

PHOTOELECTRIC OBSERVATIONS OF THE Am ECLIPSING BINARY AN ANDROMEDAE

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Received 1 December 1977

Abstract. The photoelectric observations in the V band of the eclipsing binary AN And have been obtained during the period 1967—1977 at the Skalná Pleso Observatory and the University of Waterloo Observatory. During this period 3690 observations have been obtained. The mean error of these observations is $\pm 0^m.0067$.

The bright star AN And (visual mag. 5.9), spectral type A 3, has been known to be a spectroscopic and eclipsing binary with a period of $P=3.219565$ days (Tremko and Bakos, 1978). In that paper it has been shown that the eclipses are partial. The orbital elements were derived by Huffer (1928) and our observations seem to be satisfying these elements for the case $k=1.00$.

Our observations have been obtained at the Skalná Pleso Observatory with the 0.6 m reflector and associated photoelectric equipment. The photometer consists of a photomultiplier EMI 6256B attached in the usual way to the tele-

scope. The detailed description of the instruments have been published in different papers (Tremko, 1975; Horák et al., 1976). Attempts were made to observe the star in three colours, however, in order to make use of the prevailing meteorological conditions we have concentrated our observations to one filter only. While one of the authors (J.T.) was in Canada as an exchange scientist, observations of AN And were made with the 0.33 m reflector of the University of Waterloo Observatory, in the same spectral band with the instrument of a similar design using the same type of a photomultiplier.

A summary of all observations has been presented in Table 1 listing the dates, the Julian Day, the number of the observations, the mean error of one observations and, finally a note about the weather conditions. The symbols in the last column of Table 1 denote: 1 — low transparency, 2 — interfering curcus, 3 — bad seeing, 4 — interfering wind,

Table 1
Observing intervals and m.e. of one observation

Date	J.D. _{-hel} 2400000 +	<i>n</i>	m.e.	Notes
1967 Sep. 29/30	39763.4895— .5381	33	0 ^m .003	
Oct. 11/12	39775.4146— .5779	98	.007	1
Oct. 12/13	39776.5006— .6412	84	.005	1, 2
Oct. 21/22	39785.4616— .4851	20	.009	
1968 Jan. 9/10	39865.2526— .3443	53	.008	
Jan. 10/11	39866.2329— .2920	46	.009	3
Sep. 27/28	40127.5500— .6325	35	.009	
Nov. 11/12	40172.4911— .5095	24	.011	1, 2
Nov. 27/28	40188.2321— .2904	60	.003	
Dec. 2/3	40193.3970— .4162	20	.005	
Dec. 6/7	40197.3268— .4884	127	.006	2
Dec. 8/9	40199.2228— .2915	68	.004	

Table 1 (Continued)

	Date	J.D. _{hel} 2400000 +	<i>n</i>	m.e.	Notes	
1969	Dec. 25/26	40216.1926– .2420	53	.003		
	Jan. 21/22	40243.2257– .2454	23	.003		
	Sep. 24/25	40489.5575– .5813	17	.005		
	Sep. 28/29	40493.5446– .6088	27	.005	2	
	Sep. 29/30	40494.5471– .6167	38	.007		
1972	Dec. 13/14	41665.4282– .4675	47	.005		
	Dec. 21/22	41673.2420– .4407	95	.004		
1973	Oct. 5/6	41961.5344– .6542	146	.005		
	Oct. 24/25	41980.2371– .3160	97	.004	4	
	Oct. 27/28	41983.2432– .3218	85	.007		
	Oct. 28/29	41984.2258– .4461	190	.007		
1974	Jan. 6/7	42054.2141– .3457	74	.004		
	Jan. 22/23	42070.2809– .3437	71	.003		
1975	Jan. 27/28	42440.2019– .3325	128	.015		
	Aug. 22/23	42647.5333– .5726	25	.006		
	Sep. 17/18	42673.2741– .3586	90	.012	4	
	Sep. 25/26	42681.4665– .5012	41	.008		
	Sep. 29/30	42685.5010– .5483	48	.007	2	
	Oct. 26/27	42712.3981– .4627	73	.007	2	
	Dec. 29/30	42776.1900– .4049	82	.019		
	1976	Feb. 2/3	42811.2301– .2806	61	.010	
		Aug. 28/29	43019.4755– .4931	20	.008	
		Sep. 5/6	43027.8699– .9067	8	.014	
Sep. 6/7		43028.8372– .8595	6	.029		
Sep. 7/8		43029.7643– .7865	6	.003		
Sep. 30/1		43052.7133– .7855	20	.016		
Oct. 10/11		43062.6300– .8460	32	.004		
Oct. 26/27		43078.7365– .7622	8	.003		
Oct. 28/29		43080.6990– .7289	8	.004		
Oct. 31/1		43083.7142– .7392	8	.017		
Nov. 1/2		43084.7613– .7794	8	.015		
Dec. 13/14		43096.6976– .7185	8	.006		
Dec. 14/15		43097.6886– .7081	8	.007		
Dec. 16/17		43099.6981– .7169	8	.008		
Dec. 23/24		43136.2804– .4143	32	.006	2	
1977		Aug. 25/26	43381.5407– .5996	28	.006	
		Aug. 30/31	43386.3110– .3159	8	.005	
	Sep. 3/4	43390.4955– .5141	18	.010	2	
	Sep. 6/7	43393.4766– .6183	97	.006		
	Sep. 13/14	43400.5289– .6226	87	.006	1	
	Sep. 28/29	43415.4729– .5167	34	.005		
	Oct. 2/3	43419.4909– .5282	30	.005		
	Oct. 5/6	43422.4005– .4261	22	.004	5	
	Oct. 6/7	43423.4773– .5215	37	.005		
	Oct. 8/9	43425.3125– .6154	70	.005		
	Oct. 12/13	43429.4647– .5723	91	.005	5	
	Oct. 14/15	43431.4929– .5179	30	.003	5	
	Oct. 15/16	43432.3184– .6333	138	.006		
	Oct. 18/19	43435.6060– .6240	20	.003		
	Oct. 19/20	43436.3633– .4863	88	.005	2	
	Oct. 20/21	43437.5795– .6092	29	.005	2	
	Oct. 28/29	43445.3430– .4973	32	.013	2	
	Nov. 7/8	43455.2765– .2831	10	.002		
	Nov. 11/12	43459.2149– .2398	28	.007	1, 4	
	Nov. 17/18	43465.2403– .2700	38	.006		
	Nov. 20/21	43468.2654– .5293	133	.011		
	Dec. 1/2	43479.4009– .4589	54	.006		
	Dec. 7/8	43485.3110– .3266	20	.006		
Dec. 15/16	43493.2826– .3068	30	.017			
Dec. 19/20	43497.2612– .4100	159	.004			

5 — interfering clouds. In Table 2 the individual observations are listed. The first column gives the Julian Day (hel) and in the second column the observed Δm . During the observation the variable star was compared with the star HD 219989 of spectral type AO. In addition, two check stars HD 218804 and HD 219109 were observed. Due to the proximity of the variable and the comparison star the correction for the differential extinction was not applied. In order to keep the homogeneity of the phase computation in our previously published paper (Tremko and Bakos, 1978), the corresponding reciprocal period $P^{-1} = 0.310601$, has been used to compute the phases by means of the formula:

$$\text{Phase} = (\text{J.D.}_{\text{hel}} - 2400000) \times P^{-1} - 0.3665$$

Table 2

J.D. _{hel}	Δm	Phase
2439763.4895	-1.400	.2131
.4903	.404	.2134
.4948	.404	.2148
.4956	.403	.2150
.5059	.395	.2182
.5066	.397	.2184
.5074	.397	.2187
.5081	.401	.2189
.5088	.400	.2191
.5095	.401	.2193
.5103	.395	.2196
.5110	.395	.2198
.5117	.397	.2200
.5124	.395	.2202
.5174	.403	.2218
.5182	.402	.2220
.5189	.402	.2222
.5196	.400	.2225
.5204	.403	.2227
.5211	.402	.2229
.5218	.400	.2231
.5241	.399	.2239
.5249	.397	.2241
.5256	.394	.2254
.5264	.399	.2246
.5312	.398	.2261
.5321	.389	.2263
.5336	.395	.2268
.5352	.398	.2273
.5360	.395	.2276
.5367	.398	.2278
.5374	.396	.2280
.5381	.400	.2282
2439775.4146	.357	.9171
.4153	.355	.9173
.4165	.357	.9176
.4178	.357	.9180
.4180	.357	.9181
.4188	.356	.9184

Table 2 (Continued)

J.D. _{hel}	Δm	Phase
.4196	.349	.9186
.4203	.353	.9188
.4211	.356	.9191
.4219	.342	.9193
.4446	.368	.9264
.4452	.369	.9266
.4461	.380	.9268
.4468	.364	.9271
.4475	.358	.9273
.4484	.368	.9276
.4490	.369	.9277
.4498	.369	.9280
.4511	.366	.9284
.4520	.369	.9287
.4580	.361	.9305
.4588	.364	.9308
.4595	.364	.9310
.4602	.366	.9312
.4612	.367	.9315
.4618	.366	.9317
.4627	.364	.9320
.4634	.359	.9322
.4641	.356	.9324
.4649	.366	.9327
.4656	.366	.9329
.4765	.354	.9363
.4772	.357	.9365
.4781	.359	.9368
.4788	.347	.9370
.4797	.381	.9373
.4804	.354	.9375
.4812	.344	.9377
.4819	.345	.9380
.4827	.352	.9382
.4834	.381	.9384
.4911	.347	.9408
.4919	.362	.9411
.4960	.372	.9423
.4969	.342	.9426
.4980	.352	.9430
.4987	.350	.9432
.4994	.344	.9434
.5001	.358	.9436
.5008	.349	.9438
.5016	.383	.9441
.5987	.329	.9463
.5094	.349	.9465
.5101	.341	.9467
.5109	.341	.9470
.5124	.347	.9474
.5132	.348	.9477
.5140	.347	.9479
.5147	.339	.9481
.5154	.335	.9484
.5246	.347	.9512
.5256	.342	.9515
.5264	.347	.9518
.5272	.341	.9520
.5279	.342	.9522
.5286	.345	.9525

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.5294	.345	.9527	.5410	.401	.2669
.5301	.348	.9529	.5418	.402	.2672
.5309	.336	.9532	.5426	.399	.2674
.5390	.322	.9557	.5433	.402	.2676
.5398	.320	.9559	.5448	.396	.2681
.5406	.325	.9562	.5455	.388	.2683
.5415	.318	.9565	.5532	.396	.2707
.5423	.322	.9567	.5540	.399	.2710
.5432	.325	.9570	.5547	.401	.2712
.5439	.328	.9572	.5554	.398	.2714
.5447	.325	.9575	.5561	.396	.2716
.5455	.320	.9577	.5569	.404	.2719
.5462	.325	.9579	.5576	.404	.2721
.5563	.313	.9611	.5584	.396	.2723
.5571	.319	.9613	.5591	.396	.2725
.5585	.310	.9618	.5604	.389	.2729
.5594	.309	.9620	.5670	.407	.2750
.5602	.312	.9623	.5677	.410	.2752
.5610	.316	.9625	.5685	.406	.2755
.5617	.322	.9627	.5715	.404	.2764
.5624	.321	.9630	.5722	.408	.2766
.5631	.291	.9632	.5730	.391	.2769
.5702	.321	.9654	.5737	.398	.2771
.5715	.320	.9658	.5745	.401	.2773
.5723	.325	.9660	.5755	.405	.2776
.5732	.324	.9663	.5885	.396	.2817
.5739	.319	.9665	.5892	.400	.2819
.5748	.322	.9668	.5899	.410	.2821
.5756	.321	.9671	.5907	.400	.2824
.5763	.317	.9673	.5915	.401	.2826
.5771	.305	.9675	.5922	.397	.2828
.5779	.309	.9678	.5937	.393	.2833
2439776.5006	.405	.2544	.5945	.396	.2835
.5014	.404	.2546	.5952	.389	.2838
.5042	.397	.2555	.6053	.397	.2869
.5051	.396	.2558	.6060	.397	.2871
.5059	.397	.2560	.6068	.391	.2874
.5066	.401	.2562	.6077	.401	.2876
.5073	.401	.2564	.6087	.392	.2879
.5081	.401	.2567	.6096	.410	.2882
.5088	.401	.2569	.6105	.386	.2885
.5113	.397	.2577	.6228	.413	.6923
.5179	.406	.2597	.6236	.396	.2926
.5187	.406	.2600	.6243	.414	.2928
.5194	.403	.2602	.6251	.397	.2930
.5237	.395	.2615	.6258	.399	.2933
.5244	.399	.2618	.6266	.410	.2935
.5251	.403	.2620	.6274	.407	.2938
.5258	.393	.2622	.6280	.415	.2939
.5266	.401	.2624	.6289	.408	.2942
.5273	.396	.2627	.6300	.420	.2946
.5281	.399	.2629	.6382	.415	.2971
.5288	.396	.2631	.6390	.419	.2974
.5295	.396	.2633	.6397	.423	.2976
.5303	.391	.2636	.6405	.423	.2978
.5373	.407	.2658	.6412	.406	.2980
.5381	.401	.2660			
.5386	.401	.2662	2439785.4616	.322	.0377
.5396	.397	.2665	.4640	.335	.0384
.5403	.402	.2665	.4647	.326	.0386

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.4655	.326	.6389	.3212	.386	.8421
.4662	.326	.0391	.3375	.383	.8472
.4669	.337	.0393	.3383	.392	.8474
.4677	.336	.0396	.3390	.387	.8477
.4687	.342	.0399	.3397	.386	.8479
.4694	.339	.0401	.3405	.385	.8481
.4702	.308	.0403	.3414	.388	.8484
.4783	.337	.0429	.3421	.387	.8486
.4791	.345	.0431	.3428	.384	.8488
.4798	.339	.0433	.3436	.382	.8491
.4805	.341	.0435	.3443	.383	.3493
.4813	.333	.0438			
.4820	.334	.0440	2439866.2329	.376	.1253
.4829	.353	.0443	.2336	.381	.1255
.4836	.343	.0445	.2344	.380	.1258
.4844	.354	.0447	.2351	.383	.1260
.4851	.334	.0450	.2359	.381	.1262
			.2366	.384	.1265
2439865.2526	.373	.8208	.2427	.373	.1284
.2538	.378	.8212	.2435	.377	.1286
.2566	.377	.8221	.2445	.375	.1289
.2573	.380	.8223	.2453	.378	.1292
.2581	.389	.8225	.2460	.381	.1294
.2587	.374	.8227	.2468	.373	.1296
.2595	.377	.8230	.2475	.377	.1298
.2603	.383	.8232	.2483	.373	.1301
.2611	.376	.8235	.2490	.373	.1303
.2620	.382	.8237	.2498	.375	.1306
.2628	.380	.8240	.2566	.371	.1327
.2635	.380	.8242	.2575	.382	.1330
.2725	.395	.8270	.2582	.381	.1332
.2735	.387	.8273	.2589	.376	.1334
.2749	.405	.8278	.2597	.369	.1336
.2762	.396	.8282	.2604	.368	.1339
.2769	.405	.8284	.2612	.366	.1341
.2779	.395	.8287	.2619	.374	.1343
.2786	.377	.8289	.2628	.369	.1346
.2795	.386	.8292	.2635	.364	.1348
.2803	.371	.8294	.2712	.389	.1372
.2810	.379	.8296	.2720	.375	.1375
.2878	.390	.8318	.2728	.365	.1377
.2885	.386	.8320	.2736	.366	.1380
.2937	.384	.8336	.2743	.351	.1382
.2943	.381	.8338	.2751	.348	.1384
.2951	.386	.8340	.2758	.351	.1386
.2958	.378	.8342	.2766	.348	.1389
.2966	.376	.8345	.2773	.349	.1391
.2973	.393	.8347	.2839	.362	.1412
.2980	.372	.8349	.2848	.363	.1414
.2988	.398	.8352	.2856	.352	.1417
.3059	.394	.8374	.2863	.353	.1419
.3068	.413	.8377	.2873	.344	.1422
.3076	.413	.8379	.2881	.345	.1425
.3098	.416	.8386	.2888	.353	.1427
.3167	.393	.8407	.2896	.351	.1429
.3175	.388	.8410	.2903	.355	.1431
.3184	.388	.8413	.2911	.352	.1434
.3191	.391	.8415	.2920	.362	.1437
.3197	.386	.8417			
.3205	.400	.8419	2440127.5500	.504	.2907

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.5508	.404	.2909	2440188.2321	.377	.1386
.5516	.409	.2912	.2328	.373	.1388
.5523	.411	.2914	.2335	.371	.1390
.5530	.409	.2916	.2342	.374	.1392
.5538	.414	.2918	.2348	.373	.1394
.5545	.414	.2921	.2355	.374	.1396
.5552	.419	.2923	.2364	.379	.1399
.5559	.419	.2925	.2370	.370	.1401
.5570	.419	.2928	.2377	.376	.1403
.5640	.399	.2950	.2384	.374	.1405
.5647	.399	.2952	.2391	.364	.1408
.5655	.379	.2955	.2399	.366	.1410
.5662	.381	.2957	.2473	.381	.1433
.5670	.374	.2959	.2480	.384	.1435
.5677	.374	.2962	.2488	.382	.1438
.5684	.397	.2964	.2495	.381	.1440
.5692	.397	.2966	.2502	.379	.1442
.5699	.393	.2968	.2508	.385	.1444
.6038	.389	.3074	.2515	.381	.1446
.6045	.389	.3076	.2522	.382	.1448
.6060	.373	.3081	.2529	.376	.1450
.6067	.363	.3083	.2535	.382	.1452
.6078	.397	.3086	.2544	.379	.1454
.6086	.371	.3089	.2556	.381	.1459
.6093	.382	.3091	.2592	.385	.1470
.6101	.379	.3093	.2599	.389	.1472
.6273	.373	.3147	.2606	.377	.1474
.6281	.391	.3149	.2613	.382	.1477
.6288	.365	.3151	.2619	.381	.1478
.6195	.364	.3154	.2626	.381	.1481
.6303	.377	.3156	.2633	.384	.1483
.6310	.380	.3158	.2640	.382	.1485
.6317	.377	.3160	.2648	.384	.1487
.6325	.382	.3163	.2655	.391	.1490
			.2662	.382	.1492
			.2668	.377	.1494
2440172.4911	.384	.2494	.2703	.388	.1504
.4917	.377	.2496	.2710	.383	.1507
.4925	.386	.2498	.2717	.384	.1509
.4930	.389	.2500	.2724	.387	.1511
.4937	.401	.2502	.2730	.382	.1513
.4944	.406	.2504	.2737	.382	.1515
.4951	.417	.2507	.2745	.387	.1518
.4957	.408	.2508	.2752	.387	.1520
.4964	.415	.2511	.2759	.386	.1522
.4970	.408	.2512	.2766	.381	.1524
.4977	.415	.2515	.2773	.385	.1526
.4983	.404	.2516	.2779	.390	.1528
.5023	.392	.2529	.2821	.386	.1541
.5030	.391	.2531	.2835	.391	.1545
.5036	.388	.2533	.2842	.387	.1548
.5043	.391	.2535	.2850	.384	.1550
.5050	.397	.2537	.2856	.390	.1552
.5057	.403	.2539	.2863	.381	.1554
.5062	.408	.2541	.2870	.384	.1556
.5069	.410	.2543	.2877	.384	.1559
.5076	.410	.2545	.2884	.389	.1561
.5082	.411	.2547	.2891	.382	.1563
.5089	.400	.2549	.2897	.384	.1565
.5095	.407	.2551	.2904	.387	.1567

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
2440193.3970	.415	.7428	.3677	.296	.9761
.3978	.416	.7431	.3683	.303	.9763
.3986	.418	.7433	.3690	.300	.9765
.3995	.417	.7436	.3697	.298	.9767
.4003	.420	.7438	.3704	.275	.9769
.4011	.418	.7441	.3711	.272	.9772
.4020	.411	.7444	.3718	.271	.9774
.4031	.418	.7447	.3725	.276	.9776
.4041	.403	.7450	.3731	.271	.9778
.4049	.414	.7453	.3766	.271	.9789
.4081	.415	.7463	.3773	.242	.9791
.4091	.418	.7466	.3780	.269	.9793
.4099	.413	.7468	.3787	.276	.9795
.4109	.413	.7471	.3794	.275	.9797
.4118	.415	.7474	.3802	.279	.9800
.4127	.407	.7477	.3808	.275	.9802
.4136	.408	.7480	.3816	.286	.9804
.4143	.410	.7482	.3822	.276	.9806
.4153	.404	.7485	.3829	.268	.9808
.4162	.406	.7488	.3835	.304	.9810
			.3843	.272	.9813
2440197.3268	.317	.9634	.3886	.285	.9826
.3275	.321	.9636	.3892	.275	.9828
.3282	.315	.9638	.3899	.272	.9830
.3290	.315	.9641	.3905	.280	.9832
.3297	.313	.9643	.3913	.277	.9834
.3304	.318	.9645	.3919	.269	.9836
.3314	.317	.9648	.3926	.278	.9838
.3318	.316	.9650	.3933	.268	.9841
.3325	.312	.9652	.3940	.270	.9843
.3332	.316	.9654	.3947	.264	.9845
.3340	.314	.9656	.3955	.270	.9847
.3348	.318	.9659	.3961	.268	.9849
.3389	.312	.9672	.4002	.263	.9862
.3397	.312	.9674	.4009	.268	.9864
.3405	.312	.9677	.4017	.274	.9867
.3414	.306	.9679	.4024	.274	.9869
.3421	.300	.9682	.4031	.264	.9871
.3429	.303	.9684	.4052	.266	.9878
.3436	.308	.9686	.4060	.268	.9880
.3444	.304	.9689	.4065	.261	.9882
.3452	.307	.9691	.4072	.267	.9884
.3459	.301	.9693	.4079	.265	.9886
.3466	.303	.9696	.4085	.265	.9888
.3474	.298	.9698	.4194	.267	.9922
.3517	.295	.9711	.4201	.268	.9924
.3524	.295	.9714	.4210	.263	.9927
.3531	.293	.9716	.4218	.266	.9929
.3538	.292	.9718	.4225	.263	.9931
.3545	.293	.9720	.4235	.266	.9934
.3552	.295	.9722	.4242	.263	.9937
.3559	.290	.9724	.4250	.265	.9939
.3566	.295	.9727	.4259	.261	.9942
.3573	.287	.9729	.4267	.265	.9944
.3582	.291	.9732	.4277	.259	.9947
.3589	.293	.9734	.4287	.252	.9951
.3597	.287	.9736	.4294	.261	.9953
.3657	.285	.9755	.4385	.258	.9981
.3662	.292	.9756	.4394	.264	.9984
.3670	.303	.9759	.4403	.266	.9987

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.4416	.262	.9991	.2520	.364	.5614
.4422	.256	.9992	.2529	.364	.5617
.4433	.263	.9996	.2536	.367	.5619
.4439	.265	.9998	.2543	.361	.5621
.4446	.259	.0000	.2550	.364	.5623
.4456	.262	.0003	.2621	.365	.5645
.4464	.268	.0006	.2627	.367	.5647
.4471	.256	.0008	.2635	.370	.5649
.4479	.261	.0010	.2641	.364	.5651
.4526	.261	.0025	.2648	.367	.5654
.4532	.263	.0027	.2654	.363	.5655
.4539	.260	.0029	.2662	.367	.5658
.4546	.265	.0031	.2668	.365	.5660
.4555	.258	.0034	.2675	.363	.5662
.4564	.257	.0037	.2682	.365	.5664
.4572	.238	.0039	.2690	.361	.5667
.4579	.263	.0041	.2697	.365	.5669
.4588	.264	.0044	.2744	.366	.5683
.4596	.260	.0047	.2751	.366	.5686
.4602	.258	.0048	.2757	.365	.5687
.4610	.265	.0051	.2765	.370	.5690
.4844	.266	.0124	.2771	.364	.5692
.4850	.248	.0125	.2778	.365	.5694
.4856	.256	.0127	.2785	.368	.5696
.4863	.260	.0129	.2792	.364	.5698
.4870	.261	.0132	.2798	.364	.5700
.4878	.250	.0134	.2805	.362	.5702
.4884	.257	.0136	.2853	.365	.5717
			.2860	.363	.5719
2440199.2228	.373	.5523	.2867	.366	.5722
.2235	.369	.5525	.2874	.363	.5724
.2242	.373	.5527	.2882	.365	.5726
.2248	.369	.5529	.2887	.353	.5728
.2255	.368	.5531	.2895	.363	.5730
.2262	.368	.5534	.2901	.366	.5732
.2269	.363	.5536	.2909	.372	.5735
.2276	.371	.5538	.2915	.365	.5736
.2283	.371	.5540			
.2289	.366	.5542	2440216.1926	.374	.8231
.2296	.361	.5544	.1933	.371	.8234
.2303	.260	.5546	.1940	.375	.8236
.2351	.355	.5561	.1946	.374	.8238
.2357	.362	.5563	.1953	.371	.8240
.2364	.366	.5565	.1958	.374	.8241
.2373	.361	.5568	.1966	.376	.8244
.2381	.367	.5571	.1973	.374	.8246
.2389	.362	.5573	.1980	.370	.8248
.2396	.367	.5575	.1987	.364	.8250
.2403	.364	.5577	.1994	.364	.8253
.2410	.374	.5580	.2001	.359	.8255
.2417	.367	.5582	.2052	.369	.8271
.2424	.370	.5584	.2060	.372	.8273
.2433	.366	.5587	.2067	.375	.8275
.2470	.370	.5598	.2073	.370	.8277
.2477	.370	.5600	.2080	.367	.8279
.2485	.371	.5603	.2087	.371	.8281
.2492	.364	.5605	.2094	.374	.8284
.2500	.359	.5608	.2100	.376	.8285
.2506	.364	.5609	.2107	.368	.8288
.2513	.359	.5612	.2114	.369	.8290

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2121	.374	.8292	.5619	.393	.7319
.2157	.368	.8303	.5629	.391	.7322
.2164	.375	.8305	.5641	.395	.7326
.2172	.371	.8308	.5652	.393	.7329
.2178	.375	.8310	.5663	.395	.7333
.2186	.373	.8312	.5673	.395	.7336
.2192	.372	.8314	.5689	.386	.7341
.2199	.374	.8316	.5756	.400	.7362
.2206	.376	.8318	.5767	.392	.7365
.2212	.375	.8320	.5780	.385	.7369
.2219	.379	.8322	.5791	.392	.7373
.2266	.372	.8337	.5802	.386	.7376
.2273	.372	.8339	.5813	.377	.7379
.2279	.372	.8341			
.2287	.373	.8344	2440493.5446	.284	.9690
.2293	.373	.8345	.5457	.284	.9693
.2303	.374	.8349	.5467	.280	.9696
.2308	.370	.8350	.5479	.288	.9700
.2315	.378	.8352	.5490	.281	.9703
.2322	.379	.8354	.5500	.283	.9706
.2329	.379	.8357	.5511	.283	.9710
.2359	.375	.8366	.5522	.274	.9713
.2367	.375	.8368	.5533	.280	.9717
.2373	.378	.8370	.5548	.284	.9721
.2380	.380	.8372	.5559	.288	.9725
.2386	.384	.8374	.5799	.270	.9799
.2393	.382	.8376	.5810	.270	.9803
.2399	.379	.8378	.5821	.277	.9806
.2406	.375	.8381	.5832	.268	.9809
.2413	.375	.8383	.5843	.270	.9813
.2420	.377	.8385	.5854	.261	.9816
			.5972	.264	.9853
2440243.2257	.409	.2197	.5983	.258	.9856
.2266	.406	.2199	.5994	.275	.9860
.2273	.408	.2201	.6004	.260	.9863
.2280	.403	.2204	.6015	.261	.9866
.2287	.405	.2206	.6026	.266	.9870
.2294	.404	.2208	.6037	.272	.9873
.2302	.406	.2210	.6056	.267	.9879
.2307	.401	.2212	.6078	.262	.9886
.2314	.412	.2214	.6088	.267	.9889
.2322	.406	.2217			
.2329	.404	.2219	2440494.5471	.414	.2803
.2336	.403	.2221	.5481	.409	.2806
.2384	.406	.2236	.5492	.408	.2810
.2391	.406	.2238	.5552	.404	.2828
.2398	.406	.2240	.5563	.408	.2832
.2405	.403	.2242	.5574	.396	.2835
.2412	.405	.2245	.5585	.399	.2839
.2419	.406	.2247	.5596	.404	.2842
.2426	.403	.2249	.5606	.403	.2845
.2432	.403	.2251	.5617	.399	.2849
.2439	.403	.2253	.5696	.391	.2873
.2448	.402	.2256	.5706	.391	.2876
.2454	.397	.2258	.5732	.395	.2884
			.5743	.398	.2888
2440489.5575	.393	.7306	.5763	.382	.2894
.5586	.400	.7309	.5774	.379	.2897
.5598	.395	.7313	.5785	.380	.2901
.5609	.395	.7316	.5797	.384	.2905

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.5808	.379	.2908	.4622	.304	.9677
.5885	.376	.2932	.4629	.304	.9679
.5896	.371	.2935	.4636	.302	.9682
.5907	.385	.2939	.4643	.305	.9684
.5918	.381	.2942	.4651	.296	.9686
.5929	.387	.2946	.4658	.298	.9688
.5943	.382	.2950	.4664	.301	.9690
.5954	.392	.2953	.4675	.290	.9694
.5964	.380	.2956			
.5995	.380	.2966	2441673.2420	.366	.3841
.6006	.381	.2969	.2426	.360	.3843
.6017	.374	.2973	.2433	.367	.3845
.6092	.398	.2996	.2440	.372	.3848
.6103	.394	.3000	.2446	.370	.3850
.6113	.395	.3003	.2453	.361	.3852
.6124	.393	.3006	.2460	.356	.3854
.6134	.414	.3009	.2467	.361	.3856
.6145	.403	.3013	.2474	.360	.3858
.6156	.392	.3016	.2481	.362	.3860
.6167	.410	.3019	.2488	.361	.3863
			.2529	.355	.3875
2441665.4282	.335	.9572	.2536	.355	.3877
.4287	.344	.9573	.2542	.362	.3879
.4293	.331	.9575	.2549	.364	.3882
.4299	.333	.9577	.2556	.354	.3884
.4306	.335	.9579	.2563	.354	.3886
.4313	.334	.9581	.2569	.355	.3888
.4320	.336	.9583	.2576	.354	.3890
.4326	.335	.9585	.2584	.354	.3892
.4333	.325	.9588	.2590	.360	.3894
.4340	.336	.9590	.3016	.354	.4027
.4347	.329	.9592	.3024	.356	.4029
.4354	.330	.9594	.3029	.354	.4031
.4386	.325	.9604	.3036	.354	.4033
.4392	.321	.9606	.3043	.358	.4035
.4399	.317	.9608	.3049	.358	.4037
.4406	.324	.9610	.3057	.354	.4039
.4412	.324	.9612	.3065	.351	.4042
.4420	.319	.9615	.3072	.351	.4044
.4427	.323	.9617	.3079	.352	.4046
.4434	.311	.9619	.3086	.352	.4048
.4440	.317	.9621	.3093	.352	.4050
.4448	.319	.9623	.3099	.347	.4052
.4454	.319	.9625	.3106	.352	.4055
.4462	.327	.9628	.3432	.352	.4156
.4493	.321	.9637	.3439	.345	.4158
.4501	.315	.9640	.3443	.345	.4159
.4507	.319	.9642	.3452	.348	.4162
.4515	.313	.9644	.3459	.346	.4164
.4521	.321	.9646	.3466	.347	.4166
.4528	.318	.9648	.3473	.346	.4168
.4535	.310	.9650	.3480	.350	.4171
.4542	.309	.9652	.3487	.353	.4173
.4550	.312	.9655	.3494	.363	.4175
.4557	.312	.9657	.3666	.361	.4228
.4563	.316	.9659	.3677	.358	.4232
.4595	.315	.9669	.3688	.354	.4235
.4601	.313	.9671	.3691	.354	.4236
.4608	.302	.9673	.3701	.354	.4239
.4615	.299	.9675	.3708	.352	.4241

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.3715	.352	.4244	.5637	.354	.9372
.3907	.353	.4303	.5644	.344	.9374
.3918	.361	.4307	.5651	.349	.9376
.3926	.353	.4309	.5658	.355	.9378
.3936	.353	.4312	.5665	.345	.9380
.3943	.352	.4314	.5686	.344	.9387
.3949	.356	.4316	.5692	.353	.9389
.3956	.360	.4319	.5699	.352	.9391
.4267	.351	.4415	.5707	.354	.9393
.4273	.351	.4417	.5714	.349	.9395
.4282	.353	.4420	.5720	.352	.9397
.4289	.359	.4422	.5727	.348	.9399
.4296	.350	.4424	.5734	.352	.9402
.4327	.344	.4434	.5741	.352	.9404
.4338	.341	.4437	.5747	.350	.9406
.4345	.349	.4439	.5754	.352	.9408
.4352	.347	.4442	.5761	.353	.9410
.4359	.342	.4444	.5769	.354	.9413
.4366	.340	.4446	.5780	.356	.9416
.4371	.342	.4447	.5804	.356	.9423
.4378	.341	.4450	.5812	.354	.9426
.4387	.343	.4452	.5819	.356	.9428
.4394	.351	.4455	.5825	.354	.9430
.4407	.350	.4459	.5832	.343	.9432
			.5838	.353	.9434
2441961.5344	.365	.9281	.5845	.352	.9436
.5350	.359	.9282	.5852	.349	.9438
.5357	.354	.9285	.5859	.352	.9440
.5364	.356	.9287	.5866	.354	.9443
.5371	.361	.9289	.5873	.358	.9445
.5378	.361	.9291	.5880	.349	.9447
.5385	.359	.9293	.5887	.362	.9449
.5392	.357	.9295	.5894	.358	.9451
.5421	.356	.9304	.5901	.341	.9454
.5428	.358	.9307	.5928	.354	.9462
.5435	.357	.9309	.5935	.356	.9464
.5455	.358	.9315	.5942	.356	.9466
.5462	.358	.9317	.5949	.345	.9468
.5469	.357	.9319	.5957	.347	.9471
.5476	.361	.9322	.5964	.350	.9473
.5483	.362	.9324	.5971	.356	.9475
.5490	.356	.9326	.5978	.352	.9477
.5497	.355	.9328	.5985	.352	.9480
.5504	.357	.9330	.5992	.357	.9482
.5511	.356	.9332	.5999	.350	.9484
.5518	.359	.9335	.6005	.357	.9486
.5525	.357	.9337	.6012	.348	.9488
.5532	.359	.9339	.6019	.342	.9490
.5539	.363	.9341	.6054	.345	.9501
.5546	.366	.9343	.6061	.352	.9503
.5566	.355	.9349	.6068	.344	.9505
.5573	.354	.9352	.6077	.345	.9508
.5580	.359	.9354	.6089	.345	.9512
.5587	.361	.9356	.6098	.349	.9515
.5594	.357	.9358	.6104	.342	.9517
.5601	.358	.9360	.6111	.338	.9519
.5608	.351	.9363	.6119	.339	.9521
.5615	.354	.9365	.6126	.344	.9523
.5622	.352	.9367	.6133	.345	.9526
.5629	.350	.9369	.6140	.342	.9528

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.6147	.337	.9530	.2426	.406	.7388
.6161	.349	.9534	.2433	.413	.7391
.6172	.343	.9538	.2440	.405	.7393
.6180	.341	.9540	.2447	.404	.4395
.6187	.345	.9542	.2475	.406	.7404
.6194	.348	.9545	.2482	.407	.7406
.6201	.339	.9547	.2489	.403	.7408
.6208	.332	.9549	.2496	.400	.7410
.6215	.329	.9551	.2503	.401	.7412
.6222	.336	.9553	.2510	.404	.7414
.6229	.341	.9555	.2517	.402	.7417
.6236	.367	.9558	.2524	.414	.7419
.6242	.353	.9559	.2531	.394	.7421
.6249	.360	.9562	.2538	.381	.7423
.6256	.359	.9564	.2545	.402	.7425
.6263	.354	.9566	.2565	.405	.7432
.6270	.353	.9568	.2571	.405	.7433
.6277	.354	.9570	.2578	.402	.7436
.6304	.317	.9579	.2585	.407	.7438
.6311	.325	.9581	.2592	.412	.7440
.6318	.323	.9583	.2599	.396	.7442
.6325	.319	.9585	.2606	.401	.7444
.6362	.326	.9587	.2613	.405	.7446
.6339	.322	.9590	.2620	.403	.7449
.6346	.319	.9592	.2627	.405	.7451
.6353	.322	.9594	.2634	.407	.7453
.6360	.324	.9596	.2661	.413	.7461
.6367	.313	.9598	.2668	.408	.7464
.6373	.327	.9600	.2675	.412	.7466
.6380	.313	.9602	.2682	.404	.7468
.6387	.325	.9604	.2689	.412	.7470
.6394	.325	.9607	.2696	.406	.7472
.6401	.315	.9609	.2703	.416	.7474
.6408	.321	.9611	.2710	.409	.7477
.6415	.320	.9613	.2717	.413	.7479
.6437	.318	.9620	.2724	.410	.7481
.6444	.313	.9622	.2731	.418	.7483
.6451	.317	.9624	.2738	.407	.7485
.6457	.300	.9626	.2758	.407	.7491
.6464	.299	.9628	.2765	.411	.7494
.6471	.313	.9631	.2772	.415	.7496
.6478	.308	.9633	.2779	.409	.7498
.6486	.308	.9635	.2786	.409	.7500
.6493	.317	.9637	.2793	.406	.7502
.6499	.309	.9639	.2800	.405	.7505
.6506	.318	.9641	.2807	.411	.7507
.6514	.324	.9644	.2814	.406	.7509
.6520	.313	.9646	.2821	.414	.7511
.6530	.289	.9649	.2828	.409	.7513
.6535	.302	.9650	.2835	.417	.7515
.6542	.311	.9653	.2854	.410	.7521
			.2861	.407	.7523
2441980.2371	.405	.7371	.2868	.416	.7526
.2378	.409	.7373	.2875	.408	.7528
.2385	.408	.7376	.2882	.419	.7530
.2391	.409	.7377	.2889	.410	.7532
.2398	.410	.7380	.2896	.411	.7534
.2404	.413	.7382	.2903	.402	.7537
.2412	.404	.7384	.2910	.409	.7539
.2420	.408	.7387	.2917	.416	.7541

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2924	.417	.7543	.2676	.397	.6784
.2931	.418	.7545	.2683	.404	.6786
.2951	.418	.7551	.2690	.395	.6788
.2958	.421	.7554	.2697	.398	.6791
.2965	.427	.7556	.2704	.394	.6793
.2972	.421	.7558	.2711	.399	.6795
.2979	.402	.7560	.2718	.395	.6797
.2987	.414	.7563	.2738	.395	.6803
.2994	.416	.7565	.2745	.399	.6805
.3000	.409	.7567	.2752	.393	.6808
.3007	.415	.7569	.2766	.396	.6812
.3014	.404	.7571	.2773	.403	.6814
.3021	.408	.7573	.2780	.399	.6816
.3042	.410	.7580	.2787	.397	.6819
.3049	.399	.7582	.2794	.399	.6821
.3056	.412	.7584	.2801	.400	.6823
.3063	.414	.7586	.2807	.394	.6825
.3070	.418	.7588	.2814	.392	.6827
.3077	.416	.7591	.2821	.395	.6829
.3084	.412	.7593	.2842	.410	.6836
.3091	.415	.7595	.2849	.418	.6838
.3097	.410	.7597	.2856	.422	.6840
.3104	.416	.7599	.2863	.364	.6842
.3127	.311	.7606	.2870	.368	.6844
.3153	.415	.7608	.2877	.374	.6846
.3140	.419	.7610	.2884	.381	.6849
.3147	.419	.7612	.2891	.388	.6851
.3154	.422	.7614	.2897	.393	.6853
.3160	.415	.7616	.2904	.402	.6855
2441983.2432	.392	.6708	.2911	.401	.6857
.2439	.400	.6710	.2918	.408	.6859
.2446	.399	.6713	.2925	.411	.6861
.2453	.398	.6715	.3051	.387	.6901
.2460	.398	.6717	.3058	.394	.6903
.2467	.403	.6719	.3065	.397	.6905
.2474	.397	.6721	.3072	.389	.6907
.2480	.402	.6723	.3079	.397	.6909
.2487	.401	.6725	.3085	.391	.6911
.2494	.407	.6728	.3092	.407	.6913
.2501	.404	.6730	.3099	.399	.6915
.2508	.404	.6732	.3107	.399	.6918
.2536	.402	.6741	.3114	.389	.6920
.2544	.404	.6743	.3120	.388	.6922
.2551	.405	.6745	.3127	.391	.6924
.2558	.403	.6747	.3149	.400	.6931
.2565	.404	.6750	.3156	.390	.6933
.2571	.401	.6751	.3163	.393	.6935
.2578	.403	.6754	.3170	.392	.6937
.2585	.406	.6756	.3177	.393	.6940
.2592	.401	.6758	.3184	.389	.6942
.2599	.400	.6760	.3191	.394	.6944
.2607	.393	.6763	.3198	.392	.6946
.2614	.389	.6765	.3204	.394	.6948
.2635	.399	.6771	.3211	.394	.6950
.2642	.398	.6773	.3218	.392	.6952
.2649	.401	.6776	2441984.2258	.313	.9760
.2656	.399	.6778	.2265	.319	.9762
.2663	.401	.6780	.2273	.313	.9765
.2669	.396	.6782	.2279	.299	.9767

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2286	.301	.9769	.3308	.260	.0086
.2293	.301	.9771	.3315	.261	.0089
.2300	.298	.9773	.3322	.257	.0091
.2307	.299	.9775	.3329	.261	.0093
.2314	.296	.9778	.3336	.257	.0095
.2322	.293	.9780	.3342	.260	.0097
.2328	.283	.9782	.3349	.257	.0099
.2334	.280	.9784	.3356	.257	.0101
.2340	.281	.9786	.3363	.257	.0103
.2347	.275	.9788	.3385	.237	.0110
.2466	.277	.9825	.3392	.258	.0112
.2473	.282	.9827	.3399	.267	.0115
.2480	.284	.9829	.3406	.267	.0117
.2487	.290	.9831	.3413	.261	.0119
.2494	.280	.9834	.3420	.262	.0121
.2501	.259	.9836	.3427	.261	.0123
.2508	.263	.9838	.3434	.262	.0125
.2515	.266	.9840	.3441	.261	.0128
.2522	.271	.9842	.3447	.269	.0130
.2529	.281	.9844	.3453	.263	.0131
.2536	.283	.9847	.3460	.261	.0134
.2543	.289	.9849	.3467	.264	.0136
.2751	.275	.9913	.3496	.263	.0145
.2758	.279	.9916	.3502	.261	.0147
.2765	.272	.9918	.3509	.262	.0149
.2772	.265	.9920	.3517	.267	.0151
.2779	.264	.9922	.3524	.263	.0153
.2786	.255	.9924	.3531	.265	.0156
.2793	.251	.9926	.3538	.266	.0158
.2800	.245	.9929	.3545	.275	.0160
.2807	.246	.9931	.3551	.268	.0162
.2814	.236	.9933	.3557	.266	.0164
.2821	.232	.9935	.3564	.267	.0166
.2828	.231	.9937	.3588	.263	.0173
.2876	.258	.9952	.3600	.277	.0177
.2883	.258	.9954	.3607	.278	.0179
.2890	.252	.9957	.3614	.279	.0181
.2897	.253	.9959	.3621	.279	.0184
.2904	.254	.9961	.3628	.280	.0186
.2911	.256	.9963	.3635	.277	.0188
.2918	.253	.9965	.3642	.278	.0190
.2925	.254	.9967	.3649	.282	.0192
.2932	.249	.9970	.3655	.286	.0194
.2939	.249	.9972	.3662	.282	.0196
.2946	.250	.9974	.3669	.279	.0198
.2953	.252	.9976	.3788	.275	.0235
.2982	.250	.9985	.3795	.286	.0238
.2988	.245	.9987	.3802	.291	.0240
.2995	.249	.9989	.3809	.277	.0242
.3002	.253	.9991	.3816	.282	.0244
.3009	.244	.9993	.3823	.283	.0246
.3016	.252	.9996	.3830	.284	.0248
.3023	.254	.9998	.3837	.289	.0251
.3030	.249	.0000	.3844	.292	.0253
.3037	.243	.0002	.3850	.288	.0255
.3044	.247	.0004	.3857	.288	.0257
.3051	.257	.0007	.3864	.290	.0259
.3058	.259	.0009	.3885	.295	.0266
.3294	.257	.0082	.3892	.298	.0268
.3301	.261	.0084	.3899	.293	.0270

Table 2 (Continued)

J.D. _{hel}	<i>m</i>	Phase	J.D. _{hel}	Δm	Phase
.3906	.291	.0272	.4427	.357	.0434
.3913	.289	.0274	.4434	.355	.0436
.3919	.288	.0276	.4441	.370	.0438
.3926	.292	.0278	.4447	.369	.0440
.3933	.285	.0280	.4454	.370	.0442
.3940	.282	.0283	.4461	.360	.0444
.3947	.285	.0285			
.3956	.287	.0288	2442054.2141	.363	.7145
.3963	.280	.0290	.2151	.361	.7148
.3987	.297	.0297	.2158	.362	.7150
.4000	.299	.0301	.2165	.363	.7152
.4007	.303	.0303	.2172	.362	.7154
.4014	.305	.0306	.2179	.360	.7156
.4021	.312	.0308	.2186	.361	.7159
.4028	.311	.0310	.2193	.366	.7161
.4035	.319	.0312	.2200	.362	.7163
.4041	.311	.0314	.2207	.365	.7165
.4047	.310	.0316	.2214	.364	.7167
.4059	.285	.0320	.2220	.365	.7169
.4066	.295	.0322	.2234	.365	.7173
.4093	.311	.0330	.2255	.365	.7180
.4101	.323	.0333	.2262	.366	.7182
.4108	.312	.0335	.2269	.365	.7184
.4114	.321	.0337	.2276	.363	.7187
.4121	.313	.0339	.2283	.363	.7188
.4128	.315	.0341	.2290	.365	.7191
.4135	.317	.0343	.2297	.364	.7193
.4142	.324	.0345	.2304	.366	.7195
.4149	.323	.0348	.2311	.364	.7197
.4156	.327	.0350	.2318	.362	.7200
.4163	.323	.0352	.2325	.362	.7202
.4170	.323	.0354	.2332	.367	.7204
.4191	.324	.0361	.2339	.365	.7206
.4197	.325	.0362	.2361	.368	.7213
.4204	.325	.0365	.2367	.369	.7215
.4211	.328	.0367	.2373	.368	.7217
.4218	.324	.0369	.2380	.366	.7219
.4225	.323	.0371	.2387	.365	.7221
.4233	.322	.0374	.2394	.366	.7223
.4239	.327	.0376	.2402	.367	.7226
.4246	.326	.0378	.2409	.364	.7228
.4253	.330	.0380	.2415	.365	.7230
.4260	.326	.0382	.2421	.363	.7232
.4267	.331	.0384	.2428	.364	.7234
.4296	.332	.0393	.2435	.364	.7236
.4302	.337	.0395	.2442	.368	.7238
.4309	.339	.0397	.2449	.363	.7240
.4316	.336	.0399	.3192	.369	.7471
.4322	.337	.0401	.3199	.367	.7473
.4330	.311	.0404	.3206	.374	.7475
.4337	.332	.0406	.3213	.366	.7478
.4344	.327	.0408	.3220	.358	.7480
.4351	.302	.0410	.3227	.365	.7482
.4358	.310	.0412	.3234	.365	.7484
.4364	.332	.0414	.3241	.376	.7486
.4392	.349	.0423	.3248	.366	.7488
.4399	.348	.0425	.3255	.360	.7491
.4406	.351	.0427	.3262	.361	.7493
.4413	.358	.0430	.3269	.376	.7495
.4420	.357	.0432	.3276	.378	.7497

Table 2 (Continued)

J.D.-hel	Δm	Phase	J.D.-hel	Δm	Phase
.3304	.366	.7506	.3149	.432	.7154
.3311	.368	.7508	.3156	.428	.7156
.3318	.364	.7510	.3163	.432	.7158
.3325	.370	.7512	.3170	.429	.7160
.3332	.360	.7515	.3177	.427	.7163
.3339	.363	.7517	.3184	.436	.7165
.3346	.361	.7519	.3190	.430	.7167
.3353	.363	.7521	.3196	.430	.7168
.3360	.359	.7523	.3023	.427	.7171
.3367	.354	.7525	.3210	.428	.7173
.3374	.359	.7528	.3244	.431	.7183
.3381	.367	.7530	.3252	.429	.7186
.3388	.363	.7532	.3259	.432	.7188
.3408	.348	.7538	.3265	.432	.7190
.3416	.343	.7541	.3272	.427	.7192
.3423	.355	.7543	.3279	.427	.7194
.3430	.356	.7545	.3287	.427	.7197
.3437	.351	.7547	.3297	.433	.7200
.3443	.357	.7549	.3303	.432	.7202
.3450	.364	.7551	.3310	.430	.7204
.3457	.350	.7553	.3345	.427	.7215
			.3352	.429	.7217
2442070.2809	.425	.7048	.3359	.432	.7219
.2816	.421	.7050	.3365	.433	.7221
.2823	.426	.7053	.3372	.435	.7223
.2830	.422	.7055	.3379	.434	.7225
.2837	.421	.7057	.3386	.441	.7227
.2863	.422	.7065	.3405	.426	.7233
.2870	.418	.7067	.3411	.431	.7235
.2877	.418	.7269	.3418	.416	.7237
.2882	.425	.7071	.3425	.428	.7240
.2886	.426	.7072	.3431	.431	.7241
.2892	.426	.7074	.3437	.428	.7243
.2899	.427	.7076			
.2904	.429	.7078	2442440.2019	.411	.6027
.2909	.429	.7079	.2026	.400	.6029
.2914	.419	.7081	.2033	.391	.6031
.2921	.419	.7083	.2040	.406	.6033
.2954	.427	.7093	.2047	.417	.6035
.2961	.427	.7095	.2054	.421	.6037
.2968	.427	.7098	.2060	.384	.6039
.2975	.428	.7100	.2067	.391	.6041
.2981	.427	.7102	.2088	.404	.6048
.2987	.426	.7104	.2095	.381	.6050
.2992	.431	.7105	.2101	.395	.6052
.2997	.431	.7107	.2108	.395	.6054
.3003	.432	.7108	.2122	.383	.6059
.3010	.431	.7111	.2129	.386	.6061
.3016	.429	.7113	.2136	.381	.6063
.3052	.432	.7124	.2163	.386	.6071
.3059	.432	.7126	.2170	.399	.6073
.3065	.436	.7128	.2177	.391	.6076
.3071	.433	.7130	.2184	.413	.6078
.3080	.433	.7132	.2191	.407	.6080
.3087	.437	.7135	.2219	.415	.6089
.3094	.432	.7137	.2224	.413	.6090
.3101	.432	.7139	.2230	.388	.6092
.3108	.438	.7141	.2237	.367	.6094
.3115	.431	.7143	.2244	.400	.6096
.3122	.432	.7145	.2251	.413	.6099

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2258	.405	.6101	.2862	.370	.6288
.2265	.395	.6103	.2887	.391	.6296
.2290	.384	.6111	.2894	.390	.6298
.2297	.378	.6113	.2901	.376	.6301
.2304	.365	.6115	.2915	.389	.6305
.2310	.381	.6117	.2921	.389	.6307
.2317	.395	.6119	.2928	.379	.6309
.2324	.401	.6121	.2935	.402	.6311
.2331	.394	.6123	.2942	.416	.6313
.2339	.386	.6126	.2949	.390	.6315
.2365	.377	.6134	.2978	.408	.6324
.2379	.395	.6138	.2985	.405	.6327
.2386	.404	.6141	.2992	.411	.6329
.2393	.385	.6143	.2999	.391	.6331
.2400	.367	.6145	.3006	.404	.6333
.2414	.399	.6149	.3038	.428	.6343
.2445	.389	.6159	.3045	.433	.6345
.2451	.401	.6161	.3052	.427	.6347
.2465	.376	.6165	.3066	.393	.6352
.2471	.366	.6167	.3101	.370	.6363
.2478	.371	.6169	.3111	.387	.6366
.2485	.384	.6171	.3119	.412	.6368
.2492	.415	.6173	.3126	.388	.6370
.2499	.413	.6176	.3133	.394	.6373
.2506	.402	.6178	.3140	.410	.6375
.2536	.401	.6187	.3147	.400	.6377
.2543	.382	.6189	.3154	.406	.6379
.2550	.360	.6191	.3161	.393	.6381
.2557	.392	.6194	.3168	.393	.6383
.2564	.393	.6196	.3195	.392	.6392
.2570	.376	.6198	.3202	.366	.6394
.2577	.371	.6200	.3218	.395	.6399
.2593	.363	.6205	.3224	.376	.6401
.2617	.361	.6212	.3231	.385	.6403
.2624	.386	.6214	.3238	.380	.6405
.2631	.409	.6217	.3245	.381	.6407
.2638	.394	.6219	.3252	.424	.6410
.2645	.398	.6221	.3259	.427	.6412
.2652	.397	.6223	.3305	.407	.6426
.2659	.402	.6225	.3313	.412	.6428
.2666	.403	.6228	.3320	.378	.6431
.2671	.409	.6229	.3325	.369	.6432
.2678	.405	.6231			
.2711	.372	.6241	2442647.5333	.249	.0000
.2717	.384	.6243	.5340	.250	.0002
.2724	.374	.6246	.5347	.254	.0004
.2731	.390	.6248	.5354	.247	.0006
.2738	.384	.6250	.5370	.257	.0011
.2745	.388	.6252	.5377	.260	.0014
.2752	.376	.6254	.5384	.264	.0016
.2766	.400	.6259	.5412	.264	.0024
.2799	.409	.6269	.5419	.257	.0027
.2806	.417	.6271	.5426	.251	.0029
.2813	.412	.6273	.5440	.246	.0033
.2820	.376	.6275	.5448	.250	.0036
.2827	.378	.6278	.5526	.249	.0060
.2834	.403	.6280	.5533	.254	.0062
.2840	.390	.6282	.5540	.250	.0064
.2847	.412	.6284	.5546	.257	.0066
.2855	.384	.6286	.5552	.254	.0068

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.5558	.253	.0070	.3253	.268	.0110
.5572	.254	.0074	.3260	.254	.0112
.5609	.251	.0086	.3294	.260	.0123
.5616	.242	.0088	.3301	.245	.0125
.5622	.249	.0090	.3327	.274	.0133
.5645	.247	.0097	.3334	.259	.0135
.5709	.264	.0117	.3342	.245	.0138
.5726	.245	.0122	.3372	.272	.0147
			.3379	.258	.0149
			.3384	.237	.0151
2442673.2741	.329	.9951	.3391	.270	.0153
.2749	.265	.9954	.3398	.267	.0155
.2755	.277	.9955	.3405	.244	.0157
.2762	.274	.9958	.3450	.276	.0171
.2768	.273	.9960	.3457	.286	.0174
.2775	.274	.9962	.3467	.265	.0177
.2806	.269	.9971	.3471	.286	.0178
.2814	.263	.9974	.3482	.262	.0181
.2822	.269	.9976	.3507	.276	.0189
.2829	.266	.9978	.3514	.247	.0191
.2836	.264	.9981	.3521	.255	.0193
.2858	.235	.9987	.3528	.276	.0196
.2865	.240	.9990	.3535	.271	.0198
.2872	.248	.9992	.3556	.270	.0204
.2879	.248	.9994	.3565	.276	.0207
.2887	.246	.9996	.3572	.280	.0209
.2907	.259	.0003	.3579	.275	.0211
.2914	.260	.0005	.3586	.277	.0214
.2924	.265	.0008			
.2931	.287	.0010	2442681.4665	.336	.5397
.2938	.276	.0012	.4672	.336	.5399
.2978	.268	.0025	.4679	.345	.5401
.2985	.267	.0027	.4686	.353	.5403
.2992	.235	.0029	.4693	.345	.5406
.2999	.243	.0031	.4700	.358	.5408
.3006	.265	.0033	.4714	.362	.5412
.3026	.254	.0040	.4721	.359	.5414
.3033	.240	.0042	.4728	.349	.5416
.3040	.254	.0044	.4754	.352	.5424
.3049	.268	.0047	.4761	.356	.5427
.3056	.251	.0049	.4768	.364	.5429
.3087	.272	.0059	.4775	.354	.5431
.3094	.228	.0061	.4782	.364	.5433
.3101	.246	.0063	.4789	.357	.5435
.3108	.257	.0065	.4796	.350	.5438
.3115	.252	.0067	.4800	.360	.5439
.3139	.220	.0075	.4807	.347	.5441
.3146	.235	.0077	.4814	.353	.5443
.3153	.250	.0079	.4847	.374	.5453
.3160	.264	.0081	.4854	.357	.5456
.3167	.248	.0083	.4861	.360	.5458
.3174	.260	.0086	.4868	.364	.5460
.3189	.261	.0090	.4875	.359	.5462
.3197	.258	.0093	.4882	.351	.5464
.3204	.249	.0095	.4889	.355	.5466
.3211	.240	.0097	.4896	.363	.5469
.3218	.265	.0099	.4903	.355	.5471
.3231	.262	.0103	.4910	.354	.5473
.3239	.261	.0106	.4935	.346	.5481
.3246	.259	.0108	.4942	.354	.5483

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.4949	.345	.5485	2442712.3981	.416	.1471
.4956	.354	.5487	.3988	.419	.1473
.4963	.354	.5489	.3995	.415	.1475
.4970	.360	.5492	.4002	.412	.1477
.4977	.350	.5494	.4009	.413	.1479
.4984	.333	.5496	.4016	.420	.1482
.4991	.336	.5498	.4023	.410	.1484
.4998	.356	.5500	.4030	.426	.1486
.5005	.353	.5502	.4039	.411	.1489
.5012	.362	.5505	.4046	.416	.1491
			.4053	.414	.1493
2442685.5010	.400	.7928	.4060	.414	.1495
.5017	.410	.7930	.4093	.419	.1505
.5024	.409	.7932	.4100	.409	.1508
.5031	.414	.7935	.4107	.410	.1510
.5038	.410	.7937	.4114	.409	.1512
.5044	.401	.7939	.4121	.410	.1514
.5051	.405	.7941	.4128	.413	.1516
.5058	.409	.7943	.4135	.406	.1519
.5065	.403	.7945	.4142	.410	.1521
.5072	.413	.7947	.4149	.412	.1523
.5097	.414	.7955	.4156	.413	.1525
.5104	.409	.7957	.4163	.412	.1527
.5111	.409	.7959	.4190	.428	.1536
.5117	.417	.7961	.4197	.413	.1538
.5125	.420	.7964	.4204	.416	.1540
.5132	.417	.7966	.4211	.408	.1542
.5139	.410	.7968	.4218	.421	.1544
.5153	.403	.7972	.4230	.419	.1548
.5160	.412	.7975	.4237	.415	.1550
.5205	.399	.7989	.4244	.409	.1552
.5219	.414	.7993	.4258	.422	.1557
.5226	.414	.7995	.4265	.416	.1559
.5233	.406	.7997	.4293	.417	.1568
.5240	.403	.7999	.4300	.411	.1570
.5247	.404	.8002	.4307	.413	.1572
.5254	.400	.8004	.4314	.432	.1574
.5260	.402	.8006	.4321	.428	.1576
.5267	.398	.8008	.4328	.433	.1578
.5330	.390	.8027	.4335	.420	.1581
.5337	.401	.8030	.4342	.431	.1583
.5344	.400	.8032	.4349	.414	.1585
.5351	.392	.8034	.4356	.421	.1587
.5358	.391	.8036	.4380	.416	.1595
.5365	.404	.8038	.4387	.405	.1597
.5372	.399	.8040	.4395	.423	.1599
.5379	.403	.8043	.4402	.426	.1601
.5386	.398	.8045	.4409	.421	.1604
.5393	.412	.8047	.4416	.421	.1606
.5420	.384	.8055	.4423	.415	.1608
.5427	.404	.8058	.4430	.438	.1610
.5434	.396	.8060	.4437	.426	.1612
.5441	.399	.8062	.4444	.414	.1614
.5448	.403	.8064	.4472	.424	.1623
.5455	.377	.8066	.4479	.422	.1625
.5462	.412	.8068	.4486	.415	.1628
.5469	.403	.8071	.4491	.417	.1629
.5476	.405	.8073	.4498	.431	.1631
.5483	.408	.8075	.4505	.421	.1633

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.4512	.410	.1636	.3575	.253	.0129
.4519	.409	.1638	.3582	.265	.0131
.4526	.406	.1640	.3589	.273	.0134
.4533	.424	.1642	.3596	.282	.0136
.4564	.404	.1652	.3603	.248	.0138
.4571	.428	.1654	.3610	.248	.0140
.4578	.411	.1656	.3617	.268	.0142
.4585	.406	.1658	.3624	.301	.0144
.4592	.416	.1660	.3660	.262	.0156
.4599	.399	.1663	.3667	.267	.0158
.4606	.424	.1665	.3674	.242	.0160
.4613	.411	.1667	.3681	.249	.0162
.4620	.404	.1669	.3688	.266	.0164
.4627	.409	.1671	.3695	.318	.0166
			.3702	.250	.0169
			.3709	.299	.0171
2442776.1900	.293	.9609	.3716	.256	.0173
.1907	.292	.9611	.3886	.258	.0226
.1914	.289	.9613	.3893	.269	.0228
.1921	.314	.9615	.3900	.272	.0230
.1936	.305	.9620	.3907	.271	.0232
.1943	.306	.9622	.3914	.250	.0235
.1950	.306	.9624	.3921	.272	.0237
.1957	.324	.9627	.3928	.300	.0239
.1995	.289	.9638	.3935	.322	.0241
.2002	.298	.9641	.3942	.304	.0243
.2009	.302	.9643	.3950	.331	.0246
.2016	.295	.9645	.3979	.276	.0255
.2023	.289	.9647	.3986	.272	.0257
.2814	.298	.9893	.3993	.290	.0259
.2821	.276	.9895	.4000	.311	.0261
.2827	.259	.9897	.4007	.316	.0263
.2834	.239	.9899	.4014	.306	.0266
.2840	.262	.9901	.4021	.302	.0268
.2847	.268	.9903	.4028	.305	.0270
.2854	.244	.9905	.4035	.340	.0272
.2877	.257	.9912	.4042	.329	.0274
.2884	.259	.9915	.4049	.299	.0276
.2890	.252	.9916			
.2897	.250	.9919	2442811.2301	.389	.8444
.2905	.282	.9921	.2307	.386	.8446
.2912	.257	.9923	.2313	.394	.8448
.2918	.265	.9925	.2320	.390	.8450
.3203	.252	.0014	.2326	.379	.8452
.3210	.276	.0016	.2331	.399	.8453
.3217	.248	.0018	.2338	.391	.8455
.3224	.238	.0020	.2354	.392	.8460
.3231	.263	.0022	.2361	.392	.8462
.3238	.273	.0025	.2367	.405	.8464
.3245	.253	.0027	.2373	.398	.8466
.3252	.238	.0029	.2380	.405	.8468
.3259	.230	.0031	.2413	.418	.8479
.3266	.213	.0033	.2419	.413	.8481
.3303	.250	.0045	.2426	.397	.8483
.3310	.292	.0047	.2432	.411	.8485
.3317	.260	.0049	.2439	.419	.8487
.3324	.242	.0051	.2446	.370	.8489
.3331	.208	.0053	.2452	.408	.8491
.3561	.247	.0125	.2458	.401	.8493
.3568	.255	.0127	.2465	.412	.8495

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2472	.400	.8497	.4924	.350	.5309
.2479	.390	.8499	.4931	.332	.5311
.2498	.400	.8505			
.2505	.403	.8507	2443027.8699	.381	.1329
.2511	.399	.8509	.8710	.386	.1333
.2517	.412	.8511	.8803	.385	.1362
.2524	.386	.8513	.8824	.385	.1368
.2530	.389	.8515	.8935	.395	.1403
.2537	.399	.8517	.8963	.403	.1411
.2544	.386	.8519	.9053	.412	.1439
.2550	.383	.8521	.9067	.417	.1444
.2557	.376	.8523			
.2583	.384	.8531	2443028.8372	.347	.4334
.2589	.384	.8533	.8400	.338	.4342
.2595	.393	.8535	.8483	.372	.4368
.2601	.379	.8537	.8504	.377	.4375
.2608	.377	.8539	.8567	.410	.4394
.2615	.384	.8541	.8595	.405	.4403
.2622	.384	.8544			
.2629	.376	.8546	2443029.7643	.424	.7213
.2636	.384	.8548	.7650	.420	.7215
.2642	.389	.8550	.7747	.424	.7246
.2662	.397	.8556	.7775	.418	.7254
.2668	.404	.8558	.7851	.420	.7278
.2675	.390	.8560	.7865	.416	.7282
.2681	.386	.8562			
.2688	.389	.8564	2443052.7133	.413	.8493
.2695	.408	.8566	.7161	.407	.8504
.2701	.396	.8568	.7217	.386	.8519
.2707	.397	.8570	.7231	.392	.8524
.2713	.401	.8572	.7265	.395	.8534
.2720	.392	.8574	.7272	.389	.8536
.2727	.373	.8576	.7508	.367	.8610
.2747	.364	.8582	.7522	.367	.8614
.2754	.395	.8585	.7592	.367	.8636
.2761	.404	.8587	.7612	.369	.8642
.2781	.384	.8593	.7668	.374	.8659
.2788	.392	.8595	.7682	.374	.8664
.2794	.393	.8597	.7744	.389	.8683
.2800	.398	.8599	.7751	.388	.8685
.2806	.406	.8601	.7793	.386	.8698
			.7800	.404	.8700
2443019.4755	.309	.5256	.7849	.411	.8715
.4784	.349	.5265	.7855	.416	.8717
.4791	.348	.5267			
.4798	.339	.5270	2443062.6300	.362	.9294
.4805	.344	.5272	.6314	.360	.9299
.4812	.352	.5274	.6369	.363	.9316
.4819	.326	.5276	.6383	.378	.9320
.4826	.325	.5278	.6439	.364	.9338
.4833	.330	.5281	.6453	.368	.9342
.4840	.339	.5283	.6487	.366	.9353
.4847	.347	.5285	.6501	.363	.9357
.4874	.343	.5293	.6987	.350	.9508
.4882	.341	.5296	.7001	.352	.9512
.4889	.344	.5298	.7050	.348	.9527
.4896	.347	.5300	.7112	.357	.9547
.4903	.339	.5302	.7126	.358	.9551
.4910	.345	.5304	.7168	.358	.9564
.4917	.351	.5306	.7182	.351	.9568

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.7619	.347	.9704	2443096.6976	.326	.5109
.7626	.306	.9706	.6990	.326	.5113
.7682	.306	.9724	.7046	.330	.5131
.7689	.295	.9726	.7060	.325	.5135
.7724	.291	.9737	.7108	.320	.5150
.7737	.299	.9741	.7122	.327	.5154
.7786	.292	.9756	.7171	.334	.5169
.7793	.292	.9758	.7185	.339	.5174
.8251	.292	.9900	2443097.6886	.413	.8187
.8253	.256	.9901	.6900	.404	.8191
.8265	.261	.9905	.6949	.403	.8206
.8321	.260	.9922	.6963	.410	.8211
.8335	.258	.9927	.7011	.411	.8226
.8376	.254	.9939	.7025	.406	.8230
.8390	.272	.9944	.7074	.396	.8245
.8446	.260	.9961	.7081	.392	.8247
.8460	.263	.9965	2443099.6981	.382	.4428
2443078.7365	.362	.9321	.6995	.375	.4433
.7379	.364	.9326	.7037	.366	.4446
.7421	.358	.9339	.7051	.363	.4450
.7442	.368	.9345	.7086	.363	.4461
.7483	.364	.9358	.7106	.357	.4467
.7497	.354	.9362	.7155	.376	.4482
.7546	.361	.9378	.7169	.370	.4487
.7567	.368	.9384	2443136.2804	.409	.8053
.7608	.362	.9397	.2810	.400	.8055
.7622	.360	.9401	.2817	.401	.8057
2443080.6990	.355	.5417	.2824	.400	.8060
.7004	.346	.5421	.3278	.406	.8201
.7067	.357	.5441	.3285	.393	.8203
.7081	.366	.5445	.3292	.399	.8205
.7129	.361	.5460	.3300	.391	.8207
.7150	.366	.5467	.3306	.387	.8209
.7199	.375	.5482	.3312	.389	.8211
.7213	.379	.5486	.3328	.407	.8216
.7276	.389	.5506	.3333	.395	.8218
.7289	.383	.5509	.3340	.399	.8220
2443083.7142	.351	.4782	.3347	.400	.8222
.7156	.340	.4787	.3458	.410	.8256
.7191	.336	.4797	.3679	.388	.8325
.7212	.324	.4804	.3687	.391	.8328
.7260	.319	.4819	.3693	.392	.8329
.7274	.315	.4823	.3700	.392	.8332
.7316	.299	.4836	.3707	.388	.8334
.7330	.304	.4841	.3714	.391	.8336
.7371	.347	.4853	.3721	.389	.8338
.7392	.352	.4860	.3729	.405	.8341
2443084.7613	.385	.8034	.3735	.390	.8343
.7627	.384	.8039	.3742	.396	.8345
.7676	.392	.8054	.3749	.396	.8347
.7683	.408	.8056	.3756	.402	.8349
.7725	.413	.8069	.4109	.402	.8459
.7731	.400	.8071	.4116	.395	.8461
.7780	.421	.8086	.4130	.397	.8465
.7794	.423	.8091	.4136	.395	.8467
			.4143	.388	.8469

Table 2 (Continued)

J.D.-hel	Δm	Phase	J.D.-hel	Δm	Phase
2443381.5407	.261	.9834	.4786	.393	.6914
.5414	.267	.9836	.4794	.394	.6916
.5421	.271	.9839	.4801	.379	.6918
.5427	.266	.9840	.4807	.376	.6920
.5434	.267	.9843	.4814	.388	.6922
.5441	.268	.9845	.4828	.380	.6927
.5448	.248	.9847	.4835	.381	.6929
.5462	.277	.9851	.4890	.392	.6946
.5470	.268	.9854	.4898	.384	.6948
.5477	.275	.9856	.4909	.385	.6952
.5512	.260	.9867	.4911	.385	.6952
.5519	.274	.9869	.4918	.386	.6955
.5525	.275	.9871	.4924	.389	.6956
.5532	.266	.9873	.4931	.391	.6959
.5539	.272	.9875	.4938	.394	.6961
.5546	.270	.9877	.4952	.385	.6965
.5552	.258	.9879	.4960	.388	.6968
.5560	.271	.9882	.4987	.386	.6976
.5566	.270	.9884	.4994	.375	.6978
.5573	.261	.9886	.5001	.391	.6980
.5859	.261	.9975	.5007	.382	.6982
.5865	.261	.9977	.5014	.391	.6984
.5871	.264	.9978	.5021	.389	.6987
.5878	.263	.9981	.5028	.381	.6989
.5976	.250	.0011	.5035	.384	.6991
.5982	.250	.0013	.5042	.380	.6993
.5989	.248	.0015	.5049	.381	.6995
.5996	.244	.0017	.5055	.371	.6997
			.5062	.374	.6999
2443386.3110	.337	.4651	.5070	.374	.7002
.3117	.336	.4653	.5507	.373	.7137
.3124	.336	.4655	.5514	.379	.7140
.3131	.330	.4657	.5522	.387	.7142
.3138	.325	.4660	.5536	.383	.7146
.3145	.329	.4662	.5543	.388	.7149
.3152	.336	.4664	.5550	.384	.7151
.3159	.342	.4666	.5557	.384	.7153
			.5564	.386	.7155
2443390.4955	.386	.7648	.5586	.385	.7162
.4968	.409	.7652	.5592	.382	.7164
.4975	.420	.7654	.5627	.380	.7175
.4984	.412	.7657	.5634	.364	.7177
.4997	.408	.7661	.5648	.377	.7181
.5003	.414	.7663	.5655	.363	.7183
.5010	.419	.7665	.5662	.372	.7186
.5018	.399	.7668	.5669	.363	.7188
.5047	.391	.7677	.5676	.360	.7190
.5052	.406	.7678	.5684	.375	.7192
.5059	.417	.7680	.5690	.375	.7194
.5066	.413	.7682	.5696	.371	.7196
.5092	.405	.7691	.5724	.366	.7205
.5100	.407	.7693	.5731	.369	.7207
.5120	.412	.7699	.5738	.362	.7209
.5127	.414	.7701	.5745	.349	.7211
.5134	.420	.7704	.5752	.370	.7214
.5141	.399	.7706	.5758	.362	.7215
			.5765	.368	.7218
2443393.4766	.400	.6907	.5772	.367	.7220
.4773	.392	.6909	.5787	.365	.7224
.4780	.393	.6912	.5794	.362	.7227

Table 2 (Continued)

J.D.-hel	Δm	Phase	J.D.-hel	Δm	Phase
.5800	.371	.7228	.5574	.359	.8900
.5807	.365	.7231	.5581	.372	.8903
.5835	.376	.7239	.5588	.370	.8905
.5856	.380	.7246	.5595	.365	.8907
.5863	.386	.7248	.5602	.360	.8909
.5870	.385	.7250	.5609	.371	.8911
.5877	.381	.7252	.5616	.368	.8913
.5883	.382	.7254	.5622	.377	.8915
.5890	.385	.7256	.5679	.343	.8933
.5897	.387	.7259	.5687	.341	.8935
.5904	.394	.7261	.5694	.347	.8938
.5912	.398	.7263	.5702	.350	.8940
.5939	.400	.7272	.5711	.340	.8943
.5945	.393	.7274	.5721	.353	.8946
.5966	.391	.7280	.5729	.351	.8948
.5974	.391	.7283	.5736	.357	.8951
.5988	.383	.7287	.5744	.360	.8953
.5994	.393	.7289	.5790	.356	.8967
.6001	.382	.7291	.5797	.355	.8970
.6008	.382	.7293	.5804	.348	.8972
.6014	.385	.7295	.5811	.348	.8974
.6022	.380	.7297	.5818	.348	.8976
.6028	.392	.7299	.5825	.348	.8978
.6110	.376	.7325	.5831	.347	.8980
.6118	.377	.7327	.5839	.353	.8983
.6125	.382	.7329	.5846	.353	.8985
.6133	.382	.7332	.5853	.354	.8987
.6140	.383	.7334	.5893	.356	.8999
.6147	.385	.7336	.5900	.350	.9002
.6154	.393	.7338	.5907	.347	.9004
.6161	.390	.7341	.5913	.357	.9006
.6169	.382	.7343	.5919	.356	.9007
.6176	.378	.7345	.5926	.361	.9010
.6183	.375	.7347	.5934	.361	.9012
			.5941	.353	.9014
2443400.5289	.394	.8812	.5947	.353	.9016
.5296	.390	.8814	.5954	.353	.9018
.5302	.402	.8816	.5961	.356	.9021
.5310	.393	.8818	.5968	.354	.9023
.5324	.400	.8823	.5975	.357	.9023
.5331	.389	.8825	.5982	.359	.9027
.5338	.395	.8827	.6058	.348	.9051
.5345	.385	.8829	.6065	.363	.9053
.5351	.391	.8831	.6072	.363	.9055
.5393	.383	.8844	.6080	.369	.9058
.5400	.389	.8846	.6087	.356	.9060
.5406	.388	.8848	.6100	.357	.9064
.5414	.372	.8851	.6107	.359	.9066
.5428	.373	.8855	.6114	.361	.9068
.5435	.367	.8857	.6121	.361	.9070
.5442	.369	.8859	.6128	.361	.9072
.5463	.357	.8866	.6135	.367	.9075
.5477	.370	.8870	.6163	.356	.9083
.5484	.365	.8872	.6170	.365	.9085
.5504	.365	.8879	.6177	.367	.9088
.5512	.374	.8881	.6185	.365	.9090
.5518	.370	.8883	.6193	.364	.9093
.5525	.363	.8885	.6198	.373	.9093
.5561	.358	.8896	.6205	.366	.9096
.5567	.348	.8898	.6210	.370	.9098

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.6219	.372	.9101	.5238	.397	.7810
.6226	.373	.9103	.5245	.399	.7812
2443415.4729	.322	.5228	.5251	.403	.7814
.4736	.320	.5230	.5258	.398	.7816
.4743	.320	.5232	.5264	.398	.7818
.4751	.321	.5235	.5270	.393	.7820
.4756	.329	.5236	.5275	.398	.7822
.4765	.328	.5239	.5282	.389	.7824
.4770	.328	.5241	2443422.4005	.413	.6745
.4777	.327	.5243	.4013	.413	.6748
.4784	.328	.5245	.4020	.422	.6750
.4791	.331	.5247	.4027	.418	.6752
.4817	.315	.5255	.4034	.414	.6754
.4826	.315	.5258	.4042	.416	.6757
.4833	.314	.5260	.4049	.415	.6759
.4840	.314	.5263	.4056	.419	.6761
.4847	.313	.5265	.4102	.418	.6767
.4853	.310	.5267	.4109	.416	.6778
.4860	.315	.5269	.4117	.412	.6780
.4867	.308	.5271	.4131	.410	.6784
.4874	.313	.5273	.4151	.417	.6791
.4881	.310	.5275	.4158	.423	.6793
.4985	.309	.5308	.4165	.414	.6795
.4993	.307	.5310	.4199	.427	.6805
.4999	.307	.5312	.4212	.428	.6810
.5006	.318	.5314	.4219	.429	.6812
.5013	.318	.5316	.4226	.427	.6814
.5019	.319	.5318	.4233	.431	.6816
.5027	.319	.5321	.4254	.439	.6823
.5033	.324	.5322	.4261	.440	.6825
.5041	.327	.5325	2443423.4773	.299	.0090
.5048	.317	.5327	.4799	.306	.0098
.5138	.356	.5355	.4807	.292	.0100
.5152	.364	.5359	.4812	.313	.0102
.5159	.350	.5362	.4819	.294	.0104
.5167	.357	.5364	.4826	.315	.0106
2443419.4909	.418	.7708	.4833	.310	.0108
.4916	.414	.7710	.4848	.308	.0113
.4923	.412	.7712	.4854	.305	.0115
.4930	.411	.7715	.4893	.296	.0127
.4937	.415	.7717	.4900	.301	.0129
.4943	.411	.7719	.4923	.289	.0136
.4949	.404	.7720	.4931	.299	.0139
.4956	.413	.7723	.4938	.297	.0141
.4963	.411	.7725	.4952	.303	.0145
.4969	.410	.7727	.4958	.305	.0147
.5136	.403	.7778	.4966	.302	.0150
.5142	.403	.7780	.5009	.308	.0163
.5148	.397	.7782	.5016	.299	.0165
.5155	.396	.7784	.5028	.309	.0169
.5166	.399	.7788	.5035	.311	.0171
.5172	.396	.7790	.5042	.314	.0173
.5178	.394	.7792	.5062	.307	.0180
.5184	.390	.7793	.5069	.314	.0182
.5190	.389	.7795	.5076	.311	.0184
.5196	.394	.7797	.5083	.306	.0186
.5223	.395	.7806	.5096	.310	.0190
.5231	.402	.7808	.5105	.308	.0193

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.5132	.314	.0201	.6000	.379	.6683
.5138	.311	.0203	.6007	.377	.6685
.5147	.315	.0206	.6013	.377	.6687
.5166	.310	.0212	.6021	.388	.6689
.5173	.318	.0214	.6028	.387	.6692
.5180	.313	.0216	.6035	.373	.6694
.5201	.316	.0223	.6042	.381	.6696
.5208	.321	.0225	.6049	.385	.6698
.5215	.322	.0227	.6056	.380	.6700
			.6079	.383	.6707
2443425.3125	.360	.5790	.6088	.386	.6710
.3132	.363	.5792	.6097	.390	.6713
.3138	.355	.5794	.6104	.379	.6715
.3145	.352	.5796	.6111	.389	.6717
.3152	.359	.5798	.6118	.389	.6720
.3159	.362	.5800	.6125	.389	.6722
.3166	.363	.5803	.6132	.384	.6724
.3173	.360	.5805	.6139	.381	.6726
.3180	.358	.5807	.6146	.385	.6728
.3187	.359	.5809	.6154	.395	.6731
.3194	.363	.5811	2443429.4647	.424	.8687
.3215	.357	.5818	.4654	.410	.8689
.3222	.361	.5820	.4661	.409	.8691
.3229	.365	.5822	.4668	.408	.8691
.3235	.365	.5824	.4675	.409	.8695
.3242	.360	.5826	.4682	.405	.8698
.3249	.365	.5828	.4689	.404	.8700
.3256	.368	.5831	.4697	.404	.8702
.3264	.365	.6833	.4704	.404	.8704
.3271	.359	.5835	.4711	.406	.8707
.3277	.361	.5837	.4731	.404	.8713
.3313	.358	.5848	.4740	.399	.8716
.3326	.357	.5852	.4746	.400	.8717
.3333	.361	.5855	.4753	.399	.8720
.3340	.360	.5857	.4760	.400	.8722
.3347	.362	.5859	.4767	.403	.8724
.3353	.362	.5861	.4774	.404	.8726
.3360	.360	.5863	.4781	.414	.8728
.3367	.365	.5865	.4789	.411	.8731
.3374	.364	.5867	.4796	.405	.8733
.3381	.357	.5869	.4803	.404	.8735
.4542	.373	.6230	.4832	.405	.8744
.4548	.377	.6232	.4840	.404	.8747
.4556	.378	.6234	.4846	.403	.8749
.4563	.363	.6237	.4854	.405	.8751
.4577	.362	.6241	.4861	.401	.8753
.4583	.359	.6243	.4868	.406	.8755
.4590	.360	.6245	.4875	.406	.8758
.4596	.359	.6247	.4882	.404	.8760
.4603	.353	.6249	.4889	.402	.8762
.4612	.356	.6252	.4906	.403	.8767
.4618	.356	.6254	.4925	.397	.8773
.4651	.357	.6264	.4933	.399	.8776
.4659	.357	.6266	.4939	.407	.8777
.4665	.355	.6268	.4946	.406	.8780
.4672	.346	.6270	.4953	.405	.8782
.4681	.356	.6273	.4960	.406	.8784
.4688	.359	.6275	.4968	.408	.8786
.4694	.357	.6277	.4975	.406	.8789
.4701	.356	.6279	.4982	.409	.8791

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.4989	.409	.8793	.4986	.303	.5004
.5017	.403	.8802	.4993	.303	.5006
.5024	.402	.8804	.5035	.308	.5019
.5046	.406	.8811	.5042	.300	.5021
.5057	.406	.8814	.5048	.304	.5023
.5061	.405	.8815	.5055	.308	.5025
.5067	.409	.8817	.5061	.309	.5027
.5074	.407	.8819	.5070	.309	.5030
.5081	.408	.8822	.5077	.308	.5032
.5088	.410	.8824	.5083	.302	.5034
.5373	.368	.8912	.5090	.307	.5036
.5381	.369	.8915	.5097	.308	.5038
.5388	.376	.8917	.5118	.305	.5045
.5394	.372	.8919	.5125	.309	.5047
.5404	.371	.8922	.5132	.307	.5049
.5410	.373	.8924	.5138	.310	.5051
.5416	.377	.8926	.5145	.306	.5053
.5423	.369	.8928	.5153	.303	.5056
.5429	.367	.8930	.5159	.306	.5058
.5437	.364	.8932	.5166	.309	.5060
.5474	.356	.8944	.5172	.307	.5062
.5481	.356	.8946	.5179	.305	.5064
.5488	.367	.8948			
.5494	.368	.8950	2443432.3184	.399	.7550
.5498	.372	.8951	.3191	.400	.7552
.5505	.365	.8953	.3199	.402	.7555
.5512	.371	.8955	.3206	.403	.7557
.5519	.371	.8958	.3214	.400	.7560
.5526	.363	.8960	.3221	.403	.7562
.5534	.362	.8962	.3228	.391	.7564
.5564	.372	.8972	.3235	.397	.7566
.5568	.369	.8973	.3242	.400	.7568
.5576	.367	.8975	.3249	.400	.7571
.5582	.368	.8977	.4623	.393	.7997
.5589	.368	.8979	.4632	.398	.8000
.5596	.370	.8981	.4639	.389	.8002
.5603	.368	.8984	.4646	.398	.8004
.5610	.364	.8986	.4653	.394	.8007
.5617	.374	.8988	.4660	.396	.8009
.5624	.361	.8990	.4667	.390	.8011
.5630	.361	.8992	.4674	.394	.8013
.5660	.360	.9001	.4681	.397	.8015
.5666	.363	.9003	.4687	.393	.8017
.5673	.374	.9005	.4715	.394	.8026
.5680	.368	.9008	.4723	.395	.8028
.5686	.370	.9009	.4730	.397	.8031
.5693	.379	.9012	.4737	.399	.8033
.5700	.378	.9014	.4744	.401	.8035
.5707	.385	.9016	.4751	.401	.8037
.5716	.384	.9019	.4758	.401	.8039
.5723	.383	.9021	.4765	.395	.8041
			.4771	.398	.8043
2443431.4929	.304	.4986	.4778	.400	.8045
.4937	.395	.4989	.4805	.399	.8054
.4945	.301	.4991	.4813	.403	.8056
.4951	.303	.4993	.4820	.403	.8058
.4958	.303	.4995	.4827	.410	.8061
.4966	.303	.4998	.4834	.406	.8063
.4973	.301	.5000	.4841	.403	.8065
.4979	.297	.5002	.4848	.408	.8067

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.4856	.405	.8070	.5901	.389	.8394
.4863	.407	.8072	.5931	.373	.8404
.4869	.402	.8074	.5937	.378	.8405
.4913	.407	.8087	.5943	.370	.8407
.4919	.410	.8089	.5950	.377	.8409
.4961	.382	.8102	.5965	.368	.8414
.4972	.390	.8106	.5973	.371	.8417
.4980	.392	.8108	.5980	.379	.8419
.4987	.402	.8110	.5987	.385	.8421
.5001	.394	.8115	.5994	.375	.8423
.5008	.389	.8117	.6001	.389	.8425
.5015	.388	.8119	.6007	.393	.8427
.5022	.401	.8121	.6014	.389	.8429
.5077	.404	.8138	.6055	.376	.8442
.5083	.402	.8140	.6062	.387	.8444
.5091	.394	.8143	.6069	.388	.8446
.5097	.400	.8145	.6076	.379	.8449
.5104	.411	.8147	.6083	.391	.8451
.5110	.408	.8149	.6090	.383	.8453
.5117	.411	.8151	.6097	.379	.8455
.5124	.409	.8153	.6103	.384	.8457
.5131	.410	.8155	.6111	.392	.8459
.5138	.407	.8157	.6118	.391	.8462
.5166	.401	.8166	.6159	.378	.8474
.5173	.403	.8168	.6204	.382	.8488
.5180	.402	.8170	.6215	.388	.8492
.5187	.384	.8172	.6222	.383	.8494
.5193	.390	.8174	.6229	.380	.8496
.5200	.390	.8176	.6236	.381	.8498
.5208	.410	.8179	.6243	.377	.8500
.5215	.405	.8181	.6250	.366	.8503
.5256	.397	.8194	.6271	.368	.8509
.5263	.401	.8196	.6278	.376	.8511
.5270	.402	.8198	.6285	.371	.8513
.5277	.409	.8200	.6292	.378	.8516
.5284	.417	.8203	.6298	.376	.8518
.5291	.400	.8205	.6305	.385	.8520
.5298	.394	.8207	.6312	.389	.8522
.5305	.389	.8209	.6320	.377	.8524
.5312	.407	.8211	.6326	.375	.8526
.5319	.409	.8213	.6333	.377	.8528
.5325	.399	.8215			
.5333	.392	.8218	2443435.6060	.386	.7762
.5340	.394	.8220	.6073	.392	.7766
.5347	.408	.8222	.6080	.380	.7768
.5354	.410	.8224	.6087	.381	.7770
.5361	.403	.8227	.6094	.389	.7772
.5367	.410	.8228	.6101	.400	.7774
.5375	.416	.8231	.6108	.397	.7777
.5381	.411	.8233	.6115	.403	.7779
.5389	.417	.8235	.6122	.404	.7781
.5835	.405	.8374	.6129	.411	.7783
.5841	.401	.8376	.6178	.402	.7798
.5849	.403	.8378	.6185	.396	.7800
.5856	.379	.8380	.6192	.399	.7803
.5866	.389	.8383	.6198	.391	.7805
.5874	.402	.8386	.6205	.395	.7807
.5882	.375	.8388	.6212	.388	.7809
.5888	.389	.8390	.6219	.378	.7811
.5895	.389	.8392	.6226	.374	.7813

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.6233	.395	.7815	.4539	.319	.0395
.6240	.392	.7818	.4546	.321	.0397
2443436.3633	.257	.0114	.4553	.325	.0400
.3643	.227	.0117	.4560	.322	.0402
.3658	.253	.0122	.4567	.320	.0404
.3665	.248	.0124	.4574	.322	.0406
.3672	.259	.0126	.4581	.318	.0408
.3686	.258	.0130	.4627	.330	.0423
.3693	.237	.0132	.4637	.330	.0426
.3700	.243	.0135	.4644	.325	.0428
.3707	.263	.0137	.4651	.328	.0430
.3725	.220	.0142	.4658	.332	.0432
.3734	.255	.0145	.4665	.327	.0434
.3751	.258	.0150	.4670	.324	.0436
.3760	.264	.0153	.4677	.323	.0438
.4087	.285	.0255	.4686	.328	.0441
.4094	.283	.0257	.4693	.335	.0443
.4101	.281	.0259	.4737	.332	.0457
.4108	.287	.0261	.4744	.333	.0459
.4115	.279	.0264	.4753	.327	.0462
.4122	.282	.0266	.4760	.333	.0464
.4129	.284	.0268	.4767	.332	.0466
.4136	.284	.0270	.4774	.329	.0468
.4143	.283	.0272	.4781	.329	.0470
.4150	.290	.0274	.4788	.332	.0473
.4171	.284	.0281	.4795	.335	.0475
.4178	.288	.0283	.4802	.333	.0477
.4184	.289	.0285	.4809	.333	.0479
.4190	.289	.0287	.4850	.329	.0492
.4197	.287	.0289	.4856	.336	.0494
.4206	.288	.0292	.4863	.333	.0496
.4213	.291	.0294	2443437.5795	.372	.3891
.4219	.294	.0296	.5802	.353	.3894
.4226	.290	.0298	.5809	.371	.3896
.4233	.290	.0300	.5816	.371	.3898
.4254	.297	.0307	.5823	.368	.3900
.4261	.297	.0309	.5830	.365	.3902
.4267	.294	.0311	.5836	.370	.3904
.4281	.296	.0315	.5846	.377	.3907
.4288	.295	.0317	.5856	.372	.3910
.4295	.298	.0319	.5866	.367	.3913
.4302	.300	.0322	.5919	.361	.3930
.4316	.301	.0326	.5928	.366	.3933
.4323	.301	.0328	.5934	.362	.3935
.4330	.304	.0330	.5941	.361	.3937
.4369	.303	.0342	.5955	.363	.3941
.4385	.307	.0347	.5966	.363	.3944
.4392	.309	.0350	.5973	.362	.3947
.4399	.310	.0352	.5981	.361	.3949
.4420	.317	.0358	.5990	.363	.3952
.4427	.311	.0360	.5997	.366	.3954
.4434	.316	.0363	.6003	.363	.3956
.4441	.316	.0365	.6011	.360	.3958
.4448	.320	.0367	.6019	.350	.3961
.4455	.319	.0369	.6058	.353	.3973
.4511	.323	.0387	.6066	.358	.3976
.4518	.322	.0389	.6072	.353	.3977
.4525	.322	.0391	.6078	.341	.3979
.4532	.323	.0393	.6085	.343	.3981

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.6092	.339	.3984	.2280	.381	.1132
			.2287	.378	.1134
2443445.3430	.425	.8005	.2295	.370	.1136
.3440	.422	.8008	.2301	.368	.1138
.3454	.415	.8012	.2332	.380	.1148
.3460	.363	.8014	.2341	.373	.1151
.3465	.392	.8016	.2349	.375	.1153
.3481	.390	.8021	.2357	.382	.1156
.3494	.366	.8025	.2363	.385	.1158
.3529	.391	.8036	.2370	.383	.1160
.3543	.397	.8040	.2377	.372	.1162
.3550	.400	.8042	.2385	.378	.1164
.3557	.394	.8044	.2392	.372	.1167
.3564	.395	.8046	.2398	.380	.1168
.3577	.416	.8051			
.3585	.417	.8053	2443465.2403	.279	.9806
.3591	.393	.8055	.2410	.268	.9808
.3599	.386	.8057	.2416	.278	.9810
.4840	.407	.8443	.2423	.271	.9812
.4850	.401	.8446	.2430	.272	.9814
.4857	.405	.8448	.2437	.276	.9817
.4864	.401	.8450	.2445	.273	.9819
.4872	.390	.8453	.2451	.287	.9821
.4880	.403	.8455	.2458	.297	.9823
.4889	.402	.8458	.2465	.291	.9825
.4896	.392	.8460	.2486	.266	.9832
.4904	.391	.8463	.2493	.253	.9834
.4911	.386	.8465	.2499	.273	.9836
.4934	.385	.8472	.2506	.264	.9838
.4942	.374	.8474	.2513	.256	.9840
.4950	.372	.8477	.2520	.264	.9842
.4958	.373	.8479	.2527	.270	.9845
.4966	.353	.8482	.2534	.276	.9847
.4973	.358	.8484	.2541	.269	.9849
			.2548	.271	.9851
2443455.2765	.394	.8858	.2569	.265	.9858
.2774	.387	.8861	.2576	.263	.9860
.2783	.388	.8864	.2582	.269	.9862
.2790	.390	.8866	.2590	.271	.9864
.2796	.391	.8868	.2596	.269	.9866
.2804	.393	.8871	.2603	.270	.9868
.2810	.391	.8872	.2610	.260	.9870
.2818	.389	.8875	.2618	.270	.9873
.2824	.390	.8877	.2626	.273	.9875
.2831	.388	.8879	.2631	.273	.9877
			.2652	.260	.9883
2443459.2149	.397	.1091	.2660	.261	.9886
.2156	.378	.1093	.2666	.259	.9888
.2158	.358	.1094	.2673	.261	.9890
.2175	.385	.1099	.2680	.263	.9892
.2183	.381	.1102	.2687	.257	.9894
.2190	.377	.1104	.2694	.259	.9896
.2196	.374	.1106	.2700	.260	.9898
.2203	.363	.1108			
.2238	.360	.1119	2443468.2654	.351	.9202
.2246	.375	.1121	.2661	.352	.9204
.2252	.380	.1123	.2668	.348	.9206
.2259	.376	.1125	.2675	.352	.9209
.2266	.369	.1127	.2682	.345	.9211
.2273	.366	.1130	.2689	.346	.9213

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2696	.351	.9215	.4348	.269	.9728
.2703	.358	.9217	.4369	.277	.9735
.2710	.352	.9219	.4376	.291	.9737
.2717	.350	.9222	.4383	.284	.9739
.2738	.350	.9228	.4390	.240	.9741
.2745	.343	.9230	.4397	.281	.9743
.2752	.333	.9233	.4404	.279	.9746
.2759	.352	.9235	.4411	.305	.9748
.2766	.348	.9237	.4432	.281	.9754
.2773	.351	.9239	.4452	.262	.9761
.2780	.340	.9241	.4459	.272	.9763
.2786	.345	.9243	.4474	.252	.9767
.2793	.360	.9245	.4481	.268	.9770
.2800	.353	.9247	.4488	.272	.9772
.2807	.361	.9250	.4495	.244	.9774
.2814	.353	.9252	.4502	.248	.9776
.2821	.342	.9254	.4509	.277	.9778
.2856	.346	.9265	.4716	.255	.9843
.2863	.353	.9267	.4723	.249	.9845
.2870	.352	.9269	.4729	.256	.9847
.2877	.364	.9271	.4736	.250	.9849
.2884	.352	.9274	.4743	.237	.9851
.2891	.343	.9276	.4754	.283	.9854
.2897	.354	.9278	.4764	.271	.9857
.2904	.362	.9280	.4771	.270	.9860
.2911	.362	.9282	.4778	.252	.9862
.2918	.361	.9284	.4785	.258	.9864
.2958	.338	.9296	.4792	.265	.9866
.2966	.356	.9299	.4820	.240	.9875
.2973	.356	.9301	.4827	.248	.9877
.2979	.358	.9303	.4834	.254	.9879
.2986	.364	.9305	.4842	.249	.9882
.2993	.362	.9307	.4848	.258	.9884
.3000	.360	.9310	.4855	.248	.9886
.3007	.349	.9312	.4862	.266	.9888
.3014	.350	.9314	.4869	.255	.9890
.3021	.351	.9316	.4883	.254	.9894
.3043	.339	.9323	.4903	.263	.9901
.3050	.338	.9325	.4910	.264	.9903
.3057	.334	.9327	.4917	.229	.9905
.3063	.332	.9329	.4931	.257	.9909
.3070	.334	.9331	.4938	.251	.9911
.4188	.309	.9679	.4945	.255	.9914
.4195	.296	.9681	.4966	.245	.9920
.4202	.297	.9683	.4986	.246	.9926
.4209	.279	.9685	.4993	.246	.9929
.4216	.264	.9687	.5000	.256	.9931
.4223	.295	.9689	.5007	.256	.9933
.4230	.298	.9692	.5014	.255	.9935
.4237	.303	.9694	.5021	.251	.9937
.4244	.272	.9696	.5028	.241	.9939
.4251	.289	.9698	.5035	.257	.9942
.4279	.278	.9707	.5042	.246	.9944
.4285	.264	.9708	.5049	.260	.9946
.4293	.290	.9711	.5181	.254	.9987
.4300	.285	.9713	.5188	.245	.9989
.4306	.306	.9715	.5195	.237	.9991
.4313	.261	.9717	.5202	.243	.9993
.4334	.285	.9724	.5209	.259	.9996
.4341	.291	.9726	.5216	.258	.9998

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.5223	.245	.0000	.4582	.366	.3967
.5230	.259	.0002	.4589	.366	.3969
.5236	.226	.0004			
.5257	.255	.0011	2443485.3110	.416	.2146
.5265	.258	.0013	.3116	.421	.2148
.5279	.277	.0017	.3123	.409	.2150
.5293	.234	.0022	.3130	.418	.2152
			.3136	.425	.2154
2443479.4009	.360	.3789	.3143	.405	.2156
.4020	.369	.3792	.3150	.419	.2158
.4027	.352	.3795	.3157	.421	.2160
.4034	.361	.3797	.3164	.403	.2163
.4041	.358	.3799	.3171	.408	.2165
.4048	.358	.3801	.3199	.408	.2174
.4055	.354	.3803	.3206	.397	.2176
.4062	.356	.3806	.3213	.396	.2178
.4069	.366	.3808	.3219	.402	.2180
.4076	.364	.3810	.3226	.405	.2182
.4083	.362	.3812	.3233	.402	.2184
.4186	.369	.3844	.3240	.405	.2186
.4193	.370	.3846	.3247	.400	.2188
.4200	.373	.3848	.3257	.406	.2192
.4207	.365	.3851	.3266	.406	.2194
.4214	.371	.3853			
.4221	.376	.3855	2443493.2826	.389	.6906
.4228	.368	.3857	.2833	.392	.6908
.4235	.371	.3859	.2840	.387	.6910
.4242	.372	.3861	.2846	.389	.6912
.4249	.363	.3864	.2856	.391	.6914
.4269	.362	.3870	.2860	.391	.6916
.4276	.362	.3872	.2867	.390	.6918
.4284	.369	.3874	.2874	.392	.6921
.4297	.363	.3878	.2882	.395	.6923
.4304	.360	.3881	.2889	.391	.6925
.4311	.349	.3883	.2910	.393	.6932
.4388	.349	.3907	.2917	.390	.6934
.4393	.353	.3908	.2925	.391	.6936
.4401	.349	.3911	.2931	.390	.6938
.4408	.360	.3913	.2938	.392	.6941
.4415	.354	.3915	.2945	.392	.6943
.4422	.366	.3917	.2962	.392	.6948
.4443	.369	.3924	.2969	.392	.6950
.4450	.361	.3926	.2976	.392	.6952
.4457	.369	.3928	.2983	.391	.6955
.4464	.362	.3930	.3006	.392	.6962
.4471	.372	.3933	.3013	.391	.6964
.4478	.362	.3935	.3020	.391	.6966
.4485	.356	.3937	.3027	.390	.6968
.4492	.367	.3939	.3034	.395	.6970
.4499	.352	.3941	.3041	.391	.6973
.4506	.360	.3943	.3048	.394	.6975
.4517	.363	.3947	.3055	.390	.6977
.4527	.362	.3950	.3062	.394	.6979
.4534	.369	.3952	.3068	.390	.6981
.4540	.368	.3954			
.4548	.362	.3956	2443497.2612	.381	.9263
.4554	.362	.3958	.2620	.387	.9266
.4561	.367	.3960	.2626	.383	.9268
.4568	.365	.3963	.2633	.385	.9270
.4575	.371	.3965	.2640	.385	.9272

Table 2 (Continued)

J.D. _{hel}	Δm	Phase	J.D. _{hel}	Δm	Phase
.2647	.385	.9274	.3197	.376	.9445
.2654	.383	.9276	.3204	.384	.9447
.2661	.384	.9279	.3211	.381	.9449
.2667	.382	.9280	.3218	.380	.9452
.2674	.382	.9283	.3225	.379	.9454
.2681	.383	.9285	.3232	.378	.9456
.2688	.381	.9287	.3238	.379	.9458
.2708	.379	.9293	.3259	.383	.9464
.2716	.379	.9296	.3266	.376	.9466
.2722	.380	.9297	.3273	.377	.9469
.2729	.379	.9300	.3280	.378	.9471
.2736	.380	.9302	.3287	.375	.9473
.2743	.379	.9304	.3293	.375	.9475
.2750	.383	.9306	.3300	.375	.9477
.2757	.377	.9308	.3307	.374	.9479
.2764	.377	.9311	.3314	.378	.9481
.2771	.377	.9313	.3348	.379	.9492
.2791	.375	.9319	.3356	.371	.9492
.2798	.376	.9321	.3363	.376	.9497
.2805	.381	.9323	.3370	.369	.9499
.2812	.378	.9325	.3377	.374	.9501
.2819	.379	.9328	.3384	.375	.9503
.2826	.382	.9330	.3391	.369	.9505
.2833	.381	.9332	.3398	.370	.9507
.2840	.382	.9334	.3405	.370	.9510
.2847	.384	.9336	.3412	.365	.9512
.2854	.389	.9338	.3520	.377	.9545
.2924	.381	.9360	.3527	.376	.9548
.2930	.390	.9362	.3535	.380	.9550
.2937	.385	.9364	.3548	.375	.9554
.2944	.386	.9366	.3555	.366	.9556
.2951	.388	.9369	.3563	.358	.9559
.2958	.384	.9371	.3569	.358	.9561
.2965	.390	.9373	.3576	.370	.9563
.2972	.389	.9375	.3584	.374	.9565
.2979	.383	.9377	.3606	.357	.9572
.2986	.387	.9379	.3613	.363	.9574
.3008	.385	.9386	.3620	.355	.9576
.3015	.379	.9388	.3627	.345	.9579
.3021	.379	.9390	.3634	.358	.9581
.3027	.374	.9392	.3641	.343	.9583
.3034	.375	.9394	.3648	.351	.9585
.3043	.384	.9397	.3655	.352	.9587
.3050	.379	.9399	.3662	.347	.9589
.3057	.379	.9402	.3670	.359	.9592
.3064	.370	.9404	.3690	.352	.9598
.3071	.383	.9406	.3698	.353	.9601
.3093	.380	.9413	.3705	.353	.9603
.3100	.378	.9415	.3712	.354	.9605
.3107	.383	.9417	.3719	.354	.9607
.3113	.377	.9419	.3726	.354	.9609
.3120	.382	.9421	.3733	.355	.9611
.3127	.382	.9423	.3740	.356	.9614
.3134	.382	.9425	.3747	.351	.9616
.3141	.384	.9428	.3754	.357	.9618
.3148	.381	.9430	.3781	.355	.9626
.3155	.378	.9432	.3788	.357	.9629
.3176	.384	.9438	.3795	.355	.9631
.3183	.384	.9441	.3802	.345	.9633
.3190	.380	.9443	.3809	.343	.9635

Table 2 (Continued)

J.D.-hel	Δm	Phase
.3816	.344	.9637
.3823	.343	.9639
.3830	.342	.9642
.3837	.338	.9644
.3844	.337	.9646
.3864	.341	.9652
.3872	.334	.9655
.3879	.347	.9657
.3886	.348	.9659
.3893	.338	.9661
.3901	.338	.9664
.3908	.345	.9666
.3921	.344	.9670
.3928	.340	.9672
.3935	.341	.9674
.3954	.340	.9680
.3962	.337	.9683
.3970	.337	.9685
.3976	.337	.9687
.3982	.334	.9689
.3989	.332	.9691
.3996	.335	.9693
.4003	.336	.9695
.4010	.323	.9698
.4038	.325	.9706
.4045	.319	.9708
.4052	.312	.9711
.4059	.313	.9713
.4065	.311	.9715
.4072	.308	.9717
.4079	.311	.9719
.4086	.311	.9721
.4093	.322	.9723
.4100	.303	.9725

Acknowledgment

The authors would like to thank the most cooperative night assistants at the Skalnaté Pleso Observatory for their extensive observing effort and their help in reducing the observational material. The study of AN And and the publication of the results has been made possible by grants from the Exchange of Scientists Program of the National Research Council of Canada and the Czechoslovak Academy of Sciences. One of us (G.A.B.) enjoyed the hospitality of Dr. L. Pajdušáková, Director of the Skalnaté Pleso Observatory during his stay in Czechoslovakia for which he is greatly indebted to her.

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FOTOELEKTRICKÉ POZOROVANIA AN ZÁKRYTOVEJ DVOJHVIEZDY AN ANDROMEDAE

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Súhrn

V období 1967—1977 sa systematicky pozorovala zákrytová premenná hviezda s kovovými čiarami v spektre AN And na Astronomickom Observatóriu na Skalnatom Plese a na Observatóriu Univerzity vo Waterloo. Na Skalnatom Plese sa pozorovalo fotoelektrickým fotometrom inštalovaným v cassegrainovom ohnisku zrkadlového ďalekohľadu. Priemer ďalekohľadu je 60 cm, ekvivalentná ohnisková vzdialenosť 999 cm. Optický systém okrem štandardných funkcií umožňuje ofsetovú pointáciu a obsahuje obvody pre automatickú činnosť fotometra. Nosič filtrov je osadený filtermi pre UBV fotometriu, strednopásmovú a úzkopásmovú fotometriu. Ako detektor sa používa násobič elektrónov EMI 6256B. Vysokonapäťový zdroj pre napájanie násobiča elektrónov má krátkodobú stabilitu 0.02 %. Signál sa meria zapisovačom alebo automatizovaným zariadením. Elektronický kompenzačný líniový zapisovač EZ4 meria signál s presnosťou 0.2 %. Automatizovaný fotoelektrický fotometer pozostáva z integračného zosilňovača a analógovo-číslicového prevodníka. Fotometer je vybavený číslicovými hodina-

mi, jednotkou pre zber dát, písacím strojom, dierovačom a elektronickými obvodmi pre automatickú činnosť fotometra. Aparatúra zaznamenáva včas pozorovania, meranú jasnosť hviezdy, ohniskovú clonu, filter, dĺžku pozorovaného materiálu, vstupnú a výstupnú citlivosť. Citlivosti sa nastavujú automaticky podľa jasnosti pozorovanej hviezdy. Fotometer meria s presnosťou $0^m 003$ pri najkratšom čase integrácie 10 sekúnd. Materiál na Observatóriu Univerzity vo Waterloo sa získaval zrkadlovým ďalekohľadom s priemerom 33 cm a ohniskovou vzdialenosťou 528 cm so štandardným fotoelektrickým fotometrom. Signál sa zosilňoval jednosmerným zosilňovačom Keithley picoammeter model 417 a registroval sa elektronickým líniovým zapisovačom Moseley model 7101B. Ako detektor sa použil násobič elektrónov EMI 6256B so zdrojom vysokého napätia Keithley model 246. Tabuľka 1 uvádza dátum pozorovania, pozorovací interval, počet pozorovaní a strednú chybu jedného pozorovania. Individuálne pozorovania v štandardnej forme uvádza tabuľka 2.

ФОТОЭЛЕКТРИЧЕСКИЕ НАБЛЮДЕНИЯ Am ЗАТМЕННО-ДВОЙНОЙ ЗВЕЗДЫ AN ANDROMEDAE

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Резюме

В период 1967–1977 гг. на Астрономической обсерватории Скалнате-Плесо и на обсерватории Университета в Ватерлоо велись систематические наблюдения переменной затменно-двойной звезды с металлическими линиями в спектре AN And. Наблюдения на обсерватории Скалнате-Плесо проводились при помощи фотоэлектрического фотометра, установленного в фокусе Кассегрена зеркального телескопа. Диаметр телескопа 60 см, эквивалентное фокусное расстояние 999 см. Оптическая система, наряду со стандартными функциями, дает возможность для внефокальной гидировки и содержит цепи для автоматической работы фотометра. Держатель фильтров снабжен фильтрами для фотометрической системы UVV, среднеполосной и узкополосной фотометрии. В качестве детектора используется умножитель электронов EMI 6256B. Источник высокого напряжения для питания электронного умножителя имеет кратковременную стабильность 0,02 %. Сигнал измеряется самописцем или автоматизированным оборудованием. Электронный компенсационный линейный самописец измеряет сигнал с точностью 0,2 %. Автоматизированный фотоэлектрический фотометр состоит из интегрального усилителя и аналого-цифрового преобразователя. Фотометр снабжен часами с цифровой индикацией, блоком для

сбора данных, пишущей машинкой, перфоратором и электронными цепями для автоматической работы фотометра. Аппаратура регистрирует время наблюдения, измеренную яркость звезды, фокусную диафрагму, фильтр, длину интервала наблюдения, чувствительность на входе и на выходе. Чувствительность устанавливается автоматически в зависимости от яркости наблюдаемой звезды. Фотометр измеряет с точностью $0^{\circ}003$ при самом коротком интервале времени 10 секунд. Материал наблюдений на обсерватории Университета в Ватерлоо был получен при помощи зеркального телескопа с диаметром 33 см и фокусным расстоянием 528 см со стандартным фотоэлектрическим фотометром. Сигнал усиливался при помощи усилителя постоянного тока Keithley picoammeter модель 417 и регистрировался электронным линейным самописцем Moseley модель 7101B. В качестве детектора был использован умножитель электронов EMI 6256B с источником высокого напряжения Keithley модель 246. В таблице 1 содержится дата наблюдения, длина интервала наблюдения, количество наблюдений и средняя ошибка одного наблюдения. Индивидуальные наблюдения в стандартной форме приводятся в таблице 2.