57	3385.6	3
1255	25.76	37.76	3389.4	2
1256	25.93	35.26	3389.2	2
1257	29.19	39.81	3383.3	2
1258	33.52	30.34	3386.5	4
1259	33.78	34.22	3386.5	3
1260	40.86	24.51	3384.1	3
1261	38.96	25.18	3384.8	3
1262	25.83	31.85	3389.0	3
1263	28.63	31.24	3388.1	2
1264	32.95	21.17	3387.1	4
1265	34.10	25.65	3386.5	2
1266	37.58	30.35	3385.1	2
1267	26.46	24.09	3389.0	4
1268	29.96	21.88	3388.0	2
1269	32.80	17.11	3387.2	3
1270	33.83	11.76	3386.8	3
1271	37.89	21.19	3385.3	2
1272	38.57	18.43	3385.2	2
1273	43.26	9.02	3383.6	2
1274	42.30	15.03	3383.8	2
1275	41.34	10.50	3384.3	4
1276	38.95	11.70	3385.1	3
1277	36.23	12.95	3389.2	3
1278	30.01	14.33	3388.0	2
1279	28.73	13.16	3388.4	2
1280	33.79	6.87	3386.9	3
1281	32.52	2.60	3387.5	4
1282	36.43	8.62	3386.0	2
1283	39.63	3.13	3385.0	3
1284	38.13	356.67	3385.7	3
1285	42.27	0.38	3384.1	4

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Table 2--continued

Point	Latitude. ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1286	42.86	356.73	3384.1	3
1287	41.42	355.18	3384.7	4
1288	26.49	2.82	3389.3	3
1289	25.87	357.95	3389.6	2
1290	30.81	5.91	3387.8	2
1291	33.85	0.15	3387.0	3
1292	32.53	357.62	3387.6	3
1293	33.84	353.83	3387.3	3
1294	41.24	350.40	3385.0	4
1295	40.55	348.38	3385.3	6
1296	26.66	355.37	3389.6	4
1297	26.27	349.85	3390.0	3
1298	31.60	354.90	3388.0	3
1299	32.80	350.05	3387.9	5
1300	29.81	355.31	3388.6	3
1301	31.62	345.19	3388.7	4
1302	35.83	352.56	3386.7	3
1303	40.04	343.68	3385.9	6
1304	38.45	338.60	3387.0	6
1305	38.55	346.62	3386.2	3
1306	44.67	347.39	3384.2	3
1307	45.19	341.65	3384.0	3
1308	28.94	346.86	3389.5	3
1309	32.56	340.73	3388.8	4
1310	36.19	343.35	3387.3	3
1311	40.47	334.39	3386.8	4
1312	45.64	334.63	3384.3	3
1313	25.06	332.04	3392.4	2
1314	30.98	337.57	3389.7	2
1315	33.71	337.39	3388.8	3
1316	32.19	333.31	3389.9	3
1317	33.42	329.33	3390.0	2
1318	34.90	332.57	3389.1	3
1319	38.09	331.37	3388.1	4
1320	41.17	327.62	3387.2	3
1321	39.30	321.13	3388.7	4
1322	48.45	330.58	3383.4	2
1323	40.25	324.46	3388.0	3
1324	26.36	323.99	3393.2	2
1325	29.17	328.33	3391.6	2
1326	30.65	325.44	3391.5	2
1327	32.08	324.81	3391.1	4
1328	32.79	317.38	3391.4	2
1329	33.91	322.90	3390.6	3

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1330	37.67	323.52	3389.1	2
1331	39.47	315.81	3388.7	4
1332	39.89	310.05	3388.5	5
1333	47.09	319.18	3385.0	4
1334	44.61	320.35	3386.2	2
1335	26.25	315.04	3393.6	2
1338	34.02	312.91	3390.8	3
1339	33.56	308.18	3390.8	3
1340	37.06	311.24	3389.6	2
1341	39.33	306.50	3388.6	4
1342	43.70	306.72	3386.7	3
1343	47.94	306.31	3384.8	4
1344	27.75	305.72	3392.6	2
1345	27.32	309.62	3393.0	2
1346	30.39	309.20	3392.0	2
1347	32.67	303.59	3390.8	3
1348	33.02	298.92	3390.3	4
1349	35.39	301.87	3389.7	2
1350	35.48	305.70	3389.9	2
1351	41.57	299.04	3387.4	3
1352	39.64	297.71	3388.1	3
1353	38.73	292.82	3388.1	3
1354	44.31	295.92	3386.3	3
1355	45.00	302.52	3386.2	4
1356	28.73	300.72	3391.8	2
1357	30.40	298.47	3391.1	3
1358	33.63	292.79	3389.9	4
1359	32.80	288.43	3390.0	3
1360	37.76	295.81	3388.6	2
1361	35.11	292.43	3389.4	3
1362	41.08	294.66	3387.4	3
1363	26.76	292.34	3392.1	2
1364	41.20	287.31	3387.0	3
1365	39.19	289.30	3387.8	2
1366	44.97	290.21	3385.7	2
1367	36.23	288.44	3388.8	2
1368	34.28	284.43	3389.4	2
1369	37.94	284.36	3388.1	2
1370	41.67	283.16	3386.8	3
1371	40.07	273.07	3387.2	4
1372	27.82	276.52	3391.4	2
1375	33.56	275.94	3389.5	3
1376	33.17	278.95	3389.6	2
1377	32.29	273.38	3390.0	2

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1378	41.57	272.34	3386.7	3
1379	36.68	278.40	3388.4	2
1380	23.61	266.81	3391.2	2
1381	25.71	267.00	3392.3	2
1382	28.49	262.31	3391.1	3
1383	29.50	271.06	3391.0	2
1384	33.10	266.62	3389.6	3
1385	33.80	262.07	3389.1	3
1386	36.94	268.08	3388.2	2
1387	36.67	264.31	3388.1	2
1388	40.38	261.46	3386.6	3
1389	39.51	254.65	3387.0	4
1390	33.56	260.85	3387.3	3
1391	33.34	256.14	3387.4	3
1392	29.34	263.79	3390.6	2
1393	32.48	257.37	3389.5	3
1394	32.83	252.71	3389.4	3
1395	36.08	260.47	3388.2	2
1396	34.94	257.51	3388.6	2
1397	28.38	253.56	3390.9	3
1398	31.12	255.18	3390.0	2
1399	32.42	248.83	3389.4	3
1400	32.68	243.73	3389.0	3
1401	34.24	250.50	3388.9	3
1402	36.39	252.30	3388.2	2
1403	36.51	249.41	3388.1	2
1404	39.05	243.81	3386.7	3
1405	42.59	246.05	3385.4	2
1406	40.14	238.33	3386.1	4
1407	28.01	243.41	3390.5	3
1408	29.67	243.57	3390.0	2
1409	34.19	238.82	3388.2	3
1410	33.04	233.20	3388.9	3
1411	36.34	238.40	3387.5	2
1412	38.30	236.80	3386.8	2
1413	41.43	233.23	3385.6	3
1414	39.81	227.84	3386.3	3
1415	24.60	235.61	3391.3	2
1416	30.81	234.90	3389.6	2
1418	34.05	230.71	3388.6	4
1419	34.14	226.34	3388.2	4
1420	32.29	223.82	3388.5	4
1421	37.85	226.76	3386.9	3
1422	41.16	223.86	3385.4	4

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1423	40.44	218.52	3385.5	3
1424	30.07	226.70	3389.6	4
1425	26.19	226.52	3390.4	3
1426	33.31	221.09	3387.8	4
1427	31.89	216.43	3388.5	3
1428	36.43	221.94	3387.0	3
1429	41.03	209.21	3385.7	5
1430	42.66	215.24	3384.7	2
1431	28.57	215.32	3389.5	3
1432	25.09	216.33	3390.1	2
1433	29.65	217.06	3389.1	2
1434	33.39	210.06	3388.5	3
1435	32.50	205.27	3389.7	4
1436	34.25	215.74	3387.8	2
1437	36.02	210.23	3387.6	2
1438	38.66	204.73	3387.1	4
1439	40.84	199.87	3386.3	3
1440	44.07	206.97	3384.4	3
1441	28.84	210.47	3389.9	3
1442	32.19	208.59	3389.2	3
1443	29.62	205.91	3390.6	2
1444	31.70	202.16	3390.6	2
1445	33.50	196.46	3389.6	3
1446	35.42	202.71	3389.7	3
1447	36.52	204.65	3388.0	2
1448	37.39	201.06	3388.0	2
1449	40.80	196.45	3386.2	5
1450	39.14	194.02	3386.9	4
1451	25.28	197.29	3391.2	3
1452	26.88	194.97	3391.0	2
1453	31.52	199.35	3391.0	2
1454	34.01	193.05	3388.9	3
1455	34.27	188.16	3388.0	3
1456	35.91	193.82	3388.3	3
1457	40.30	190.66	3386.2	5
1458	38.06	187.53	3386.6	4
1459	36.33	182.28	3385.5	5
1460	46.83	190.77	3382.9	5
1461	48.98	193.58	3381.8	2
1462	50.96	189.55	3380.9	2
1463	27.55	184.98	3389.4	2
1464	30.75	189.96	3389.7	2
1465	34.48	184.52	3387.2	3
1466	33.81	179.14	3386.5	3

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1467	37.11	179.56	3385.5	3
1468	40.22	172.80	3384.3	4
1469	47.00	180.67	3382.4	4
1470	44.71	180.32	3383.1	5
1471	26.82	176.84	3388.8	2
1472	26.48	174.44	3388.9	2
1473	27.55	178.67	3388.5	3
1474	29.86	180.11	3387.6	2
1475	31.39	179.03	3387.2	2
1476	33.25	174.08	3386.7	3
1477	32.35	170.53	3387.0	2
1478	34.59	176.55	3386.3	3
1479	36.32	173.87	3385.7	2
1480	38.40	171.01	3384.9	3
1481	43.87	172.71	3383.1	2
1482	39.23	165.45	3384.6	3
1486	42.41	164.00	3383.6	3
1487	44.45	157.14	3383.2	3
1489	39.29	158.60	3384.7	4
1490	49.26	151.75	3381.7	2
1491	43.75	147.85	3384.0	3
1492	44.66	149.74	3383.6	3
1493	40.38	145.48	3385.4	4
1494	43.47	138.81	3384.7	2
1495	43.18	142.44	3384.5	2
1496	50.38	140.47	3382.0	2
1497	47.40	139.03	3383.3	2
1498	42.46	129.69	3384.0	4
1499	45.29	134.30	3385.5	2
1500	39.09	133.06	3387.3	4
1501	38.30	130.91	3387.9	4
1502	38.68	136.46	3386.8	4
1503	37.85	127.12	3388.7	3
1504	40.59	128.44	3387.3	3
1505	34.28	131.32	3389.0	2
1506	31.80	129.56	3390.2	2
1507	33.37	126.75	3391.3	3
1508	28.31	125.90	3394.6	2
1509	26.60	122.77	3398.1	3
1510	26.65	126.29	3395.1	2
1511	26.12	124.41	3396.9	2
1512	32.86	123.07	3393.7	4
1513	39.17	121.44	3388.5	6
1514	42.29	120.10	3386.7	7

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Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1514	45.02	123.81	3385.5	5
1516	46.64	121.14	3384.9	5
1517	45.84	115.30	3385.9	6
1518	38.03	146.41	3386.1	2
1519	26.71	118.86	3394.1	2
1520	25.44	117.05	3399.5	2
1521	40.82	110.46	3389.2	6
1522	39.73	114.06	3389.0	4
1523	44.14	110.07	3387.5	5
1524	41.05	117.88	3387.6	5
1525	35.52	117.92	3392.3	2
1526	33.00	116.63	3394.2	3
1527	32.27	112.98	3393.1	4
1528	49.75	125.05	3383.6	2
1529	49.06	116.37	3384.3	6
1530	47.80	112.26	3385.3	8
1531	54.67	114.92	3381.7	5
1532	28.23	116.08	3397.3	2
1533	29.63	113.82	3395.0	2
1534	26.17	109.30	3394.8	2
1535	25.30	104.86	3394.6	2
1536	32.56	107.35	3391.5	2
1537	32.26	104.52	3391.4	3
1538	37.18	111.21	3390.5	2
1539	34.85	108.78	3391.0	2
1540	39.64	105.54	3389.0	4
1541	39.09	101.76	3388.5	4
1542	42.49	107.03	3387.9	3
1543	44.74	100.98	3385.8	5
1544	48.09	96.28	3384.2	5
1545	27.38	106.17	3393.7	2
1546	31.12	99.35	3391.7	3
1547	33.55	99.89	3390.6	4
1548	36.12	99.07	3389.5	2
1549	37.25	102.96	3389.5	2
1550	42.13	97.89	3386.8	5
1551	39.83	94.25	3387.9	4
1552	37.95	95.95	3388.7	2
1553	44.23	91.13	3385.9	5
1554	53.99	97.42	3381.6	5
1555	51.66	91.08	3382.7	5
1556	53.41	103.21	3379.9	4
1557	58.53	94.95	3379.8	2
1558	39.34	93.68	3389.8	2

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Table 2--continued

Point	Latitude, $\phi°$	W.Longitude, $\lambda°$	Radius, km	No. of Frames
1559	38.61	89.21	3388.3	3
1560	27.57	97.66	3393.0	2
1561	28.76	95.05	3392.5	2
1562	43.02	85.22	3386.5	4
1563	47.55	83.91	3384.6	4
1564	51.47	125.73	3382.8	3
1565	66.15	278.16	3378.4	2
1566	54.92	93.42	3381.3	3
1568	64.25	109.62	3378.4	2
1569	54.61	38.33	3381.4	2
1570	58.77	115.60	3379.7	2
1571	52.00	237.23	3383.1	3
1572	55.79	310.91	3381.1	2
1573	58.49	289.50	3380.8	2
1574	61.76	289.20	3379.9	2
1575	54.59	276.60	3381.9	2
1576	56.75	277.59	3380.0	2
1577	44.73	278.62	3385.8	2
1578	42.93	244.39	3385.1	3
1579	48.93	241.20	3382.1	3
1580	41.17	235.96	3385.7	4
1581	54.94	226.87	3380.0	3
1582	50.30	225.57	3381.4	3
1583	59.30	221.95	3378.6	2
1584	66.32	216.16	3376.9	3
1585	49.52	215.03	3381.8	2
1586	58.36	213.85	3378.3	3
1587	53.36	195.36	3380.1	3
1588	48.52	189.51	3382.1	3
1589	1.42	330.88	3397.8	2
1590	66.30	196.86	3376.8	2
1591	59.93	207.11	3377.6	2
1592	79.65	214.90	3374.2	3
1593	71.96	214.29	3375.8	3
1594	60.29	230.74	3378.6	3
1595	54.75	256.06	3381.0	3
1596	48.45	270.86	3384.8	2
1597	51.58	267.23	3383.3	2
1598	68.99	270.34	3377.8	2
1599	50.12	77.16	3383.3	2
1600	11.52	133.79	3397.2	2
1601	14.18	129.50	3397.5	2
1602	15.12	130.38	3401.4	2
1603	17.38	133.52	3417.3	3

AREOCENTRIC

Table 2—continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1604	17.23	129.34	3402.1	4
1605	14.25	131.52	3399.2	2
1606	13.97	133.05	3416.6	4
1607	23.07	133.45	3402.3	3
1608	20.60	135.36	3410.6	3
1609	16.71	135.73	3412.8	5
1610	53.74	31.35	3381.9	2
1611	49.89	61.34	3382.2	3
1612	51.76	64.62	3381.6	3
1613	53.40	71.09	3381.4	2
1614	49.25	43.80	3381.4	2
1615	60.54	58.13	3377.9	2
1616	54.29	38.99	3379.3	3
1617	49.58	34.74	3381.0	3
1618	53.74	31.61	3379.4	4
1619	47.21	28.03	3381.7	2
1620	50.66	18.39	3380.4	3
1621	47.76	13.67	3381.8	3
1622	48.41	23.93	3383.2	2
1623	62.38	23.66	3377.2	2
1624	49.83	8.31	3381.3	3
1625	55.61	21.28	3377.1	4
1626	68.12	25.51	3377.1	2
1627	76.85	54.67	3375.6	2
1628	84.93	5.82	3375.8	4
1629	74.55	13.08	3376.3	3
1630	71.83	15.21	3376.8	3
1631	73.50	357.88	3376.6	4
1632	75.77	333.94	3378.0	4
1633	72.98	333.15	3378.0	3
1634	68.48	347.42	3378.1	4
1635	42.91	5.41	3383.8	2
1636	49.66	356.92	3381.9	2
1637	51.02	345.54	3382.0	2
1638	61.95	353.51	3378.7	3
1639	64.91	328.91	3379.0	3
1640	61.04	335.97	3378.6	3
1641	56.17	337.51	3379.9	2
1642	54.00	333.59	3381.0	3
1643	49.11	339.11	3382.3	3
1644	49.17	334.81	3382.6	2
1645	53.77	138.79	3380.0	3
1646	54.12	183.10	3379.9	3
1647	45.35	190.73	3382.9	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1648	54.58	169.51	3379.5	3
1649	52.41	160.94	3380.5	2
1650	56.70	159.14	3379.3	2
1651	60.66	170.59	3377.6	2
1652	71.87	306.50	3378.9	2
1653	60.13	303.49	3379.0	2
1654	69.86	295.36	3378.8	2
1655	61.81	313.76	3379.0	2
1656	68.18	161.00	3376.1	3
1657	78.74	153.47	3375.8	2
1658	64.32	139.36	3378.2	2
1659	60.38	138.48	3378.8	3
1660	64.55	126.62	3378.5	2
1661	57.49	134.52	3380.0	2
1662	53.40	244.44	3380.7	3
1663	66.98	246.48	3377.5	2
1666	24.93	191.63	3390.8	3
1667	26.52	192.29	3390.7	3
1668	28.30	190.16	3390.2	4
1669	21.88	190.32	3391.0	2
1670	3.41	180.25	3393.0	2
1676	78.02	308.27	3377.8	2
1679	26.66	145.20	3389.3	2
1681	24.17	144.03	3390.2	2
1682	20.23	145.23	3391.0	3
1683	20.15	152.87	3390.4	2
1684	15.52	137.84	3394.3	2
1685	15.96	143.47	3392.9	4
1686	11.70	140.74	3395.1	2
1687	14.18	140.08	3394.3	2
1688	14.34	147.07	3392.7	3
1800	-26.98	119.80	3397.1	3
1801	-33.13	106.42	3395.9	3
1802	-36.85	94.12	3394.1	3
1803	-38.21	78.38	3392.8	3
1805	-58.23	292.06	3381.2	3
1806	-63.48	301.73	3380.3	3
1807	-55.42	300.64	3380.9	3
1809	-48.97	309.95	3383.3	3
1810	-53.08	308.05	3382.2	4
1811	-49.57	319.12	3387.0	4
1812	-38.12	319.32	3390.3	4
1813	-39.47	328.56	3390.7	5
1314	-41.72	333.11	3390.3	6

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1815	-53.99	323.59	3385.8	7
1816	-62.80	328.81	3383.6	7
1817	-57.84	335.19	3385.6	4
1818	-39.02	350.24	3391.7	4
1819	-44.73	349.32	3390.1	6
1820	-41.68	343.38	3390.8	5
1821	-55.45	349.39	3387.4	4
1822	-51.85	342.69	3388.1	4
1823	-30.41	345.28	3393.4	3
1824	-64.17	352.53	3385.0	4
1825	-35.99	356.55	3391.3	3
1826	-40.91	353.76	3390.5	5
1827	-53.27	1.30	3385.4	4
1828	-49.14	355.61	3387.5	4
1829	-60.46	1.17	3383.8	5
1830	-45.00	15.49	3387.9	5
1831	-37.76	8.24	3389.9	2
1832	-50.85	1.95	3386.0	3
1833	-52.15	15.06	3386.0	4
1834	-41.92	3.16	3389.1	6
1835	-62.98	18.05	3383.4	5
1836	-55.71	15.83	3385.1	4
1837	-44.76	24.37	3387.8	7
1838	-36.67	21.19	3390.1	3
1839	-34.53	30.79	3390.3	4
1840	-61.14	34.92	3383.8	5
1841	-58.01	35.27	3384.5	5
1842	-52.28	27.43	3385.8	5
1843	-46.40	32.29	3387.4	4
1844	-38.02	40.68	3390.1	2
1845	-43.69	45.14	3388.7	4
1846	-28.66	46.03	3393.3	3
1847	-36.15	50.08	3391.5	4
1848	-48.79	51.68	3387.3	7
1849	-55.50	56.01	3385.1	7
1850	-60.93	56.25	3383.6	5
1851	-57.08	47.38	3384.9	4
1852	-32.60	62.83	3394.3	3
1853	-41.83	56.60	3389.5	3
1854	-40.56	62.98	3390.4	3
1855	-36.13	63.74	3392.6	3
1856	-48.86	63.27	3387.2	7
1857	-52.21	67.53	3386.1	3
1858	-57.53	67.56	3384.4	2

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1859	-62.97	83.65	3383.5	2
1860	-46.79	80.66	3389.1	3
1861	-41.82	78.35	3391.1	3
1862	-36.91	70.43	3392.9	4
1863	-55.55	93.46	3386.2	3
1864	-30.89	82.93	3396.5	2
1865	-37.29	85.92	3393.5	2
1866	-38.17	78.36	3392.8	4
1869	-45.67	111.71	3391.1	3
1870	-37.18	106.53	3394.1	2
1873	-51.75	110.11	3389.0	2
1874	-61.86	118.10	3384.3	2
1875	-53.33	269.73	3384.8	2
1877	-52.59	259.58	3385.1	4
1878	-39.87	259.65	3388.4	4
1879	-52.80	251.50	3385.6	5
1880	-50.22	241.80	3386.8	7
1881	-37.93	250.87	3390.4	5
1882	-41.29	234.77	3389.2	5
1883	-43.06	240.93	3388.5	5
1884	-48.29	230.01	3387.3	5
1885	-55.40	230.58	3385.3	4
1886	-56.74	243.88	3384.6	4
1887	-33.23	233.54	3391.9	5
1888	-36.86	221.52	3391.1	4
1889	-41.97	219.21	3390.0	6
1890	-53.71	224.38	3386.2	5
1891	-57.45	223.33	3385.3	4
1892	-61.05	205.61	3385.0	5
1893	-51.16	213.82	3387.8	7
1894	-56.72	206.09	3386.3	3
1895	-39.56	208.34	3390.8	2
1896	-38.37	201.86	3391.0	3
1897	-46.21	196.13	3388.9	4
1898	-38.13	188.67	3391.0	3
1899	-36.08	194.57	3391.6	3
1900	-61.57	191.22	3384.3	5
1901	-65.60	182.36	3384.2	4
1902	-53.10	166.83	3387.3	4
1903	-53.30	177.45	3387.2	6
1904	-55.20	173.28	3386.8	5
1905	-44.16	168.39	3389.5	5
1906	-37.38	173.12	3391.1	3
1907	-40.76	148.29	3390.7	4

AREOCENTRIC

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
1908	-36.86	155.84	3391.4	5
1909	-41.23	153.88	3390.3	6
1910	-48.04	147.24	3388.6	4
1911	-55.58	143.02	3385.8	7
1912	-40.89	142.66	3390.9	5
1913	-31.38	130.90	3394.9	3
1914	-48.85	131.39	3388.4	5
1915	-57.74	122.02	3385.6	3
2200	-28.11	319.94	3393.6	2
2201	-27.19	320.67	3393.9	2
2202	-28.40	320.00	3393.5	2
2203	-26.01	321.87	3394.2	2
2204	-27.31	317.82	3393.1	2
2206	-26.95	318.07	3393.3	2
2207	-26.13	317.21	3393.3	2
2208	-22.43	319.93	3394.8	2
2209	-24.37	322.83	3394.6	2
2210	-23.77	322.44	3394.7	2
2211	-24.10	320.76	3394.5	2
2212	-19.81	323.86	3395.6	2
2213	-20.79	321.98	3395.3	2
2214	-21.35	321.16	3395.1	2
2215	-22.10	318.04	3394.7	2
2216	-23.21	317.49	3394.3	2
2217	-22.81	318.98	3394.6	2
2218	-21.86	318.42	3394.8	2
2219	-19.41	319.96	3395.5	2
2220	-18.77	320.64	3395.7	2
2221	-18.16	319.07	3395.9	2
2222	-17.85	318.53	3396.0	2
2224	-21.04	317.17	3394.9	2
2225	-20.83	313.94	3394.8	2
2226	-21.81	314.82	3394.5	2
2227	-18.18	311.53	3395.8	2
2228	-17.42	313.04	3396.1	2
2229	-16.98	313.88	3396.3	2
2230	-17.70	312.39	3396.0	3
2231	-19.18	315.61	3395.5	2
2232	-18.38	316.50	3395.8	2
2233	-16.97	316.35	3396.3	2
2235	-14.96	322.43	3396.9	2
2236	-15.35	321.48	3396.8	2
2237	-14.62	322.51	3397.0	2
2238	-15.20	321.64	3396.8	2

Table 2--continued

Point	Latitude, ϕ°	W.Longitude, λ°	Radius, km	No. of Frames
2239	-12.48	315.47	3397.8	3
2241	-15.67	317.59	3396.7	2
2242	-16.13	316.90	3396.6	2
2243	-16.02	314.15	3396.7	2
2245	-16.22	312.19	3396.6	2
2246	-14.43	313.07	3397.3	2
2247	-14.02	308.34	3397.5	2
2248	-13.54	309.32	3397.7	2
2251	-13.18	313.93	3397.7	2
2252	-12.25	314.31	3398.0	2
2253	-12.02	315.27	3398.0	2
2254	-10.89	319.24	3398.1	2
2256	-11.66	317.30	3398.0	2
2259	-8.65	314.59	3398.8	2
2260	-9.89	314.64	3398.7	2
2263	-9.64	310.77	3399.0	3
2264	-11.40	311.53	3398.4	2
2265	-12.36	309.84	3398.2	2
2266	-10.12	311.19	3398.9	3
2267	-8.59	307.90	3398.9	2
2268	-7.38	310.17	3399.1	3
2269	-9.11	306.40	3398.8	2
2270	-9.54	306.13	3398.8	2
2272	-8.02	307.14	3398.9	2
2273	-7.23	307.64	3398.9	2
2274	-4.17	309.54	3399.1	2
2275	-8.53	311.99	3399.0	2
2277	-8.34	311.64	3399.0	2
2278	-5.73	317.88	3399.1	2
2279	-6.50	316.70	3399.0	2
2280	-7.49	313.74	3399.0	2
2281	-6.16	316.92	3399.0	2
2282	-4.15	312.91	3399.1	2
2283	-3.49	312.25	3399.1	3
2284	-5.69	312.31	3399.1	2
2285	-6.40	313.48	3399.0	2
2286	-4.12	305.95	3398.8	2
2287	-4.46	304.26	3398.6	2
2288	-3.58	306.85	3398.8	2
2289	-3.79	308.18	3398.9	2
2290	-3.03	313.80	3399.2	2
2291	-2.48	317.93	3399.4	2
2292	-1.38	315.94	3399.3	2
2294	1.55	310.91	3398.8	2

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Table 2--continued

Point	Latitude, $\phi°$	W.Longitude, $\lambda°$	Radius, km	No. of Frames
2295	2.98	312.32	3398.7	2
2296	2.52	315.39	3399.0	2
2297	3.04	316.86	3399.1	2
2298	0.71	302.31	3398.2	2
2299	1.12	303.52	3398.2	2
2300	0.96	305.94	3398.4	2
2301	0.69	308.82	3398.7	2
2302	6.10	300.34	3397.3	3
2303	5.76	301.92	3397.5	3
2304	5.36	303.52	3397.7	3
2305	5.05	305.85	3397.9	2
2307	10.75	301.00	3396.6	3
2309	9.24	298.93	3396.7	2
2310	10.27	304.27	3397.0	3
2311	5.67	310.80	3398.3	2
2313	8.05	310.21	3397.9	2
2314	8.88	309.25	3398.4	2

Table 3

AREOGRAPHIC COORDINATES OF THE CONTROL POINTS

Point	Latitude, $\phi'°$	W.Longitude, $\lambda°$	Elevation, km
0	-5.18	0.0	1.44
26	-15.82	3.80	2.29
27	-14.54	2.52	2.20
28	-20.43	4.41	2.62
31	-5.95	359.05	1.59
33	-4.11	356.36	1.79
34	-3.72	0.54	1.70
35	-4.77	2.63	1.42
37	0.66	358.49	1.10
38	-3.83	0.97	1.38
49	-77.09	0.80	4.01
66	-80.26	353.51	5.89
70	-75.71	324.21	3.32
71	-75.41	307.73	2.97
138	-79.73	330.09	3.23
147	-69.67	42.60	4.15
148	-67.02	56.81	3.59
149	-71.21	26.40	4.15
150	-41.88	7.29	3.39
153	-37.79	2.97	3.45
160	-81.05	340.84	6.47
161	-78.09	358.90	4.24
162	-74.04	324.14	3.35
163	-78.75	143.44	4.32
166	-72.23	176.27	5.74
167	-72.20	163.87	5.14
168	-59.04	7.52	3.70
171	-72.75	258.10	3.63
172	-72.87	264.66	3.55
176	-83.28	353.23	5.36
177	-81.25	19.15	4.09
180	-49.01	10.50	3.57
181	-39.77	16.33	3.15
182	-53.79	32.37	3.61
183	-48.12	20.04	3.40
184	-32.12	101.06	8.83
186	-26.31	93.95	8.82
187	-33.44	75.53	6.80
189	-26.10	66.28	7.17
190	-42.39	68.01	4.84
191	-43.90	60.24	4.00
192	-52.03	56.88	3.78
193	-50.36	72.69	4.08
194	-45.45	74.16	4.88

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
195	-51.95	96.70	5.36
196	-30.98	48.31	3.76
197	-82.35	73.17	3.88
198	-67.05	17.22	4.00
199	-69.63	146.19	4.24
200	-42.14	195.97	4.47
201	-50.11	190.97	4.71
202	-55.70	185.13	4.36
203	-50.46	175.58	4.91
204	-40.41	177.88	4.24
205	-26.50	188.37	3.68
206	-32.54	186.21	4.05
207	-33.74	202.73	4.48
208	-34.12	210.10	4.09
209	-27.18	217.18	3.34
210	-27.91	207.99	3.72
211	-33.22	227.50	3.84
212	-36.84	212.41	4.47
213	-43.34	225.63	4.13
214	-39.94	229.61	3.80
215	-23.35	237.56	3.83
216	-67.44	343.00	5.78
221	-76.58	283.95	3.24
222	-75.98	281.68	3.15
223	-81.71	290.02	3.53
224	-78.53	254.11	3.30
229	-70.65	349.78	6.84
232	-69.22	359.47	3.96
233	-74.29	344.62	6.49
234	-68.93	298.10	1.80
236	-80.56	329.99	3.22
237	-74.44	235.18	3.72
238	-85.62	264.36	3.80
239	-78.19	230.55	3.45
240	-76.00	210.79	4.36
242	-64.02	317.61	2.79
243	-67.02	322.89	3.39
244	-70.86	311.63	2.79
245	-64.87	312.43	2.09
246	-70.44	285.08	2.80
248	-62.19	148.61	3.73
249	-55.41	152.29	4.58
250	-60.53	142.22	4.22
251	-65.57	131.25	4.46

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
252	-65.14	122.03	4.56
253	-69.84	114.93	4.39
254	-68.55	97.48	4.22
255	-70.33	92.20	4.28
256	-73.02	105.65	4.23
257	-72.11	81.99	3.92
258	-72.19	131.89	4.24
259	-77.25	128.55	4.13
261	-58.78	111.47	4.83
262	-53.35	125.09	5.18
263	-46.92	120.92	5.73
264	-42.72	119.78	6.24
265	-30.49	122.36	6.69
266	-36.76	128.43	5.85
267	-28.82	114.92	7.45
268	-55.71	78.03	4.06
269	-62.81	70.82	3.49
270	-62.50	44.01	3.91
271	-30.86	65.49	6.59
272	-38.21	52.96	4.28
273	-32.39	51.73	4.80
274	-20.45	45.72	2.93
275	-33.41	39.67	3.09
276	-42.88	34.40	3.19
277	-52.78	41.36	3.81
278	-30.52	25.91	2.60
279	-32.44	18.60	2.92
280	-39.08	25.66	2.94
281	-53.85	20.93	3.62
282	-60.09	23.44	3.88
283	-46.14	9.55	3.39
284	-63.99	259.35	3.88
285	-63.07	231.31	3.95
286	-49.02	260.08	2.47
287	-21.06	269.52	2.95
288	-23.25	278.80	2.11
289	-61.40	252.65	3.63
290	-44.63	248.23	3.63
291	-33.00	245.44	3.67
292	-32.79	256.74	2.81
293	-49.37	237.78	3.78
294	-40.20	243.39	3.38
295	-49.29	219.01	4.66
296	-64.12	209.91	5.11

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
297	-27.94	233.25	3.92
298	-33.81	219.38	3.80
299	-43.84	215.13	4.69
300	-48.38	205.97	5.18
301	-44.51	203.45	4.79
303	-43.70	189.80	4.54
304	-64.06	197.00	4.80
305	-70.04	71.78	3.53
306	-77.07	71.29	3.81
307	-53.33	197.07	5.07
308	-40.36	185.65	4.33
309	-47.58	183.16	4.63
310	-32.69	195.72	4.49
312	-61.06	177.15	5.64
313	-69.16	198.58	4.65
314	-32.53	175.91	3.74
315	-47.90	172.67	4.83
316	-33.30	165.87	3.36
317	-60.67	165.27	5.63
318	-46.81	162.13	4.70
319	-37.25	161.31	4.29
320	-42.39	152.12	5.14
321	-61.95	133.11	4.57
322	-34.21	151.64	4.41
323	-49.51	152.62	5.03
324	-35.30	156.04	4.85
325	-34.91	144.60	4.61
326	-31.45	160.01	3.95
327	-43.09	145.14	4.96
328	-55.67	136.55	4.65
329	-47.23	137.74	4.83
330	-33.52	128.99	6.22
331	-34.04	11.69	2.86
332	-32.31	116.47	6.88
333	-37.06	115.36	6.84
334	-46.09	126.62	5.38
335	-34.11	0.23	3.48
336	-46.07	1.38	3.47
337	-56.24	8.54	3.71
338	-60.43	11.91	3.77
339	-28.25	2.14	3.00
340	-33.21	352.82	4.33
341	-47.96	345.79	5.55
342	-57.82	354.12	5.16

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
343	-35.10	339.14	4.77
344	-25.61	344.15	4.35
345	-23.46	352.66	3.76
346	-49.59	335.58	5.05
347	-61.54	339.01	5.06
348	-35.38	331.70	4.75
349	-24.75	333.05	4.55
350	-42.08	337.94	5.05
351	-46.71	325.16	4.17
352	-56.74	339.69	5.26
353	-59.26	322.72	3.56
354	-27.23	324.11	4.35
355	-35.77	322.89	4.16
356	-67.87	245.26	3.47
357	-70.76	327.96	3.57
358	-65.54	335.50	4.75
359	-73.09	57.37	3.59
361	-72.09	294.60	2.52
362	-72.43	276.36	3.18
363	-68.93	216.84	4.90
364	-54.38	329.09	4.28
365	-69.31	45.44	4.08
366	-70.42	56.94	3.50
367	-73.55	317.23	3.07
368	-80.36	82.05	3.60
369	-67.79	18.89	4.06
375	-57.47	312.96	1.46
376	-43.81	323.77	4.18
377	-43.58	315.44	1.91
378	-31.09	316.32	2.65
379	-34.13	314.66	1.79
380	-53.29	316.93	2.76
381	-45.83	305.01	-1.40
382	-77.51	54.44	3.77
383	-75.29	82.83	3.85
384	-73.14	100.06	4.20
385	-53.03	153.83	4.88
386	-61.62	305.17	0.88
387	-61.54	290.05	1.26
388	-54.41	309.18	0.29
389	-59.26	270.02	3.16
390	-50.45	247.86	3.61
391	-48.37	271.09	2.18
392	-43.86	255.91	2.89

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
393	-36.15	263.86	1.97
394	-25.05	265.27	2.72
397	-24.57	275.60	1.91
400	10.06	136.94	2.43
401	10.94	135.37	6.13
403	19.36	140.81	0.61
404	20.93	137.16	15.50
405	18.68	131.83	24.78
406	22.18	131.52	9.68
407	23.29	136.59	15.12
408	11.88	124.90	5.74
409	11.37	121.80	6.08
410	10.87	119.37	6.42
411	16.28	127.48	4.57
413	19.69	119.84	5.17
414	24.65	128.06	2.93
415	8.42	119.63	7.07
416	7.05	120.80	7.36
417	3.69	121.55	8.17
418	16.93	119.21	5.67
419	15.37	117.49	6.12
420	23.43	119.45	4.76
421	23.78	117.46	4.83
422	3.06	111.32	9.25
423	7.99	112.90	8.04
424	24.82	109.92	4.87
425	19.01	111.13	6.25
426	17.65	114.21	6.20
427	9.64	102.44	6.29
428	8.65	107.87	7.79
429	16.85	103.39	5.36
430	8.64	112.24	7.99
433	11.45	97.67	5.38
434	17.04	101.06	4.89
435	18.26	95.21	4.41
436	22.09	103.32	4.86
437	25.30	102.53	4.08
438	25.55	98.91	3.64
439	24.53	91.64	3.60
440	26.74	92.19	3.43
441	27.77	89.55	3.18
442	28.52	87.85	3.07
443	24.55	89.83	3.61
444	22.13	89.35	3.87

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
445	21.61	81.00	3.36
446	13.20	83.30	4.31
447	13.78	79.85	3.89
449	4.52	82.59	5.11
450	15.81	82.29	3.86
451	20.31	77.23	3.20
452	28.49	79.55	2.96
453	25.46	81.11	3.22
454	11.61	76.93	3.90
455	1.28	72.02	4.51
456	7.79	72.96	4.02
457	11.83	72.45	3.63
458	11.45	69.08	3.48
459	20.13	71.94	2.96
460	18.17	72.62	3.09
461	19.57	68.47	2.75
462	27.00	71.22	1.89
463	23.35	72.27	2.53
464	20.80	64.22	2.29
465	25.33	63.69	1.49
466	16.81	64.32	2.66
467	11.42	64.45	3.08
468	6.87	64.23	3.35
470	12.87	60.73	2.56
471	20.82	58.57	1.70
472	13.30	54.07	1.82
473	10.20	55.43	2.15
475	11.56	50.78	1.50
476	16.56	54.42	1.51
477	20.16	56.26	1.47
478	23.11	55.97	1.08
479	20.41	47.78	0.42
480	24.87	47.11	0.18
481	19.43	45.31	0.42
482	12.99	45.90	1.08
483	19.61	42.07	0.26
484	10.67	40.12	1.00
485	7.59	46.05	1.60
486	2.60	46.35	2.14
487	19.63	29.81	-0.64
488	10.85	34.90	0.52
489	12.03	25.41	-0.04
490	8.43	25.35	0.27
491	17.35	24.92	-0.35

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
492	19.89	24.02	-0.49
493	23.72	26.81	-0.78
494	26.95	25.75	-1.02
495	19.56	15.74	-0.35
496	25.31	17.46	-0.62
497	19.77	12.08	-0.31
498	19.19	19.99	-0.32
500	11.28	17.27	0.07
501	4.87	16.34	0.53
502	11.16	12.12	0.15
503	10.26	16.10	0.15
504	10.97	6.65	0.23
505	0.37	6.86	1.00
506	15.90	7.20	-0.10
507	19.08	7.44	-0.24
508	25.99	7.62	-0.65
509	18.45	2.63	-0.16
510	10.16	2.70	0.24
511	8.42	1.52	0.37
512	11.10	358.79	0.24
513	5.05	358.06	0.83
514	15.46	357.81	0.14
515	18.73	358.17	-0.01
516	13.42	355.29	0.54
517	8.88	355.08	0.81
518	5.85	354.39	1.18
519	11.48	354.69	0.69
520	13.34	353.22	0.42
521	15.01	355.09	0.47
522	15.41	350.83	0.73
523	0.29	2.72	1.00
524	2.21	2.53	0.83
525	6.75	358.22	0.64
526	1.98	38.57	1.62
527	5.00	33.92	1.43
528	4.09	33.71	0.99
529	6.16	35.03	0.90
530	9.08	37.28	0.83
531	10.53	31.38	0.18
532	15.45	34.71	0.13
533	18.27	29.03	-0.49
534	12.62	30.98	0.03
535	9.71	346.32	1.59
536	9.29	345.63	1.65

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
537	14.29	344.95	1.36
538	12.77	338.92	2.05
539	14.52	346.11	1.19
540	10.52	343.12	1.38
542	13.62	347.03	0.87
543	20.66	345.51	0.87
544	22.07	338.15	1.46
545	11.27	336.88	2.56
546	5.23	338.83	2.64
547	10.33	331.90	3.51
548	11.14	329.73	3.85
549	15.93	337.28	2.11
550	19.53	336.48	1.84
551	18.94	332.96	2.43
552	19.38	329.11	3.02
553	24.43	336.75	1.58
554	27.27	337.35	1.26
555	6.79	328.08	4.44
556	9.28	328.81	4.15
557	10.31	321.57	5.06
558	12.04	323.51	4.66
560	16.00	329.62	3.32
561	19.13	324.64	3.77
562	19.69	320.50	4.47
563	23.55	328.39	2.78
564	26.34	327.57	2.73
567	7.72	319.71	5.51
568	10.14	317.42	5.14
569	10.22	311.64	4.75
570	13.88	320.99	4.90
571	15.61	319.80	4.86
572	18.66	318.19	4.46
573	17.55	312.11	4.28
574	22.22	321.04	4.09
575	23.79	318.67	4.13
577	7.61	312.30	5.00
578	4.98	311.34	5.13
579	12.28	309.67	4.49
580	12.26	305.71	4.08
581	11.42	302.58	3.88
582	12.27	311.96	4.59
583	15.04	312.31	4.47
584	21.79	312.38	3.90
585	26.12	310.79	3.58

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
586	20.05	305.94	3.55
587	21.26	307.05	3.59
588	19.56	301.31	3.05
589	6.36	303.86	4.41
590	9.13	303.22	4.14
591	9.98	301.39	3.92
592	9.94	295.70	3.62
593	8.99	294.28	3.62
594	15.00	303.45	3.66
595	18.61	303.12	3.37
596	18.17	298.02	2.99
597	18.02	294.80	2.87
598	23.46	304.04	3.16
599	26.76	300.60	2.63
600	23.83	293.33	2.44
601	25.73	294.50	2.38
602	19.00	296.38	2.84
603	19.22	286.11	2.49
604	18.51	289.15	2.65
605	13.84	293.88	3.19
606	9.93	287.54	3.32
607	10.65	290.62	3.39
608	4.60	294.12	3.91
609	1.33	296.38	4.31
610	6.38	285.43	3.55
611	2.97	285.63	3.85
612	11.28	285.31	3.17
613	11.08	280.66	3.04
614	11.22	277.16	3.16
615	17.22	286.35	2.72
616	13.75	285.61	2.98
617	20.02	283.40	2.44
618	19.74	278.61	2.38
619	23.44	287.53	2.35
620	25.66	284.89	2.07
621	22.63	277.85	2.18
622	24.91	275.41	2.09
623	17.31	275.09	2.74
624	16.96	280.05	2.58
625	15.38	278.83	2.72
626	13.57	277.15	2.96
628	8.19	275.08	3.45
629	6.44	276.69	3.62
631	6.16	279.49	3.50

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
632	18.33	350.84	0.62
633	19.23	350.11	0.59
634	3.86	270.39	3.98
635	2.83	269.78	4.14
636	6.00	268.99	3.79
637	6.42	270.62	3.82
638	8.15	268.47	3.65
639	3.46	266.55	3.96
640	4.76	264.82	3.72
641	8.18	266.56	3.65
642	7.92	264.73	3.63
643	17.06	268.38	3.00
644	14.35	268.73	3.17
645	13.30	268.68	3.32
646	12.37	268.34	3.30
647	12.64	266.01	3.33
648	11.19	267.87	3.46
649	10.49	261.59	3.48
650	13.16	256.37	2.80
651	14.72	264.32	3.22
652	15.18	260.57	3.19
653	16.96	266.48	3.08
654	20.31	258.89	2.80
655	21.29	253.09	2.59
656	28.67	256.12	1.51
657	26.70	256.63	1.82
658	23.91	258.40	2.26
659	19.46	250.69	1.63
660	21.03	254.45	2.04
661	18.89	257.44	2.72
662	16.69	257.04	2.73
663	12.68	249.19	1.94
664	11.77	253.24	2.52
665	7.84	257.06	3.12
666	6.11	258.19	3.30
667	2.76	257.39	3.34
668	12.76	247.62	1.95
669	10.03	248.72	2.13
670	6.65	249.51	2.43
671	4.61	248.07	2.61
672	1.99	248.27	2.82
673	11.67	239.10	1.81
674	11.40	244.65	1.98
675	15.92	248.93	1.71

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
676	17.31	249.61	1.64
677	20.62	241.20	1.36
678	20.30	243.74	1.40
679	20.19	246.38	1.37
680	21.93	248.81	1.43
681	23.72	250.10	1.42
682	26.24	249.43	1.30
683	27.83	247.59	1.20
684	22.87	238.96	1.13
685	23.44	242.11	1.15
686	25.81	239.79	0.90
687	18.20	242.03	1.50
688	17.30	238.15	1.44
689	17.26	231.89	0.83
690	13.31	241.78	1.82
691	15.43	240.28	1.64
692	10.15	238.96	1.94
693	9.22	241.04	2.15
694	8.72	236.94	1.80
695	8.70	231.55	1.10
696	6.44	239.72	2.22
697	2.29	242.67	2.63
698	1.94	240.75	2.62
699	10.01	231.02	1.03
700	6.02	231.32	1.09
701	12.44	229.76	0.81
702	12.45	221.16	0.11
703	21.89	227.48	0.42
704	21.32	224.83	0.20
705	21.69	222.02	-0.12
706	29.98	229.44	0.95
707	28.39	221.85	-0.06
708	29.22	228.29	0.75
709	27.33	221.12	-0.13
710	9.82	221.46	0.21
711	8.07	220.60	0.04
712	5.96	220.59	0.09
713	3.89	221.63	0.08
714	2.33	221.40	0.13
715	11.96	215.48	-0.05
716	12.13	213.38	-0.03
717	14.87	222.46	0.14
718	20.44	220.64	-0.28
719	20.64	217.74	-0.14

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
720	20.09	213.11	0.45
721	24.82	221.68	-0.13
722	23.72	211.59	0.62
723	26.83	211.81	0.55
724	27.54	208.31	0.93
725	25.55	209.10	0.84
726	26.55	202.36	1.38
727	21.72	206.45	0.48
728	20.75	200.87	-0.22
729	19.12	206.57	0.27
730	17.34	200.27	-0.26
731	13.80	208.24	0.09
732	13.13	205.42	-0.00
733	13.96	202.46	0.01
734	13.14	201.44	-0.00
735	4.42	199.87	0.10
736	8.97	200.40	0.12
737	11.10	199.63	0.14
738	13.59	198.73	-0.14
739	13.40	193.19	-0.37
740	12.14	190.97	-0.53
741	23.87	201.75	0.75
742	27.49	200.54	1.91
743	20.67	197.22	-0.23
744	20.72	195.10	-0.22
745	20.52	190.60	-0.16
746	17.33	191.09	-0.36
747	15.30	190.41	-0.39
748	13.24	189.40	-0.59
749	12.78	184.86	-0.85
750	11.65	181.49	-1.09
751	20.79	185.54	-0.21
752	20.83	181.11	-0.40
753	3.32	178.33	-0.24
754	1.94	178.11	-0.08
755	2.74	172.33	0.14
756	13.50	178.01	-0.95
757	13.28	175.86	-0.88
758	17.75	182.87	-0.48
759	14.98	181.60	-0.84
760	20.56	178.62	-0.46
761	20.67	177.08	-0.43
762	19.91	174.84	-0.48
763	22.42	181.23	-0.57

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
764	24.70	181.30	-0.66
765	26.61	182.61	-0.61
766	27.96	180.52	-1.07
768	13.95	170.07	-0.69
769	12.85	169.45	-0.64
770	12.84	168.42	-0.64
771	5.59	163.38	0.36
772	6.80	163.05	0.24
773	10.20	152.57	0.15
774	5.10	152.82	0.64
775	7.80	145.47	1.62
780	11.58	188.82	-0.70
781	6.25	188.19	-0.59
782	2.90	188.32	-0.46
783	6.90	185.82	-0.75
785	7.60	174.85	-0.70
786	6.45	173.18	-0.38
787	6.45	177.07	-0.68
788	11.00	175.33	-0.97
789	9.89	172.34	-0.89
790	16.18	173.23	-0.65
791	9.51	169.29	-0.63
792	7.58	171.76	-0.50
793	16.04	170.60	-0.67
794	15.61	167.99	-0.64
795	10.94	165.00	-0.37
796	6.93	168.41	-0.15
797	9.05	157.59	0.23
798	11.91	170.28	-0.76
799	26.57	345.75	0.48
800	-26.39	9.25	2.64
801	-26.97	7.65	2.68
802	-24.43	6.05	2.68
803	-27.11	14.78	2.52
804	-24.04	15.05	2.29
805	-23.19	9.11	2.60
806	-18.57	4.66	2.46
807	-17.13	8.42	2.41
808	-24.03	7.78	2.69
809	-23.13	7.53	2.69
810	-23.03	4.40	2.67
811	-21.32	5.63	2.60
812	-22.73	6.25	2.70
813	-19.17	1.33	2.48

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
814	-17.71	3.61	2.41
815	-14.04	3.25	2.12
817	-12.53	1.23	2.02
818	-15.05	358.86	2.27
819	-8.71	2.62	1.70
820	-9.69	0.74	1.79
822	-10.71	356.21	2.30
823	-7.67	358.49	1.81
824	-14.33	6.85	2.17
825	-4.68	0.51	1.42
826	-4.26	2.40	1.40
827	-5.42	358.71	1.55
828	-3.79	358.46	1.48
829	-8.66	5.15	1.69
830	-10.75	11.76	1.70
831	-10.47	10.38	1.77
832	-9.00	10.66	1.63
833	-6.96	14.16	1.26
834	-5.16	9.61	1.44
835	-4.24	9.49	1.30
836	-3.11	12.21	1.15
837	1.34	8.19	0.91
838	2.56	10.41	0.73
839	-12.54	14.97	1.62
840	-16.83	13.47	1.96
841	-16.34	12.55	2.08
842	-14.19	11.90	1.94
843	-15.38	13.50	1.92
844	-18.97	9.34	2.54
845	-13.21	10.11	2.01
846	-8.90	7.48	1.72
847	-22.49	10.62	2.55
848	-18.74	12.19	2.20
849	-18.37	14.55	1.93
850	-23.19	13.99	2.30
851	-17.84	16.20	1.73
852	-22.72	16.51	2.10
853	-22.44	15.37	2.14
854	-20.43	14.62	2.12
856	-21.81	10.37	2.60
857	-23.64	16.20	2.20
858	-22.72	17.54	2.00
859	-21.50	19.71	1.74
861	-25.57	16.91	2.34

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
862	-24.24	2.80	2.83
863	-22.14	0.31	2.67
864	-21.58	355.87	3.25
865	-20.39	-0.07	2.61
866	-17.67	358.97	2.50
867	-14.99	358.09	2.46
868	-16.76	353.93	3.05
869	-12.67	356.17	2.44
870	-11.97	351.85	2.95
871	-11.20	353.95	2.66
872	-9.77	356.55	2.20
873	-5.19	355.50	1.94
874	-9.07	354.79	2.33
875	-5.90	353.25	2.28
876	-6.46	352.30	2.42
877	-2.09	350.14	2.22
878	-2.45	352.20	2.03
879	-0.66	353.53	1.80
880	3.24	348.52	1.96
881	3.99	354.67	1.28
882	-26.06	358.15	3.26
883	-24.16	358.98	3.02
884	-23.27	356.52	3.22
885	-25.02	358.11	3.11
886	-27.31	354.30	3.77
887	-20.33	353.18	3.50
888	-24.53	354.39	3.60
889	-22.70	355.26	3.39
890	-18.61	355.36	3.07
891	-17.91	353.24	3.25
892	-19.32	351.98	3.60
893	-14.04	352.85	3.02
894	-13.11	350.53	3.19
895	-15.21	349.17	3.50
896	-8.80	351.10	2.71
897	-10.06	352.71	2.63
898	-10.47	347.08	3.17
899	-9.27	348.73	2.95
900	-5.94	350.09	2.59
901	-8.57	347.61	2.99
902	-9.25	345.07	3.15
903	-8.41	343.98	3.17
904	-7.62	345.61	3.01
905	-4.59	341.03	3.11

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
906	-3.87	342.55	2.98
907	-2.74	343.84	2.74
908	-17.27	351.34	3.43
909	-17.80	348.55	3.73
910	-22.01	351.17	3.84
911	-23.92	12.00	2.46
912	-4.20	349.00	2.49
913	2.56	345.23	2.23
914	1.49	344.44	2.41
915	2.10	340.60	2.72
916	0.73	340.18	2.90
917	6.24	342.61	2.21
918	5.13	339.90	2.54
919	5.10	337.65	2.94
920	-24.53	195.78	3.70
921	-25.24	188.73	3.57
922	-28.58	190.72	3.89
923	-22.60	194.14	3.47
924	-2.59	178.94	0.44
925	-2.22	178.07	0.43
926	-3.64	175.56	0.77
927	-7.09	175.31	1.17
928	-5.25	175.81	0.95
929	-9.49	178.53	1.17
930	-10.22	178.55	1.25
931	-10.77	176.47	1.51
932	-9.39	176.16	1.36
933	-10.74	174.46	1.70
934	-9.37	173.68	1.56
935	-11.22	172.98	1.86
936	-14.48	174.06	2.19
937	-15.28	174.52	2.31
938	-11.78	180.27	1.42
939	-12.61	178.37	1.63
940	-13.74	177.43	1.88
941	-14.32	178.16	1.86
942	-15.35	178.41	2.02
946	-15.78	183.73	2.19
947	-16.75	180.96	2.15
948	-17.60	178.92	2.29
949	-16.35	185.00	2.38
950	-17.42	185.79	2.56
951	-18.75	184.26	2.70
952	-19.13	186.38	2.87

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
954	-20.24	185.86	2.98
955	-21.47	183.40	2.93
956	-17.22	188.41	2.72
957	-21.95	184.37	3.03
958	-22.82	186.16	3.22
959	-22.24	187.82	3.29
960	-24.11	187.54	3.41
961	-24.07	188.75	3.50
962	-21.82	190.50	3.31
963	-18.03	180.28	2.27
964	-19.75	180.59	2.59
965	-19.41	181.83	2.62
966	-21.14	180.41	2.66
969	-22.51	190.64	3.35
970	-24.42	191.04	3.58
971	-23.82	194.17	3.54
972	-25.86	193.27	3.81
973	-17.78	189.16	2.82
974	-18.36	188.47	2.93
975	-19.62	189.32	3.06
976	-19.36	191.48	3.11
977	-12.70	187.08	2.04
978	-14.02	186.83	2.22
979	-14.17	188.62	2.34
980	-15.13	187.73	2.38
981	-15.82	189.54	2.69
982	-16.74	188.50	2.64
988	-19.71	194.66	3.08
989	-21.35	191.92	3.31
991	-15.91	191.46	2.71
992	-16.72	189.59	2.74
993	-11.80	188.64	2.13
994	-7.58	185.34	1.20
995	-2.65	186.76	0.34
996	-2.74	185.80	0.34
997	-7.22	184.70	1.07
999	-3.67	184.00	0.47
1000	-5.03	185.77	0.73
1001	-4.54	183.67	0.61
1002	-6.19	183.72	0.90
1003	-5.24	179.98	0.65
1004	-24.13	139.55	4.41
1005	-25.29	145.98	4.18
1006	-25.18	143.35	4.25

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1007	-23.67	143.21	4.31
1008	-21.20	140.44	4.48
1009	-20.97	138.56	4.73
1010	-23.29	140.93	4.42
1011	-25.31	140.64	4.30
1012	-18.75	138.77	4.60
1013	-19.89	140.49	4.51
1014	-17.04	141.38	4.09
1015	-16.87	137.97	4.67
1016	-15.78	136.93	4.79
1017	-13.72	136.58	4.78
1018	-13.32	137.85	4.42
1019	-14.83	133.12	5.64
1020	-14.40	131.93	5.88
1021	-13.61	130.06	6.36
1022	-11.06	131.83	5.84
1023	-10.48	132.29	5.67
1024	-12.41	130.71	6.10
1025	-30.79	143.22	4.27
1026	-32.06	147.66	4.41
1027	-27.93	150.54	4.22
1028	-14.68	129.38	6.62
1029	-15.54	129.48	6.55
1030	-13.68	127.61	7.57
1031	-14.48	125.51	8.49
1032	-13.39	126.67	8.13
1033	-11.02	128.28	7.34
1034	-10.79	126.94	8.31
1035	-10.22	123.05	7.75
1036	-8.74	126.08	7.20
1037	-7.61	123.95	7.70
1038	-8.28	123.92	7.66
1039	-17.62	178.06	2.29
1040	-19.27	177.38	2.60
1041	-10.05	121.44	8.03
1042	-6.96	121.60	8.36
1043	-7.16	120.10	8.67
1044	-5.15	121.83	8.54
1045	-4.47	123.55	8.11
1046	-3.15	126.38	7.45
1047	0.86	121.01	9.20
1048	-2.53	120.49	9.23
1049	1.97	122.77	8.42
1050	5.56	123.50	7.26

AREOGRAPHIC

Table 3--continued

Point	Latitude, $\phi'°$	W.Longitude, $\lambda°$	Elevation, km
1051	3.74	119.21	8.57
1052	4.21	116.66	8.59
1053	1.17	124.78	8.01
1054	-15.62	133.11	5.66
1056	-14.91	131.95	5.95
1060	-24.57	43.66	3.11
1061	-22.46	47.53	3.34
1062	-24.96	45.91	3.40
1063	-25.88	47.21	3.72
1064	-22.65	48.88	3.48
1065	-23.01	50.45	3.76
1067	-17.87	50.82	3.54
1069	-21.21	49.22	3.28
1070	-18.87	46.53	2.92
1071	-18.91	48.31	3.13
1072	-20.07	48.64	3.15
1074	-19.20	43.06	2.68
1075	-13.56	47.65	3.06
1076	-15.37	47.18	3.02
1079	-17.59	45.60	2.89
1080	-12.09	44.68	2.76
1081	-13.83	44.50	2.79
1082	-10.91	45.61	2.82
1083	-14.36	40.94	2.37
1084	-7.31	45.66	2.68
1085	-10.03	44.58	2.73
1086	-7.75	43.50	2.52
1087	-9.17	41.86	2.44
1088	-7.75	42.14	2.42
1089	-5.12	43.20	2.34
1090	-6.24	43.63	2.51
1091	-9.68	38.72	2.09
1092	-3.81	41.39	2.18
1093	-3.34	38.64	1.98
1094	-2.18	43.96	2.33
1095	-3.52	43.47	2.37
1096	1.30	41.18	1.91
1097	-0.22	43.54	2.20
1098	0.07	37.17	1.70
1099	-2.50	40.60	2.03
1100	-26.60	231.91	3.89
1101	-24.96	235.25	3.90
1102	-24.88	233.76	3.88
1103	-26.10	232.53	3.87

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1104	-28.80	234.25	3.94
1105	-26.12	233.90	3.88
1106	-28.20	236.37	3.89
1107	-25.77	230.45	3.89
1108	-24.01	229.46	3.88
1109	-22.33	230.50	4.01
1110	-23.48	232.86	3.96
1111	-22.10	227.68	3.76
1112	-24.47	227.85	3.79
1113	-23.40	227.74	3.74
1114	-23.87	227.22	3.75
1115	-20.35	228.54	3.81
1116	-18.41	228.22	3.53
1117	-22.12	228.61	3.87
1118	-20.65	229.87	3.96
1119	-15.50	230.25	3.24
1120	-17.53	227.11	3.28
1121	-15.97	229.28	3.22
1122	-16.78	228.02	3.25
1123	-16.64	226.10	3.13
1124	-15.70	226.89	2.97
1125	-14.30	226.15	2.76
1126	-14.60	228.17	2.91
1127	-18.24	224.85	3.20
1128	-19.55	224.36	3.35
1129	-17.52	225.67	3.18
1130	-17.95	226.03	3.25
1131	-12.63	225.76	2.53
1132	-11.94	226.93	2.44
1133	-10.52	229.14	2.28
1134	-10.30	229.52	2.26
1135	-14.36	223.23	2.67
1136	-12.54	223.73	2.42
1137	-12.30	224.34	2.49
1138	-13.57	223.73	2.56
1139	-11.44	223.86	2.38
1141	-9.12	225.24	2.04
1142	-9.43	224.23	2.07
1143	-13.65	230.10	2.87
1144	-10.65	230.33	2.39
1145	-13.28	231.99	2.92
1146	-12.50	228.94	2.61
1147	-8.39	230.59	2.17
1148	-7.50	230.85	2.10

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1150	-9.01	227.98	2.03
1151	-8.08	226.04	1.84
1152	-8.13	227.08	1.95
1153	-8.14	221.55	1.75
1154	-8.51	222.34	1.88
1155	-9.68	220.07	2.09
1156	-9.66	221.00	2.09
1157	-5.29	223.04	1.25
1158	-4.75	223.42	1.12
1160	-6.37	222.24	1.41
1161	-7.87	223.61	1.73
1162	-5.98	227.03	1.59
1163	-6.89	225.41	1.65
1164	-5.53	227.61	1.56
1165	-3.11	222.35	0.75
1166	-2.37	223.12	0.63
1167	-1.10	226.16	0.71
1168	-1.87	223.76	0.62
1169	-7.91	232.46	2.33
1170	-10.56	233.77	2.68
1171	-12.39	234.14	3.00
1172	-9.34	234.74	2.66
1173	-6.79	234.46	2.44
1175	-4.98	236.93	2.63
1176	-6.14	235.83	2.60
1177	-5.25	230.91	1.75
1178	-6.92	232.44	2.15
1179	-4.65	232.78	2.01
1180	-3.26	229.89	1.36
1181	-2.34	231.58	1.53
1182	-2.31	232.79	1.73
1183	-1.29	234.48	1.91
1184	-1.69	236.43	2.32
1185	-1.11	233.14	1.61
1186	2.23	233.55	1.53
1187	4.12	235.28	1.79
1188	0.61	237.68	2.30
1189	3.45	226.68	0.66
1190	2.36	221.40	0.03
1191	1.90	228.22	0.72
1192	3.11	222.83	0.25
1193	-29.40	321.59	4.30
1194	-28.84	325.67	4.45
1195	-31.57	321.03	4.18

Table 3—continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1196	-30.62	324.91	4.42
1197	-29.67	324.61	4.47
1199	-29.11	317.13	3.13
1200	32.94	89.23	2.56
1201	32.15	96.23	2.84
1202	32.52	87.00	2.64
1203	34.12	81.84	2.49
1204	38.97	83.91	1.91
1205	39.74	80.30	1.84
1206	40.42	75.70	1.14
1207	42.24	89.58	1.40
1208	42.25	82.68	1.50
1209	44.18	78.82	1.19
1210	43.77	74.91	0.76
1211	40.93	69.64	0.30
1212	49.17	68.86	-0.48
1213	47.58	73.58	0.13
1215	27.29	76.71	2.66
1216	33.39	76.32	1.98
1217	32.86	72.67	1.43
1218	37.55	70.71	0.68
1219	39.57	66.23	0.19
1220	41.58	64.70	-0.11
1221	44.66	64.11	-0.36
1222	45.66	69.94	-0.05
1223	44.34	53.17	-0.86
1224	40.64	56.89	-0.39
1225	37.76	56.36	-0.25
1226	39.38	41.97	-1.27
1227	41.64	50.91	-0.79
1228	39.25	46.49	-0.91
1229	34.09	66.40	0.58
1230	32.26	67.11	0.87
1231	26.09	67.87	1.77
1232	27.10	55.95	0.71
1233	28.11	57.63	0.67
1234	28.91	59.45	0.57
1235	25.38	53.94	0.70
1236	32.43	56.58	0.21
1237	34.63	56.57	0.03
1238	34.37	52.14	-0.04
1239	33.49	50.46	0.01
1240	32.43	48.56	-0.09
1241	27.47	50.25	0.41

AREOGRAPHIC

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1242	26.40	43.24	-0.26
1243	27.13	40.14	-0.58
1244	30.16	51.15	0.30
1245	34.00	46.29	-0.45
1246	33.29	43.62	-0.75
1247	34.36	42.95	-0.84
1248	32.53	41.02	-0.96
1249	32.07	38.90	-1.09
1250	36.39	43.86	-0.86
1251	42.02	42.14	-1.47
1252	38.57	35.00	-1.61
1253	40.95	34.50	-1.69
1254	37.46	39.57	-1.34
1255	25.99	37.76	-0.65
1256	26.17	35.26	-0.81
1257	29.44	39.81	-0.89
1258	33.79	30.34	-1.50
1259	34.06	34.22	-1.43
1260	41.15	24.51	-1.73
1261	39.25	25.18	-1.61
1262	26.06	31.85	-1.04
1263	28.88	31.24	-1.24
1264	33.22	21.17	-1.06
1265	34.38	25.65	-1.34
1266	37.87	30.35	-1.72
1267	26.70	24.09	-0.88
1268	30.22	21.88	-0.98
1269	33.07	17.11	-1.01
1270	34.16	11.76	-1.10
1271	38.18	21.19	-1.43
1272	38.86	18.43	-1.33
1273	43.58	9.02	-1.49
1274	42.60	15.03	-1.59
1275	41.64	10.50	-1.39
1276	39.24	11.70	-1.31
1277	26.47	12.95	-0.74
1278	30.27	14.83	-0.97
1279	28.98	13.16	-0.91
1280	34.07	6.87	-1.03
1281	32.59	2.60	-0.84
1282	36.72	8.62	-1.16
1283	39.92	3.13	-1.21
1284	38.42	356.67	-0.96
1285	42.57	0.38	-1.30

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Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1286	43.16	356.73	-1.12
1287	41.72	355.18	-0.96
1288	26.73	2.82	-0.58
1289	26.10	357.95	-0.43
1290	31.07	5.91	-0.96
1291	34.13	0.15	-0.91
1292	32.80	357.62	-0.68
1293	34.12	353.83	-0.61
1294	41.54	350.40	-0.72
1295	40.34	348.38	-0.63
1296	26.90	355.37	-0.23
1297	26.51	349.85	0.07
1298	31.87	354.90	-0.54
1299	33.07	350.05	-0.31
1300	30.07	355.31	-0.43
1301	31.89	345.19	0.17
1302	36.11	352.56	-0.64
1303	40.33	343.68	-0.18
1304	38.74	338.60	0.44
1305	38.84	346.62	-0.33
1306	44.97	347.39	-0.47
1307	45.49	341.65	-0.51
1308	29.19	346.86	0.25
1309	32.83	340.73	0.53
1310	36.47	343.35	0.07
1311	40.76	334.39	0.85
1312	45.94	334.63	-0.07
1313	25.29	332.04	2.18
1314	31.24	337.57	0.99
1315	33.99	337.89	0.85
1316	32.46	333.31	1.52
1317	33.69	329.33	1.97
1318	35.18	332.57	1.49
1319	38.38	331.37	1.43
1320	41.47	327.62	1.46
1321	39.59	321.13	2.39
1322	48.75	330.58	-0.11
1323	40.54	324.46	1.98
1324	26.60	323.99	3.29
1325	29.42	328.33	2.41
1326	30.91	325.44	2.70
1327	32.35	324.81	2.69
1328	33.06	317.38	3.19
1329	34.19	322.90	2.71

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Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1330	37.96	323.52	2.30
1331	39.76	315.81	2.45
1332	40.18	310.05	2.37
1333	47.39	319.18	1.08
1334	44.91	320.35	1.51
1335	26.49	315.04	3.66
1338	34.30	312.91	2.94
1339	33.83	308.18	2.81
1340	37.35	311.24	2.62
1341	39.62	306.50	2.30
1342	44.00	306.72	1.74
1343	48.24	306.31	1.14
1344	28.00	305.72	3.04
1345	27.56	309.62	3.33
1346	30.65	309.20	3.13
1347	32.94	303.59	2.56
1348	33.29	298.92	2.15
1349	35.67	301.87	2.23
1350	35.76	305.70	2.46
1351	41.87	299.04	1.78
1352	39.93	297.71	1.90
1353	39.02	292.82	1.62
1354	44.61	295.92	1.52
1355	45.30	302.52	1.63
1356	28.98	300.72	2.49
1357	30.66	298.47	2.23
1358	33.91	292.79	1.93
1359	33.07	288.43	1.79
1360	38.05	295.81	1.83
1361	35.39	292.43	1.85
1362	41.38	294.66	1.63
1363	27.00	292.34	2.29
1364	41.50	287.31	1.27
1365	39.48	289.30	1.46
1366	45.27	290.21	1.13
1367	36.51	288.44	1.58
1368	34.56	284.48	1.61
1369	38.23	284.36	1.39
1370	41.97	283.16	1.21
1371	40.36	273.07	1.13
1372	23.07	276.52	1.86
1375	33.83	275.94	1.51
1376	33.44	278.95	1.50
1377	32.56	273.38	1.65

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Table 3--continued

Point	Latitude, $\phi'°$	W.Longitude, $\lambda°$	Elevation, km
1378	41.87	272.34	1.08
1379	36.97	278.40	1.31
1380	28.86	266.81	1.86
1381	25.94	267.00	2.23
1382	28.74	262.31	1.73
1383	29.76	271.06	1.89
1384	33.37	266.62	1.48
1385	34.08	262.07	1.18
1386	37.23	268.08	1.19
1387	36.96	264.31	1.01
1388	40.67	261.46	0.62
1389	39.80	254.65	0.76
1390	38.85	260.85	0.77
1391	38.63	256.14	0.81
1392	30.10	263.79	1.58
1393	32.75	257.37	1.20
1394	33.10	252.71	1.20
1395	36.36	260.47	0.94
1396	35.22	257.51	1.00
1397	28.63	253.56	1.50
1398	31.33	255.18	1.33
1399	32.69	248.83	1.09
1400	32.95	243.73	0.76
1401	34.52	250.50	1.10
1402	36.67	252.30	1.03
1403	36.80	249.41	0.96
1404	39.34	243.81	0.32
1405	42.89	246.05	0.09
1406	40.43	238.33	0.05
1407	28.26	243.41	1.01
1408	29.93	243.57	0.94
1409	34.47	238.82	0.39
1410	33.31	233.20	0.76
1411	36.62	238.40	0.31
1412	38.59	236.80	0.19
1413	41.73	233.23	-0.06
1414	40.10	227.84	0.15
1415	24.83	235.61	0.97
1416	31.07	234.90	0.84
1418	34.33	230.71	0.75
1419	34.42	226.34	0.37
1420	32.56	223.82	0.15
1421	38.14	226.76	0.16
1422	41.46	223.86	-0.34

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1423	40.73	218.52	-0.46
1424	30.33	226.70	0.64
1425	26.43	226.52	0.45
1426	33.58	221.09	-0.26
1427	32.16	216.43	0.04
1428	36.72	221.94	-0.16
1429	41.33	209.21	-0.08
1430	42.96	215.24	-0.58
1431	28.82	215.32	0.15
1432	25.32	218.33	-0.11
1433	29.91	217.06	0.03
1434	33.66	210.06	0.46
1435	32.77	205.27	1.41
1436	34.53	215.74	0.00
1437	36.30	210.23	0.32
1438	38.95	204.73	0.60
1439	41.13	199.87	0.46
1440	44.37	206.97	-0.45
1441	29.09	210.47	0.62
1442	32.46	208.59	0.82
1443	29.88	205.91	1.52
1444	31.97	202.16	2.09
1445	33.77	196.46	1.59
1446	33.69	202.71	1.67
1447	36.81	204.65	0.86
1448	37.68	201.06	1.12
1449	41.09	196.45	0.35
1450	39.43	194.02	0.55
1451	25.51	197.29	1.03
1452	27.12	194.97	1.22
1453	31.79	199.33	2.44
1454	34.29	193.05	1.04
1455	34.55	188.16	0.21
1456	36.19	193.82	0.99
1457	40.59	190.66	0.20
1458	38.35	187.53	-0.08
1459	38.62	182.28	-1.10
1460	47.13	190.77	-1.10
1461	49.27	193.58	-1.55
1462	51.25	189.55	-1.85
1463	27.79	184.98	-0.21
1464	31.01	189.96	0.93
1465	34.76	184.52	-0.53
1466	34.09	179.14	-1.42

Table 3--continued

Point	Latitude, $\phi'°$	W.Longitude, $\lambda°$	Elevation, km
1467	37.40	179.56	-1.46
1468	40.51	172.80	-1.73
1469	47.30	180.67	-1.55
1470	45.01	180.32	-1.55
1471	27.06	176.84	-1.00
1472	26.72	174.44	-0.98
1473	27.79	178.67	-1.11
1474	30.12	180.11	-1.41
1475	31.66	179.03	-1.40
1476	33.52	174.08	-1.38
1477	32.62	170.53	-1.33
1478	34.87	176.55	-1.40
1479	36.60	173.87	-1.49
1480	38.69	171.01	-1.68
1481	44.17	172.71	-1.81
1482	39.52	165.45	-1.73
1486	42.71	164.00	-1.76
1487	44.75	157.14	-1.53
1489	39.58	158.60	-1.61
1490	49.55	151.75	-1.56
1491	44.05	147.85	-0.95
1492	44.96	149.74	-1.07
1493	40.67	145.48	-0.58
1494	43.77	138.81	-0.34
1495	43.48	142.44	-0.62
1496	50.67	140.47	-0.92
1497	47.70	139.03	-0.53
1498	48.76	129.69	0.49
1499	43.59	134.30	0.41
1500	39.38	133.06	0.93
1501	38.59	130.91	1.29
1502	38.97	136.46	0.31
1503	38.14	127.12	1.96
1504	40.88	128.44	1.38
1505	34.56	131.32	1.21
1506	32.07	129.56	1.71
1507	33.64	126.75	3.25
1508	28.56	125.90	5.18
1509	26.84	122.77	8.25
1510	26.89	126.29	5.26
1511	26.36	124.41	6.93
1512	33.13	123.07	5.51
1513	39.46	121.44	2.15
1514	42.59	120.10	1.30

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1515	45.32	123.81	0.94
1516	46.94	121.14	0.84
1517	46.14	115.30	1.59
1518	38.37	146.41	-0.57
1519	26.95	118.86	4.28
1520	25.67	117.05	9.37
1521	41.11	110.46	3.35
1522	40.02	114.06	2.82
1523	44.44	110.07	2.67
1524	41.35	117.88	1.82
1525	35.80	117.92	4.87
1526	33.27	116.63	6.05
1527	32.54	112.98	4.75
1528	50.04	125.05	0.49
1529	49.35	116.37	0.98
1530	48.10	112.26	1.59
1531	54.95	114.92	0.04
1532	28.48	116.08	7.86
1533	29.89	113.82	5.93
1534	26.41	109.30	4.84
1535	25.53	104.86	4.44
1536	32.83	107.95	3.23
1537	32.53	104.52	3.04
1538	37.47	111.21	3.56
1539	35.13	108.78	3.38
1540	39.93	105.54	2.80
1541	39.38	101.76	2.13
1542	42.79	107.03	2.56
1543	45.04	100.98	1.15
1544	48.39	96.28	0.58
1545	27.62	106.17	4.05
1546	31.38	99.85	3.03
1547	33.32	99.89	2.60
1548	36.40	99.07	2.25
1549	37.54	102.96	2.58
1550	42.43	97.89	1.35
1551	40.17	94.25	1.67
1552	38.24	95.95	1.99
1553	44.53	91.13	1.10
1554	54.27	97.42	-0.25
1555	51.95	91.08	0.16
1556	58.68	103.21	-0.70
1557	53.79	94.95	-0.77
1558	35.62	93.68	2.32

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Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1559	38.90	89.21	1.79
1560	27.82	97.66	3.39
1561	29.01	95.05	3.20
1562	43.32	85.22	1.33
1563	47.85	83.91	0.82
1564	51.76	125.73	0.20
1565	66.37	278.16	-0.26
1566	55.20	93.42	-0.28
1568	64.48	109.62	-0.70
1569	54.89	88.33	-0.27
1570	59.03	115.60	-0.80
1571	52.29	297.23	0.66
1572	56.07	310.91	-0.23
1573	58.75	289.50	0.22
1574	62.01	289.20	0.18
1575	54.87	276.60	0.22
1576	59.01	277.59	-0.51
1577	45.03	278.62	1.15
1578	43.23	244.39	-0.10
1579	49.22	241.20	-1.26
1580	41.47	235.96	-0.04
1581	55.22	226.87	-1.58
1582	50.59	225.57	-1.55
1583	59.56	221.95	-1.76
1584	66.54	216.16	-1.72
1585	49.81	215.03	-1.38
1586	58.63	213.85	-2.32
1587	53.64	195.86	-1.94
1588	48.82	199.51	-1.39
1589	1.43	330.88	4.41
1590	66.52	196.86	-1.82
1591	60.19	207.11	-2.59
1592	79.75	214.90	-2.16
1593	72.13	214.29	-1.68
1594	60.55	230.74	-1.50
1595	55.03	256.06	-0.63
1596	48.75	270.86	1.29
1597	51.87	267.23	0.74
1598	69.19	270.34	-0.25
1599	50.41	77.16	0.30
1600	11.64	133.79	4.51
1601	14.32	129.50	5.16
1602	15.27	130.88	9.21
1603	17.55	133.52	25.48

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1604	17.45	129.34	10.26
1605	14.39	131.52	6.87
1606	19.15	133.05	25.07
1607	23.29	133.45	11.62
1608	20.80	135.36	19.39
1609	18.89	135.73	21.22
1610	54.02	81.35	-0.03
1611	50.18	61.34	-0.87
1612	52.05	64.62	-0.91
1613	53.68	71.09	-0.63
1614	49.54	43.80	-1.87
1615	60.79	58.13	-2.13
1616	54.57	38.99	-2.47
1617	49.87	34.74	-2.17
1618	54.02	31.61	-2.53
1619	47.51	28.03	-2.19
1620	50.95	18.39	-2.44
1621	48.08	13.67	-1.91
1622	43.71	23.93	-1.85
1623	62.62	23.66	-2.36
1624	50.17	8.31	-1.77
1625	65.83	21.28	-1.68
1626	68.33	25.51	-1.13
1627	76.98	54.67	-1.10
1628	84.98	5.82	-0.14
1629	74.70	13.08	-0.74
1630	72.01	15.21	-0.70
1631	73.66	357.88	-0.61
1632	76.90	333.94	1.29
1633	73.15	333.15	0.70
1634	68.68	347.42	-0.05
1635	43.21	5.41	-1.41
1636	49.95	356.92	-1.24
1637	51.31	345.54	-0.73
1638	62.20	353.51	-0.97
1639	65.14	328.91	0.06
1640	61.29	335.97	-1.30
1641	56.44	337.51	-1.33
1642	54.28	333.59	-0.85
1643	49.40	339.11	-1.01
1644	49.46	334.81	-0.69
1645	54.05	188.79	-1.92
1646	54.40	183.10	-1.91
1647	47.15	190.73	-1.10

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1648	54.86	169.51	-2.18
1649	52.70	160.94	-1.82
1650	56.97	159.14	-1.78
1651	60.91	170.59	-2.40
1652	72.05	306.50	1.41
1653	60.39	303.49	-1.14
1654	70.05	295.36	0.93
1655	62.06	318.76	-0.70
1656	68.38	161.00	-2.12
1657	78.85	153.47	-0.67
1658	64.55	139.36	-0.88
1659	60.64	138.48	-1.27
1660	64.78	126.62	-0.53
1661	57.76	134.52	-0.86
1662	53.68	244.44	-1.32
1663	67.19	246.48	-0.97
1666	25.16	191.63	0.55
1667	26.76	192.29	0.83
1668	28.55	190.16	0.78
1669	22.09	190.32	0.06
1670	3.45	180.25	-0.34
1678	78.14	308.27	1.25
1679	26.90	145.20	-0.53
1681	24.39	144.03	-0.23
1682	20.42	145.23	-0.28
1683	20.34	152.87	-0.90
1684	15.67	137.84	2.17
1685	16.12	143.47	0.84
1686	11.82	140.74	2.43
1687	14.32	140.08	1.96
1688	14.48	147.07	0.39
1800	-27.22	119.80	7.34
1801	-33.40	106.42	7.79
1802	-37.14	94.12	7.06
1803	-38.50	78.38	6.17
1805	-58.50	292.06	0.55
1806	-63.72	301.73	1.01
1807	-55.70	300.64	-0.54
1809	-49.26	309.95	-0.05
1810	-53.37	308.05	0.08
1811	-49.86	319.12	3.83
1812	-38.41	319.32	3.64
1813	-39.76	328.56	4.45
1814	-42.02	333.11	4.73

Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1815	-54.27	323.59	3.95
1816	-63.04	328.81	4.15
1817	-58.11	335.19	4.84
1818	-38.31	350.24	5.01
1819	-45.03	349.32	5.45
1820	-41.98	343.38	5.22
1821	-55.73	349.99	5.97
1822	-52.14	342.69	5.62
1823	-30.67	345.28	4.54
1824	-64.40	352.53	5.88
1825	-36.27	356.55	4.01
1826	-41.21	353.76	4.68
1827	-53.56	1.30	3.34
1828	-49.43	355.61	4.20
1829	-60.71	1.17	3.75
1830	-45.30	15.49	3.33
1831	-38.05	8.24	3.13
1832	-51.14	1.95	3.22
1833	-52.44	15.06	3.61
1834	-42.22	3.16	3.59
1835	-63.22	18.05	3.99
1836	-55.99	15.83	3.74
1837	-45.06	24.37	3.16
1838	-36.96	21.19	3.01
1839	-34.81	30.79	2.58
1840	-61.39	34.92	3.92
1841	-58.28	35.27	3.79
1842	-52.57	27.43	3.44
1843	-46.70	32.29	3.26
1844	-38.31	40.68	3.41
1845	-43.99	45.14	3.73
1846	-28.91	46.03	3.97
1847	-36.43	50.08	4.26
1848	-49.09	51.68	3.89
1849	-55.78	56.01	3.68
1850	-61.18	56.25	3.67
1851	-57.35	47.38	3.93
1852	-32.87	62.83	6.04
1853	-42.13	56.60	3.96
1854	-40.85	62.98	4.48
1855	-36.41	63.74	5.35
1856	-49.15	63.27	3.82
1857	-52.50	67.53	3.72
1858	-57.80	67.56	3.56

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Table 3--continued

Point	Latitude, ϕ'°	W.Longitude. λ°	Elevation, km
1859	-63.21	83.65	4.09
1860	-47.09	80.66	5.08
1861	-42.12	78.35	5.56
1862	-37.20	70.43	5.08
1863	-55.83	93.46	4.80
1864	-31.15	82.93	7.77
1865	-37.58	85.92	6.59
1866	-38.46	78.36	6.15
1869	-45.97	111.71	6.74
1870	-37.47	106.53	7.16
1873	-52.04	110.11	6.49
1874	-62.11	118.10	4.61
1875	-53.61	269.73	2.75
1877	-52.88	259.58	2.84
1878	-40.16	259.65	2.27
1879	-53.09	251.50	3.40
1880	-50.51	241.80	3.83
1881	-38.22	250.87	3.68
1882	-41.59	234.77	3.50
1883	-43.36	240.93	3.34
1884	-48.59	230.01	3.74
1885	-55.68	230.58	3.85
1886	-57.01	243.88	3.53
1887	-33.50	233.54	3.81
1888	-37.15	221.52	4.06
1889	-42.27	219.21	4.51
1890	-53.99	224.38	4.27
1891	-57.72	223.33	4.43
1892	-61.30	205.61	5.10
1893	-51.45	213.82	5.11
1894	-56.99	206.09	5.23
1895	-39.85	208.34	4.57
1896	-38.66	201.86	4.41
1897	-46.51	196.13	4.71
1898	-38.42	188.67	4.34
1899	-36.36	194.57	4.33
1900	-61.82	191.22	4.53
1901	-65.82	182.36	5.42
1902	-53.39	166.83	5.19
1903	-53.58	177.45	5.15
1904	-55.48	173.28	5.30
1905	-44.46	168.39	4.68
1906	-37.67	173.12	4.22
1907	-41.05	148.29	4.84

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Table 3--continued

Point	Latitude, ϕ'°	W.Longitude, λ°	Elevation, km
1908	-37.15	155.84	4.36
1909	-41.53	153.88	4.58
1910	-48.34	147.24	4.97
1911	-55.86	143.02	4.41
1912	-41.19	142.66	5.08
1913	-31.65	130.90	6.30
1914	-49.14	131.39	5.01
1915	-58.01	122.02	4.81
2200	-28.36	319.94	4.13
2201	-27.43	320.67	4.20
2202	-28.65	320.00	4.11
2203	-26.25	321.87	4.21
2204	-27.55	317.82	3.43
2206	-27.19	318.07	3.54
2207	-26.37	317.21	3.33
2208	-22.64	319.93	3.98
2209	-24.59	322.83	4.22
2210	-23.99	322.44	4.18
2211	-24.32	320.76	4.05
2212	-20.00	323.86	4.24
2213	-20.99	321.98	4.13
2214	-21.55	321.16	4.05
2215	-22.31	318.04	3.81
2216	-23.43	317.49	3.65
2217	-23.02	318.98	3.86
2218	-22.07	318.42	3.86
2219	-19.60	319.96	4.06
2220	-18.95	320.64	4.14
2221	-18.34	319.07	4.22
2222	-18.02	318.53	4.27
2224	-21.24	317.17	3.78
2225	-21.03	313.94	3.64
2226	-22.02	314.82	3.55
2227	-18.36	311.53	4.13
2228	-17.59	313.04	4.29
2229	-17.15	313.88	4.41
2230	-17.87	312.39	4.24
2231	-19.37	315.61	4.01
2232	-18.56	316.50	4.16
2233	-17.14	316.35	4.41
2235	-15.11	322.43	4.68
2236	-15.50	321.48	4.64
2237	-14.77	322.51	4.73
2238	-15.35	321.64	4.62

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Table 3--continued

Point	Laltitude, $\phi'°$	W.Longitude, $\lambda°$	Elevation, km
2239	-12.61	315.47	5.23
2241	-15.83	317.59	4.59
2242	-16.29	316.90	4.57
2243	-16.18	314.15	4.65
2245	-16.38	312.19	4.58
2246	-14.57	313.07	5.00
2247	-14.16	308.34	5.14
2248	-13.68	309.32	5.27
2251	-13.31	313.98	5.22
2252	-12.37	314.31	5.40
2253	-12.14	315.27	5.37
2254	-11.00	319.24	5.33
2256	-11.78	317.30	5.32
2259	-8.74	314.59	5.80
2260	-9.99	314.64	5.82
2263	-9.74	310.77	6.10
2264	-11.52	311.53	5.69
2265	-12.49	309.84	5.61
2266	-10.22	311.19	6.05
2267	-8.68	307.90	5.90
2268	-7.46	310.17	5.99
2269	-9.20	306.40	5.84
2270	-9.64	306.13	5.89
2272	-8.10	307.14	5.95
2273	-7.30	307.64	5.78
2274	-4.21	309.54	5.79
2275	-8.62	311.99	5.99
2277	-8.43	311.64	5.97
2278	-5.79	317.88	5.88
2279	-6.57	316.70	5.83
2280	-7.57	313.74	5.90
2281	-6.22	316.92	5.80
2282	-4.19	312.91	5.79
2283	-3.53	312.25	5.77
2284	-5.75	312.31	5.87
2285	-6.47	313.48	5.82
2286	-4.16	305.95	5.49
2287	-4.53	304.26	5.31
2288	-3.62	306.85	5.47
2289	-3.83	308.18	5.58
2290	-3.06	313.30	5.85
2291	-2.51	317.93	6.03
2292	-1.39	315.94	5.91
2294	1.57	310.91	5.41

Table 3--continued

Point	Latitude, $\phi'°$	W.Longitude, $\lambda°$	Elevation, km
2295	3.01	312.32	5.35
2296	2.55	315.39	5.63
2297	3.07	316.86	5.75
2298	0.72	302.31	4.80
2299	1.13	303.52	4.81
2300	0.97	305.94	5.01
2301	0.70	308.82	5.30
2302	6.16	300.34	4.10
2303	5.82	301.92	4.28
2304	5.42	303.52	4.46
2305	5.71	305.85	4.67
2307	10.86	301.00	3.82
2309	9.33	298.93	3.76
2310	10.38	304.27	4.16
2311	5.73	310.80	5.07
2313	8.13	310.21	4.85
2314	3.92	309.25	5.08

IV. THE DIRECTION OF SPIN AXIS OF MARS

In the computation of the control net, the direction of the spin axis is fixed at the value agreed upon for the Mariner 9 areographic coordinate system. This need not be the case, however, because the direction of the spin axis can be treated as a variable in the analytical triangulation and a preferred value solved for in the least-squares adjustment. This has been done using all of the measurements of the points in the net.

The first computation permitted the direction of the spin axis to vary as well as the latitude and longitude of the control points; both the camera orientation angles and the camera station coordinates were taken from the SEDR and held fixed in the computation. The resulting direction of the spin axis for 1950.0 in 1950.0 mean earth coordinates was

$$\alpha_0 = 317^\circ.07 \qquad \delta_0 = 52^\circ.58 \qquad (1950.0)$$

The standard error of the recomputed residuals was very large, 0.2853 mm, indicating that the SEDR camera orientation angles were rather poor. With a focal length of 52.267 mm, this error amounts to about a quarter of a degree error in the SEDR pointing directions. The uncertainty in the spin axis angles is also large.

The second computation permitted the camera orientation angles to vary as well as the direction of the spin axis and the latitude and longitude of the control points; the camera station coordinates were taken from the SEDR and held fixed. The resulting direction of the spin axis for 1950.0 in 1950.0 mean earth coordinates was

$$\alpha_0 = 317^\circ.44 \qquad \delta_0 = 52^\circ.61 \qquad (1950.0)$$

The standard error of the recomputed residuals was 0.01439; the standard

errors of α_0, δ_0 were not determined because the computer costs would have been higher than to solve for the spin axis coordinates themselves. This computation was an experiment to evaluate the feasibility of obtaining a convergent solution, since the spin axis angles and the camera orientation angles are sometimes highly correlated. The result is sufficiently encouraging to suggest that computations of the direction of the spin axis should continue as the control net grows.

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Richard Berg of the University of Rochester modified elements of Duane Brown's SURBAT program to solve the normal equations by recursive partitioning. Frank Katayama of Rand checked this program and used it in the solution of various photogrammetric problems.

Richard Clasen of Rand programmed an iterative solution of the normal equations using the conjugate gradient method. Rose Heirschfeldt of Rand checked the program and used it in obtaining the results reported herein. She also checked and compiled the point measurements, made corrections for distortions, and wrote the radius interpolation program.

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