Absolute magnitudes of asteroids and a revision of asteroid albedo–diameter estimates from WISE thermal observations

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Abstract

We obtained estimates of the absolute magnitudes (H) and slope parameters (G) for 583 main-belt and near-Earth asteroids observed at Ondřejov and Table Mountain Observatory from 1978 to 2011. Uncertainties of the absolute magnitudes in our sample are < 0.21 mag, with the median value of 0.09 mag. We compared the H data with absolute magnitude values given in the MPCORB, Pisa AstDyS and JPL Horizons orbit catalogs. We found that while the catalog absolute magnitudes for large asteroids are relatively good on average, showing only little biases smaller than 0.1 mag, there is a systematic offset of the catalog values for smaller asteroids that becomes prominent in a range of H greater than ~ 10 and particularly big above $H \sim 12$. The mean $(H_{\rm catalog} - H)$ value is negative, i.e., the catalog H values are systematically too bright. This systematic negative offset of the catalog values reaches a maximum around $H = 14$ where the mean $(H_{\rm catalog} - H)$ is -0.4 to -0.5. We found also certain correlations of the offset of the catalog H values with taxonomic types and with lightcurve amplitudes. We discuss a few possible observational causes for the observed correlations, but a major reason for the huge bias of the catalog absolute magnitudes peaking around $H = 14$ is unknown; we suspect that a main problem lies in the magnitude estimates reported by asteroid surveys. With our photometric H and G data, we revised the preliminary WISE albedo and diameter estimates made by Masiero et al. (Astrophys. J. 741, 68–89, 2011) and Mainzer et al. (Astrophys. J. 743, 156–172, 2011) for asteroids in our sample. We found that the mean albedo of Tholen/Bus/DeMeo C/G/B/F/P/D types with sizes of 25–300 km is 0.056 with the standard deviation (dispersion) of the sample of 0.014 and the mean albedo of S/A/L types with sizes 0.6 to 200 km is 0.198 with the standard deviation of the sample of 0.051. The standard errors of the mean albedos are 0.002 and 0.006, respectively; systematic observational or modeling errors can predominate over the quoted formal errors. There is apparent only a small, marginally significant difference of 0.033 ± 0.011 between the mean albedos of sub-samples of large and small (divided at diameter 25 km) S/A/L asteroids. The apparent small difference will have to be confirmed and explained; we speculate that it may be either a real size dependence of surface properties of the differentiated asteroid types or due to small size-dependent systematic effects in their observations or thermal models. A huge trend of the mean of the preliminary WISE albedo estimates increasing with decreasing asteroid size below $D \sim 30$ km showed in Mainzer et al. (Astrophys. J. 741, 90–114, 2011) was explained as being due to the systematic bias in the MPCORB absolute magnitudes.

Key words: Asteroids,

1 Introduction

Diameters and albedos of asteroids are their basic physical parameters. Asteroid diameters can be estimated with several direct or indirect techniques. Direct size estimation techniques include in-situ spacecraft observations, resolved imaging with adaptive optics systems or radar observations, and asteroid occultations of stars. An efficient use of the direct techniques is, however, limited to mostly large asteroids or those making close approach. Among indirect techniques of asteroid size estimation that can be applied to a large sample of asteroids covering a broad range of sizes, the most powerful is a technique of asteroid thermal modeling with observations of their thermal infrared and visual fluxes; the effective diameter and visual geometric albedo are parameters of asteroid thermal models.

Ideally, both the integral thermally emitted infrared and the integral reflected optical fluxes should be measured simultaneously. In practice, however, thermal observations are normally made at a single or over a limited range of aspects, and it has become a normal practice for asteroid thermal modellers to estimate the integral optical flux from the asteroid's absolute visual magnitude H and modeling its phase function. The absolute magnitude of a Solar System object is defined as the apparent magnitude of the object illuminated by the solar light flux at 1 AU and observed from the distance of 1 AU and at zero phase angle.

Absolute magnitudes of asteroids are estimated from their photometric observations. As the observations are generally taken at non-zero solar phase angles, an estimation of H involves an estimation of a dependence of the asteroid brightness on the phase angle. The dependence is most often modeled with the H–G phase relation (Bowell et al., 1989) that has conveniently only two free parameters, the absolute magnitude H and the slope parameter G. A systematic model error of the H–G phase relation is on an order of a few 0.01 mag (Harris, 1989).

Recent thermal infrared survey observations by the *Wide-field Infrared Survey Explorer (WISE)*, AKARI and the *Spitzer Space Telescope* resulted in estimating diameters and albedos for thousands of asteroids (e.g., Mainzer et al., 2011a,b; Masiero et al., 2011; Usui et al., 2011; Ryan and Woodward, 2011). They used the absolute magnitude values from the asteroid orbit catalogs MPCORB[1] or AstOrb.[2] Most of the absolute magnitudes in the catalogs were derived from magnitude estimates reported by visual asteroid surveys and follow-up observers with their astrometric observations. The procedures that most of the astrometric surveys, follow-up observers, and orbit calculators used for estimating the asteroid apparent magnitudes and derivation of the H values have not been comprehensively published so far.

[1] http://www.minorplanetcenter.org/iau/MPCORB.html.
[2] ftp://ftp.lowell.edu/pub/elgb/astorb.html.

Given the principal importance of asteroid absolute magnitudes data for the estimation of their diameters and albedos and considering that an accuracy of and biases present in the H values in the orbit catalogs have not been satisfactorily characterized so far,[3] we investigated them by comparing the catalog H values with our absolute magnitude estimates for a sample of 583 main-belt and near-Earth asteroids that we observed photometrically within our asteroid lightcurve observations projects over the past 33 years.

2 Absolute magnitudes H data sample

Our sample consists of absolute magnitude estimates that we derived from our photometric observations of asteroids that we made from Ondřejov Observatory, Czech Republic, and Table Mountain Observatory, California, from 1978 to 2011. The observations were made within our projects aimed at estimation of spins, shapes, and binary nature of asteroids in the main belt and on inner-planet crossing orbits. More than a half of the H data in our sample we published in a series of papers (see their list below Table 2). A part of the H estimates is new data that we derived more recently. Most of the observations of asteroids in our sample were targeted observations — the asteroids were selected and observed deliberately for particular aims of the specific photometric projects. A fraction (96 of the 583) were, however, accidental observations of asteroids that happened to be present in the imaged fields of the targeted asteroids. We outline our observational and reduction procedures in following paragraphs.

2.1 Absolute calibrations in the Johnson-Cousins BVRI system

We made the observations primarily through the V or R filters and calibrated them in the Johnson-Cousins system using the Landolt standard stars (Landolt, 1973, 1983, 1992). We observed some of the asteroids also in other than just the primary filter and in such cases we estimated their actual color indices. Many of the asteroids were, however, observed in only the primary filter, R in the case of the Ondřejov observations as with the CCD cameras we got a higher signal-to-noise ratio and a lower atmospheric extinction in observations in the R than in the V band. A spectral curve of the R filter was designed for a given CCD so that the resulting spectral response of the telescope+filter+CCD combination matched closely the Cousins R passband

[3] Actually, we had a suspicion that there is present a significant bias in the orbit catalog H data for many years already. We and other observers noticed that our photometric observations of asteroids smaller than about 20 km typically showed them being fainter than predicted using the catalog H values. Results from two earlier papers showing the offset by comparing the catalog magnitudes with data from the Sloan Digital Sky Survey are presented in Section 3.3.

as defined in Bessell (1990); the coefficient of the color term with $(V-I)$ in the photometric transformation function of the telescope system was always within 0.05 of zero. With such filter+CCD setup, we were able to calibrate the asteroid photometric observations in the Cousins R system assuming $(V-I)$ of 0.80, which is about the average asteroidal color index, with a systematic error < 0.01 mag; note that the most common C and S asteroid types have the mean $(V-I)$ of 0.73 and 0.90, respectively (Shevchenko and Lupishko, 1998).

2.2 Mean brightness level estimation

For derivation of the mean absolute magnitude H of an asteroid corresponding to its mean cross-section, we need to estimate its mean reduced magnitude that is the asteroid's apparent magnitude reduced to the unit geo- and heliocentric distances and to a normal phase angle that is close to the mid-range of solar phases covered by the observations. In most cases, we estimated the mean reduced magnitude as the zeroth order of the 1-period (or 2-period, for tumblers) Fourier series, or two additive 1-period Fourier series in the case of a binary asteroid where lightcurves of both the primary and the secondary components were observed, fitted to the photometric observations made over one or more nearby nights that covered the rotation lightcurve sufficiently (see the references below Table 2 for details of the technique). An uncertainty of the mean reduced magnitude estimated in these cases was mostly < 0.01 mag. In a fraction of asteroids in our sample, mostly some long-period ones, where we did not obtain sufficient data to get an accurate Fourier series fit or where the rotation period has not been estimated with sufficient accuracy, we estimated the asteroid's mean brightness either as the mean value of a range in which the Fourier series zeroth order lie for a range of possible and plausible fits to the observations, or as an average of the observations made during one or more nearby nights in cases where even a range of possible Fourier series fits could not be obtained. In all the cases with limited or no Fourier fits available, we paid attention to that the resulted mean magnitude estimate had an uncertainty < 0.2 mag. Even in cases with the least constrained lightcurves, we required an evidence that either the asteroid's total amplitude was small to moderate so that the mean level estimated as an average of the observations could not be off by more than 0.2 mag, or that the observations covered a sufficient range of rotational phases so that the average of the observations was close to the mean brightness level.

2.3 Reduction to zero phase angle

The absolute magnitude H is defined as the reduced magnitude at zero phase angle. The mean magnitudes observed at non-zero phase angles were reduced to zero phase using the H–G phase relation. For nearly half of our observed asteroids, we got sufficient data to estimate the slope parameter G from the observations. For the rest, we assumed G based on their taxonomic classification where available and conclusive (see below) or on their orbital group membership. The assumed default G values were taken from Tables 2 and 3 of Warner et al. (2009) in most cases. For some H estimates that we published before (see the references in Table 2), we assumed slightly different default values of G based on earlier works, e.g., 0.23 ± 0.11 instead of the new default 0.24 ± 0.11 for S types, or 0.09 ± 0.09 instead of the new default 0.12 ± 0.08 for C types; we kept those earlier estimates in such cases as the differences are minor and well within the uncertainties. The uncertainties of the assumed default G values were propagated to the estimated uncertainties of the resulted H values.

The uncertainties in the G values were the most significant source of uncertainty for the H estimates for many asteroids in our sample. As we aimed to get H values with uncertainties not greater than 0.2 mag, we limited our sample to include asteroids that were observed at solar phases not greater than $\sim 30°$, which gave an uncertainty in resulting H of ± 0.16 and ± 0.14 for the default G of S and C types, respectively, with only a few exceptions in justified cases.

2.4 Derivation of H from H_R

Most of the Ondřejov observations were taken in the Cousins R. We transformed the estimated H_R values to $H \equiv H_V$ by adding the mean color index $(V - R)$ for known (where conclusive; see below) or assumed (according to its orbital group membership) taxonomic class of a given asteroid. The mean color indices for the major classes S, C and M (X) in the taxonomic system of Tholen (1984, 1989) were taken from Shevchenko and Lupishko (1998). For other, smaller classes Q, A, D, Xc, Xe and V in the Bus–DeMeo taxonomy, we derived the mean color index from the mean reflectance spectrum of a given class provided by DeMeo et al. (2009), assuming solar $(V - R) = 0.367$. The mean $(V - R)$ values are listed in Table 1. For three asteroids with an ambiguous classification of S or A, we assumed $(V - R) = 0.528 \pm 0.05$ which is the average of the mean color indices for the two classes. For asteroids with unknown spectral class, we used the mean $(V - R)$ for a class predominating in their respective orbital group according to Table 2 of Warner et al. (2009).

2.5 Averaging H estimates from different apparitions

For 38 of the 583 asteroids in our sample, we have got more than one H estimate, mostly from observations made in different apparitions. In all but one of the cases, we computed the mean H value as a weighted mean of the individual estimates, with weights of δH^{-2}. The exception was (1866) Sisyphus

Table 1
Mean color indices $(V - R)$ used for conversion of H_R to H

Class	$(V - R)$	Reference
S	0.49 ± 0.05	Shevchenko and Lupishko (1998)
Q	0.454 ± 0.023	from mean Q spectrum by DeMeo et al. (2009)
A	0.567 ± 0.023	from mean A spectrum by DeMeo et al. (2009)
C	0.38 ± 0.05	Shevchenko and Lupishko (1998)
D	0.455 ± 0.033	from mean D spectrum by DeMeo et al. (2009)
X	0.42 ± 0.04	Shevchenko and Lupishko (1998)
Xc	0.408 ± 0.008	from mean Xc spectrum by DeMeo et al. (2009)
Xe	0.453 ± 0.037	from mean Xe spectrum by DeMeo et al. (2009)
V	0.516 ± 0.037	from mean V spectrum by DeMeo et al. (2009)

where the two H estimates differ by 0.38 mag which we suspect is due to different cross-sections at the two different aspects of the asteroid in the two apparitions rather than due to uncertainties of the H estimates; we used a simple average of the two values, i.e., assumed equal weights.

2.6 Uncertainties of the H estimates

We estimated the uncertainties δH of our absolute magnitude estimates by propagating the uncertainties resulting from the individual error sources mentioned above. All the H estimates in our sample have $\delta H < 0.21$ mag. They are realistic estimated uncertainties for the absolute magnitudes measured at the observed aspects of the asteroids. We note, however, that an asteroid generally has different H values at different aspects. A magnitude of the difference depends on a shape of the asteroid and its rotation pole position (XXXX REFERENCE). This aspect-related uncertainty must be considered or accounted for when the H value estimated from observations made at a specific aspect is used for other observations made at a different aspect.

The estimated absolute magnitudes, their uncertainties, estimated or assumed slope parameter (G) values and mean lightcurve amplitudes are listed in Table 2.

Table 2: H data

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}} - H$	$H_{\mathrm{AsD}} - H$	$H_{\mathrm{JPL}} - H$	Ampl.	Reference(s)
3	Juno	5.280	0.040	0.320	0.040	5.33	0.32	5.37	0.32	5.33	0.32	0.050	0.090	0.050	0.15	Harris et al. 1989a,b, 1992
8	Flora	6.560	0.110	0.320	0.110	6.49	0.28	6.56	0.28	6.49	0.28	-0.070	0.000	-0.070	0.08	Harris et al. 1989a,b, 1992
9	Metis	6.330	0.120	0.230	0.110	6.30	0.15	6.25	0.17	6.28	0.17	-0.030	-0.080	-0.050	0.20	Harris et al. 1989a,b, 1992
11	Parthenope	6.570	0.030	0.240	0.030	6.55	0.15	6.57	0.15	6.55	0.15	-0.020	0.000	-0.020	0.05	Harris et al. 1989a,b, 1992
12	Victoria	7.060	0.010	0.220	0.020	7.24	0.22	7.21	0.22	7.24	0.22	0.180	0.150	0.180	0.08	Harris et al. 1999
16	Psyche	5.930	0.060	0.210	0.060	5.90	0.20	6.02	0.20	5.90	0.20	-0.030	0.090	-0.030	0.21	Harris et al. 1999
17	Thetis	7.900	0.100	0.230	0.110	7.76	0.15	7.71	0.15	7.76	0.15	-0.140	-0.190	-0.140	0.28	Harris et al. 1989a,b, 1992
19	Fortuna	7.152	0.020	0.162	0.030	7.20	0.15	7.21	0.10	7.13	0.10	0.048	0.058	-0.022	0.23	tbd
24	Themis	7.088	0.008	0.180	0.020	7.20	0.15	7.21	0.19	7.08	0.19	0.112	0.122	-0.008	0.09	Harris et al. 1989a,b, 1992
30	Urania	7.530	0.020	0.230	0.000	7.60	0.15	7.59	0.15	7.53	0.15	0.070	0.060	0.000	0.11	Wisniewski et al. 1997
31	Euphrosyne	6.700	0.040	0.090	0.090	6.80	0.15	6.78	0.15	6.74	0.15	0.100	0.080	0.040	0.05	Harris et al. 1989a,b, 1992
33	Polyhymnia	8.564	0.008	0.340	0.020	8.50	0.15	8.63	0.33	8.55	0.33	-0.064	0.066	-0.014	0.20	Harris et al. 1989a,b, 1992
37	Fides	7.328	0.006	0.270	0.007	7.29	0.24	7.39	0.24	7.29	0.24	-0.038	0.062	-0.038	0.13	Harris et al. 1989a,b, 1992
38	Leda	8.315	0.040	0.090	0.090	8.40	0.15	8.36	0.15	8.32	0.15	0.085	0.045	0.005	0.10	tbd
45	Eugenia	7.422	0.005	0.130	0.006	7.50	0.15	7.44	0.07	7.46	0.07	0.078	0.018	0.038	0.18	Harris et al. 1999
46	Hestia	8.400	0.020	0.120	0.040	8.50	0.15	8.38	0.06	8.36	0.06	0.100	-0.020	-0.040	0.08	Harris et al. 1999
47	Aglaja	7.861	0.007	0.178	0.020	8.00	0.15	8.01	0.16	7.84	0.16	0.139	0.149	-0.021	0.02	tbd
53	Kalypso	8.660	0.040	0.090	0.090	8.80	0.15	8.81	0.15	8.81	0.15	0.140	0.150	0.150	0.05	Harris et al. 1989a,b, 1992
57	Mnemosyne	7.090	0.020	0.220	0.040	7.03	0.15	6.89	0.15	7.03	0.15	-0.060	-0.200	-0.060	0.11	Harris et al. 1989a,b, 1992
58	Concordia	8.860	0.100	0.090	0.090	8.90	0.15	8.96	0.15	8.86	0.15	0.040	0.100	0.000	0.10	Harris et al. 1989a,b, 1992
60	Echo	8.484	0.007	0.250	0.005	8.21	0.27	8.52	0.27	8.21	0.27	-0.274	0.036	-0.274	0.11	tbd
62	Erato	8.600	0.100	0.090	0.090	8.70	0.15	8.61	0.15	8.76	0.15	0.100	0.010	0.160	0.20	Harris et al. 1989a,b, 1992
70	Panopaea	8.100	0.060	0.130	0.100	8.00	0.15	8.01	0.14	8.11	0.14	-0.100	-0.090	0.010	0.10	Harris et al. 1989a,b, 1992
71	Niobe	7.310	0.090	0.400	0.140	7.30	0.40	7.31	0.40	7.30	0.40	-0.010	0.000	-0.010	0.11	Harris et al. 1989a,b, 1992
72	Feronia	8.790	0.010	0.000	0.010	8.94	0.15	8.99	0.15	8.94	0.15	0.150	0.200	0.150	0.11	Harris et al. 1989a,b, 1992
75	Eurydike	8.970	0.010	0.230	0.020	8.96	0.23	8.96	0.23	8.96	0.23	-0.010	-0.010	-0.010	0.10	Harris et al. 1989a,b, 1992
76	Freia	7.864	0.008	0.070	0.010	7.90	0.15	7.92	0.15	7.90	0.15	0.036	0.056	0.036	0.10	Harris et al. 1989a,b, 1992
77	Frigga	8.522	0.006	0.160	0.010	8.60	0.15	8.55	0.16	8.52	0.16	0.078	0.028	-0.002	0.07	Harris et al. 1989a,b, 1992
78	Diana	8.018	0.005	0.080	0.009	8.09	0.08	8.13	0.08	8.09	0.08	0.072	0.112	0.072	0.02	Harris et al. 1989a,b, 1992
88	Thisbe	7.030	0.140	0.090	0.090	7.10	0.15	7.19	0.14	7.04	0.14	0.070	0.160	0.010	0.10	Harris et al. 1989a,b, 1992
93	Minerva	7.504	0.030	-0.006	0.030	7.80	0.15	7.80	0.15	7.70	0.15	0.296	0.296	0.196	0.06	tbd
96	Aegle	7.650	0.070	0.090	0.090	7.60	0.15	7.59	0.15	7.67	0.15	-0.050	-0.060	0.020	0.10	Harris et al. 1989a,b, 1992
99	Dike	9.350	0.130	0.090	0.090	9.50	0.15	9.44	0.15	9.43	0.15	0.150	0.090	0.080	0.20	Harris et al. 1989a,b, 1992
101	Helena	8.327	0.005	0.320	0.010	8.20	0.15	8.32	0.35	8.33	0.35	-0.127	-0.007	0.003	0.11	Harris et al. 1989a,b, 1992
102	Miriam	9.300	0.200	0.090	0.090	9.30	0.15	9.27	0.15	9.26	0.15	0.000	-0.030	-0.040	0.16	Harris et al. 1989a,b, 1992
106	Dione	7.410	0.060	0.090	0.090	7.41	0.15	7.50	0.15	7.41	0.15	0.000	0.090	0.000	0.10	Harris et al. 1989a,b, 1992
107	Camilla	7.100	0.020	0.090	0.090	7.10	0.15	7.06	0.08	7.08	0.08	0.000	-0.040	-0.020	0.41	Harris et al. 1989a,b, 1992
109	Felicitas	8.759	0.008	0.030	0.008	8.90	0.15	8.74	0.04	8.75	0.04	0.141	-0.019	-0.009	0.06	Harris et al. 1989a,b, 1992
114	Kassandra	8.275	0.020	0.090	0.090	8.20	0.15	8.23	0.15	8.26	0.15	-0.075	-0.045	-0.015	0.12	tbd
125	Liberatrix	8.900	0.020	0.220	0.090	8.80	0.15	8.91	0.33	9.04	0.33	-0.100	0.010	0.140	0.30	Harris et al. 1989a,b, 1992
127	Johanna	8.370	0.120	0.090	0.090	8.30	0.15	8.45	0.15	8.30	0.15	-0.070	0.080	-0.070	0.18	Harris et al. 1999
130	Elektra	6.990	0.040	0.090	0.090	7.12	0.15	7.00	0.15	7.12	0.15	0.130	0.010	0.130	0.32	Harris et al. 1989a,b, 1992
132	Aethra	9.200	0.150	0.210	0.000	9.38	0.15	8.94	0.15	9.21	0.15	0.180	-0.260	0.010	0.24	Wisniewski et al. 1997
133	Cyrene	7.990	0.013	0.130	0.020	7.90	0.15	7.90	0.13	7.98	0.13	-0.090	-0.090	-0.010	0.26	Harris et al. 1989a,b, 1992

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{MPC}-H$	$H_{AsD}-H$	$H_{JPL}-H$	Ampl.	Reference(s)
134	Sophrosyne	8.770	0.010	0.280	0.020	8.76	0.28	8.75	0.28	8.76	0.28	-0.010	-0.020	-0.010	0.18	Harris et al. 1989a,b, 1992
135	Hertha	8.100	0.040	0.240	0.040	8.23	0.15	8.16	0.15	8.23	0.15	0.130	0.060	0.130	0.12	Harris et al. 1989a,b, 1992
137	Meliboea	8.100	0.050	0.090	0.090	8.10	0.15	8.01	0.15	8.05	0.15	0.000	-0.090	-0.050	0.10	Harris et al. 1989a,b, 1992
139	Juewa	7.924	0.010	0.150	0.010	7.90	0.15	7.89	0.15	7.78	0.15	-0.024	-0.034	-0.144	0.18	Harris et al. 1999
144	Vibilia	7.920	0.020	0.170	0.040	8.00	0.15	8.03	0.17	7.91	0.17	0.080	0.110	-0.010	0.14	Harris et al. 1989a,b, 1992
145	Adeona	8.050	0.070	0.090	0.090	8.10	0.15	8.08	0.15	8.13	0.15	0.050	0.030	0.080	0.04	Harris et al. 1989a,b, 1992
146	Lucina	8.277	0.020	0.186	0.030	8.20	0.11	8.24	0.11	8.20	0.11	-0.077	-0.037	-0.077	0.14	tbd
148	Gallia	7.400	0.100	0.090	0.090	7.63	0.15	7.61	0.15	7.63	0.15	0.230	0.210	0.230	0.07	Harris et al. 1989a,b, 1992
154	Bertha	7.530	0.080	0.090	0.090	7.60	0.15	7.61	0.15	7.58	0.15	0.070	0.080	0.050	0.20	Harris et al. 1989a,b, 1992
156	Xanthippe	8.310	0.090	-0.120	0.080	8.60	0.15	8.64	0.15	8.64	0.15	0.290	0.330	0.330	0.11	Harris et al. 1989a,b, 1992
159	Aemilia	8.100	0.100	0.090	0.090	8.20	0.15	8.25	0.15	8.12	0.15	0.100	0.150	0.020	0.20	Harris et al. 1989a,b, 1992
160	Una	9.050	0.004	0.050	0.040	9.00	0.15	9.08	0.15	9.08	0.15	-0.050	0.030	0.030	0.10	Harris et al. 1999
161	Athor	9.080	0.010	0.130	0.020	9.00	0.15	8.97	0.13	9.15	0.13	-0.080	-0.110	0.070	0.12	Harris et al. 1989a,b, 1992
163	Erigone	9.480	0.010	-0.040	0.010	9.70	0.15	9.44	-0.04	9.47	-0.04	0.220	-0.040	-0.010	0.37	Harris et al. 1989a,b, 1992
165	Loreley	7.710	0.010	0.070	0.010	7.70	0.15	7.68	0.15	7.65	0.15	-0.010	-0.030	-0.060	0.12	Harris et al. 1989a,b, 1992
166	Rhodope	9.750	0.050	0.090	0.090	9.80	0.15	9.81	0.15	9.89	0.15	0.050	0.060	0.140	0.13	Harris et al. 1999
178	Belisana	9.600	0.006	0.310	0.009	9.40	0.15	9.35	0.15	9.38	0.15	-0.200	-0.250	-0.220	0.18	Harris et al. 1989a,b, 1992
187	Lamberta	7.980	0.040	-0.040	0.040	8.20	0.15	8.08	0.15	8.16	0.15	0.220	0.100	0.180	0.32	Harris et al. 1999
189	Phthia	9.600	0.100	0.230	0.110	9.20	0.15	9.24	0.15	9.33	0.15	-0.400	-0.360	-0.270	0.20	Harris et al. 1989a,b, 1992
201	Penelope	8.540	0.020	0.170	0.020	8.30	0.15	8.40	0.24	8.43	0.24	-0.240	-0.140	-0.110	0.56	Harris et al. 1989a,b, 1992
211	Isolda	7.900	0.030	0.120	0.040	8.00	0.15	7.89	0.12	7.89	0.12	0.100	-0.010	-0.010	0.09	Harris et al. 1989a,b, 1992
212	Medea	8.180	0.060	0.090	0.090	8.30	0.15	8.27	0.15	8.28	0.15	0.120	0.090	0.100	0.08	Harris et al. 1999
216	Kleopatra	7.350	0.020	0.280	0.030	7.10	0.15	7.17	0.29	7.30	0.29	-0.250	-0.180	-0.050	0.68	Harris et al. 1989a,b, 1992
218	Bianca	8.607	0.005	0.310	0.008	8.60	0.32	8.60	0.32	8.60	0.32	-0.007	-0.007	-0.007	0.11	Harris et al. 1989a,b, 1992
219	Thusnelda	9.340	0.050	0.230	0.110	9.32	0.15	9.21	0.15	9.32	0.15	-0.020	-0.130	-0.020	0.19	Harris et al. 1989a,b, 1992
226	Weringia	9.820	0.070	0.230	0.110	9.80	0.15	9.81	0.15	9.70	0.15	-0.020	-0.010	-0.120	0.10	Harris et al. 1989a,b, 1992
230	Athamantis	7.346	0.004	0.272	0.003	7.35	0.27	7.44	0.27	7.35	0.27	0.004	0.094	0.004	0.19	tbd
236	Honoria	8.188	0.007	-0.020	0.014	8.20	0.15	7.97	-0.02	8.18	-0.02	0.012	-0.218	-0.008	0.17	tbd
258	Tyche	8.500	0.020	0.230	0.020	8.50	0.23	8.39	0.23	8.50	0.23	0.000	-0.110	0.000	0.39	Harris et al. 1989a,b, 1992
261	Prymno	9.440	0.010	0.190	0.030	9.44	0.19	9.35	0.19	9.44	0.19	0.000	-0.090	0.000	0.17	Harris et al. 1989a,b, 1992
266	Aline	8.490	0.070	0.090	0.090	8.80	0.15	8.61	0.15	8.80	0.15	0.310	0.120	0.310	0.07	Harris et al. 1999
279	Thule	8.520	0.180	0.150	0.200	8.57	0.15	8.35	0.15	8.57	0.15	0.050	-0.170	0.050	0.04	Ondrejov newres.txt
284	Amalia	10.120	0.070	0.120	0.110	10.05	0.11	10.03	0.11	10.05	0.11	-0.070	-0.090	-0.070	0.15	Harris et al. 1989a,b, 1992
288	Glauke	10.000	0.200	0.230	0.110	9.70	0.15	9.67	0.15	9.84	0.15	-0.300	-0.330	-0.160	0.90	Harris et al. 1999
298	Baptistina	11.320	0.120	0.230	0.000	11.20	0.15	11.15	0.15	11.00	0.15	-0.120	-0.170	-0.320	0.12	Wisniewski et al. 1997
317	Roxane	10.070	0.010	0.490	0.040	9.70	0.15	9.69	0.15	10.03	0.15	-0.370	-0.380	-0.040	0.60	Harris et al. 1989a,b, 1992
322	Phaeo	8.990	0.060	0.090	0.090	9.00	0.15	8.99	0.15	9.01	0.15	0.010	0.000	0.020	0.07	Harris et al. 1989a,b, 1992
325	Heidelberga	8.770	0.010	0.230	0.020	8.60	0.15	8.59	0.15	8.65	0.15	-0.170	-0.180	-0.120	0.19	Harris et al. 1989a,b, 1992
326	Tamara	9.390	0.100	0.090	0.090	9.30	0.15	9.29	0.15	9.36	0.15	-0.090	-0.100	-0.030	0.15	Harris et al. 1989a,b, 1992
335	Roberta	8.860	0.030	0.130	0.030	8.96	0.15	9.03	0.15	8.96	0.15	0.100	0.170	0.100	0.09	Harris et al. 1989a,b, 1992
338	Budrosa	8.370	0.010	0.230	0.020	8.50	0.15	8.44	0.15	8.50	0.15	0.130	0.070	0.130	0.06	Harris et al. 1989a,b, 1992
344	Desiderata	8.030	0.040	0.090	0.090	8.08	0.15	8.28	0.15	8.08	0.15	0.050	0.250	0.050	0.16	Harris et al. 1989a,b, 1992
345	Tercidina	8.810	0.070	0.210	0.100	8.90	0.15	8.73	0.10	8.71	0.10	0.090	-0.080	-0.100	0.15	Harris et al. 1989a,b, 1992
346	Hermentaria	7.250	0.030	0.230	0.110	7.13	0.15	7.26	0.15	7.13	0.15	-0.120	0.010	-0.120	0.08	tbd

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}}-H$	$H_{\mathrm{AsD}}-H$	$H_{\mathrm{JPL}}-H$	Ampl.	Reference(s)
347	Pariana	8.890	0.050	0.210	0.000	8.90	0.15	8.91	0.15	8.90	0.15	0.010	0.020	0.010	0.09	Wisniewski et al. 1997
367	Amicitia	10.690	0.140	0.230	0.000	10.70	0.15	10.48	0.15	10.70	0.15	0.010	-0.210	0.010	0.28	Wisniewski et al. 1997
375	Ursula	7.210	0.020	0.080	0.030	7.40	0.15	7.47	0.27	7.47	0.27	0.190	0.260	0.260	0.06	Harris et al. 1999
379	Huenna	8.990	0.010	0.140	0.010	8.80	0.15	8.81	0.15	8.87	0.15	-0.190	-0.180	-0.120	0.09	Harris et al. 1989a,b, 1992
386	Siegena	7.400	0.010	0.100	0.020	7.43	0.16	7.79	0.16	7.43	0.16	0.030	0.390	0.030	0.07	tbd
387	Aquitania	7.440	0.020	0.020	0.020	7.60	0.15	7.55	0.15	7.41	0.15	0.160	0.110	-0.030	0.24	Harris et al. 1989a,b, 1992
388	Charybdis	8.580	0.040	0.070	0.100	8.60	0.15	8.50	0.07	8.57	0.07	0.020	-0.080	-0.010	0.17	Harris et al. 1989a,b, 1992
391	Ingeborg	10.900	0.200	0.230	0.000	10.80	0.15	10.75	0.15	10.10	0.15	-0.100	-0.150	-0.800	0.22	Wisniewski et al. 1997
392	Wilhelmina	9.590	0.010	0.090	0.090	9.70	0.15	9.66	0.15	9.70	0.15	0.110	0.070	0.110	0.11	Harris et al. 1999
419	Aurelia	8.411	0.030	0.160	0.050	8.50	0.15	8.51	0.15	8.42	0.15	0.089	0.099	0.009	0.07	tbd
422	Berolina	10.950	0.010	0.420	0.080	10.60	0.15	10.65	0.15	10.83	0.15	-0.350	-0.300	-0.120	0.10	Harris et al. 1989a,b, 1992
423	Diotima	7.320	0.020	0.090	0.090	7.30	0.15	7.17	0.15	7.24	0.15	-0.020	-0.150	-0.080	0.14	Harris et al. 1999
428	Monachia	11.740	0.050	0.010	0.000	12.00	0.15	11.88	0.15	11.74	0.15	0.260	0.140	0.000	0.31	Wisniewski et al. 1997
429	Lotis	9.890	0.020	0.070	0.030	9.90	0.15	9.91	0.15	9.82	0.15	0.010	0.020	-0.070	0.24	Harris et al. 1989a,b, 1992
432	Pythia	8.880	0.050	0.230	0.110	8.84	0.15	8.85	0.15	8.84	0.15	-0.040	-0.030	-0.040	0.14	Harris et al. 1989a,b, 1992
434	Hungaria	11.460	0.020	0.430	0.020	11.20	0.15	11.17	0.15	11.21	0.15	-0.260	-0.290	-0.250	0.57	Harris et al. 1999
443	Photographica	10.240	0.100	0.230	0.110	10.10	0.15	10.05	0.15	10.28	0.15	-0.140	-0.190	0.040	0.30	Harris et al. 1999
449	Hamburga	9.430	0.010	0.090	0.090	9.80	0.15	9.76	0.15	9.47	0.15	0.370	0.330	0.040	0.01	Harris et al. 1989a,b, 1992
453	Tea	10.850	0.120	0.230	0.000	10.40	0.15	10.36	0.15	10.86	0.15	-0.450	-0.490	0.010	0.37	Wisniewski et al. 1997
464	Megaira	9.470	0.050	0.090	0.090	9.52	0.15	9.60	0.15	9.52	0.15	0.050	0.130	0.050	0.08	Harris et al. 1989a,b, 1992
478	Tergeste	7.960	0.050	0.230	0.110	7.90	0.15	7.96	0.15	7.98	0.15	-0.060	0.000	0.020	0.20	Harris et al. 1989a,b, 1992
482	Petrina	8.910	0.070	0.230	0.110	8.90	0.15	8.76	0.15	8.84	0.15	-0.010	-0.150	-0.070	0.10	Harris et al. 1989a,b, 1992
486	Cremona	10.880	0.090	0.230	0.000	11.00	0.15	11.06	0.15	10.89	0.15	0.120	0.180	0.010	0.02	Wisniewski et al. 1997
488	Kreusa	7.800	0.100	0.090	0.090	7.90	0.15	7.86	0.15	7.81	0.15	0.100	0.060	0.010	0.20	Harris et al. 1989a,b, 1992
505	Cava	8.640	0.020	0.010	0.010	8.70	0.15	8.50	-0.03	8.61	-0.03	0.060	-0.140	-0.030	0.24	Harris et al. 1999
510	Mabella	9.660	0.060	0.090	0.090	9.70	0.15	9.69	0.15	9.73	0.15	0.040	0.030	0.070	0.30	Harris et al. 1989a,b, 1992
512	Taurinensis	10.720	0.040	0.240	0.040	10.70	0.15	10.70	0.15	10.68	0.15	-0.020	-0.020	-0.040	0.13	Harris et al. 1989a,b, 1992
517	Edith	9.520	0.010	0.150	0.050	9.50	0.15	9.41	0.15	9.35	0.15	-0.020	-0.110	-0.170	0.18	Harris et al. 1989a,b, 1992
519	Sylvania	9.180	0.020	0.230	0.040	8.90	0.15	8.87	0.15	9.14	0.15	-0.280	-0.310	-0.040	0.40	Harris et al. 1999
539	Pamina	10.040	0.100	0.090	0.090	9.70	0.15	9.96	0.15	9.70	0.15	-0.340	-0.080	-0.340	0.20	Harris et al. 1989a,b, 1992
540	Rosamunde	10.740	0.130	0.230	0.000	10.50	0.15	10.55	0.15	10.76	0.15	-0.240	-0.190	0.020	0.53	Wisniewski et al. 1997
542	Susanna	9.640	0.086	0.240	0.110	9.30	0.15	9.29	0.15	9.36	0.15	-0.340	-0.350	-0.280	0.10	Ondrejov newresadd2.txt
556	Phyllis	9.520	0.040	0.200	0.040	9.56	0.15	9.45	0.15	9.56	0.15	0.040	-0.070	0.040	0.24	Harris et al. 1989a,b, 1992
558	Carmen	9.170	0.030	0.210	0.060	9.00	0.15	8.99	0.15	9.09	0.15	-0.170	-0.180	-0.080	0.20	Harris et al. 1989a,b, 1992
560	Delila	10.800	0.060	0.090	0.090	10.90	0.15	10.85	0.15	10.60	0.15	0.100	0.050	-0.200	0.10	Harris et al. 1989a,b, 1992
584	Semiramis	8.610	0.020	0.310	0.020	8.71	0.24	8.56	0.24	8.71	0.24	0.100	-0.050	0.100	0.21	Harris et al. 1989a,b, 1992
587	Hypsipyle	12.190	0.110	0.230	0.000	11.90	0.15	11.84	0.15	12.70	0.15	-0.290	-0.350	0.510	0.39	Wisniewski et al. 1997
593	Titania	9.290	0.020	0.060	0.020	9.30	0.15	9.21	0.06	9.28	0.06	0.010	-0.080	-0.010	0.25	Harris et al. 1989a,b, 1992
606	Brangane	10.200	0.100	0.090	0.090	10.20	0.15	10.21	0.15	10.38	0.15	0.000	0.010	0.180	0.18	Harris et al. 1989a,b, 1992
622	Esther	10.240	0.150	0.230	0.110	10.20	0.15	10.20	0.15	10.17	0.15	-0.040	-0.040	-0.070	0.15	Harris et al. 1989a,b, 1992
674	Rachele	7.472	0.030	0.239	0.050	7.42	0.15	7.34	0.15	7.42	0.15	-0.052	-0.132	-0.052	0.15	tbd
695	Bella	9.070	0.007	0.200	0.010	9.30	0.15	8.93	0.15	9.30	0.15	0.230	-0.140	0.230	0.33	Harris et al. 1989a,b, 1992
699	Hela	11.830	0.110	0.230	0.110	11.72	0.15	11.18	0.15	11.72	0.15	-0.110	-0.650	-0.110	0.55	Harris et al. 1999
711	Marmulla	11.750	0.150	0.230	0.000	11.70	0.15	11.69	0.15	11.90	0.15	-0.050	-0.060	0.150	0.07	Wisniewski et al. 1997

Table 2: *cont.*

Asteroid		H	δH	G	δG	$H_{\rm MPC}$	$G_{\rm MPC}$	$H_{\rm AsD}$	$G_{\rm AsD}$	$H_{\rm JPL}$	$G_{\rm JPL}$	$H_{\rm MPC}-H$	$H_{\rm AsD}-H$	$H_{\rm JPL}-H$	Ampl.	Reference(s)
712	Boliviana	8.330	0.010	0.030	0.010	8.60	0.15	8.48	0.03	8.32	0.03	0.270	0.150	-0.010	0.09	Harris et al. 1989a,b, 1992
722	Frieda	12.310	0.070	0.230	0.000	12.30	0.15	12.29	0.15	12.10	0.15	-0.010	-0.020	-0.210	0.04	Wisniewski et al. 1997
726	Joella	10.570	0.030	0.090	0.090	10.57	0.15	10.25	0.15	10.57	0.15	0.000	-0.320	0.000	0.12	Harris et al. 1989a,b, 1992
728	Leonisis	13.000	0.060	0.230	0.000	12.80	0.15	12.83	0.15	12.80	0.15	-0.200	-0.170	-0.200	0.13	Wisniewski et al. 1997
739	Mandeville	8.760	0.050	0.090	0.090	8.60	0.15	8.66	0.15	8.50	0.15	-0.160	-0.100	-0.260	0.14	Harris et al. 1989a,b, 1992
746	Marlu	9.810	0.010	0.140	0.010	10.00	0.15	9.71	0.15	10.00	0.15	0.190	-0.100	0.190	0.23	Harris et al. 1989a,b, 1992
770	Bali	11.110	0.020	0.160	0.000	10.90	0.15	10.89	0.15	11.11	0.15	-0.210	-0.220	0.000	0.55	Wisniewski et al. 1997
776	Berbericia	7.632	0.008	0.140	0.010	7.68	0.34	7.79	0.34	7.68	0.34	0.048	0.158	0.048	0.21	Harris et al. 1989a,b, 1992
779	Nina	8.100	0.020	0.260	0.040	8.30	0.15	7.87	0.15	8.30	0.15	0.200	-0.230	0.200	0.25	Harris et al. 1989a,b, 1992
782	Montefiore	11.560	0.050	0.230	0.000	11.50	0.15	11.23	0.15	11.58	0.15	-0.060	-0.330	0.020	0.43	Wisniewski et al. 1997
795	Fini	9.780	0.058	0.120	0.080	9.90	0.15	9.78	0.15	9.70	0.15	0.120	0.000	-0.080	0.02	Ondrejov newresadd2.txt
822	Lalage	12.330	0.020	0.230	0.000	12.18	0.15	12.01	0.15	12.18	0.15	-0.150	-0.320	-0.150	0.47	Wisniewski et al. 1997
823	Sisigambis	11.370	0.050	0.230	0.000	11.10	0.15	11.04	0.15	11.38	0.15	-0.270	-0.330	0.010	0.03	Wisniewski et al. 1997
825	Tanina	11.840	0.060	0.230	0.000	11.40	0.15	11.38	0.15	11.86	0.15	-0.440	-0.460	0.020	0.48	Wisniewski et al. 1997
849	Ara	8.330	0.010	0.210	0.010	8.00	0.15	8.04	0.15	8.10	0.15	-0.330	-0.290	-0.230	0.34	Harris et al. 1989a,b, 1992
851	Zeissia	11.600	0.020	0.230	0.000	11.30	0.15	11.37	0.15	11.62	0.15	-0.300	-0.230	0.020	0.53	Wisniewski et al. 1997
852	Wladilena	10.150	0.020	0.140	0.030	9.90	0.15	9.94	0.15	9.90	0.15	-0.250	-0.210	-0.250	0.30	Harris et al. 1999
853	Nansenia	11.690	0.060	0.090	0.000	11.50	0.15	11.38	0.15	11.69	0.15	-0.190	-0.310	0.000	0.11	Wisniewski et al. 1997
870	Manto	11.680	0.030	0.230	0.110	11.60	0.15	11.64	0.15	13.10	0.15	-0.080	-0.040	1.420	0.30	Harris et al. 1989a,b, 1992
901	Brunsia	11.610	0.110	0.230	0.000	11.50	0.15	11.46	0.15	11.35	0.15	-0.110	-0.150	-0.260	0.12	Wisniewski et al. 1997
905	Universitas	11.660	0.040	0.090	0.000	11.50	0.15	11.43	0.15	11.65	0.15	-0.160	-0.230	-0.010	0.23	Wisniewski et al. 1997
920	Rogeria	11.285	0.096	0.240	0.110	11.19	0.15	11.10	0.15	11.19	0.15	-0.095	-0.185	-0.095	0.16	Ondrejov newresadd2.txt
925	Alphonsina	8.410	0.070	0.230	0.110	8.40	0.15	8.25	0.15	8.33	0.15	-0.010	-0.160	-0.080	0.16	Harris et al. 1989a,b, 1992
929	Algunde	11.860	0.112	0.240	0.110	11.60	0.15	11.62	0.15	12.10	0.15	-0.260	-0.240	0.240	0.15	Ondrejov newres.txt
944	Hidalgo	10.480	0.050	-0.060	0.000	10.77	0.15	10.35	0.15	10.77	0.15	0.290	-0.130	0.290	0.48	Wisniewski et al. 1997
945	Barcelona	10.140	0.010	0.230	0.110	10.13	0.15	9.96	0.15	10.13	0.15	-0.010	-0.180	-0.010	0.09	Harris et al. 1989a,b, 1992
968	Petunia	10.250	0.050	0.230	0.000	10.10	0.15	10.11	0.15	10.26	0.15	-0.150	-0.140	0.010	0.07	Wisniewski et al. 1997
980	Anacostia	7.855	0.004	0.060	0.003	7.85	0.06	7.75	0.06	7.85	0.06	-0.005	-0.105	-0.005	0.10	Harris et al. 1989a,b, 1992
1025	Riema	12.920	0.040	0.420	0.000	12.50	0.15	12.35	0.15	12.55	0.15	-0.420	-0.570	-0.370	0.06	Wisniewski et al. 1997
1060	Magnolia	12.710	0.060	0.230	0.000	12.70	0.15	12.60	0.15	12.70	0.15	-0.010	-0.110	-0.010	0.09	Wisniewski et al. 1997
1065	Amundsenia	12.460	0.094	0.240	0.110	12.00	0.15	11.95	0.15	13.20	0.15	-0.460	-0.510	0.740	0.15	Ondrejov newres.txt
1078	Mentha	11.900	0.200	0.230	0.000	11.30	0.15	11.28	0.15	11.80	0.15	-0.600	-0.620	-0.100	0.87	Wisniewski et al. 1997
1083	Salvia	12.250	0.110	0.230	0.000	12.10	0.15	11.97	0.15	12.60	0.15	-0.150	-0.280	0.350	0.61	Wisniewski et al. 1997
1088	Mitaka	11.620	0.080	0.230	0.000	11.30	0.15	11.33	0.15	11.39	0.15	-0.320	-0.290	-0.230	0.40	Wisniewski et al. 1997
1103	Sequoia	12.530	0.080	0.420	0.000	12.10	0.15	12.04	0.15	12.25	0.15	-0.430	-0.490	-0.280	0.51	Wisniewski et al. 1997
1117	Reginita	11.690	0.100	0.230	0.000	11.70	0.15	11.75	0.15	11.90	0.15	0.010	0.060	0.210	0.13	Wisniewski et al. 1997
1123	Shapleya	11.590	0.130	0.230	0.000	11.60	0.15	11.57	0.15	11.70	0.15	0.010	-0.020	0.110	0.28	Wisniewski et al. 1997
1126	Otero	12.098	0.071	0.240	0.110	12.10	0.15	11.74	0.15	12.10	0.15	0.002	-0.358	0.002	0.69	Ondrejov newres.txt
1131	Porzia	13.100	0.140	0.230	0.000	13.00	0.15	12.87	0.15	13.00	0.15	-0.100	-0.230	-0.100	0.23	Wisniewski et al. 1997
1153	Wallenbergia	12.310	0.080	0.230	0.000	12.00	0.15	11.99	0.15	12.10	0.15	-0.310	-0.320	-0.210	0.33	Wisniewski et al. 1997
1177	Gonnessia	9.240	0.139	0.120	0.080	9.30	0.15	9.10	0.15	9.30	0.15	0.060	-0.140	0.060	0.10	Ondrejov newresadd2.txt
1204	Renzia	12.140	0.090	0.230	0.110	12.20	0.15	11.91	0.15	12.20	0.15	0.060	-0.230	0.060	0.42	Harris et al. 1999
1235	Schorria	13.100	0.040	0.090	0.000	12.68	0.15	12.91	0.15	12.68	0.15	-0.420	-0.190	-0.420	1.40	Wisniewski et al. 1997
1270	Datura	12.610	0.120	0.230	0.000	12.40	0.15	12.38	0.15	12.50	0.15	-0.210	-0.230	-0.110	0.41	Wisniewski et al. 1997

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}} - H$	$H_{\mathrm{AsD}} - H$	$H_{\mathrm{JPL}} - H$	Ampl.	Reference(s)
1314	Paula	12.980	0.086	0.240	0.110	12.68	0.15	12.73	0.15	12.68	0.15	-0.300	-0.250	-0.300	0.83	Ondrejov newres.txt
1338	Duponta	12.798	0.064	0.200	0.030	12.30	0.15	12.52	0.15	12.30	0.15	-0.498	-0.278	-0.498	0.26	tbd
1367	Nongoma	12.300	0.100	0.230	0.000	12.00	0.15	11.94	0.15	13.00	0.15	-0.300	-0.360	0.700	0.30	Wisniewski et al. 1997
1374	Isora	13.670	0.150	0.230	0.000	13.30	0.15	13.13	0.15	13.50	0.15	-0.370	-0.540	-0.170	0.20	Wisniewski et al. 1997
1376	Michelle	12.810	0.040	0.230	0.000	12.20	0.15	12.47	0.15	12.20	0.15	-0.610	-0.340	-0.610	0.19	Wisniewski et al. 1997
1382	Gerti	12.510	0.010	0.230	0.000	12.20	0.15	11.97	0.15	12.20	0.15	-0.310	-0.540	-0.310	0.29	Wisniewski et al. 1997
1405	Sibelius	12.570	0.078	0.240	0.110	12.50	0.15	12.48	0.15	12.30	0.15	-0.070	-0.090	-0.270	0.11	Ondrejov newres.txt
1419	Danzig	11.450	0.140	0.230	0.000	11.20	0.15	11.25	0.15	11.30	0.15	-0.250	-0.200	-0.150	0.92	Wisniewski et al. 1997
1429	Pemba	12.740	0.200	0.230	0.110	12.20	0.15	12.18	0.15	12.50	0.15	-0.540	-0.560	-0.240	0.30	Harris et al. 1999
1453	Fennia	12.835	0.060	0.272	0.000	12.40	0.15	12.38	0.15	12.83	0.15	-0.435	-0.455	-0.005	0.15	tbd
1472	Muonio	12.620	0.058	0.240	0.110	12.70	0.15	12.22	0.15	12.70	0.15	0.080	-0.400	0.080	0.34	Ondrejov newres.txt
1509	Esclangona	12.858	0.149	0.240	0.110	12.64	0.15	12.36	0.15	12.64	0.15	-0.218	-0.498	-0.218	0.13	Ondrejov newres.txt
1583	Antilochus	8.590	0.060	0.090	0.000	8.50	0.15	8.52	0.15	8.58	0.15	-0.090	-0.070	-0.010	0.07	Wisniewski et al. 1997
1593	Fagnes	13.381	0.030	0.149	0.000	13.10	0.15	13.00	0.15	13.20	0.15	-0.281	-0.381	-0.181	0.41	tbd
1613	Smiley	11.630	0.030	0.230	0.000	11.40	0.15	11.55	0.15	11.63	0.15	-0.230	-0.080	0.000	0.20	Wisniewski et al. 1997
1621	Druzhba	12.370	0.090	0.230	0.000	11.70	0.15	11.70	0.15	12.39	0.15	-0.670	-0.670	0.020	0.16	Wisniewski et al. 1997
1629	Pecker	12.360	0.103	0.240	0.110	12.30	0.15	12.34	0.15	12.60	0.15	-0.060	-0.020	0.240	0.08	Ondrejov newres.txt
1640	Nemo	13.580	0.130	0.230	0.000	13.10	0.15	13.00	0.15	13.10	0.15	-0.480	-0.580	-0.480	0.52	Wisniewski et al. 1997
1644	Rafita	11.860	0.020	0.230	0.110	11.82	0.15	11.35	0.15	11.82	0.15	-0.040	-0.510	-0.040	0.31	Harris et al. 1989a,b, 1992
1656	Suomi	13.146	0.100	0.230	0.000	12.40	0.15	12.67	0.15	13.16	0.15	-0.746	-0.476	0.014	0.10	tbd
1657	Roemera	12.890	0.160	0.230	0.000	12.84	0.15	12.66	0.15	12.84	0.15	-0.050	-0.230	-0.050	0.09	Wisniewski et al. 1997
1665	Gaby	11.900	0.200	0.230	0.110	11.80	0.15	11.66	0.15	11.85	0.15	-0.100	-0.240	-0.050	0.27	Harris et al. 1989a,b, 1992
1667	Pels	12.090	0.040	0.230	0.000	11.90	0.15	11.92	0.15	12.10	0.15	-0.190	-0.170	0.010	0.25	Wisniewski et al. 1997
1675	Simonida	11.900	0.060	0.230	0.000	11.80	0.15	11.77	0.15	11.91	0.15	-0.100	-0.130	0.010	0.26	Wisniewski et al. 1997
1689	Floris-Jan	11.740	0.050	0.230	0.110	11.70	0.15	11.65	0.15	11.82	0.15	-0.040	-0.090	0.080	0.40	Harris et al. 1989a,b, 1992
1717	Arlon	12.430	0.094	0.240	0.110	12.30	0.15	12.19	0.15	12.90	0.15	-0.130	-0.240	0.470	0.08	Ondrejov newres.txt
1718	Namibia	13.800	0.130	0.050	0.120	13.80	0.15	13.68	0.15	13.50	0.15	0.000	-0.120	-0.300	0.16	Ondrejov newres.txt
1722	Goffin	12.180	0.100	0.150	0.200	12.00	0.15	12.04	0.15	12.30	0.15	-0.180	-0.140	0.120	0.60	Ondrejov newres.txt
1736	Floirac	12.330	0.086	0.240	0.110	12.20	0.15	12.21	0.15	12.20	0.15	-0.130	-0.120	-0.130	0.08	Ondrejov newres.txt
1777	Gehrels	11.773	0.030	0.343	0.000	11.60	0.15	11.43	0.15	11.10	0.15	-0.173	-0.343	-0.673	0.23	tbd
1806	Derice	12.140	0.078	0.240	0.110	12.00	0.15	12.01	0.15	12.00	0.15	-0.140	-0.130	-0.140	0.07	Ondrejov newres.txt
1830	Pogson	12.659	0.054	0.291	0.050	12.80	0.15	12.76	0.15	12.45	0.15	0.141	0.101	-0.209	0.11	tbd
1862	Apollo	16.384	0.055	0.240	0.110	16.25	0.09	16.06	0.09	16.25	0.09	-0.134	-0.324	-0.134	0.21	Ondrejov newres.txt
1863	Antinous	15.639	0.058	0.119	0.020	15.54	0.15	15.33	0.15	15.54	0.15	-0.099	-0.309	-0.099	0.22	tbd
1865	Cerberus	16.965	0.040	0.232	0.000	16.84	0.15	16.54	0.15	16.84	0.15	-0.125	-0.425	-0.125	1.55	tbd
1866	Sisyphus	12.510	0.149	0.235	0.110	13.00	0.15	12.32	0.15	13.00	0.15	0.490	-0.190	0.490	0.08	tbd
1915	Quetzalcoatl	18.880	0.110	0.060	0.080	18.97	0.10	17.39	0.10	18.97	0.10	0.090	-1.490	0.090	0.20	Harris et al. 1989a,b, 1992
1916	Boreas	14.860	0.112	0.120	0.050	14.93	0.15	14.62	0.15	14.93	0.15	0.070	-0.240	0.070	0.33	Ondrejov newres.txt
1943	Anteros	15.890	0.140	0.230	0.000	15.50	0.15	15.50	0.15	15.75	0.15	-0.390	-0.390	-0.140	0.07	tbd
1951	Lick	14.350	0.200	0.180	0.000	14.70	0.15	13.89	0.15	14.51	0.15	0.350	-0.460	0.160	0.24	tbd
1967	Menzel	12.250	0.058	0.240	0.110	12.10	0.15	12.11	0.15	12.30	0.15	-0.150	-0.140	0.050	0.24	Ondrejov newres.txt
1979	Sakharov	13.800	0.054	0.340	0.030	13.60	0.15	13.49	0.15	13.50	0.15	-0.200	-0.310	-0.300	0.13	Ondrejov newres.txt
1980	Tezcatlipoca	13.960	0.100	0.230	0.000	13.92	0.15	13.66	0.15	13.92	0.15	-0.040	-0.300	-0.040	0.72	Wisniewski et al. 1997
1981	Midas	15.600	0.200	0.230	0.000	15.20	0.15	15.10	0.15	15.50	0.15	-0.400	-0.500	-0.100	0.87	Wisniewski et al. 1997

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}} - H$	$H_{\mathrm{AsD}} - H$	$H_{\mathrm{JPL}} - H$	Ampl.	Reference(s)
1991	Darwin	13.600	0.070	0.230	0.000	13.40	0.15	13.34	0.15	12.90	0.15	-0.200	-0.260	-0.700	0.08	Wisniewski et al. 1997
2002	Euler	12.700	0.103	0.240	0.110	12.30	0.15	12.35	0.15	12.10	0.15	-0.400	-0.350	-0.600	0.31	Ondrejov newres.txt
2006	Polonskaya	13.350	0.071	0.420	0.060	12.90	0.15	12.90	0.15	12.60	0.15	-0.450	-0.450	-0.750	0.08	Ondrejov newres.txt
2049	Grietje	15.600	0.200	0.420	0.000	14.80	0.15	14.70	0.15	14.90	0.15	-0.800	-0.900	-0.700	0.25	Wisniewski et al. 1997
2063	Bacchus	17.250	0.200	0.230	0.100	17.10	0.15	17.12	0.15	17.10	0.15	-0.150	-0.130	-0.150	0.14	Ondrejov published
2094	Magnitka	12.490	0.206	0.400	0.200	11.90	0.15	12.08	0.15	12.00	0.15	-0.590	-0.410	-0.490	0.86	Ondrejov newres.txt
2100	Ra-Shalom	16.054	0.070	0.120	0.040	16.05	0.12	16.12	0.12	16.05	0.12	-0.004	0.066	-0.004	0.33	tbd
2110	Moore-Sitterly	13.620	0.064	0.240	0.110	13.30	0.15	13.15	0.15	13.80	0.15	-0.320	-0.470	0.180	0.37	Ondrejov newres.txt
2121	Sevastopol	12.480	0.086	0.290	0.060	12.10	0.15	12.27	0.15	12.30	0.15	-0.380	-0.210	-0.180	0.15	Ondrejov newres.txt
2212	Hephaistos	13.525	0.070	0.230	0.000	13.20	0.15	13.16	0.15	13.87	0.15	-0.325	-0.365	0.345	0.08	tbd
2253	Espinette	13.130	0.120	0.230	0.000	12.60	0.15	12.68	0.15	12.90	0.15	-0.530	-0.450	-0.230	0.48	Wisniewski et al. 1997
2259	Sofievka	12.480	0.071	0.120	0.080	12.40	0.15	12.49	0.15	12.60	0.15	-0.080	0.010	0.120	0.10	Ondrejov newres.txt
2382	Nonie	11.600	0.200	0.090	0.000	11.40	0.15	11.65	0.15	11.40	0.15	-0.200	0.050	-0.200	0.05	Wisniewski et al. 1997
2398	Jilin	13.540	0.094	0.240	0.110	13.20	0.15	13.25	0.15	13.60	0.15	-0.340	-0.290	0.060	0.12	Ondrejov newres.txt
2478	Tokai	12.370	0.058	0.330	0.040	12.00	0.15	12.14	0.15	12.80	0.15	-0.370	-0.230	0.430	0.41	Ondrejov newres.txt
2486	Metsahovi	12.782	0.064	0.240	0.110	12.40	0.15	12.43	0.15	12.40	0.15	-0.382	-0.352	-0.382	0.11	tbd
2501	Lohja	12.155	0.030	0.234	0.000	11.80	0.15	11.94	0.15	12.08	0.15	-0.355	-0.215	-0.075	0.35	tbd
2544	Gubarev	12.350	0.112	0.240	0.110	11.90	0.15	11.83	0.15	12.30	0.15	-0.450	-0.520	-0.050	0.34	Ondrejov newresadd2.txt
2577	Litva	13.480	0.090	0.420	0.000	13.18	0.15	12.67	0.15	13.18	0.15	-0.300	-0.810	-0.300	0.36	Wisniewski et al. 1997
2642	Vesale	12.450	0.100	0.230	0.000	12.50	0.15	12.46	0.15	12.70	0.15	0.050	0.010	0.250	0.39	Wisniewski et al. 1997
2659	Millis	11.650	0.020	0.090	0.000	11.60	0.15	11.67	0.15	11.66	0.15	-0.050	0.020	0.010	0.53	Wisniewski et al. 1997
2714	Matti	13.500	0.090	0.230	0.000	12.70	0.15	12.72	0.15	13.40	0.15	-0.800	-0.780	-0.100	0.25	Wisniewski et al. 1997
2754	Efimov	13.920	0.054	0.290	0.020	13.50	0.15	13.45	0.15	13.50	0.15	-0.420	-0.470	-0.420	0.16	Ondrejov newres.txt
2794	Kulik	13.480	0.130	0.230	0.000	12.80	0.15	12.86	0.15	12.70	0.15	-0.680	-0.620	-0.780	0.22	Wisniewski et al. 1997
2815	Soma	12.980	0.078	0.240	0.110	12.60	0.15	12.64	0.15	13.20	0.15	-0.380	-0.340	0.220	0.08	Ondrejov newres.txt
2830	Greenwich	12.610	0.050	0.230	0.110	12.30	0.15	12.24	0.15	12.64	0.15	-0.310	-0.370	0.030	0.05	Harris et al. 1989a,b, 1992
2886	Tinkaping	13.280	0.100	0.230	0.000	13.20	0.15	13.01	0.15	13.20	0.15	-0.080	-0.270	-0.080	0.13	Wisniewski et al. 1997
2897	Ole Romer	13.640	0.121	0.240	0.110	13.20	0.15	13.16	0.15	13.40	0.15	-0.440	-0.480	-0.240	0.14	Ondrejov newres.txt
2943	Heinrich	12.820	0.130	0.240	0.110	12.80	0.15	12.51	0.15	12.80	0.15	-0.020	-0.310	-0.020	0.20	Ondrejov newres.txt
2954	Delsemme	13.580	0.090	0.230	0.000	13.40	0.15	13.34	0.15	13.50	0.15	-0.180	-0.240	-0.080	0.21	Wisniewski et al. 1997
3066	McFadden	11.240	0.080	0.230	0.000	11.10	0.15	11.09	0.15	11.20	0.15	-0.140	-0.150	-0.040	0.04	Wisniewski et al. 1997
3073	Kursk	13.860	0.112	0.240	0.110	13.40	0.15	13.38	0.15	13.50	0.15	-0.460	-0.480	-0.360	0.21	Ondrejov newres.txt
3101	Goldberger	14.670	0.100	0.420	0.000	13.80	0.15	13.76	0.15	14.20	0.15	-0.870	-0.910	-0.470	0.96	Wisniewski et al. 1997
3102	Krok	16.524	0.150	0.317	0.110	16.10	0.15	15.89	0.15	15.60	0.15	-0.424	-0.634	-0.924	1.00	tbd
3103	Eger	15.653	0.070	0.420	0.080	15.38	0.15	15.08	0.15	15.38	0.15	-0.273	-0.573	-0.273	0.60	Ondrejov newres.txt
3116	Goodricke	12.620	0.070	0.230	0.000	12.40	0.15	12.39	0.15	12.50	0.15	-0.220	-0.230	-0.120	0.09	Wisniewski et al. 1997
3121	Tamines	13.460	0.078	0.300	0.100	13.40	0.15	13.12	0.15	13.40	0.15	-0.060	-0.340	-0.060	0.04	Ondrejov newres.txt
3122	Florence	14.515	0.110	0.266	0.000	14.00	0.15	13.97	0.15	14.20	0.15	-0.515	-0.545	-0.315	0.17	tbd
3200	Phaethon	14.345	0.064	0.164	0.000	14.60	0.15	14.17	0.15	14.51	0.15	0.255	-0.175	0.165	0.13	tbd
3253	Gradie	13.590	0.060	0.230	0.000	13.10	0.15	13.10	0.15	13.40	0.15	-0.490	-0.490	-0.190	0.54	Wisniewski et al. 1997
3255	Tholen	13.840	0.040	0.230	0.000	13.20	0.15	13.20	0.15	13.60	0.15	-0.640	-0.640	-0.240	0.08	Wisniewski et al. 1997
3279	Solon	13.410	0.064	0.240	0.110	13.30	0.15	12.99	0.15	13.30	0.15	-0.110	-0.420	-0.110	0.85	Ondrejov newres.txt
3287	Olmstead	14.370	0.100	0.230	0.000	14.00	0.15	13.97	0.15	15.00	0.15	-0.370	-0.400	0.630	0.36	Wisniewski et al. 1997
3309	Brorfelde	14.062	0.064	0.287	0.000	13.50	0.15	13.52	0.15	13.90	0.15	-0.562	-0.542	-0.162	0.14	tbd

Table 2: *cont.*

Asteroid		H	δH	G	δG	$H_{\rm MPC}$	$G_{\rm MPC}$	$H_{\rm AsD}$	$G_{\rm AsD}$	$H_{\rm JPL}$	$G_{\rm JPL}$	$H_{\rm MPC}-H$	$H_{\rm AsD}-H$	$H_{\rm JPL}-H$	Ampl.	Reference(s)
3352	McAuliffe	16.068	0.112	0.190	0.100	15.60	0.15	15.50	0.15	15.80	0.15	-0.468	-0.568	-0.268	0.20	Ondrejov newres.txt
3362	Khufu	18.390	0.140	0.230	0.000	18.30	0.15	18.14	0.15	18.30	0.15	-0.090	-0.250	-0.090	0.14	Wisniewski et al. 1997
3376	Armandhammer	12.540	0.064	0.240	0.110	12.40	0.15	12.40	0.15	12.40	0.15	-0.140	-0.140	-0.140	0.04	Ondrejov newres.txt
3402	Wisdom	15.340	0.121	0.240	0.110	14.90	0.15	14.88	0.15	15.20	0.15	-0.440	-0.460	-0.140	0.74	Ondrejov newres.txt
3507	Vilas	11.560	0.040	0.420	0.000	11.30	0.15	11.37	0.15	11.30	0.15	-0.260	-0.190	-0.260	0.29	Wisniewski et al. 1997
3553	Mera	16.650	0.139	0.240	0.110	16.40	0.15	16.35	0.15	16.50	0.15	-0.250	-0.300	-0.150	0.08	Ondrejov newres.txt
3554	Amun	15.870	0.070	0.260	0.000	15.60	0.15	15.53	0.15	15.87	0.15	-0.270	-0.340	0.000	0.19	Wisniewski et al. 1997
3576	Galina	13.200	0.112	0.240	0.110	12.90	0.15	12.89	0.15	13.10	0.15	-0.300	-0.310	-0.100	0.05	Ondrejov newres.txt
3577	Putilin	10.600	0.100	0.090	0.000	10.30	0.15	10.50	0.15	10.40	0.15	-0.300	-0.100	-0.200	0.10	Wisniewski et al. 1997
3581	Alvarez	12.400	0.150	0.090	0.000	12.10	0.15	12.11	0.15	12.10	0.15	-0.300	-0.290	-0.300	0.06	Wisniewski et al. 1997
3638	Davis	11.640	0.030	0.090	0.000	11.30	0.15	11.37	0.15	11.40	0.15	-0.340	-0.270	-0.240	0.40	Wisniewski et al. 1997
3665	Fitzgerald	13.460	0.184	0.240	0.200	12.90	0.15	12.81	0.15	12.60	0.15	-0.560	-0.650	-0.860	0.08	Ondrejov newres.txt
3671	Dionysus	16.670	0.080	0.210	0.030	16.50	0.15	16.33	0.15	16.30	0.15	-0.170	-0.340	-0.370	0.12	Ondrejov published
3673	Levy	13.140	0.078	0.280	0.080	12.80	0.15	12.78	0.15	13.00	0.15	-0.340	-0.360	-0.140	0.13	Ondrejov newres.txt
3691	Bede	15.220	0.100	0.430	0.080	14.50	0.15	14.49	0.15	14.90	0.15	-0.720	-0.730	-0.320	0.50	Ondrejov newresadd2.txt
3752	Camillo	15.410	0.130	0.230	0.110	15.50	0.15	15.14	0.15	15.50	0.15	0.090	-0.270	0.090	1.10	Ondrejov published
3757	1982 XB	19.120	0.060	0.240	0.040	18.95	0.15	19.13	0.15	18.95	0.15	-0.170	0.010	-0.170	0.14	Harris et al. 1999
3824	Brendalee	13.520	0.020	0.230	0.000	13.20	0.15	13.24	0.15	13.20	0.15	-0.320	-0.280	-0.320	0.18	Wisniewski et al. 1997
3825	Nurnberg	13.140	0.071	0.240	0.110	12.70	0.15	12.70	0.15	13.00	0.15	-0.440	-0.440	-0.140	0.71	Ondrejov newres.txt
3838	Epona	15.850	0.054	0.050	0.010	15.50	0.15	15.45	0.15	15.50	0.15	-0.350	-0.400	-0.350	0.05	Ondrejov newres.txt
3868	Mendoza	12.710	0.040	0.220	0.030	12.40	0.15	12.40	0.15	13.00	0.15	-0.310	-0.310	0.290	0.11	Ondrejov newres.txt
3888	Hoyt	13.260	0.130	0.240	0.110	12.70	0.15	12.55	0.15	12.90	0.15	-0.560	-0.710	-0.360	0.70	Ondrejov newres.txt
3896	Pordenone	11.610	0.103	0.240	0.110	11.30	0.15	11.37	0.15	11.30	0.15	-0.310	-0.240	-0.310	0.25	Ondrejov newresadd2.txt
3913	Chemin	13.290	0.149	0.240	0.110	12.70	0.15	12.60	0.15	12.20	0.15	-0.590	-0.690	-1.090	0.45	Ondrejov newres.txt
3918	Brel	13.030	0.064	0.240	0.110	12.50	0.15	12.57	0.15	13.30	0.15	-0.530	-0.460	0.270	0.25	Ondrejov newres.txt
3928	Randa	13.650	0.206	0.240	0.110	13.30	0.15	13.17	0.15	13.30	0.15	-0.350	-0.480	-0.350	0.55	Ondrejov newresadd2.txt
3953	Perth	14.060	0.040	0.230	0.000	13.60	0.15	13.45	0.15	13.60	0.15	-0.460	-0.610	-0.460	1.09	Wisniewski et al. 1997
3982	Kastel'	13.350	0.080	0.510	0.130	13.20	0.15	12.80	0.15	13.20	0.15	-0.150	-0.550	-0.150	0.27	Ondrejov published
4029	Bridges	12.960	0.094	0.240	0.110	12.80	0.15	12.63	0.15	12.90	0.15	-0.160	-0.330	-0.060	0.21	Ondrejov newres.txt
4082	Swann	13.460	0.206	0.030	0.150	12.90	0.15	13.28	0.15	12.90	0.15	-0.560	-0.180	-0.560	0.67	Ondrejov newres.txt
4179	Toutatis	15.300	0.160	0.100	0.000	15.30	0.10	15.21	0.10	15.30	0.10	0.000	-0.090	0.000	0.07	Wisniewski et al. 1997
4197	1982 TA	14.800	0.200	0.010	0.000	14.60	0.15	14.83	0.15	14.60	0.15	-0.200	0.030	-0.200	0.28	Wisniewski et al. 1997
4263	Abashiri	12.930	0.094	0.240	0.110	12.60	0.15	12.62	0.15	12.60	0.15	-0.330	-0.310	-0.330	0.15	Ondrejov newres.txt
4285	Hulkower	12.960	0.086	0.240	0.110	12.40	0.15	12.33	0.15	12.10	0.15	-0.560	-0.630	-0.860	0.58	Ondrejov newres.txt
4323	Hortulus	13.570	0.094	0.240	0.110	13.60	0.15	13.34	0.15	13.60	0.15	0.030	-0.230	0.030	0.23	Ondrejov newres.txt
4335	Verona	13.650	0.112	0.240	0.110	13.30	0.15	13.25	0.15	13.60	0.15	-0.350	-0.400	-0.050	0.40	Ondrejov newres.txt
4435	Holt	13.320	0.110	0.230	0.000	13.20	0.15	13.01	0.15	13.20	0.15	-0.120	-0.310	-0.120	0.00	Wisniewski et al. 1997
4483	Petofi	13.570	0.060	0.420	0.000	13.00	0.15	13.00	0.15	11.90	0.15	-0.570	-0.570	-1.670	0.98	Wisniewski et al. 1997
4503	Cleobulus	16.020	0.110	0.230	0.000	15.60	0.15	15.55	0.15	15.60	0.15	-0.420	-0.470	-0.420	0.22	Wisniewski et al. 1997
4533	Orth	13.140	0.094	0.370	0.100	12.80	0.15	12.63	0.15	12.80	0.15	-0.340	-0.510	-0.340	0.10	Ondrejov newres.txt
4555	1987 QL	14.280	0.112	0.300	0.100	13.70	0.15	13.73	0.15	13.70	0.15	-0.580	-0.550	-0.580	0.22	Ondrejov newres.txt
4558	Janesick	12.770	0.180	0.230	0.000	12.50	0.15	12.50	0.15	12.20	0.15	-0.270	-0.270	-0.570	0.11	Wisniewski et al. 1997
4587	Rees	15.870	0.071	0.370	0.050	15.60	0.15	15.00	0.15	15.60	0.15	-0.270	-0.870	-0.270	0.78	Ondrejov newres.txt
4638	Estens	13.950	0.071	0.240	0.110	14.00	0.15	13.52	0.15	14.00	0.15	0.050	-0.430	0.050	0.16	Ondrejov newresadd2.txt

Table 2: *cont.*

Asteroid		H	δH	G	δG	$H_{\rm MPC}$	$G_{\rm MPC}$	$H_{\rm AsD}$	$G_{\rm AsD}$	$H_{\rm JPL}$	$G_{\rm JPL}$	$H_{\rm MPC}-H$	$H_{\rm AsD}-H$	$H_{\rm JPL}-H$	Ampl.	Reference(s)
4666	Dietz	13.160	0.103	0.240	0.110	12.70	0.15	12.62	0.15	13.00	0.15	-0.460	-0.540	-0.160	0.24	Ondrejov newres.txt
4674	Pauling	14.245	0.114	0.330	0.100	13.30	0.15	13.63	0.15	13.30	0.15	-0.945	-0.615	-0.945	0.06	Ondrejov newres.txt
4786	Tatianina	13.718	0.100	0.460	0.100	13.20	0.15	13.15	0.15	13.20	0.15	-0.518	-0.568	-0.518	0.19	Ondrejov newres.txt
4951	Iwamoto	13.740	0.060	0.190	0.050	13.20	0.15	13.19	0.15	13.40	0.15	-0.540	-0.550	-0.340	0.34	Ondrejov published
5080	Oja	13.010	0.064	0.240	0.110	12.60	0.15	12.58	0.15	12.90	0.15	-0.410	-0.430	-0.110	0.39	Ondrejov newres.txt
5129	Groom	13.060	0.103	0.160	0.090	12.60	0.15	12.52	0.15	12.40	0.15	-0.460	-0.540	-0.660	0.21	Ondrejov newres.txt
5143	Heracles	14.270	0.090	0.420	0.080	13.80	0.15	13.74	0.15	14.00	0.15	-0.470	-0.530	-0.270	0.10	Ondrejov published
5313	Nunes	13.780	0.078	0.240	0.110	13.30	0.15	13.36	0.15	12.90	0.15	-0.480	-0.420	-0.880	0.17	Ondrejov newresadd2.txt
5332	Davidaguilar	14.890	0.130	0.230	0.000	14.60	0.15	14.52	0.15	13.90	0.15	-0.290	-0.370	-0.990	0.35	Wisniewski et al. 1997
5342	Le Poole	14.120	0.094	0.240	0.110	13.50	0.15	13.49	0.15	13.90	0.15	-0.620	-0.630	-0.220	0.45	Ondrejov newres.txt
5407	1992 AX	14.470	0.050	0.320	0.070	13.70	0.15	13.69	0.15	13.90	0.15	-0.770	-0.780	-0.570	0.10	Ondrejov published
5440	Terao	13.770	0.086	0.240	0.110	13.30	0.15	13.29	0.15	13.30	0.15	-0.470	-0.480	-0.470	1.00	Ondrejov newres.txt
5451	Plato	14.580	0.121	0.240	0.110	14.10	0.15	13.99	0.15	14.20	0.15	-0.480	-0.590	-0.380	0.61	Ondrejov newresadd2.txt
5474	Gingasen	13.280	0.112	0.240	0.110	12.90	0.15	12.85	0.15	12.60	0.15	-0.380	-0.430	-0.680	0.18	Ondrejov newres.txt
5477	Holmes	14.445	0.076	0.390	0.030	13.40	0.15	13.77	0.15	13.40	0.15	-1.045	-0.675	-1.045	0.10	Ondrejov published
5481	Kiuchi	13.676	0.062	0.430	0.080	13.10	0.15	13.11	0.15	13.00	0.15	-0.576	-0.566	-0.676	0.09	Ondrejov published
5484	Inoda	13.170	0.094	0.240	0.110	12.70	0.15	12.73	0.15	12.60	0.15	-0.470	-0.440	-0.570	0.16	Ondrejov newres.txt
5580	Sharidake	14.120	0.064	0.240	0.110	13.70	0.15	13.71	0.15	13.20	0.15	-0.420	-0.410	-0.920	0.37	Ondrejov newres.txt
5645	1990 SP	17.240	0.206	0.000	0.100	16.80	0.15	16.64	0.15	17.00	0.15	-0.440	-0.600	-0.240	0.72	Ondrejov newres.txt
5653	Camarillo	16.420	0.130	0.240	0.110	16.10	0.15	16.04	0.15	15.40	0.15	-0.320	-0.380	-1.020	0.40	Ondrejov newres.txt
5693	1993 EA	16.870	0.070	0.230	0.000	17.00	0.15	16.50	0.15	17.00	0.15	0.130	-0.370	0.130	0.11	Wisniewski et al. 1997
5736	Sanford	14.170	0.177	0.240	0.110	13.60	0.15	13.57	0.15	13.40	0.15	-0.570	-0.600	-0.770	0.42	Ondrejov newres.txt
5751	Zao	14.940	0.180	0.230	0.000	14.60	0.15	14.50	0.15	14.80	0.15	-0.340	-0.440	-0.140	0.04	Wisniewski et al. 1997
5783	Kumagaya	13.810	0.064	0.240	0.110	13.30	0.15	13.27	0.15	13.10	0.15	-0.510	-0.540	-0.710	0.22	Ondrejov newres.txt
5786	Talos	17.360	0.139	0.240	0.110	17.10	0.15	16.97	0.15	17.00	0.15	-0.260	-0.390	-0.360	0.23	Ondrejov newres.txt
5797	Bivoj	18.940	0.020	0.230	0.110	18.70	0.15	18.64	0.15	19.10	0.15	-0.240	-0.300	0.160	0.12	Harris et al. 1989a,b, 1992
5836	1993 MF	15.141	0.139	0.236	0.000	14.60	0.15	14.46	0.15	13.90	0.15	-0.541	-0.681	-1.241	0.65	tbd
5905	Johnson	14.255	0.130	0.330	0.100	14.00	0.15	13.84	0.15	13.20	0.15	-0.255	-0.415	-1.055	0.09	Ondrejov published
5985	1942 RJ	13.530	0.086	0.240	0.110	13.10	0.15	13.23	0.15	13.10	0.15	-0.430	-0.300	-0.430	0.14	Ondrejov newres.txt
5999	Plescia	14.800	0.158	0.240	0.110	14.30	0.15	14.23	0.15	14.30	0.15	-0.500	-0.570	-0.500	0.69	Ondrejov newres.txt
6070	Rheinland	14.170	0.054	0.310	0.030	13.60	0.15	13.68	0.15	13.60	0.15	-0.570	-0.490	-0.570	0.40	Ondrejov newresadd2.txt
6084	Bascom	13.290	0.058	0.260	0.050	12.70	0.15	12.68	0.15	12.80	0.15	-0.590	-0.610	-0.490	0.22	Ondrejov newres.txt
6178	1986 DA	15.900	0.112	0.200	0.070	15.10	0.15	15.36	0.15	15.10	0.15	-0.800	-0.540	-0.800	0.30	Ondrejov newres.txt
6179	Brett	14.160	0.139	0.240	0.110	13.40	0.15	13.32	0.15	13.70	0.15	-0.760	-0.840	-0.460	0.70	Ondrejov newres.txt
6185	1987 YD	13.480	0.086	0.240	0.110	13.20	0.15	12.99	0.15	13.20	0.15	-0.280	-0.490	-0.280	0.33	Ondrejov newres.txt
6239	Minos	18.740	0.094	0.240	0.050	18.20	0.15	18.30	0.15	17.90	0.15	-0.540	-0.440	-0.840	0.08	Ondrejov newres.txt
6244	Okamoto	13.900	0.064	0.280	0.040	13.60	0.15	13.44	0.15	13.60	0.15	-0.300	-0.460	-0.300	0.11	Ondrejov newres.txt
6361	1978 VL11	13.860	0.071	0.240	0.110	13.10	0.15	13.12	0.15	12.20	0.15	-0.760	-0.740	-1.660	0.67	Ondrejov newres.txt
6405	Komiyama	13.430	0.112	0.240	0.110	13.10	0.15	13.00	0.15	13.20	0.15	-0.330	-0.430	-0.230	0.13	Ondrejov newres.txt
6453	1991 NY	13.810	0.112	0.240	0.110	13.60	0.15	13.56	0.15	13.60	0.15	-0.210	-0.250	-0.210	0.20	Ondrejov newresadd2.txt
6455	1992 HE	14.215	0.112	0.340	0.100	13.90	0.15	13.71	0.15	13.80	0.15	-0.315	-0.505	-0.415	0.10	tbd
6456	Golombek	16.030	0.103	0.120	0.080	15.80	0.15	15.75	0.15	15.90	0.15	-0.230	-0.280	-0.130	0.13	Ondrejov newres.txt
6611	1993 VW	17.256	0.097	0.430	0.080	16.70	0.15	16.65	0.15	16.50	0.15	-0.556	-0.606	-0.756	0.06	Ondrejov newres.txt
6708	Bobbievaile	13.290	0.064	0.240	0.040	12.90	0.15	12.93	0.15	12.80	0.15	-0.390	-0.360	-0.490	0.09	Ondrejov newres.txt

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}}-H$	$H_{\mathrm{AsD}}-H$	$H_{\mathrm{JPL}}-H$	Ampl.	Reference(s)
6815	Mutchler	14.990	0.058	0.240	0.110	14.50	0.15	14.49	0.15	14.20	0.15	-0.490	-0.500	-0.790	0.09	Ondrejov newres.txt
6949	Zissell	14.000	0.121	0.240	0.110	13.50	0.15	13.42	0.15	13.10	0.15	-0.500	-0.580	-0.900	0.24	Ondrejov newres.txt
7020	Yourcenar	14.290	0.112	0.240	0.110	13.70	0.15	13.89	0.15	13.70	0.15	-0.590	-0.400	-0.590	0.37	Ondrejov newresadd2.txt
7030	Colombini	14.480	0.094	0.240	0.110	13.90	0.15	13.62	0.15	13.90	0.15	-0.580	-0.860	-0.580	0.47	Ondrejov newres.txt
7033	1994 WN2	14.000	0.112	0.240	0.110	13.60	0.15	13.55	0.15	13.30	0.15	-0.400	-0.450	-0.700	0.10	tbd
7043	Godart	13.490	0.078	0.330	0.150	13.00	0.15	13.05	0.15	12.80	0.15	-0.490	-0.440	-0.690	0.68	Ondrejov newres.txt
7088	Ishtar	17.080	0.139	0.240	0.110	16.70	0.15	16.57	0.15	16.70	0.15	-0.380	-0.510	-0.380	0.11	Ondrejov newres.txt
7089	1992 FX1	14.050	0.086	0.240	0.110	13.50	0.15	13.41	0.15	13.70	0.15	-0.550	-0.640	-0.350	0.06	Ondrejov newres.txt
7116	Mentall	13.540	0.078	0.240	0.110	13.10	0.15	13.12	0.15	13.50	0.15	-0.440	-0.420	-0.040	0.11	Ondrejov newres.txt
7225	Huntress	13.490	0.058	0.360	0.100	13.00	0.15	12.99	0.15	13.30	0.15	-0.490	-0.500	-0.190	0.11	Ondrejov newres.txt
7229	Tonimoore	15.600	0.200	0.230	0.000	15.30	0.15	15.03	0.15	15.60	0.15	-0.300	-0.570	0.000	0.37	Wisniewski et al. 1997
7267	Victormeen	13.930	0.139	0.240	0.110	13.60	0.15	13.57	0.15	13.50	0.15	-0.330	-0.360	-0.430	0.20	Ondrejov newres.txt
7336	Saunders	19.020	0.112	0.240	0.110	18.80	0.15	18.75	0.15	18.70	0.15	-0.220	-0.270	-0.320	0.20	Ondrejov newres.txt
7341	1991 VK	16.950	0.200	0.260	0.140	16.70	0.15	16.66	0.15	16.70	0.15	-0.250	-0.290	-0.250	0.49	Ondrejov published
7369	Gavrilin	13.610	0.158	0.200	0.150	13.10	0.15	13.06	0.15	12.90	0.15	-0.510	-0.550	-0.710	0.25	Ondrejov newres.txt
7480	Norwan	17.450	0.160	0.230	0.110	17.00	0.15	16.89	0.15	17.20	0.15	-0.450	-0.560	-0.250	0.50	Ondrejov published
7481	San Marcello	12.540	0.112	0.120	0.080	12.30	0.15	12.33	0.15	11.80	0.15	-0.240	-0.210	-0.740	0.08	Ondrejov newresadd2.txt
7735	Scorzelli	13.100	0.206	0.120	0.080	12.30	0.15	12.86	0.15	12.30	0.15	-0.800	-0.240	-0.800	0.84	Ondrejov newresadd2.txt
7977	1977 QQ5	15.600	0.139	0.240	0.110	15.40	0.15	15.02	0.15	15.40	0.15	-0.200	-0.580	-0.200	0.57	Ondrejov newres.txt
8013	Gordonmoore	17.260	0.149	0.235	0.000	16.60	0.15	16.67	0.15	16.60	0.15	-0.660	-0.590	-0.660	0.20	tbd
8033	1992 FY1	13.640	0.071	0.240	0.110	13.20	0.15	13.16	0.15	13.40	0.15	-0.440	-0.480	-0.240	0.14	Ondrejov newres.txt
8034	Akka	18.148	0.110	0.230	0.000	17.90	0.15	17.79	0.15	17.90	0.15	-0.248	-0.358	-0.248	0.47	tbd
8037	1993 HO1	16.710	0.064	0.240	0.110	16.20	0.15	16.20	0.15	16.60	0.15	-0.510	-0.510	-0.110	0.10	Ondrejov newres.txt
8116	Jeanperrin	14.050	0.050	0.230	0.060	13.60	0.15	13.61	0.15	13.80	0.15	-0.450	-0.440	-0.250	0.09	Ondrejov newres.txt
8195	1993 UC1	12.900	0.094	0.240	0.110	12.70	0.15	12.47	0.15	12.70	0.15	-0.200	-0.430	-0.200	0.33	Ondrejov newres.txt
8338	Ralhan	14.020	0.086	0.240	0.110	13.50	0.15	13.47	0.15	13.40	0.15	-0.520	-0.550	-0.620	0.44	Ondrejov newres.txt
8356	Wadhwa	13.070	0.139	0.240	0.110	12.80	0.15	12.81	0.15	12.80	0.15	-0.270	-0.260	-0.270	0.12	Ondrejov newres.txt
8567	1996 HW1	15.270	0.149	0.240	0.110	15.30	0.15	15.30	0.15	15.30	0.15	0.030	0.030	0.030	0.25	Ondrejov newres.txt
8663	1991 DJ1	14.100	0.086	0.240	0.110	13.70	0.15	13.59	0.15	14.00	0.15	-0.400	-0.510	-0.100	0.30	Ondrejov newres.txt
9260	Edwardolson	14.540	0.086	0.240	0.110	14.00	0.15	13.94	0.15	14.70	0.15	-0.540	-0.600	0.160	0.11	Ondrejov published
9556	Gaywray	13.710	0.206	0.240	0.110	13.10	0.15	13.10	0.15	13.40	0.15	-0.610	-0.610	-0.310	0.50	Ondrejov newres.txt
9617	Grahamchapman	14.970	0.078	0.240	0.110	14.60	0.15	14.46	0.15	14.10	0.15	-0.370	-0.510	-0.870	0.10	Ondrejov newres.txt
9782	Edo	13.480	0.103	0.240	0.110	13.10	0.15	13.01	0.15	13.40	0.15	-0.380	-0.470	-0.080	0.67	Ondrejov newresadd2.txt
9948	1990 QB2	14.620	0.058	0.240	0.110	14.50	0.15	14.13	0.15	14.50	0.15	-0.120	-0.490	-0.120	0.74	Ondrejov newresadd2.txt
9992	1997 TG19	14.970	0.094	0.240	0.110	14.40	0.15	14.38	0.15	14.40	0.15	-0.570	-0.590	-0.570	0.42	Ondrejov newres.txt
10123	Fideoja	14.530	0.078	0.240	0.110	14.20	0.15	14.06	0.15	13.80	0.15	-0.330	-0.470	-0.730	0.00	Ondrejov newresadd2.txt
10188	Yasuoyoneda	14.030	0.121	0.240	0.110	13.60	0.15	13.56	0.15	14.20	0.15	-0.430	-0.470	0.170	0.12	Ondrejov newres.txt
10208	Germanicus	14.790	0.139	0.240	0.110	14.30	0.15	14.32	0.15	14.60	0.15	-0.490	-0.470	-0.190	0.13	Ondrejov published
10484	Hecht	14.180	0.103	0.240	0.110	13.80	0.15	13.72	0.15	13.90	0.15	-0.380	-0.460	-0.280	0.20	Ondrejov newresadd2.txt
10548	1992 PJ2	14.750	0.139	0.240	0.110	14.50	0.15	14.34	0.15	14.50	0.15	-0.250	-0.410	-0.250	0.34	Ondrejov newres.txt
11072	Hiraoka	13.720	0.094	0.240	0.110	13.30	0.15	13.16	0.15	13.50	0.15	-0.420	-0.560	-0.220	0.26	Ondrejov newres.txt
11271	1988 KB	13.170	0.139	0.240	0.110	12.80	0.15	12.77	0.15	13.60	0.15	-0.370	-0.400	0.430	0.35	Ondrejov newres.txt
11398	1998 YP11	16.590	0.058	0.290	0.020	16.40	0.15	16.38	0.15	16.30	0.15	-0.190	-0.210	-0.290	0.25	Ondrejov newres.txt
11500	Tomaiyowit	18.490	0.112	0.190	0.050	18.40	0.15	18.27	0.15	18.40	0.15	-0.090	-0.220	-0.090	0.50	Ondrejov newres.txt

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}}-H$	$H_{\mathrm{AsD}}-H$	$H_{\mathrm{JPL}}-H$	Ampl.	Reference(s)
11756	Geneparker	15.020	0.078	0.240	0.110	14.60	0.15	14.58	0.15	15.10	0.15	-0.420	-0.440	0.080	0.14	Ondrejov newresadd2.txt
12466	1997 AS12	14.210	0.094	0.240	0.110	13.80	0.15	13.70	0.15	13.70	0.15	-0.410	-0.510	-0.510	0.06	Ondrejov newres.txt
12711	Tukmit	16.240	0.078	0.250	0.050	15.80	0.15	15.69	0.15	16.00	0.15	-0.440	-0.550	-0.240	0.70	Ondrejov newres.txt
12923	Zephyr	15.930	0.078	0.240	0.110	15.70	0.15	15.68	0.15	16.10	0.15	-0.230	-0.250	0.170	0.18	Ondrejov newres.txt
13144	1995 BJ	13.400	0.112	0.120	0.080	13.10	0.15	13.15	0.15	13.30	0.15	-0.300	-0.250	-0.100	0.19	Ondrejov newresadd2.txt
13154	Petermrva	14.600	0.058	0.200	0.100	14.10	0.15	14.07	0.15	14.20	0.15	-0.500	-0.530	-0.400	0.14	Ondrejov newres.txt
13166	1995 WU1	12.950	0.094	0.240	0.110	12.30	0.15	12.45	0.15	12.30	0.15	-0.650	-0.500	-0.650	0.22	Ondrejov newres.txt
13553	1992 JE	16.710	0.130	0.240	0.110	16.00	0.15	16.29	0.15	16.00	0.15	-0.710	-0.420	-0.710	1.10	Ondrejov newres.txt
13651	1997 BR	18.050	0.150	0.080	0.090	17.60	0.15	17.56	0.15	17.60	0.15	-0.450	-0.490	-0.450	1.20	Ondrejov published
14211	1999 NT1	14.220	0.149	0.240	0.110	13.70	0.15	13.68	0.15	13.70	0.15	-0.520	-0.540	-0.520	0.12	Ondrejov newres.txt
14402	1991 DB	19.040	0.054	0.260	0.030	18.40	0.15	18.53	0.15	18.40	0.15	-0.640	-0.510	-0.640	0.11	Ondrejov newres.txt
15350	Naganuma	14.160	0.103	0.240	0.110	13.90	0.15	13.94	0.15	13.90	0.15	-0.260	-0.220	-0.260	0.07	Ondrejov newres.txt
15533	2000 AP138	14.180	0.103	0.240	0.110	13.60	0.15	13.59	0.15	13.60	0.15	-0.580	-0.590	-0.580	0.38	Ondrejov newres.txt
15700	1987 QD	14.990	0.086	0.240	0.110	14.40	0.15	14.43	0.15	14.40	0.15	-0.590	-0.560	-0.590	0.07	Ondrejov newres.txt
15702	Olegkotov	13.210	0.064	0.120	0.080	12.90	0.15	12.91	0.15	13.50	0.15	-0.310	-0.300	0.290	0.05	Ondrejov newresadd2.txt
15793	1993 TG19	15.460	0.206	0.240	0.110	14.70	0.15	14.73	0.15	15.10	0.15	-0.760	-0.730	-0.360	0.71	Ondrejov newresadd2.txt
16064	1999 RH27	16.560	0.064	-0.140	0.020	16.80	0.15	16.66	0.15	16.90	0.15	0.240	0.100	0.340	0.70	Ondrejov newres.txt
16115	1999 XH25	13.280	0.094	0.120	0.080	13.00	0.15	12.97	0.15	13.30	0.15	-0.280	-0.310	0.020	0.26	Ondrejov newresadd2.txt
16173	2000 AC98	14.430	0.058	0.270	0.050	14.00	0.15	13.90	0.15	13.80	0.15	-0.430	-0.530	-0.630	0.36	Ondrejov newres.txt
16403	1984 WJ1	13.740	0.064	0.370	0.050	12.70	0.15	13.30	0.15	12.70	0.15	-1.040	-0.440	-1.040	0.14	Ondrejov newres.txt
16691	1994 VS	15.010	0.206	0.240	0.110	14.50	0.15	14.40	0.15	15.00	0.15	-0.510	-0.610	-0.010	0.25	Ondrejov newresadd2.txt
17060	Mikecombi	14.020	0.130	0.240	0.110	13.40	0.15	13.38	0.15	13.60	0.15	-0.620	-0.640	-0.420	0.33	Ondrejov newresadd2.txt
17260	2000 JQ58	14.580	0.112	0.160	0.120	14.20	0.15	14.16	0.15	14.00	0.15	-0.380	-0.420	-0.580	0.15	Ondrejov published
17470	1991 BX	13.280	0.112	0.120	0.080	13.10	0.15	12.99	0.15	12.60	0.15	-0.180	-0.290	-0.680	0.68	Ondrejov newresadd2.txt
17479	1991 PV9	13.640	0.071	0.240	0.110	13.20	0.15	13.13	0.15	13.20	0.15	-0.440	-0.510	-0.440	0.31	Ondrejov newresadd2.txt
17938	Tamsendrew	14.870	0.121	0.240	0.110	14.40	0.15	14.38	0.15	14.80	0.15	-0.470	-0.490	-0.070	0.17	Ondrejov newresadd2.txt
18096	2000 LM16	13.960	0.206	0.120	0.080	13.70	0.15	13.58	0.15	13.80	0.15	-0.260	-0.380	-0.160	0.18	Ondrejov newres.txt
18109	2000 NG11	17.180	0.206	0.040	0.100	17.50	0.15	16.91	0.15	17.50	0.15	0.320	-0.270	0.320	1.13	Ondrejov newres.txt
18503	1996 PY4	14.510	0.158	0.240	0.110	13.90	0.15	13.85	0.15	14.80	0.15	-0.610	-0.660	0.290	0.25	Ondrejov newres.txt
19763	Klimesh	13.270	0.130	0.240	0.110	12.80	0.15	12.72	0.15	13.20	0.15	-0.470	-0.550	-0.070	0.67	Ondrejov newres.txt
19764	2000 NF5	16.280	0.078	0.300	0.100	15.90	0.15	15.81	0.15	16.00	0.15	-0.380	-0.470	-0.280	0.80	Ondrejov newres.txt
20031	1992 OO	13.850	0.121	0.240	0.110	13.20	0.15	13.12	0.15	12.90	0.15	-0.650	-0.730	-0.950	0.39	Ondrejov newres.txt
20236	1998 BZ7	17.930	0.149	0.240	0.110	17.60	0.15	17.56	0.15	17.60	0.15	-0.330	-0.370	-0.330	0.17	Ondrejov newres.txt
20255	1998 FX2	18.370	0.110	0.240	0.110	18.20	0.15	18.27	0.15	18.20	0.15	-0.170	-0.100	-0.170	0.17	Ondrejov newres.txt
20429	1998 YN1	17.980	0.121	0.240	0.110	17.60	0.15	17.29	0.15	18.00	0.15	-0.380	-0.690	0.020	0.15	tbd
20691	1999 VY72	13.690	0.112	0.240	0.110	13.20	0.15	13.15	0.15	13.20	0.15	-0.490	-0.540	-0.490	0.13	Ondrejov newres.txt
20932	2258 T-1	13.780	0.078	0.240	0.110	13.30	0.15	13.24	0.15	13.20	0.15	-0.480	-0.540	-0.580	0.17	Ondrejov newres.txt
21028	1989 TO	13.290	0.158	0.240	0.110	13.60	0.15	13.07	0.15	13.60	0.15	0.310	-0.220	0.310	0.12	Ondrejov newres.txt
21088	1992 BL2	14.350	0.149	0.240	0.110	14.20	0.15	14.14	0.15	14.40	0.15	-0.150	-0.210	0.050	0.13	Ondrejov newres.txt
21720	Pilishvili	15.140	0.071	0.240	0.110	14.70	0.15	14.69	0.15	15.30	0.15	-0.440	-0.450	0.160	0.14	Ondrejov newresadd2.txt
22166	2000 WX154	15.020	0.103	0.240	0.110	14.40	0.15	14.13	0.15	14.60	0.15	-0.620	-0.890	-0.420	0.46	Ondrejov newres.txt
23809	Haswell	14.970	0.064	0.240	0.110	14.40	0.15	14.32	0.15	15.00	0.15	-0.570	-0.650	0.030	0.16	Ondrejov newresadd2.txt
23971	1998 YU9	14.570	0.086	0.120	0.080	13.70	0.15	13.53	0.15	13.60	0.15	-0.870	-1.040	-0.970	0.79	Ondrejov newres.txt
23979	1999 JL82	13.900	0.078	0.240	0.110	13.50	0.15	13.27	0.15	13.50	0.15	-0.400	-0.630	-0.400	0.17	Ondrejov newresadd2.txt

Table 2: *cont.*

Asteroid		H	δH	G	δG	$H_{\rm MPC}$	$G_{\rm MPC}$	$H_{\rm AsD}$	$G_{\rm AsD}$	$H_{\rm JPL}$	$G_{\rm JPL}$	$H_{\rm MPC}-H$	$H_{\rm AsD}-H$	$H_{\rm JPL}-H$	Ampl.	Reference(s)
24114	1999 VV23	13.520	0.130	0.240	0.110	13.10	0.15	13.21	0.15	13.10	0.15	-0.420	-0.310	-0.420	0.26	Ondrejov newres.txt
24891	1997 AT2	15.690	0.071	0.240	0.110	15.20	0.15	15.14	0.15	15.00	0.15	-0.490	-0.550	-0.690	0.96	Ondrejov newres.txt
25330	1999 KV4	16.730	0.146	0.120	0.080	16.60	0.15	16.48	0.15	16.80	0.15	-0.130	-0.250	0.070	0.15	Ondrejov newres.txt
25355	1999 RU221	15.590	0.103	0.240	0.110	14.80	0.15	14.88	0.15	15.20	0.15	-0.790	-0.710	-0.390	0.79	Ondrejov newresadd2.txt
25458	1999 XT13	14.770	0.112	0.240	0.110	14.20	0.15	14.19	0.15	13.90	0.15	-0.570	-0.580	-0.870	0.30	Ondrejov newres.txt
25719	2000 AV171	14.190	0.112	0.120	0.080	13.60	0.15	13.62	0.15	13.80	0.15	-0.590	-0.570	-0.390	0.82	Ondrejov newresadd2.txt
26045	1582 T-2	15.840	0.112	0.240	0.110	15.50	0.15	15.44	0.15	15.80	0.15	-0.340	-0.400	-0.040	0.10	Ondrejov newresadd2.txt
26760	2001 KP41	15.580	0.112	0.050	0.050	15.30	0.15	15.27	0.15	15.50	0.15	-0.280	-0.310	-0.080	0.31	Ondrejov newres.txt
26879	Haines	14.580	0.103	0.240	0.110	14.20	0.15	13.99	0.15	14.40	0.15	-0.380	-0.590	-0.180	0.07	Ondrejov newres.txt
27695	1981 EW36	15.150	0.078	0.120	0.080	15.00	0.15	14.86	0.15	15.10	0.15	-0.150	-0.290	-0.050	0.15	Ondrejov newresadd2.txt
28017	1997 YV13	13.910	0.094	0.240	0.110	13.20	0.15	13.46	0.15	13.20	0.15	-0.710	-0.450	-0.710	0.15	Ondrejov newres.txt
29168	1990 KJ	13.840	0.130	0.240	0.110	13.30	0.15	13.27	0.15	13.40	0.15	-0.540	-0.570	-0.440	0.14	Ondrejov newres.txt
29292	Conniewalker	13.590	0.112	0.240	0.110	13.40	0.15	13.34	0.15	13.40	0.15	-0.190	-0.250	-0.190	0.63	Ondrejov newres.txt
30825	1990 TG1	14.920	0.139	0.240	0.110	14.80	0.15	14.64	0.15	14.70	0.15	-0.120	-0.280	-0.220	0.11	Ondrejov newres.txt
31345	1998 PG	17.640	0.140	0.230	0.110	17.30	0.15	17.12	0.15	17.30	0.15	-0.340	-0.520	-0.340	0.11	Ondrejov published
31650	Frydek-Mistek	14.230	0.112	0.120	0.080	13.80	0.15	13.78	0.15	13.90	0.15	-0.430	-0.450	-0.330	0.19	Ondrejov newresadd2.txt
32008	2000 HM53	14.730	0.103	0.240	0.110	14.30	0.15	14.25	0.15	14.10	0.15	-0.430	-0.480	-0.630	0.19	Ondrejov published
32039	2000 JO23	14.870	0.058	0.250	0.030	14.40	0.15	14.41	0.15	14.80	0.15	-0.470	-0.460	-0.070	0.05	Ondrejov newres.txt
32910	1994 TE15	15.340	0.086	0.300	0.100	14.50	0.15	14.79	0.15	14.50	0.15	-0.840	-0.550	-0.840	0.16	Ondrejov newres.txt
32953	1996 GF19	15.030	0.064	0.240	0.110	14.70	0.15	14.57	0.15	14.70	0.15	-0.330	-0.460	-0.330	0.07	Ondrejov newresadd2.txt
33788	1999 RL240	13.180	0.206	0.120	0.080	12.80	0.15	12.80	0.15	13.10	0.15	-0.380	-0.380	-0.080	0.44	Ondrejov newresadd2.txt
34442	2000 SS64	14.540	0.064	0.120	0.080	14.30	0.15	14.19	0.15	14.00	0.15	-0.240	-0.350	-0.540	0.83	Ondrejov newres.txt
34706	2001 OP83	15.070	0.139	0.240	0.110	14.70	0.15	14.74	0.15	14.70	0.15	-0.370	-0.330	-0.370	0.13	Ondrejov published
35107	1991 VH	16.980	0.050	0.280	0.030	16.90	0.15	16.69	0.15	16.90	0.15	-0.080	-0.290	-0.080	0.08	Ondrejov published
35389	1997 XO	14.690	0.112	0.120	0.080	14.40	0.15	14.29	0.15	14.30	0.15	-0.290	-0.400	-0.390	0.18	Ondrejov newresadd2.txt
35396	1997 XF11	16.770	0.080	0.060	0.040	16.90	0.15	16.70	0.15	16.90	0.15	0.130	-0.070	0.130	0.73	Ondrejov newres.txt
35430	1998 BT6	15.690	0.086	0.240	0.110	15.20	0.15	15.09	0.15	15.50	0.15	-0.490	-0.600	-0.190	0.82	Ondrejov newresadd2.txt
36368	2000 OG12	15.510	0.112	0.240	0.110	15.00	0.15	15.01	0.15	15.30	0.15	-0.510	-0.500	-0.210	0.00	Ondrejov newresadd2.txt
36492	2000 QW46	15.045	0.164	0.240	0.110	14.50	0.15	14.37	0.15	14.50	0.15	-0.545	-0.675	-0.545	0.00	Ondrejov newresadd2.txt
37655	Illapa	18.010	0.158	0.240	0.110	17.90	0.15	17.75	0.15	17.70	0.15	-0.110	-0.260	-0.310	0.11	Ondrejov newres.txt
38995	2000 UJ24	14.770	0.112	0.120	0.080	14.50	0.15	14.43	0.15	14.40	0.15	-0.270	-0.340	-0.370	0.31	Ondrejov newresadd2.txt
39076	2000 VL22	15.205	0.141	0.120	0.080	14.70	0.15	14.69	0.15	14.70	0.15	-0.505	-0.515	-0.505	0.35	Ondrejov newresadd2.txt
39783	1997 LB1	14.020	0.112	0.120	0.080	13.70	0.15	13.64	0.15	13.70	0.15	-0.320	-0.380	-0.320	0.36	Ondrejov newresadd2.txt
40267	1999 GJ4	16.080	0.206	0.500	0.200	15.40	0.15	15.28	0.15	15.25	0.15	-0.680	-0.800	-0.830	1.01	Ondrejov newres.txt
42314	2001 VQ121	14.660	0.206	0.120	0.080	14.30	0.15	14.08	0.15	14.30	0.15	-0.360	-0.580	-0.360	1.00	Ondrejov newresadd2.txt
43183	1999 XK213	14.340	0.112	0.120	0.080	14.00	0.15	14.02	0.15	14.00	0.15	-0.340	-0.320	-0.340	0.46	Ondrejov newresadd2.txt
45810	2000 QP32	15.320	0.112	0.240	0.110	14.90	0.15	14.72	0.15	14.90	0.15	-0.420	-0.600	-0.420	0.16	Ondrejov newresadd2.txt
46824	1998 MT38	15.900	0.112	0.240	0.110	15.40	0.15	15.17	0.15	15.40	0.15	-0.500	-0.730	-0.500	0.00	Ondrejov newresadd2.txt
50822	2000 FH35	14.620	0.058	0.120	0.080	14.30	0.15	14.21	0.15	14.30	0.15	-0.320	-0.410	-0.320	0.08	Ondrejov newresadd2.txt
51911	2001 QD68	13.520	0.078	0.120	0.080	13.10	0.15	13.06	0.15	13.10	0.15	-0.420	-0.460	-0.420	0.32	Ondrejov newresadd2.txt
52762	1998 MT24	14.690	0.206	0.000	0.200	14.70	0.15	14.61	0.15	14.60	0.15	0.010	-0.080	-0.090	0.40	Ondrejov newres.txt
53435	1999 VM40	14.910	0.078	0.200	0.040	14.60	0.15	14.48	0.15	14.52	0.15	-0.310	-0.430	-0.390	0.25	Ondrejov newres.txt
58207	1992 EF14	16.500	0.112	0.120	0.080	15.80	0.15	15.76	0.15	15.80	0.15	-0.700	-0.740	-0.700	0.28	Ondrejov newresadd2.txt
61263	2000 OR28	15.460	0.112	0.240	0.110	14.80	0.15	14.83	0.15	14.80	0.15	-0.660	-0.630	-0.660	0.30	Ondrejov newresadd2.txt

Table 2: *cont.*

Asteroid		H	δH	G	δG	$H_{\rm MPC}$	$G_{\rm MPC}$	$H_{\rm AsD}$	$G_{\rm AsD}$	$H_{\rm JPL}$	$G_{\rm JPL}$	$H_{\rm MPC}-H$	$H_{\rm AsD}-H$	$H_{\rm JPL}-H$	Ampl.	Reference(s)
62112	2000 RM99	13.880	0.094	0.120	0.080	13.70	0.15	13.46	0.15	13.70	0.15	-0.180	-0.420	-0.180	0.73	Ondrejov newresadd2.txt
63634	2001 QU86	15.170	0.094	0.240	0.110	15.30	0.15	14.58	0.15	15.30	0.15	0.130	-0.590	0.130	0.63	Ondrejov newresadd2.txt
64588	2001 XX3	14.230	0.139	0.240	0.110	13.70	0.15	13.65	0.15	13.70	0.15	-0.530	-0.580	-0.530	0.83	Ondrejov newres.txt
65803	Didymos	18.160	0.030	0.200	0.020	18.00	0.15	17.95	0.15	17.95	0.15	-0.160	-0.210	-0.210	0.08	Ondrejov published
66063	1998 RO1	18.050	0.071	0.120	0.050	18.10	0.15	17.95	0.15	17.95	0.15	0.050	-0.100	-0.100	0.13	Ondrejov published
66335	1999 JZ61	13.900	0.086	0.240	0.110	13.50	0.15	13.37	0.15	13.50	0.15	-0.400	-0.530	-0.400	0.47	Ondrejov newres.txt
67751	2000 UF48	14.805	0.122	0.180	0.100	14.40	0.15	14.46	0.15	14.40	0.15	-0.405	-0.345	-0.405	0.36	Ondrejov newresadd2.txt
68905	2002 JZ104	15.860	0.139	0.240	0.110	15.50	0.15	15.31	0.15	15.50	0.15	-0.360	-0.550	-0.360	0.14	Ondrejov newresadd2.txt
69230	Hermes	17.570	0.120	0.150	0.200	17.50	0.15	17.48	0.15	17.48	0.15	-0.070	-0.090	-0.090	0.06	Ondrejov published
71200	1999 XT236	14.885	0.122	0.120	0.080	14.60	0.15	14.54	0.15	14.60	0.15	-0.285	-0.345	-0.285	0.00	Ondrejov newresadd2.txt
73371	2002 KA13	15.690	0.112	0.120	0.080	15.80	0.15	15.36	0.15	15.80	0.15	0.110	-0.330	0.110	0.27	Ondrejov newresadd2.txt
74355	1998 WJ12	14.760	0.112	0.240	0.110	14.40	0.15	14.25	0.15	14.40	0.15	-0.360	-0.510	-0.360	0.15	Ondrejov newresadd2.txt
76818	2000 RG79	14.260	0.090	0.450	0.100	13.50	0.15	13.44	0.15	13.43	0.15	-0.760	-0.820	-0.830	0.14	Ondrejov newres.txt
85938	1999 DJ4	18.600	0.206	0.060	0.100	18.60	0.15	18.48	0.15	18.49	0.15	0.000	-0.120	-0.110	0.11	Ondrejov published
87426	2000 QH101	15.285	0.104	0.180	0.100	15.10	0.15	14.94	0.15	15.60	0.15	-0.185	-0.345	0.315	0.14	Ondrejov newresadd2.txt
88188	2000 XH44	16.530	0.206	0.350	0.200	16.00	0.15	15.95	0.15	15.90	0.15	-0.530	-0.580	-0.630	0.06	Ondrejov newres.txt
88710	2001 SL9	18.070	0.078	0.460	0.130	17.60	0.15	17.44	0.15	17.43	0.15	-0.470	-0.630	-0.640	0.08	Ondrejov published
88850	2001 SL222	15.630	0.071	0.120	0.080	15.90	0.15	15.27	0.15	15.90	0.15	0.270	-0.360	0.270	0.22	Ondrejov newresadd2.txt
89136	2001 US16	20.290	0.112	0.300	0.100	20.20	0.15	20.17	0.15	20.18	0.15	-0.090	-0.120	-0.110	0.90	Ondrejov newres.txt
89355	2001 VS78	15.740	0.206	0.100	0.100	15.60	0.15	15.47	0.15	15.45	0.15	-0.140	-0.270	-0.290	0.50	Ondrejov newres.txt
91810	1999 TQ249	14.770	0.206	0.120	0.080	14.40	0.15	14.39	0.15	15.30	0.15	-0.370	-0.380	0.530	0.20	Ondrejov newresadd2.txt
93195	2000 SV112	15.935	0.141	0.180	0.100	15.60	0.15	15.67	0.15	16.30	0.15	-0.335	-0.265	0.365	0.52	Ondrejov newresadd2.txt
95868	2003 GB29	14.460	0.206	0.120	0.080	14.20	0.15	14.17	0.15	14.20	0.15	-0.260	-0.290	-0.260	0.74	Ondrejov newresadd2.txt
98015	2000 QS215	16.820	0.112	0.240	0.110	16.60	0.15	16.06	0.15	16.80	0.15	-0.220	-0.760	-0.020	0.77	Ondrejov newresadd2.txt
99475	2002 CR118	15.120	0.206	0.240	0.110	14.40	0.15	14.29	0.15	14.80	0.15	-0.720	-0.830	-0.320	0.74	Ondrejov newres.txt
99907	1989 VA	18.000	0.200	0.230	0.000	17.90	0.15	17.81	0.15	17.78	0.15	-0.100	-0.190	-0.220	0.15	Wisniewski et al. 1997
100111	1993 FA51	15.040	0.112	0.120	0.080	14.80	0.15	14.77	0.15	14.80	0.15	-0.240	-0.270	-0.240	0.00	Ondrejov newresadd2.txt
101610	1999 CW7	16.510	0.110	0.240	0.110	16.10	0.15	15.98	0.15	16.10	0.15	-0.410	-0.530	-0.410	0.38	Ondrejov newres.txt
103067	1999 XA143	16.990	0.149	0.240	0.110	16.60	0.15	16.56	0.15	16.51	0.15	-0.390	-0.430	-0.480	0.49	Ondrejov newres.txt
105612	2000 RT99	14.450	0.071	0.240	0.110	14.10	0.15	13.98	0.15	14.40	0.15	-0.350	-0.470	-0.050	0.00	Ondrejov newresadd2.txt
113846	2002 TV239	16.930	0.112	0.240	0.110	16.40	0.15	16.28	0.15	16.10	0.15	-0.530	-0.650	-0.830	0.20	Ondrejov newresadd2.txt
114205	2002 VF105	15.910	0.206	0.240	0.110	15.20	0.15	15.20	0.15	15.20	0.15	-0.710	-0.710	-0.710	0.90	Ondrejov newresadd2.txt
114319	2002 XD58	15.940	0.121	0.240	0.110	15.60	0.15	15.44	0.15	15.60	0.15	-0.340	-0.500	-0.340	0.14	Ondrejov published
119409	2001 TH72	15.860	0.112	0.240	0.110	15.60	0.15	15.59	0.15	16.10	0.15	-0.260	-0.270	0.240	1.28	Ondrejov newresadd2.txt
125922	2001 XR234	15.630	0.206	0.120	0.080	15.50	0.15	15.62	0.15	15.80	0.15	-0.130	-0.010	0.170	0.71	Ondrejov newresadd2.txt
126267	2002 AN86	16.100	0.121	0.240	0.110	15.50	0.15	15.58	0.15	15.60	0.15	-0.600	-0.520	-0.500	0.00	Ondrejov newresadd2.txt
131739	2001 YJ115	16.600	0.206	0.240	0.110	16.20	0.15	15.93	0.15	16.30	0.15	-0.400	-0.670	-0.300	0.00	Ondrejov newresadd2.txt
138971	2001 CB21	18.710	0.160	0.240	0.110	18.40	0.15	18.36	0.15	18.41	0.15	-0.310	-0.350	-0.300	0.19	Ondrejov newres.txt
139345	2001 KA67	17.060	0.168	0.240	0.110	16.70	0.15	16.66	0.15	16.74	0.15	-0.360	-0.400	-0.320	0.20	Ondrejov newres.txt
144411	2004 EW9	16.620	0.168	0.240	0.110	16.60	0.15	16.55	0.15	16.55	0.15	-0.020	-0.070	-0.070	0.90	Ondrejov newres.txt
151803	2003 FE58	16.690	0.206	0.240	0.110	16.40	0.15	16.41	0.15	16.40	0.15	-0.290	-0.280	-0.290	0.00	Ondrejov newresadd2.txt
153002	2000 JG5	18.580	0.168	0.240	0.110	18.10	0.15	17.97	0.15	18.02	0.15	-0.480	-0.610	-0.560	0.85	Ondrejov newres.txt
159669	2002 GY73	15.530	0.058	0.120	0.080	15.30	0.15	15.29	0.15	15.50	0.15	-0.230	-0.240	-0.030	0.27	Ondrejov newresadd2.txt
162210	1999 SM5	19.360	0.112	0.200	0.070	19.10	0.15	19.08	0.15	19.10	0.15	-0.260	-0.280	-0.260	0.77	Ondrejov newres.txt

Table 2: *cont.*

Asteroid		H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}}-H$	$H_{\mathrm{AsD}}-H$	$H_{\mathrm{JPL}}-H$	Ampl.	Reference(s)
162635	2000 SS164	16.980	0.177	0.240	0.110	16.40	0.15	16.40	0.15	16.36	0.15	-0.580	-0.580	-0.620	0.86	Ondrejov newres.txt
163373	2002 PZ39	19.100	0.112	0.240	0.110	18.90	0.15	18.79	0.15	18.79	0.15	-0.200	-0.310	-0.310	0.10	Ondrejov newres.txt
167208	Lelekovice	16.985	0.141	0.120	0.080	16.20	0.15	16.69	0.15	16.20	0.15	-0.785	-0.295	-0.785	0.25	Ondrejov newresadd2.txt
168318	1989 DA	19.080	0.100	0.230	0.000	18.90	0.15	18.84	0.15	18.83	0.15	-0.180	-0.240	-0.250	0.12	Wisniewski et al. 1997
175706	1996 FG3	17.760	0.030	-0.070	0.020	18.20	0.15	18.38	0.15	18.00	0.15	0.440	0.620	0.240	0.08	Ondrejov published
176505	2001 YF29	16.210	0.112	0.240	0.110	16.00	0.15	15.89	0.15	16.00	0.15	-0.210	-0.320	-0.210	0.56	Ondrejov newresadd2.txt
183532	2003 GC27	15.440	0.112	0.120	0.080	15.00	0.15	15.07	0.15	15.00	0.15	-0.440	-0.370	-0.440	0.84	Ondrejov newresadd2.txt
185851	2000 DP107	18.020	0.200	0.000	0.100	18.20	0.15	18.15	0.15	18.15	0.15	0.180	0.130	0.130	0.18	Ondrejov published
188228	2002 TH267	16.690	0.206	0.150	0.200	16.30	0.15	16.39	0.15	16.30	0.15	-0.390	-0.300	-0.390	0.20	Ondrejov newres.txt
190978	2001 XD101	15.990	0.112	0.240	0.110	15.50	0.15	15.46	0.15	15.20	0.15	-0.490	-0.530	-0.790	0.58	Ondrejov newresadd2.txt
196698	2003 SV77	15.930	0.112	0.120	0.080	15.70	0.15	15.61	0.15	15.70	0.15	-0.230	-0.320	-0.230	0.27	Ondrejov newresadd2.txt
205744	2002 BK25	18.330	0.112	0.240	0.110	18.10	0.15	18.01	0.15	18.07	0.15	-0.230	-0.320	-0.260	0.00	Ondrejov newres.txt
206079	2002 RU66	15.120	0.112	0.120	0.080	14.90	0.15	14.81	0.15	14.90	0.15	-0.220	-0.310	-0.220	0.00	Ondrejov newresadd2.txt
206400	2003 SW52	17.020	0.112	0.240	0.110	16.50	0.15	16.42	0.15	16.50	0.15	-0.520	-0.600	-0.520	0.37	Ondrejov newresadd2.txt
210999	2001 XR49	15.390	0.058	0.120	0.080	15.40	0.15	15.19	0.15	15.40	0.15	0.010	-0.200	0.010	0.00	Ondrejov newresadd2.txt
211349	2002 TB120	15.970	0.112	0.240	0.110	15.40	0.15	15.29	0.15	15.40	0.15	-0.570	-0.680	-0.570	0.73	Ondrejov newresadd2.txt
213665	2002 SS50	16.220	0.086	0.120	0.080	16.20	0.15	15.68	0.15	16.20	0.15	-0.020	-0.540	-0.020	0.18	Ondrejov newresadd2.txt
217628	Lugh	16.830	0.110	0.230	0.000	16.30	0.15	16.24	0.15	16.20	0.15	-0.530	-0.590	-0.630	0.08	Wisniewski et al. 1997
219525	2001 QG97	16.410	0.112	0.240	0.110	15.90	0.15	15.94	0.15	15.60	0.15	-0.510	-0.470	-0.810	0.18	Ondrejov newresadd2.txt
232067	2001 UR220	15.340	0.078	0.120	0.080	15.60	0.15	15.06	0.15	15.60	0.15	0.260	-0.280	0.260	0.29	Ondrejov newresadd2.txt
237442	1999 TA10	18.470	0.094	0.240	0.110	18.00	0.15	18.04	0.15	17.90	0.15	-0.470	-0.430	-0.570	0.10	Ondrejov newres.txt
250365	2003 SJ307	16.710	0.112	0.240	0.110	15.90	0.15	15.72	0.15	15.90	0.15	-0.810	-0.990	-0.810	0.47	Ondrejov newresadd2.txt
250719	2005 SN21	15.530	0.206	0.120	0.080	15.50	0.15	15.20	0.15	15.50	0.15	-0.030	-0.330	-0.030	0.82	Ondrejov newresadd2.txt
252591	2001 XO1	16.090	0.064	0.120	0.080	15.90	0.15	15.77	0.15	15.90	0.15	-0.190	-0.320	-0.190	0.30	Ondrejov newresadd2.txt
254070	2004 HK42	16.115	0.104	0.180	0.100	15.60	0.15	15.59	0.15	15.60	0.15	-0.515	-0.525	-0.515	0.22	Ondrejov newresadd2.txt
257838	2000 JQ66	18.250	0.094	0.430	0.080	17.70	0.15	17.70	0.15	17.58	0.15	-0.550	-0.550	-0.670	0.60	Ondrejov newres.txt
267494	2002 JB9	16.320	0.158	0.240	0.110	16.00	0.15	15.82	0.15	15.68	0.15	-0.320	-0.500	-0.640	0.21	Ondrejov newres.txt
267729	2003 FC5	18.610	0.177	0.240	0.110	18.20	0.15	18.25	0.15	18.25	0.15	-0.410	-0.360	-0.360	0.50	Ondrejov newres.txt
282631	2005 SV1	15.630	0.112	0.120	0.080	15.60	0.15	15.35	0.15	15.60	0.15	-0.030	-0.280	-0.030	0.31	Ondrejov newresadd2.txt
293743	2007 RL45	17.090	0.206	0.240	0.110	16.80	0.15	16.61	0.15	16.80	0.15	-0.290	-0.480	-0.290	0.00	Ondrejov newresadd2.txt
301844	1990 UA	19.710	0.080	0.230	0.000	19.70	0.15	19.62	0.15	19.61	0.15	-0.010	-0.090	-0.100	0.10	Wisniewski et al. 1997
	1989 VB	19.940	0.120	0.230	0.000	19.90	0.15	19.90	0.15	19.92	0.15	-0.040	-0.040	-0.020	0.32	Wisniewski et al. 1997
	1990 UP	20.450	0.100	0.230	0.000	21.30	0.15	21.27	0.15	21.16	0.15	0.850	0.820	0.710	0.80	Wisniewski et al. 1997
	1994 AW1	17.400	0.200	0.150	0.200	17.50	0.15	17.42	0.15	17.33	0.15	0.100	0.020	-0.070	0.12	Ondrejov published
	1994 CB	21.400	0.200	0.150	0.200	21.00	0.15	21.02	0.15	21.02	0.15	-0.400	-0.380	-0.380	0.90	Ondrejov published
	1998 QR15	18.450	0.158	0.240	0.110	18.10	0.15	18.02	0.15	17.93	0.15	-0.350	-0.430	-0.520	0.11	Ondrejov newres.txt
	1998 QR52	19.070	0.103	0.240	0.110	18.70	0.15	18.70	0.15	18.68	0.15	-0.370	-0.370	-0.390	0.88	Ondrejov newres.txt
	1999 JO8	17.100	0.168	0.240	0.110	16.90	0.15	16.94	0.09	16.97	0.15	-0.200	-0.160	-0.130	0.09	Ondrejov newres.txt
	1999 PJ1	18.410	0.130	0.240	0.110	18.00	0.15	17.96	0.15	18.06	0.15	-0.410	-0.450	-0.350	1.10	Ondrejov newres.txt
	2000 QN130	18.230	0.206	-0.150	0.200	18.10	0.15	17.92	0.15	17.83	0.15	-0.130	-0.310	-0.400	0.30	Ondrejov newres.txt
	2000 UG11	20.970	0.100	0.320	0.100	20.40	0.15	20.32	0.15	20.30	0.15	-0.570	-0.650	-0.670	0.10	Ondrejov published
	2000 WL107	24.440	0.200	0.150	0.200	24.80	0.15	24.64	0.15	24.33	0.15	0.360	0.200	-0.110	1.10	Ondrejov newres.txt
	2001 TX16	14.160	0.117	0.120	0.080	14.00	0.15	13.97	0.15	14.10	0.15	-0.160	-0.190	-0.060	0.47	Ondrejov newres.txt
	2002 FD6	22.510	0.149	0.240	0.110	22.30	0.15	22.25	0.15	22.26	0.15	-0.210	-0.260	-0.250	0.20	Ondrejov newres.txt

Table 2: *cont.*

Asteroid	H	δH	G	δG	H_{MPC}	G_{MPC}	H_{AsD}	G_{AsD}	H_{JPL}	G_{JPL}	$H_{\mathrm{MPC}} - H$	$H_{\mathrm{AsD}} - H$	$H_{\mathrm{JPL}} - H$	Ampl.	Reference(s)
2002 NY40	19.230	0.200	0.150	0.200	19.00	0.15	18.96	0.15	19.19	0.15	-0.230	-0.270	-0.040	1.30	Ondrejov newres.txt
2002 TD60	19.900	0.094	0.550	0.100	19.30	0.15	19.22	0.15	19.21	0.15	-0.600	-0.680	-0.690	1.60	Ondrejov newres.txt
2003 AJ73	18.930	0.103	0.240	0.110	18.60	0.15	18.48	0.15	18.48	0.15	-0.330	-0.450	-0.450	0.96	Ondrejov newres.txt
2003 AK18	19.880	0.130	0.240	0.110	19.70	0.15	19.64	0.15	19.64	0.15	-0.180	-0.240	-0.240	0.19	Ondrejov newres.txt
2003 FG	19.570	0.112	0.240	0.110	19.70	0.15	19.72	0.15	19.72	0.15	0.130	0.150	0.150	1.40	Ondrejov newres.txt
2003 SR84	25.440	0.149	0.240	0.110	26.00	0.15	25.86	0.15	25.85	0.15	0.560	0.420	0.410	0.83	Ondrejov newres.txt
2004 JR1	17.620	0.158	0.120	0.080	17.60	0.15	17.55	0.15	17.55	0.15	-0.020	-0.070	-0.070	0.13	Ondrejov newres.txt
2004 XO14	16.330	0.054	0.160	0.020	16.10	0.15	16.10	0.15	16.10	0.15	-0.230	-0.230	-0.230	0.21	Ondrejov newres.txt
2005 AB	17.390	0.058	-0.010	0.010	17.50	0.15	17.49	0.15	17.48	0.15	0.110	0.100	0.090	0.07	Ondrejov published
2005 SQ73	18.160	0.094	0.240	0.110	17.40	0.15	17.40	0.15	17.40	0.15	-0.760	-0.760	-0.760	0.30	Ondrejov newresadd2.txt
2005 TQ27	15.690	0.206	0.120	0.080	15.40	0.15	15.36	0.15	15.40	0.15	-0.290	-0.330	-0.290	0.49	Ondrejov newresadd2.txt

The catalog absolute magnitudes and slope parameters were taken from the MPC's file mpcorb.dat dated 2011 Nov. 21 ($H_{\mathrm{MPC}}, G_{\mathrm{MPC}}$), from the AstDyS files allnum.cat, ufitobs.cat and singopp.cat dated 2011 Dec. 16 ($H_{\mathrm{AsD}}, G_{\mathrm{AsD}}$), and from the JPL Horizons files elements.numbr and elements.unnum dated 2011 Nov. 24 ($H_{\mathrm{JPL}}, G_{\mathrm{JPL}}$). The references for the H and G estimates, their uncertainties δH and δG and the lightcurve amplitudes are following: (1) Harris et al. (1989a), (2) Harris et al. (1989b), (3) Harris et al. (1992), (4) Harris et al. (1999), (5) Pravec et al. (1996), (6) Pravec et al. (1998), (7) Pravec et al. (2000), (8) Pravec et al. (2006), (9) Pravec et al. (2011), (10) Pravec et al., http://www.asu.cas.cz/∼ppravec/newres.htm, (11) Reddy et al. (2007), (12) Wisniewski et al. (1997).

3 Accuracy and biases of the orbit catalog H values

We compared the H estimates for asteroids in our sample with their H values from the orbit catalogs MPCORB, Pisa AstDyS and JPL Horizons.[4] We list the differences $(H_{\rm MPCORB} - H)$, $(H_{\rm AstDyS} - H)$ and $(H_{\rm JPL} - H)$ in Table 2 and plot them vs H in Figs. 1 to 3.

Generally, the catalog H values are good in the range of small H (large asteroids). There are small or no systematic offsets: the mean difference between the catalog and our H estimate is +0.040, +0.047 and -0.001 mag for MPCORB, AstDyS and JPL Horizons, respectively, and the standard deviations are 0.104 to 0.134 mag in the smallest H ranges (see Table 3). Though these standard deviations are greater than most of the estimated uncertainties δH for the large asteroids, they are actually comparable to a typical magnitude of variation in the H values with observing aspect for the large asteroids (XXXX A REFERENCE TO SECTION 2.6 MIGHT SUFFICE, IF WE PUT A QUANITATIVE ESTIMATE OF THE ASPECT-RELATED UNCERTAINTY IN H THERE). So, the catalog H values for the largest asteroids are almost as good as they could be estimated without a pole and shape modeling.

Going to smaller sizes (higher H values), we see a systematic offset to negative $(H_{\rm catalog} - H)$ values (i.e., the catalog H data being systematically too bright on average) with similar behaviors, but differing in some details in the three catalogs. Analyzing the behavior of the mean offset of the catalog H values, we plotted the running mean curves with the box size of 51 data points in Figs. 1 to 3 and we approximated the dependence with fitting a constant offset to points with the smallest H and linear functions in specific ranges of H; their parameters are given in Table 3. The "break points", separating the different fitted ranges were chosen somewhat arbitrarily at H values near points where the running mean curve changes slope substantially and where the adjacent fitted lines cross.

The common features of the H data in the three catalogs are following: The mean $(H_{\rm catalog} - H)$ reaches a minimum (i.e., maximum negative offset) at $H \sim 14$. The negative offset increases steeply in the range from $H \sim 12.2$ to ~ 13.7, but then it decreases rather slowly from 14 to 20.

Some interesting differences between the H data in the catalogs are following: The standard deviation of the MPCORB H data increases fairly gradually with increasing H, from $\sigma = 0.102$ mag in the smallest H range, through 0.162 and 0.200 mag in the ranges centered at H around 10 and 13, to 0.242 mag in the range H = 14–20. The AstDyS data show, however, a much higher consistency over a wider range of H, with σ increasing only slightly from 0.134 mag for the brightest asteroids to 0.152 mag for data in the range around $H = 13$, and their data in the highest H range of 14–20 are also internally the

[4] In the AstOrb catalog, they adopt the MPCORB H values for numbered asteroids; we study the data from the three catalogs with independently calculated H values.

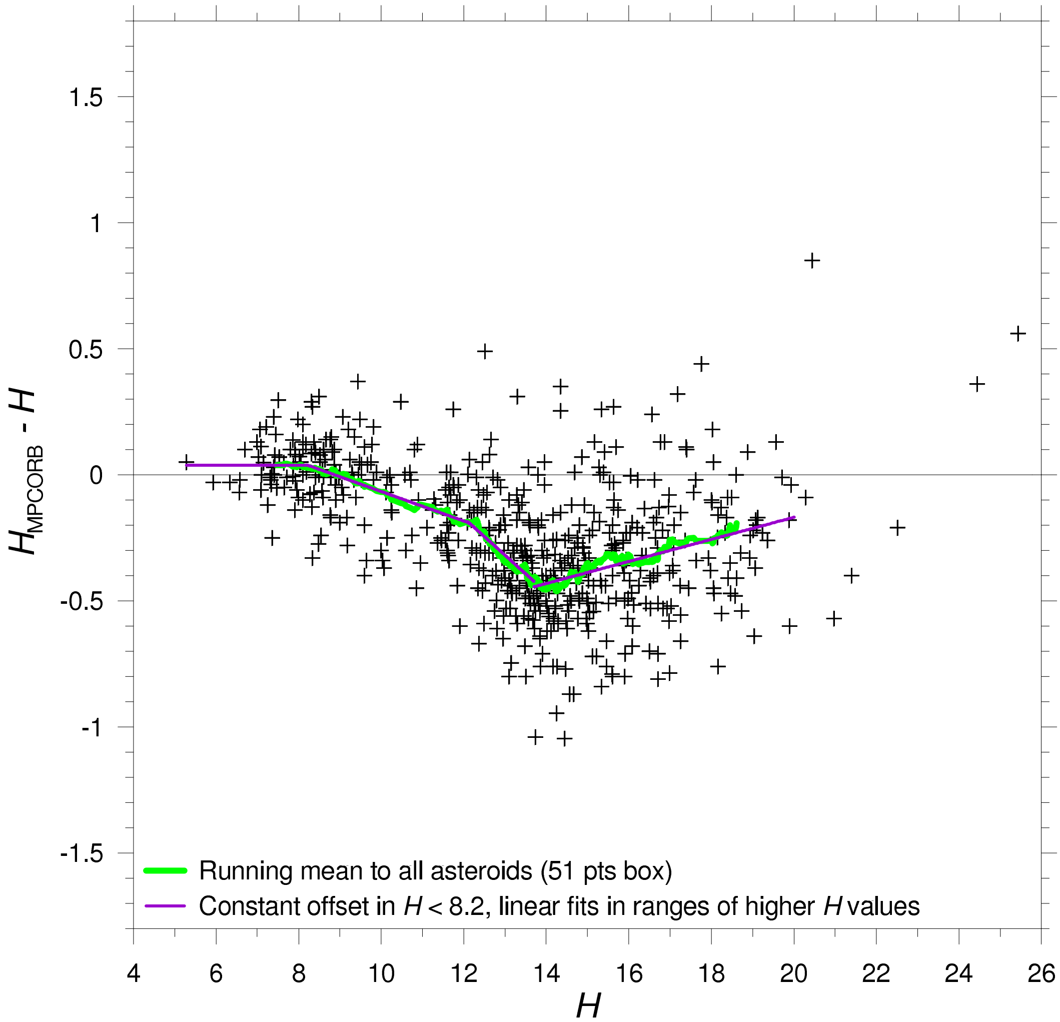

Fig. 1. Differences between the MPCORB catalog values and our absolute magnitude estimates are plotted. Parameters of the lines fitted to the data are given in Table 3.

most consistent ones of all the three catalogs, with the smallest σ of 0.218 mag. The JPL Horizons data show the most diverse behavior. They are internally pretty consistent with $\sigma = 0.116$ mag and zero mean offset up to $H \sim 11$ where there begin to occur big outliers and their data become quite noisy above $H = 12$, with the standard deviation $\sigma \sim 0.33$ mag between $H = 12.3$ and 20.

The observed trends of the systematic offsets of the catalog H values are quite curious. We will discuss their possible causes in Section 5. First, in following subsections we analyse certain correlations of the mean offset with taxonomic types and lightcurve amplitudes.

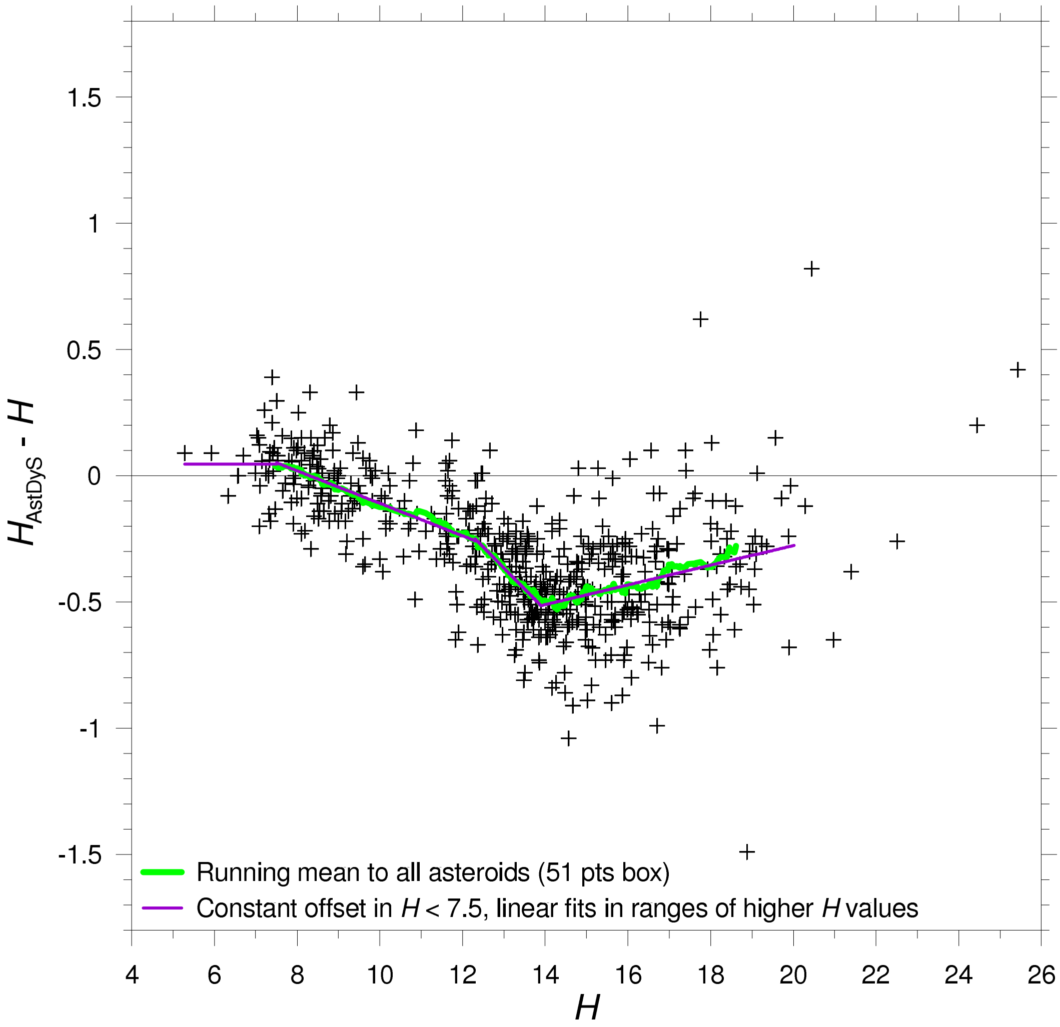

Fig. 2. Differences between the Pisa AstDyS catalog values and our absolute magnitude estimates are plotted. Parameters of the lines fitted to the data are given in Table 3.

3.1 Correlation of the mean offset with taxonomic classes

In Figs. 4 to 6, there are highlighted data for asteroids with known taxonomic types that uniquely classify the asteroids as medium- or low-albedo ones. The former group are asteroids that have been classified as S, A or L types, while the latter are those classified as C, G, B, F, P or D types. The taxonomy data were taken from Tholen (1989), Bus and Binzel (2002), DeMeo et al. (2009), Xu et al. (1995), and Lazzaro et al. (2004) as compiled in Neese (2010).

Among asteroids with H greater than $\sim$ 10 in our sample, most of those with known taxonomic types are medium-albedo ones. This is not surprising, as among the intrinsically fainter asteroids, there are fewer with established low-albedo taxonomic classes as those concentrate in outer parts of the main belt and thus they are mostly seen at fainter apparent magnitudes and so they are more difficult to be observed spectro-photometrically. Another reason

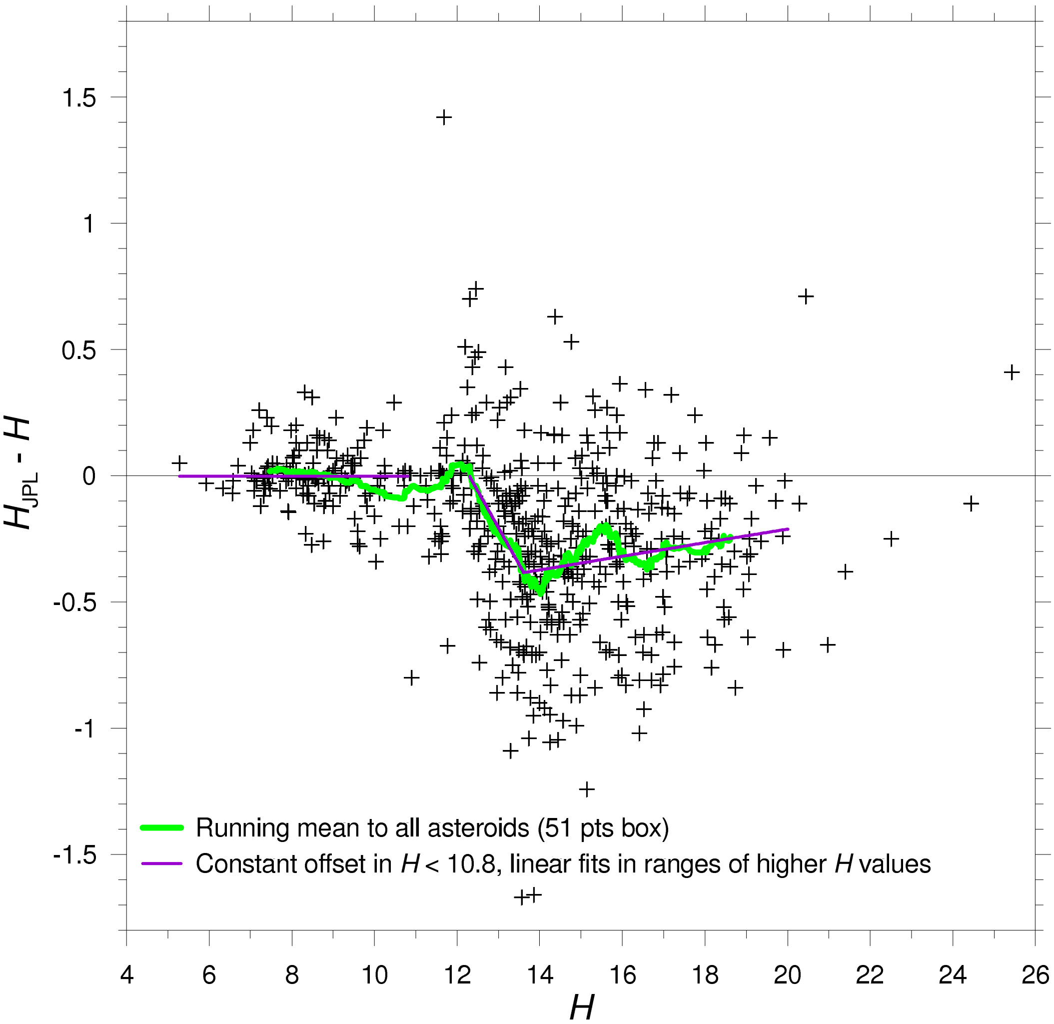

Fig. 3. Differences between the JPL Horizons catalog values and our absolute magnitude estimates are plotted. Parameters of the lines fitted to the data are given in Table 3. We did not fit a line in the range $H = 10.8$–12.3 due to the small number of points affected by a few big outliers there.

was that our photometric observational projects sampling the range $H > 12$ concentrated on inner-main belt and near-Earth asteroids where S and similar types visually predominate (having a higher number density in the H parameter space), so these types predominate in our sample at higher H values too, though we have got some low-albedo ones among the targeted and especially the accidentally imaged asteroids as well (see Section 4). As the statistics of asteroids with known low-albedo types in the $H > 10$ range is poor, we limit ourselves to analysing correlations of the mean offset with taxonomic classes to the range $H < 10$ only.

Among large asteroids with $H \lesssim 10$, there appears to be a significant systematic difference between the mean offsets of the medium- and the low-albedo ones in the orbit catalogs H values. The difference is of nearly the same magnitude of 0.09 mag in the MPCORB and the Pisa AstDyS catalogs, but it is smaller, 0.043 mag in the JPL Horizons catalog. Specifically, for points with

Table 3
Parameters of the linear fits in Figs. 1 to 3, $(H_{\rm catalog} - H) = aH + b$.

Catalog	H range	N	a	b	σ
MPCORB	< 8.2	53	0	0.040	0.102
	$8.2 - 12.1$	125	-0.0585	0.520	0.162
	$12.1 - 13.7$	124	-0.1478	1.603	0.200
	$13.7 - 20.0$	274	0.0438	-1.044	0.242
AstDyS	< 7.5	26	0	0.047	0.134
	$7.5 - 12.3$	160	-0.0643	0.535	0.144
	$12.3 - 13.9$	138	-0.1660	1.793	0.152
	$13.9 - 20.0$	256	0.0390	-1.056	0.218
JPL Horizons	< 10.8	139	0	-0.001	0.116
	$12.3 - 13.6$	107	-0.2909	3.576	0.348
	$13.6 - 20.0$	285	0.0270	-0.750	0.322

N is the number of fitted points in the given range of H, σ is the standard deviation of the points from the fitted line.

$H < 9.5$, the mean of $(H_{\rm MPCORB} - H)$ values for the low- and the medium-albedo type asteroids are $+0.064$ and -0.024 mag, respectively. The mean of $(H_{\rm AstDyS} - H)$ values for the low- and the medium-albedo type asteroids are $+0.044$ and -0.048 mag, respectively. The mean of $(H_{\rm JPL} - H)$ values for the low- and the medium-albedo type asteroids are $+0.024$ and -0.019 mag, respectively.

We suspect that a reason for the observed "albedo dispersion", with large low-albedo (mostly C type) asteroids having the systematically positive H offset while large medium-albedo (mostly S type) ones having the systematically negative H offset in the catalogs, is due to that the orbit computers assumed one default value for G of 0.15 for most asteroids in their computations of the absolute magnitudes from astrometric magnitude estimates. Another effect may be that of an assumed single value of $(V - R)$, usually 0.40 or 0.45 (XXXX REFERENCES TO THE DEFAULTS USED BY THE ORBIT COMPUTERS ?) they used for conversion of astrometric magnitude estimates that are made effectively in the R band mostly (as the maximum sensitivity of standard CCDs is in the red). As S types have actually higher mean G and $(V - R)$, while C types have lower mean G and $(V - R)$ than the default values, the H values derived by the orbit computers for asteroids of the two different albedo types are mutually offset in the opposite directions.

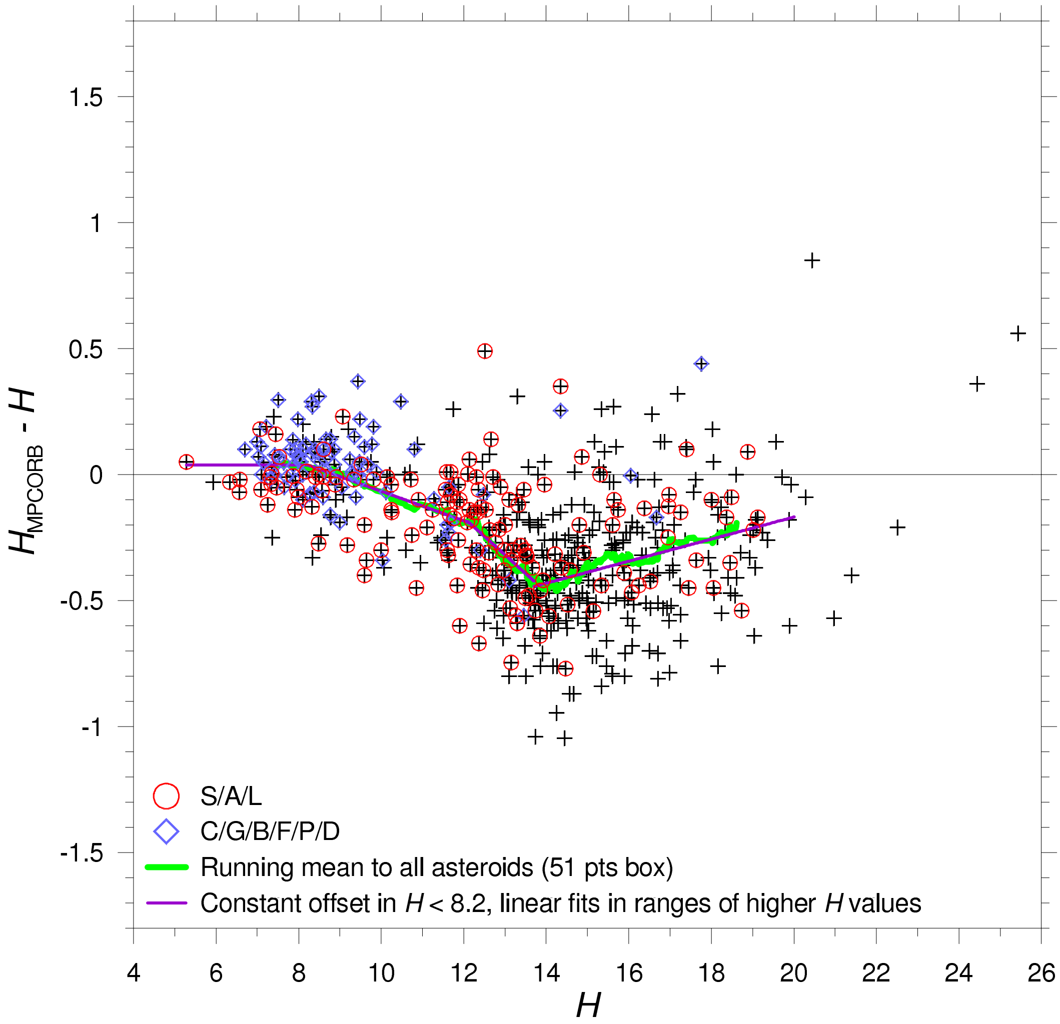

Fig. 4. Systematic offset between the MPCORB absolute magnitudes of medium (S, A, L) and low-albedo types (C, G, B, F, P, D) is apparent especially among bright asteroids with $H < 10$.

3.2 Correlation of the mean offset with lightcurve amplitude

There is apparent a small correlation of the $(H_{\rm catalog} - H)$ values with asteroid lightcurve amplitude. In Figs. 7 to 9, there are highlighted asteroids with amplitude ≥ 0.4 mag. The high-amplitude asteroids show a slightly greater negative mean H offset, estimated with the running mean plotted in the figures which is shifted down by a few 0.01 mag to ~ 0.1 mag from the mean offset curve for all asteroids at most H values.

There may be a few reasons for high-amplitude asteroids showing the greater negative offset of the catalog H values. The astrometric observers could made their magnitude estimates more often from images taken when the asteroid was brighter than its mean light. It might be intentional for some follow-up observers, e.g., due to their aim to do more accurate astrometry on images with higher signal-to-noise ratio so they might choose measuring images taken

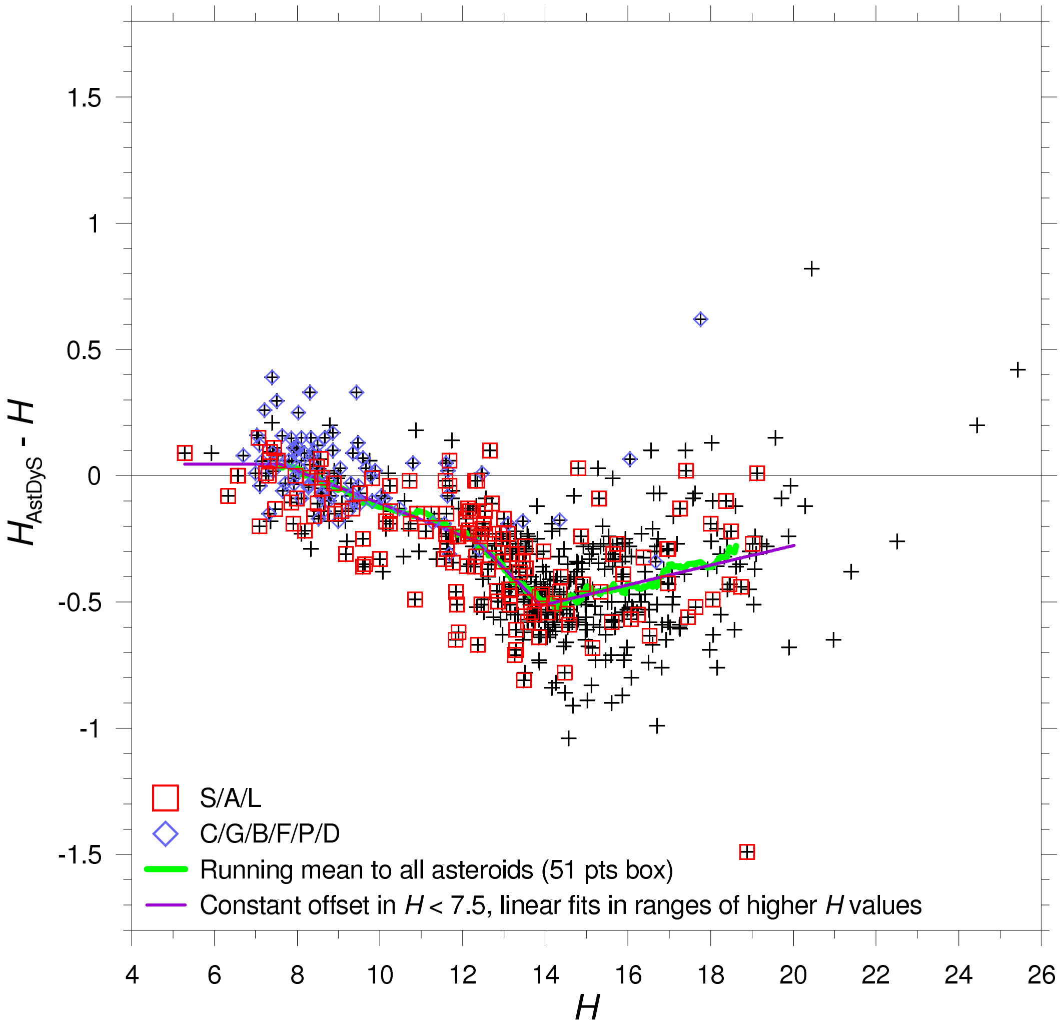

Fig. 5. As in Fig. 4, but for the AstDyS catalog absolute magnitudes.

closer to the lightcurve maximum rather than minimum. But it could also be a natural consequence of the flux-limited observations, both by the surveys and follow-up stations; a high-amplitude asteroid with mean brightness close to the signal-to-noise ratio limit of a given astrometric program is positively detected more frequently close to the lightcurve maximum than minimum. Another cause might be that high-amplitude asteroid observations are more likely to be taken at asteroid aspects close to equator-on where asteroids show lower mean cross-section than at aspects of higher asterocentric latitudes. So the mean absolute magnitude estimated at time when an asteroid shows a high amplitude is typically fainter than a mean H estimated at an average aspect if the asteroid's pole obliquity is not close to 0 or 180°.

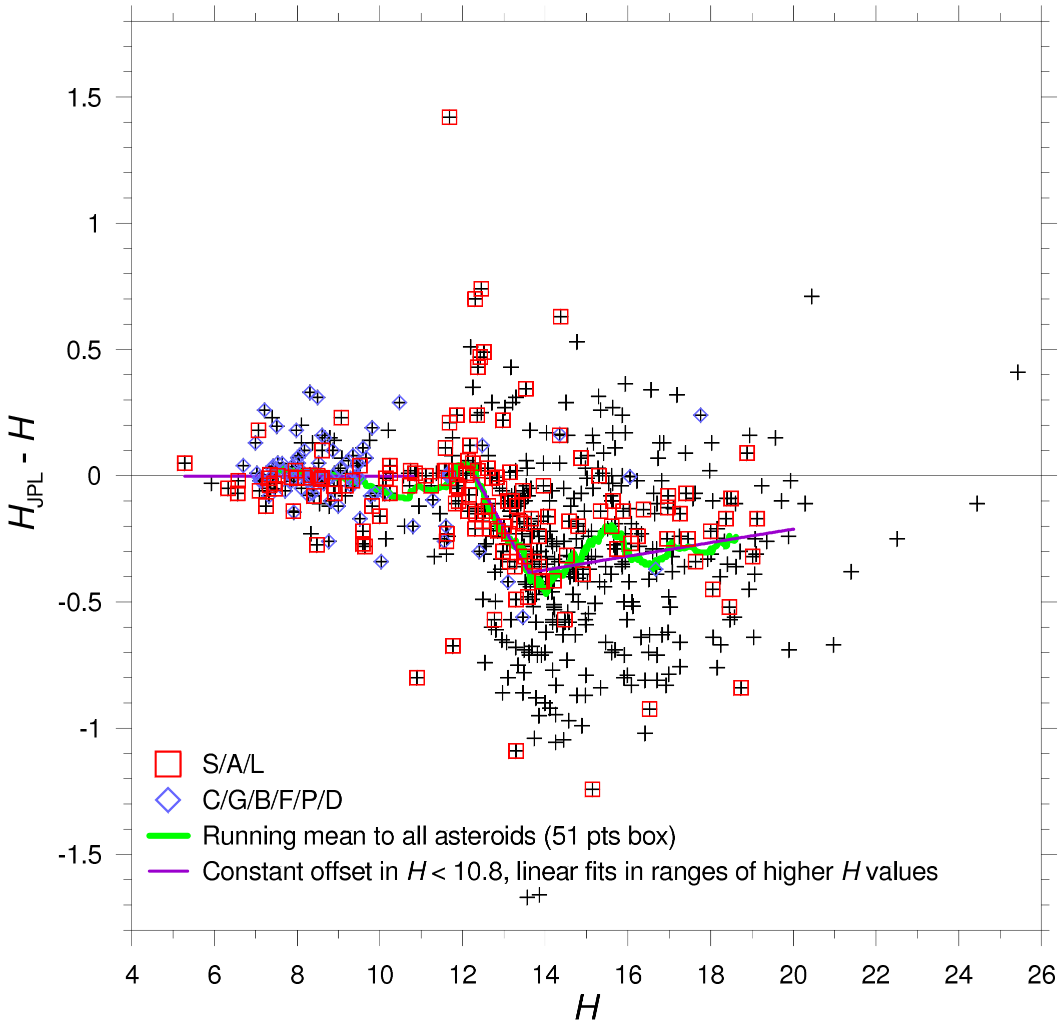

Fig. 6. As in Fig. 4, but for the JPL Horizons catalog absolute magnitudes.

3.3 Comparison with earlier works

The systematic offset of the H values in orbit catalogs was mentioned by several asteroid photometrists before. One particularly interesting earlier work is by Jurić et al. (2002). They compared Johnson V data from the Sloan Digital Sky Survey (SDSS) Early Data Release for a sample of 1335 asteroids to their apparent magnitudes (V_c) predicted from the H and G data from the AstOrb and MPCORB catalogs. They found a mean $(V_c - V) \sim -0.4$ and ~ -0.2 for the two catalogs, respectively.[5] They also found a correlation of the apparent magnitude offset with the SDSS asteroid color, with the median

[5] Unlike in our work where our sample consists of numbered asteroids mostly (see footnote 2), the sample of Jurić et al. (2002) had a much greater fraction of (then−)unnumbered asteroids for which there were independent H estimates in the AstOrb catalog and which might utilize a different magnitudes correction/weighting scheme than the MPC. This could explain the different offsets of the two catalogs that Jurić et al. found.

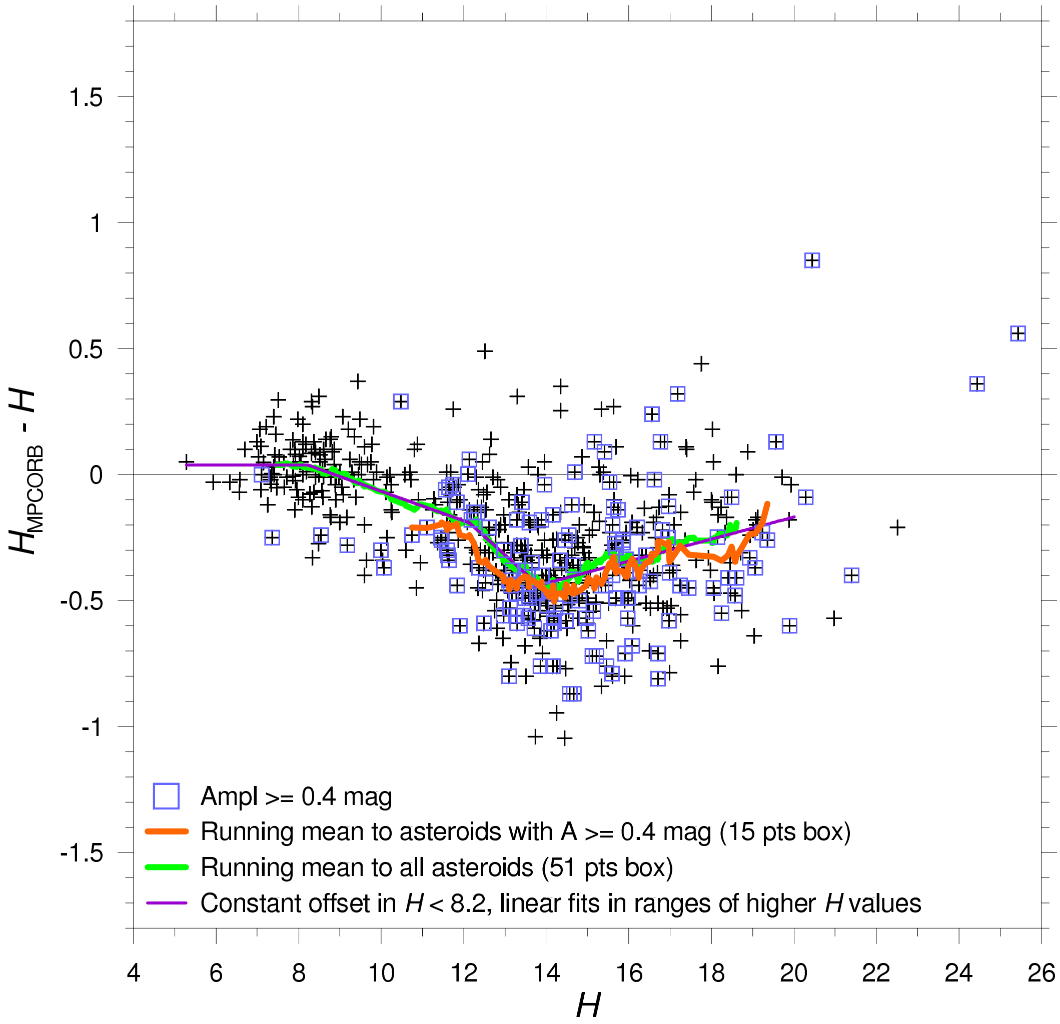

Fig. 7. A higher negative mean offset of the MPCORB absolute magnitudes for high-amplitude asteroids is shown.

offset of the AstOrb magnitudes of -0.34 and -0.44 for subsamples of blue and red asteroids, respectively.

The offset they found for the MPCORB magnitudes is somewhat lower than the offset we have got for asteroids with absolute magnitudes similar to the asteroids in their sample; for asteroids in our sample with H from 12 to 16, we got an average $(H_{\mathrm{MPCORB}} - H)$ of -0.36. A reason for the lower offset they found ten years ago is unclear. One possible cause is that the asteroid surveys predominating in the last ten years might produce more biased magnitude estimates than the (same or different) surveys did before 2002, or possibly the MPC's correction/weighting scheme for estimating H values from magnitude estimates worked better for the surveys operating before 2002 than during the last ten years. In any case, users of the H values from orbit catalogs should be aware that the offset of the catalog values can change with time due to development on the side of asteroid surveys (possible changes in photometric reduction procedures, or simply new surveys with their individual biases starting or increasing their relative contribution to the magnitude estimates

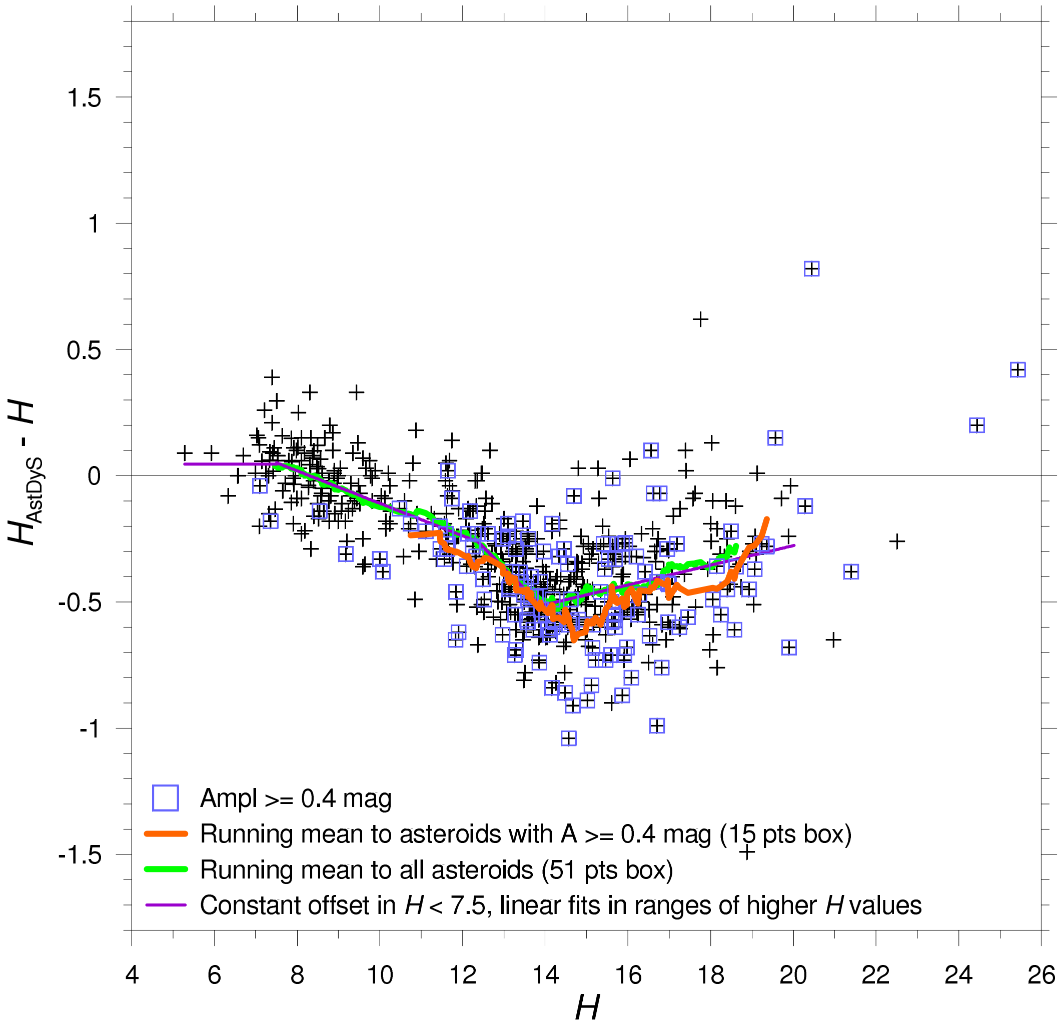

Fig. 8. As in Fig. 7, but for the AstDyS catalog absolute magnitudes.

data and older ones lessening or stopping their operation) or on the side of orbit computers (e.g., new correction and weighting schemes for magnitude estimates used in computing the H values).

The correlation of the offset with the SDSS asteroid color that they found is similar to the difference of 0.09 mag between the mean offsets for S/A/L (predominantly S) and C/G/B/F/P/D (predominantly C) types we found among large asteroids (see Section 3.1). There may be a common cause; both we and Jurić et al. speculate that it may be due to the assumed single value of $(V - R)$ used by the orbit computers for conversion of the astrometric magnitude estimates made effectively in or close to the red band to V for the asteroids of different colors.

Another interesting earlier work is Galád (2010). He analysed the SDSS data for 64 asteroids with rotation periods estimated in previous works, estimated their mean H values and compared them to MPCORB H values. For his asteroid sample covering a range of $H = 9.2$ to 17.7 (with median of XX.X), he found an average of $(H_{\mathrm{MPCORB}} - H) = -0.28$. This is in a pretty good agree-

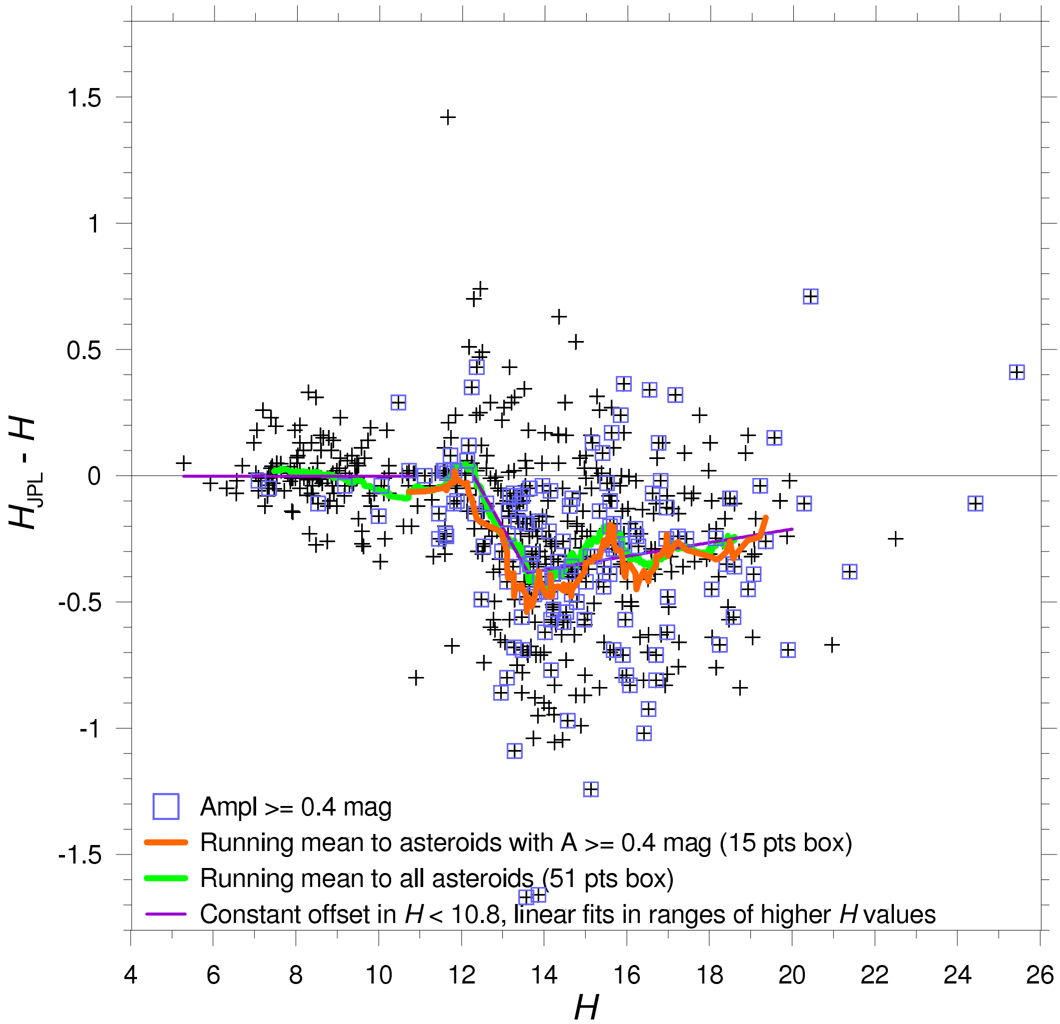

Fig. 9. As in Fig. 7, but for the JPL Horizons catalog absolute magnitudes.

ment with our data; for asteroids with $H = 9.2$–17.7 in our sample, an average of the $(H_{\rm MPCORB} - H)$ values is -0.31. The minor difference of 0.03 mag between his and our average could be due to that he assumed $G = 0.15$ for many asteroids in his sample, which makes a certain bias in the estimated absolute magnitudes for asteroids with medium and high albedos that have mostly higher G, as discussed above. Galád also found a small correlation between the catalog absolute magnitudes offset and lightcurve amplitude, with the mean negative offset being greater by $0.XX$ mag for asteroids with amplitude of ~ 0.6 mag with respect to those with amplitude ~ 0.2 mag; this is in agreement with our results in Sect. 3.2.

4 Revised *WISE* albedos and diameters

We revised the estimates of asteroid albedos and diameters made by Masiero et al. (2011) and Mainzer et al. (2011b) within their NEOWISE project, using our H data and applying the recalculation formula of Harris and Harris (1997). We present our procedure and results in this section.

First, we had to fix data for several asteroids from the two papers that had inconsistent D, p_V, H values in the data files from the two NEOWISE papers.

XXXX WE SHALL COMPLETE AND UPDATE THIS SECTION AFTER WE FIX THE INCONSISTENT WISE H, D, P_V DATA FOR ABOUT 8% OF ASTEROIDS IN THE SAMPLE. WE WILL GIVE AN EXAMPLE OF HOW WE FIX THE INCONSISTENT DATA FOR ONE OF THE CASES, 70 PANOPAEA WHERE THE WISE DATA GIVE D*SQRT(P_V)*$10^{(H/5)}$ = 1160 KM, A VALUE OFF BY 13% FROM THE VALUE OF 1329 KM IN THE D-P_V-D RELATION FORMULA STEMMING FROM THE DEFINITION OF THE ABSOLUTE MAGNITUDE, GEOMETRIC ALBEDO AND THE EFFECTIVE DIAMETER. THEN WE'LL ALSO PROVIDE DETAILS OF OUR APPLICATION OF THE HARRIS&HARRIS DIAMETER-ALBEDO RECALCULATION METHOD.

The original as well as the revised data are listed in Table 4. As the *WISE* data modelers assigned a random error of 0.2 or 0.3 mag to the MPCORB H values that they used in their albedo estimations (Masiero et al., 2011; Mainzer et al., 2011a,b) [6] and all our H estimates have uncertainties ≤ 0.20 mag, and considering that the Harris&Harris recalculation method should not contribute with a significant additional uncertainty, random errors of our revised albedos and diameters should be lower than or at worst equal to the uncertainties δD and δp_V calculated by Mainzer et al. and Masiero et al. that we list in Table 4. We did not attempt to revise these uncertainties as we did not have available an information on what was a contribution of their assumed 0.2- or 0.3-mag uncertainties for the MPCORB H values in their error calculation budgets for individual asteroids.

The revised albedo and diameter data are plotted in Fig. 10. In the figure, we highlighted points of known low-, medium- and high-albedo type asteroids. The mean p_V and the sample standard deviation (dispersion) are 0.056 ($\pm$0.014) and 0.198 ($\pm$0.051) for the C/G/B/F/P/D and the S/A/L types, respectively.

Mainzer et al. (2011a) showed an apparent trend of S-type asteroids having higher albedos at smaller diameters, see their Figs. 1 and 2. Our data reveal that the apparent trend they saw in their data is largely due to the systematic bias of MPCORB H values for smaller asteroids in the range $H > 10$. From our revised p_V–D dataset, there is apparent only little difference between large and small S/A/L type asteroids; the mean p_V is 0.178 and 0.211 for S/A/L

[6] Mainzer et al. (2011a) wrote that they took "updated" H values from Light Curve Database (LCDB; Warner et al., 2009) for about two-thirds of the asteroids that were detected by NEOWISE and that were considered in their paper. We point out that many of the H values in the LCDB were actually taken from MPCORB and thus they were not updated values.

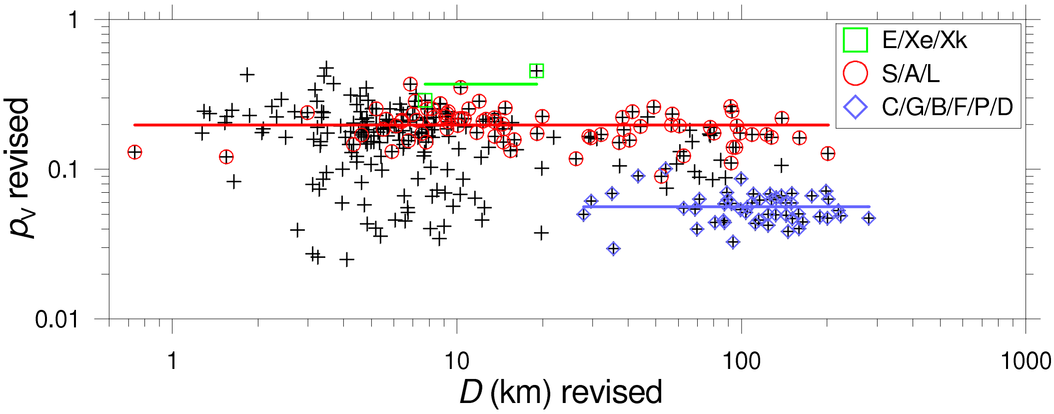

Fig. 10. The *WISE* albedos and diameters revised with the unbiased absolute magnitudes.

type asteroids larger and smaller than $D = 25$ km, respectively. The difference between their mean albedos of 0.033 is only marginally significant, as the formal 1-σ uncertainty of the difference, propagated from the mean errors of the means of p_V values in the two size ranges, is 0.011. This might be a real feature with smaller S-type asteroids having slightly brighter surfaces possibly due to being less space weathered or having different scattering properties, but it could also be an artifact, e.g., due to a small observational bias towards higher-albedo asteroids in the sample of small S types or a small systematic size dependence of their thermal properties not accounted for in the applied thermal models.

5 Possible causes for the offset in catalog H values

Most of the procedures that astrometric surveys, follow-up observers, and orbit calculators used for estimating the apparent magnitudes of asteroids and derivation of the H values have not been comprehensively published so far. Thus we cannot really analyse reasons for the offset in the catalog H values. We present a few reasonable guesses and speculations in following.

The high offset seen for asteroids in the range of a few magnitudes centered about $H = 14$ (which are mostly main belt asteroids) may be related to the fact that a number of their observations could be done not very high above magnitude limits of the most productive surveys, especially when observed close to their aphelions or at higher solar elongations away from opposition. Results of photometric reduction of faint asteroid images are sensitive to things like a quality of flat field, an accuracy of estimation of the sky background level and a quality of background objects removal.

Another possible way how main belt asteroids with $H > 12$ could got biased magnitude estimates is if the few surveys which took most of their observations had some flaws in their photometric reduction procedures or a way how they reported the magnitude estimates to the MPC. For instance, if observations taken with a clear or no filter are reported without a filter code, the magnitude estimates are taken as B band observations —for the B band being the default for astrometric magnitude estimates, a standard inherrited from the photographic plate time— and they are converted to V with subtracting $(B-V) \sim 0.8$ (about the mean asteroidal color index), resulting in extremely incorrect magnitudes. Or if observations calibrated using local standards with magnitudes in the Johnson R system are erroneously reported as V, then they are off by about -0.4 or -0.5 mag, depending on the $(V-R)$ color index of a given asteroid. We do not know whether the above two or some other errors occured for reported asteroid magnitude estimates frequently enough so that they could cause the huge offset. Anyway, a thorough check of procedures of reducing and reporting magnitude estimates used by the major surveys would be good.

A reason for why the trend reverses above $H = 14$, with the mean offset in the MPCORB values being about half as large at $H \sim 19$ than at ~ 14 may be related to the fact that there is an increasing proportion of near-Earth asteroids (NEAs) with increasing H in the sample. The MBA/NEA turning point is about $H = 16$; while most of the asteroids in our sample in the range $H = 15$–16 are main belt asteroids (there are 17 NEAs out of 62 asteroids in this H range), most of those in $H = 16$–17 are NEAs (29 out of 44). The reason may be in that some or many NEAs got a substantial number of targeted follow-up observations, while small and faint main belt asteroids normally do not get any targeted follow-up and most or all their observations are by surveys only; targeted observations are potentially of a higher quality.

Of an interest is also that the AstDyS H values are intrinsically more consistent (see their smaller scatter around the mean curves and fitted lines in Section 3), but they are slightly more biased than the MPCORB values. It seems that the magnitude correction/weighting scheme used at AstDyS does a good work in making magnitude estimates by different stations to be a more homogeneous set, but it does not eliminate their overall bias.

We conclude with stating that it appears to be very necessary and urgent to re-examine the photometric reduction routines and ways of reporting magnitude estimates used by asteroid astrometric observers. Improvements on the side of orbit computers, e.g., a use of more sophisticated magnitude correction and weighting schemes for estimating the H values, tying magnitude estimates reported by astrometric stations to accurate observations by photometric observers, could fix the situation at least partially as well. But improvements on the side of experiment rather than subsequent data processing are always the preferred way. We recall the saying “Crap data in, crap data out”. If the H values from orbit catalogs are to be used for purposes like asteroid albedo estimation or size-frequency distribution determination, they should be seriously more accurate than they are now.

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Table 4: *WISE* diameter and albedo data

Asteroid		*WISE* H	*WISE* G	*WISE* D (km)	*WISE* δD (km)	*WISE* p_V	*WISE* δp_V	H	G	Revised D (km)	Revised p_V	Taxon.						
8	Flora	6.35	0.28	140.000	1.160	0.2614	0.0484	6.560	0.320	138.457	0.2190	S	S		Sw			
9	Metis	6.28	0.17	199.591	0.000	0.1343	0.0000	6.330	0.230	201.407	0.1279	S	S			T	T	
11	Parthenope	6.61	0.15	159.108	5.944	0.1585	0.0365	6.570	0.240	160.029	0.1624	S	S	Sk	Sq			
12	Victoria	7.24	0.22	126.643	3.199	0.1400	0.0137	7.060	0.220	127.310	0.1634	SL	S	L		D	D	
17	Thetis	7.76	0.15	93.335	2.627	0.1597	0.0092	7.900	0.230	93.303	0.1404	S	S	Sl	S			
19	Fortuna	7.13	0.10	223.000	43.596	0.0499	0.0198	7.152	0.162	223.278	0.0488	CG	G	Ch	Ch			
24	Themis	7.07	0.19	202.336	6.054	0.0641	0.0157	7.088	0.180	202.258	0.0631	CB	C	B	C	B	C	
30	Urania	7.57	0.15	98.408	2.136	0.1711	0.0338	7.530	0.230	98.978	0.1754	S	S	Sl	S			
31	Euphrosyne	6.74	0.15	280.000	60.776	0.0454	0.0445	6.700	0.090	279.719	0.0472	C	C	Cb				
38	Leda	8.32	0.15	116.000	15.501	0.0617	0.0162	8.315	0.090	115.839	0.0621	C	C	Cgh	Cgh			
45	Eugenia	7.46	0.07	206.141	6.218	0.0458	0.0055	7.422	0.130	200.278	0.0473	CF	FC	C				
46	Hestia	8.36	0.06	124.000	9.641	0.0520	0.0113	8.400	0.120	124.118	0.0500	CPX	P	Xc				
47	Aglaja	7.85	0.16	138.000	11.108	0.0672	0.0091	7.861	0.178	138.026	0.0665	CB	C	B		B	B	
53	Kalypso	8.81	0.15	115.000	10.324	0.0400	0.0065	8.660	0.090	114.972	0.0459	CX	XC					C
57	Mnemosyne	7.03	0.15	122.466	4.699	0.1817	0.0468	7.090	0.220	122.687	0.1712	S	S	S	S	S	S	
58	Concordia	8.86	0.15	92.307	1.541	0.0592	0.0051	8.860	0.090	92.222	0.0593	C	C	Ch	Ch	Caa	Cgh	
60	Echo	8.51	0.27	60.000	3.519	0.1905	0.0245	8.484	0.250	60.460	0.1951	S	S	S				
70	Panopaea	8.11	0.14	139.007	3.851	0.0397	0.0090	8.100	0.130	159.258	0.0401	C	C	Ch	Cgh			
71	Niobe	7.30	0.40	92.842	0.644	0.2475	0.0346	7.310	0.400	92.568	0.2455	SX	S	Xe				
72	Feronia	8.94	0.15	79.478	1.944	0.0742	0.0084	8.790	0.000	79.316	0.0856	ST	TDG					STD
75	Eurydike	8.96	0.23	68.593	1.970	0.0979	0.0139	8.970	0.230	68.556	0.0970	MX	M	Xk				
76	Freia	7.90	0.15	158.567	8.020	0.0486	0.0072	7.864	0.070	158.398	0.0503	CPX	P	X	C			
77	Frigga	8.52	0.16	67.180	0.903	0.1530	0.0461	8.522	0.160	67.167	0.1527	MX	MU	Xe	Xe			
99	Dike	9.43	0.15	71.311	3.611	0.0587	0.0138	9.350	0.090	71.289	0.0632	CX	C	Xk	Xk			
102	Miriam	9.26	0.15	87.033	0.000	0.0458	0.0000	9.300	0.090	87.213	0.0442	CP	P	C				
107	Camilla	7.08	0.08	219.374	5.938	0.0540	0.0113	7.100	0.090	219.449	0.0530	CX	C	X		X	X	
109	Felicitas	8.75	0.04	89.000	6.165	0.0705	0.0093	8.759	0.030	88.979	0.0700	CG	GC	Ch		Caa	Ch	
114	Kassandra	8.26	0.15	100.000	0.000	0.0877	0.0000	8.275	0.090	99.804	0.0868	XTK	T	Xk	K			
125	Liberatrix	9.04	0.33	61.122	1.084	0.1153	0.0270	8.900	0.220	60.848	0.1314	MX	M	X				
130	Elektra	6.99	0.15	198.933	4.108	0.0714	0.0107	6.990	0.090	198.627	0.0716	CG	G	Ch	Ch	Caa	Ch	
133	Cyrene	7.98	0.13	80.487	1.879	0.1759	0.0168	7.990	0.130	80.308	0.1744	S	SR	S	S	S	S	
134	Sophrosyne	8.76	0.28	112.200	10.798	0.0440	0.0158	8.770	0.280	112.139	0.0436	C	C	Ch				
135	Hertha	8.23	0.15	77.000	7.833	0.1520	0.0500	8.100	0.240	77.715	0.1683	MX	M	Xk				
137	Meliboea	8.05	0.15	144.000	11.272	0.0514	0.0106	8.100	0.090	143.684	0.0492	C	C					
139	Juewa	7.92	0.15	164.000	25.212	0.0446	0.0232	7.924	0.150	164.000	0.0444	CX	CP	X				
145	Adeona	8.13	0.15	151.000	0.000	0.0434	0.0000	8.050	0.090	150.885	0.0467	C	C	Ch		Caa	Ch	
146	Lucina	8.20	0.11	131.812	4.794	0.0534	0.0100	8.277	0.186	131.833	0.0497	C	C	Ch				
154	Bertha	7.58	0.15	188.755	4.758	0.0461	0.0027	7.530	0.090	188.551	0.0483	C		C		C	Cb	
156	Xanthippe	8.64	0.15	110.718	2.187	0.0504	0.0120	8.310	-0.120	110.432	0.0687	C	C	Ch		Caa	Ch	
159	Aemilia	8.12	0.15	127.434	2.714	0.0614	0.0100	8.100	0.090	127.345	0.0627	C	C	Ch				
163	Erigone	9.47	0.04	81.579	3.062	0.0330	0.0043	9.480	-0.040	93.295	0.0328	C	C	Ch				
166	Rhodope	9.89	0.15	54.551	1.535	0.0657	0.0145	9.750	0.090	54.557	0.0747	GX	GC:	Xe		X	Xk	
187	Lamberta	7.98	0.15	133.014	2.497	0.0642	0.0101	7.980	-0.040	132.415	0.0647	C	C	Ch				

Table 4: *cont.*

Asteroid		*WISE*								Revised		Taxon.					
		H	G	D (km)	δD (km)	p_V	δp_V	H	G	D (km)	p_V						
189	Phthia	9.33	0.15	40.559	0.394	0.1991	0.0244	9.600	0.230	40.373	0.1566	S	S	Sa			
201	Penelope	8.43	0.24	88.092	2.792	0.0967	0.0060	8.540	0.170	87.695	0.0881	MX	M	X	Xk		
211	Isolda	7.89	0.12	143.000	21.629	0.0603	0.0177	7.900	0.120	142.995	0.0598	C	C	Ch			
216	Kleopatra	7.30	0.29	138.000	19.374	0.1111	0.0336	7.350	0.280	138.032	0.1064	MX	M	Xe	Xe		
218	Bianca	8.61	0.32	56.766	1.072	0.1972	0.0432	8.607	0.310	56.733	0.1980	S	S				
219	Thusnelda	9.32	0.15	38.078	0.935	0.2280	0.0202	9.340	0.230	38.269	0.2215	SL	S			S	L
226	Weringia	9.82	0.15	37.003	0.389	0.1527	0.0107	9.820	0.230	37.103	0.1514	S		S	S	S	Sk
230	Athamantis	7.35	0.27	109.000	13.025	0.1710	0.0762	7.346	0.272	108.933	0.1716	S	S	Sl			
236	Honoria	8.18	0.02	92.319	2.085	0.1109	0.0173	8.188	-0.020	92.120	0.1105	SL	S	L	L		
261	Prymno	9.44	0.19	54.245	1.354	0.1006	0.0268	9.440	0.190	54.228	0.1006	BX	B	X			
266	Aline	8.49	0.15	109.000	18.327	0.0597	0.0204	8.490	0.090	108.894	0.0598	C	C	Ch	Ch	Caa	Ch
288	Glauke	10.00	0.15	32.100	1.809	0.1722	0.0352	10.000	0.230	32.177	0.1706	S	S	S	S		
317	Roxane	10.03	0.15	19.859	0.124	0.5252	0.0787	10.070	0.490	19.058	0.4559	EX	E	Xe			
322	Phaeo	9.14	0.15	73.155	0.000	0.0771	0.0000	8.990	0.090	71.134	0.0885	XD	X	X	D		
335	Roberta	8.93	0.15	89.703	1.491	0.0588	0.0113	8.860	0.130	89.740	0.0627	BF	FP	B			
338	Budrosa	8.50	0.15	65.783	0.505	0.1646	0.0277	8.370	0.230	65.957	0.1822	MX	M	Xk			
344	Desiderata	8.08	0.15	125.970	1.377	0.0652	0.0183	8.030	0.090	125.908	0.0684	C	C				
345	Tercidina	8.71	0.10	99.000	11.469	0.0591	0.0120	8.810	0.210	99.130	0.0538	C	C	Ch	Ch		
346	Hermentaria	7.13	0.15	91.810	1.424	0.2949	0.0657	7.250	0.230	91.874	0.2634	S	S	S	S		
347	Pariana	8.96	0.15	51.000	3.218	0.2130	0.0414	8.890	0.210	46.832	0.2239	M	M				
379	Huenna	8.87	0.15	87.472	2.359	0.0654	0.0079	8.990	0.140	87.310	0.0587	CB	B	C			
388	Charybdis	8.57	0.07	124.202	2.315	0.0427	0.0070	8.580	0.070	124.246	0.0423	C	C	C		X	X
392	Wilhelmina	9.59	0.15	68.930	0.545	0.0542	0.0100	9.590	0.090	68.872	0.0543	C		Ch			
423	Diotima	7.32	0.15	177.254	6.297	0.0664	0.0049	7.320	0.090	176.949	0.0666	C	C	C			
429	Lotis	9.82	0.15	70.000	6.683	0.0425	0.0141	9.890	0.070	69.925	0.0400	C	C			X	Xk
453	Tea	10.85	0.15	26.139	0.398	0.1182	0.0162	10.850	0.230	26.219	0.1174	S	S	S	Sw		
464	Megaira	9.52	0.15	78.294	0.000	0.0421	0.0000	9.470	0.090	80.798	0.0441	CF	FXU:	C			
478	Tergeste	7.98	0.15	77.252	1.447	0.1902	0.0282	7.960	0.230	77.716	0.1914	SL	S	L			
482	Petrina	8.84	0.15	62.585	0.801	0.1320	0.0096	8.910	0.230	62.518	0.1233	S	S				
486	Cremona	10.89	0.15	19.007	0.238	0.1640	0.0199	10.880	0.230	21.887	0.1639	-					
488	Kreusa	7.81	0.15	150.000	11.326	0.0590	0.0224	7.800	0.090	149.835	0.0597	C	C			Caa	Ch
505	Cava	8.61	0.03	105.000	4.488	0.0576	0.0232	8.640	0.010	104.964	0.0561	F	FC				
519	Sylvania	9.14	0.15	43.944	0.524	0.2020	0.0423	9.180	0.230	44.110	0.1932	S	S	S			
539	Pamina	9.70	0.15	43.724	0.359	0.1218	0.0149	10.040	0.090	43.360	0.0905	C		Ch		Caa	Ch
540	Rosamunde	10.76	0.15	20.274	0.118	0.2241	0.0519	10.740	0.230	19.923	0.2251	S	S				
542	Susanna	9.36	0.15	52.501	0.248	0.1158	0.0274	9.640	0.240	52.314	0.0899	S	S				
556	Phyllis	9.56	0.15	38.517	0.409	0.1787	0.0329	9.520	0.200	38.673	0.1838	S	S	S			
558	Carmen	9.09	0.15	58.572	0.000	0.1170	0.0000	9.170	0.210	59.124	0.1085	M	M			X	Xk
560	Delila	10.90	0.15	35.078	0.193	0.0627	0.0118	10.800	0.090	35.059	0.0688	B	***	B			
584	Semiramis	8.71	0.24	48.693	4.261	0.2444	0.0600	8.610	0.310	49.264	0.2618	S	S	Sl			
587	Hypsipyle	12.19	0.15	12.944	0.103	0.1413	0.0237	12.190	0.230	12.946	0.1402	-					
593	Titania	9.28	0.06	86.485	2.010	0.0458	0.0049	9.290	0.060	86.509	0.0454	C	C				
606	Brangane	10.38	0.15	36.907	0.744	0.0893	0.0116	10.200	0.090	37.371	0.1052	LTK	TSD	K	L		
622	Esther	10.17	0.15	29.000	5.417	0.1736	0.0621	10.240	0.230	29.564	0.1620	S	S	S			

Table 4: *cont.*

Asteroid		*WISE*								Revised		Taxon.						
		H	G	D (km)	δD (km)	p_V	δp_V	H	G	D (km)	p_V							
674	Rachele	7.42	0.15	96.002	2.112	0.2064	0.0328	7.472	0.239	96.370	0.1951	S	S	S				
695	Bella	9.07	0.15	41.225	0.600	0.2449	0.0281	9.070	0.200	41.385	0.2429	S	S					
712	Boliviana	8.32	0.03	127.576	3.737	0.0389	0.0051	8.330	0.030	146.058	0.0385	CX	C	X				
722	Frieda	12.10	0.15	8.835	0.044	0.3309	0.0429	12.310	0.230	8.749	0.2749	S						S
728	Leonisis	12.80	0.15	7.267	0.068	0.2557	0.0272	13.000	0.230	7.220	0.2138	AL				A	Ld	
739	Mandeville	8.76	0.15	103.713	2.286	0.0514	0.0086	8.760	0.090	103.654	0.0515	CX	X	X	Xc	X	X	
770	Bali	11.11	0.15	19.166	0.182	0.1732	0.0394	11.110	0.160	19.165	0.1730	S	S					
776	Berbericia	7.68	0.34	151.113	4.099	0.0655	0.0077	7.632	0.140	150.557	0.0690	C	C	Cgh	Cgh			
779	Nina	8.10	0.15	77.000	6.578	0.1740	0.0559	8.100	0.260	76.926	0.1718	X		X		X	X	
782	Montefiore	11.50	0.15	14.541	0.099	0.2134	0.0286	11.560	0.230	14.466	0.2006	S	S	Sl	Sw			
795	Fini	9.70	0.15	62.649	2.428	0.0593	0.0103	9.780	0.120	62.574	0.0552	C		C				
823	Sisigambis	11.23	0.15	15.755	0.043	0.2339	0.0292	11.370	0.230	15.597	0.2056	-						
825	Tanina	11.84	0.15	14.611	0.068	0.1537	0.0333	11.840	0.230	14.588	0.1524	S	SR	S				
849	Ara	8.33	0.15	84.417	2.447	0.1155	0.0163	8.330	0.210	84.579	0.1150	M	M					
851	Zeissia	11.62	0.15	13.566	0.106	0.2191	0.0225	11.600	0.230	13.558	0.2201	S	S					
852	Wladilena	10.15	0.15	31.087	0.278	0.1597	0.0184	10.150	0.140	31.020	0.1599	-						
853	Nansenia	11.59	0.15	30.737	0.314	0.0323	0.0027	11.690	0.090	35.516	0.0295	CX	XD	Ch				
901	Brunsia	11.61	0.15	14.721	0.108	0.1888	0.0330	11.610	0.230	14.647	0.1869	S	S					
905	Universitas	11.59	0.15	13.703	0.090	0.2188	0.0619	11.660	0.090	13.567	0.2080	S		S				
920	Rogeria	11.19	0.15	29.683	0.260	0.0670	0.0030	11.285	0.240	29.705	0.0613	D	DTU					
925	Alphonsina	8.33	0.15	58.000	4.841	0.2533	0.0534	8.410	0.230	57.143	0.2339	S	S	S	S			
929	Algunde	11.74	0.15	12.440	0.073	0.2348	0.0327	11.860	0.240	12.328	0.2095	S		S	S	S	Sl	
968	Petunia	10.26	0.15	28.983	0.263	0.1657	0.0703	10.250	0.230	29.105	0.1656	S	S			S	Sl	
980	Anacostia	7.85	0.06	95.568	1.195	0.1404	0.0125	7.855	0.060	95.454	0.1398	SL	SU	L				
1060	Magnolia	12.70	0.15	7.110	0.117	0.2922	0.0328	12.710	0.230	7.143	0.2853	S				S	S	
1078	Mentha	11.80	0.15	13.660	0.134	0.1819	0.0375	11.900	0.230	13.621	0.1654	S	S					
1083	Salvia	12.25	0.15	10.183	0.000	0.1945	0.0000	12.250	0.230	10.750	0.1924	-						
1088	Mitaka	11.62	0.15	15.957	0.030	0.1588	0.0204	11.620	0.230	15.885	0.1574	S	S	S				
1103	Sequoia	12.53	0.15	7.623	0.058	0.3044	0.0439	12.530	0.420	7.721	0.2882	EX	E	Xk				
1117	Reginita	11.69	0.15	10.193	0.250	0.3585	0.0785	11.690	0.230	10.292	0.3516	S				S	S	
1123	Shapleya	11.70	0.15	11.939	0.000	0.2642	0.0000	11.590	0.230	11.978	0.2846	S				S	S	
1338	Duponta	12.75	0.15	7.875	0.062	0.2286	0.0274	12.798	0.200	7.848	0.2180	-						
1367	Nongoma	12.30	0.15	9.313	0.048	0.2470	0.0271	12.300	0.230	9.335	0.2437	SL				S	L	
1376	Michelle	12.81	0.15	7.053	0.119	0.2669	0.0578	12.810	0.230	7.104	0.2631	-						
1405	Sibelius	12.48	0.15	7.175	0.089	0.3516	0.0646	12.570	0.240	7.185	0.3208	-						
1419	Danzig	11.45	0.15	14.059	0.096	0.2388	0.0462	11.450	0.230	14.039	0.2357	-						
1429	Pemba	12.50	0.15	10.417	0.000	0.1709	0.0000	12.740	0.230	10.136	0.1378	-						
1472	Muonio	12.55	0.15	8.388	0.110	0.2397	0.0786	12.620	0.240	8.422	0.2230	-						
1629	Pecker	12.25	0.15	9.297	0.036	0.2618	0.0344	12.360	0.240	9.237	0.2355	S		S				
1644	Rafita	11.82	0.15	15.443	0.000	0.1392	0.0000	11.860	0.230	15.448	0.1334	S	S					
1665	Gaby	11.85	0.15	10.960	0.021	0.2681	0.0736	11.900	0.230	11.000	0.2537	S	S			S	Sq	
1689	Floris-Jan	11.82	0.15	16.122	4.950	0.1271	0.0508	11.740	0.230	16.214	0.1353					D	D	
1717	Arlon	12.33	0.15	9.128	0.166	0.2492	0.0420	12.430	0.240	9.129	0.2261	S	S					
1718	Namibia	13.50	0.15	9.747	0.112	0.0740	0.0095	13.800	0.050	9.695	0.0568	-						

Table 4: *cont.*

Asteroid		*WISE*								Revised		Taxon.						
		H	G	D (km)	δD (km)	p_V	δp_V	H	G	D (km)	p_V							
1722	Goffin	12.18	0.15	10.446	0.130	0.2191	0.0165	12.180	0.150	10.404	0.2191	S						S
1736	Floirac	12.24	0.15	8.701	0.119	0.2994	0.0420	12.330	0.240	8.691	0.2735	-						
1777	Gehrels	11.78	0.15	12.486	0.228	0.2212	0.0170	11.773	0.343	12.634	0.2162	S		Sq				
1806	Derice	12.00	0.15	10.697	0.061	0.2474	0.0669	12.140	0.240	10.646	0.2171	S				S	Sl	
1830	Pogson	12.61	0.15	8.284	0.116	0.2361	0.0396	12.659	0.291	8.294	0.2217	S	S	S				
1865	Cerberus	16.84	0.15	1.611	0.013	0.1360	0.0210	16.965	0.232	1.545	0.1211	S	S	S				
1866	Sisyphus	13.00	0.15	6.597	0.189	0.2550	0.0490	12.510	0.235	6.871	0.3706	S		S	Sw			
1967	Menzel	12.21	0.15	10.138	0.092	0.2279	0.0397	12.250	0.240	10.113	0.2174	S						S
1979	Sakharov	13.50	0.15	4.521	0.000	0.3574	0.0000	13.800	0.340	4.439	0.2707	-						
1980	Tezcatlipoca	13.92	0.15	5.988	0.000	0.1373	0.0000	13.960	0.230	5.913	0.1316	SA	SU	Sl	Sw	A	A	
1991	Darwin	13.60	0.15	4.989	0.371	0.2577	0.0777	13.600	0.230	5.024	0.2541	-						
2002	Euler	12.59	0.15	19.773	0.057	0.0416	0.0062	12.700	0.240	19.776	0.0376	-						
2006	Polonskaya	13.42	0.15	4.625	0.163	0.3539	0.0955	13.350	0.420	4.804	0.3498	-						
2049	Grietje	15.60	0.15	2.457	0.126	0.1684	0.0316	15.600	0.420	2.495	0.1633	-						
2094	Magnitka	12.45	0.15	12.053	0.055	0.1278	0.0129	12.490	0.400	12.145	0.1209	-						
2110	Moore-Sitterly	13.80	0.15	5.699	0.000	0.1649	0.0000	13.620	0.240	5.754	0.1901	-						
2121	Sevastopol	12.30	0.15	9.318	0.037	0.2475	0.0223	12.480	0.290	9.287	0.2086	S				S	Sl	
2212	Hephaistos	13.87	0.15	5.536	0.044	0.1630	0.0270	13.525	0.230	5.638	0.2161	S	SG					
2478	Tokai	12.33	0.15	9.982	0.031	0.2084	0.0371	12.370	0.330	10.064	0.1966	S		S		S	Sl	
2486	Metsahovi	12.59	0.15	8.417	0.034	0.2321	0.0232	12.782	0.240	8.357	0.1950	-						
2501	Lohja	12.08	0.15	11.822	0.072	0.1898	0.0440	12.155	0.234	11.735	0.1763	A	A	A	A			
2544	Gubarev	12.30	0.15	9.261	0.290	0.2476	0.0273	12.350	0.240	9.308	0.2341	-						
2642	Vesale	12.45	0.15	9.541	0.053	0.2044	0.0224	12.450	0.230	9.565	0.2021	-						
2659	Millis	11.65	0.15	27.878	0.337	0.0498	0.0028	11.650	0.090	27.827	0.0499	B		B				
2794	Kulik	13.48	0.15	7.622	0.088	0.1238	0.0247	13.480	0.230	7.632	0.1230	-						
2815	Soma	12.60	0.15	7.158	0.088	0.3207	0.0411	12.980	0.240	7.004	0.2314	S				S	S	
2830	Greenwich	12.64	0.15	9.197	0.064	0.1846	0.0451	12.610	0.230	9.228	0.1874	S	S					
2886	Tinkaping	13.28	0.15	5.784	0.053	0.2574	0.0217	13.280	0.230	5.824	0.2538	-						
2897	Ole Romer	13.40	0.15	5.231	0.113	0.2827	0.0679	13.640	0.240	5.201	0.2285	-						
2943	Heinrich	12.80	0.15	7.668	0.046	0.2295	0.0291	12.820	0.240	7.687	0.2226	-						
2954	Delsemme	13.58	0.15	5.030	0.037	0.2590	0.0484	13.580	0.230	5.057	0.2554	-						
3066	McFadden	11.24	0.15	14.805	0.051	0.2617	0.0766	11.240	0.230	14.781	0.2580	SL				S	L	
3116	Goodricke	12.62	0.15	7.856	0.107	0.2574	0.0267	12.620	0.230	7.893	0.2538	S				S	Sl	
3121	Tamines	13.40	0.15	6.059	0.132	0.2101	0.0552	13.460	0.300	6.106	0.1957	S		S				
3122	Florence	14.00	0.15	4.401	0.030	0.2310	0.0490	14.515	0.266	4.332	0.1471	S		S	Sqw			
3376	Armandhammer	12.46	0.15	8.168	0.098	0.2761	0.0356	12.540	0.240	8.180	0.2544	S		Sq				
3554	Amun	15.82	0.15	3.332	0.000	0.0775	0.0000	15.870	0.260	3.279	0.0737	-						
3576	Galina	13.10	0.15	7.802	0.074	0.1675	0.0310	13.200	0.240	7.804	0.1522	S		Sl				
3673	Levy	13.10	0.15	6.412	0.159	0.2472	0.0325	13.140	0.280	6.469	0.2341	-						
3691	Bede	14.90	0.15	1.803	0.105	0.5930	0.1200	15.220	0.430	1.830	0.4308	Xc		Xc				
3752	Camillo	15.50	0.15	2.306	0.088	0.2100	0.0360	15.410	0.230	2.326	0.2238	-						
3824	Brendalee	13.52	0.15	5.183	0.107	0.2570	0.0413	13.520	0.230	5.219	0.2534	S		S				
3868	Mendoza	12.75	0.15	9.351	0.049	0.1621	0.0288	12.710	0.220	9.352	0.1664	-						
3888	Hoyt	12.50	0.15	6.659	0.045	0.4011	0.0899	13.260	0.240	6.410	0.2135	S				S	Sq	

Table 4: *cont.*

Asteroid		*WISE*						H	G	Revised		Taxon.					
		H	G	D (km)	δD (km)	p_V	δp_V			D (km)	p_V						
3896	Pordenone	11.30	0.15	20.001	0.104	0.1341	0.0102	11.610	0.240	19.875	0.1015	-					
3918	Brel	12.98	0.15	6.262	0.129	0.2894	0.0182	13.030	0.240	6.300	0.2731	-					
3928	Randa	13.30	0.15	5.733	0.175	0.2572	0.0392	13.650	0.240	5.686	0.1894	-					
3982	Kastel'	13.20	0.15	6.790	0.363	0.2010	0.0310	13.350	0.510	6.902	0.1695	-					
4029	Bridges	12.85	0.15	7.897	0.000	0.2063	0.0000	12.960	0.240	7.889	0.1858	-					
4197	1982 TA	14.60	0.15	3.043	0.156	0.2760	0.0770	14.800	0.010	2.980	0.2392	S	Sq	Sq			
4285	Hulkower	12.86	0.15	7.787	0.119	0.2092	0.0225	12.960	0.240	7.802	0.1899	-					
4483	Petofi	13.57	0.15	5.545	0.030	0.2150	0.0575	13.570	0.420	5.646	0.2068				X	X	
4533	Orth	12.80	0.15	7.526	0.094	0.2369	0.0342	13.140	0.370	7.524	0.1730	S			S	S	
4555	1987 QL	14.24	0.15	3.126	0.111	0.3641	0.0623	14.280	0.300	3.173	0.3404	-					
4638	Estens	14.00	0.15	4.595	0.404	0.2101	0.0617	13.950	0.240	4.635	0.2162	-					
4666	Dietz	13.00	0.15	6.827	0.294	0.2391	0.0655	13.160	0.240	6.827	0.2064				D	D	
4674	Pauling	13.30	0.15	4.684	0.046	0.3872	0.0810	14.245	0.330	4.510	0.1741	-					
4786	Tatianina	13.76	0.15	3.282	0.197	0.5136	0.1593	13.718	0.460	3.476	0.4762	Xc	Xc				
4951	Iwamoto	13.74	0.15	5.515	0.033	0.1859	0.0324	13.740	0.190	5.521	0.1850	S	S				
5080	Oja	12.90	0.15	8.377	0.000	0.1818	0.0000	13.010	0.240	8.211	0.1638	-					
5129	Groom	12.40	0.15	8.189	0.109	0.2922	0.0508	13.060	0.160	7.930	0.1677	-					
5143	Heracles	13.80	0.15	4.843	0.378	0.2270	0.0540	14.270	0.420	4.837	0.1478	QVO	O	Q			V
5313	Nunes	13.30	0.15	5.457	0.233	0.2839	0.0316	13.780	0.240	5.378	0.1878	-					
5342	Le Poole	13.50	0.15	5.194	0.281	0.2607	0.0440	14.120	0.240	5.101	0.1527	-					
5440	Terao	13.69	0.15	5.711	0.020	0.1814	0.0144	13.770	0.240	5.719	0.1676	-					
5451	Plato	14.10	0.15	8.703	0.206	0.0534	0.0098	14.580	0.240	8.681	0.0345	-					
5477	Holmes	14.40	0.15	3.147	0.137	0.3100	0.0380	14.445	0.390	3.215	0.2849	-					
5484	Inoda	13.07	0.15	10.524	0.037	0.0944	0.0145	13.170	0.240	10.531	0.0859	-					
5645	1990 SP	16.80	0.15	1.668	0.018	0.1210	0.0220	17.240	0.000	1.648	0.0827	-					
5653	Camarillo	16.10	0.15	1.537	0.016	0.2710	0.0570	16.420	0.240	1.527	0.2048	-					
5736	Sanford	13.60	0.15	5.060	0.105	0.2504	0.0348	14.170	0.240	4.982	0.1529	-					
5905	Johnson	14.00	0.15	4.791	0.065	0.1939	0.0278	14.255	0.330	4.790	0.1529	-					
5985	1942 RJ	13.43	0.15	6.212	0.255	0.1944	0.0259	13.530	0.240	6.224	0.1766	-					
6084	Bascom	13.25	0.15	6.347	0.218	0.2197	0.0299	13.290	0.260	6.388	0.2091	S			S	S	
6178	1986 DA	15.10	0.15	3.199	0.207	0.1610	0.0340	15.900	0.200	3.115	0.0795	-					
6185	1987 YD	13.37	0.15	9.930	0.000	0.0755	0.0000	13.480	0.240	10.254	0.0681	-					
6361	1978 VL11	13.77	0.15	3.714	0.000	0.4099	0.0000	13.860	0.240	3.676	0.3734	-					
6405	Komiyama	13.00	0.15	6.529	0.120	0.2626	0.0509	13.430	0.240	6.440	0.1809	-					
6453	1991 NY	13.60	0.15	8.520	0.329	0.0883	0.0176	13.810	0.240	8.515	0.0729	-					
6455	1992 HE	13.90	0.15	4.626	0.407	0.2270	0.0510	14.215	0.340	4.628	0.1699	S	S	Srw			
6708	Bobbievaile	13.26	0.15	9.226	0.021	0.1031	0.0203	13.290	0.240	9.247	0.0998	-					
6949	Zissell	13.87	0.15	8.184	0.058	0.0747	0.0052	14.000	0.240	8.185	0.0662	-					
7020	Yourcenar	13.70	0.15	9.061	0.121	0.0712	0.0077	14.290	0.240	9.022	0.0417	-					
7030	Colombini	14.37	0.15	6.529	0.479	0.0740	0.0079	14.480	0.240	6.534	0.0668	-					
7033	1994 WN2	13.89	0.15	4.741	0.121	0.2184	0.0676	14.000	0.240	4.751	0.1966	-					
7043	Godart	13.45	0.15	5.721	0.136	0.2250	0.0417	13.490	0.330	5.787	0.2119	-					
7089	1992 FX1	13.40	0.15	5.011	0.055	0.3085	0.0270	14.050	0.240	4.888	0.1774	-					
7116	Mentall	13.10	0.15	7.412	0.048	0.1524	0.0277	13.540	0.240	8.110	0.1030	-					

Table 4: *cont.*

Asteroid		*WISE*								Revised		Taxon.	
		H	G	D (km)	δD (km)	p_V	δp_V	H	G	D (km)	p_V		
7225	Huntress	13.45	0.15	6.680	0.224	0.1650	0.0163	13.490	0.360	6.748	0.1558	S	S
7229	Tonimoore	15.60	0.15	4.840	0.235	0.0434	0.0082	15.600	0.230	4.845	0.0433	-	
7735	Scorzelli	12.30	0.15	6.719	0.150	0.4704	0.0735	13.100	0.120	6.371	0.2504	-	
8033	1992 FY1	13.56	0.15	6.498	0.059	0.1581	0.0150	13.640	0.240	6.502	0.1462	-	
8116	Jeanperrin	14.05	0.15	4.773	0.075	0.1859	0.0353	14.050	0.230	4.798	0.1840	-	
8195	1993 UC1	12.79	0.15	8.137	0.170	0.2043	0.0203	12.900	0.240	8.150	0.1839	-	
8338	Ralhan	13.40	0.15	4.791	0.210	0.3359	0.0711	14.020	0.240	4.680	0.1988	-	
8356	Wadhwa	12.80	0.15	6.745	0.310	0.2945	0.0822	13.070	0.240	6.707	0.2323	-	
9260	Edwardolson	14.00	0.15	4.115	0.362	0.2620	0.0369	14.540	0.240	4.052	0.1643	-	
9556	Gaywray	13.10	0.15	6.587	0.070	0.2349	0.0547	13.710	0.240	6.474	0.1383	-	
9617	Grahamchapman	14.88	0.15	2.840	0.382	0.2445	0.0393	14.970	0.240	2.849	0.2237	-	
9782	Edo	13.40	0.15	6.012	0.113	0.2133	0.0211	13.480	0.240	6.031	0.1969	-	
9948	1990 QB2	14.50	0.15	3.345	0.717	0.2502	0.0931	14.620	0.240	3.351	0.2232	-	
10123	Fideoja	13.80	0.15	3.476	0.518	0.4414	0.0940	14.530	0.240	3.351	0.2425	-	
10188	Yasuoyoneda	13.60	0.15	5.407	0.195	0.2193	0.0350	14.030	0.240	5.356	0.1505	-	
10208	Germanicus	14.30	0.15	3.552	0.202	0.2667	0.0266	14.790	0.240	3.503	0.1746	-	
10484	Hecht	13.90	0.15	4.623	0.552	0.2276	0.0603	14.180	0.240	4.601	0.1775	-	
11072	Hiraoka	13.50	0.15	9.083	0.041	0.0853	0.0247	13.720	0.240	9.071	0.0698	-	
11271	1988 KB	13.05	0.15	7.341	0.016	0.1980	0.0358	13.170	0.240	7.342	0.1768	-	
11398	1998 YP11	16.30	0.15	1.316	0.349	0.3180	0.0950	16.590	0.290	1.291	0.2449	-	
11500	Tomaiyowit	18.40	0.15	0.738	0.006	0.1420	0.0240	18.490	0.190	0.737	0.1308	S	S
12466	1997 AS12	14.10	0.15	4.701	0.260	0.1831	0.0267	14.210	0.240	4.709	0.1649	-	
12923	Zephyr	15.80	0.15	2.060	0.013	0.1990	0.0340	15.930	0.240	2.063	0.1762	-	
13144	1995 BJ	13.10	0.15	7.773	0.248	0.1682	0.0222	13.400	0.120	7.701	0.1300	-	
13154	Petermrva	14.56	0.15	4.170	0.239	0.1523	0.0199	14.600	0.200	4.176	0.1464	-	
15350	Naganuma	13.90	0.15	4.357	0.070	0.2563	0.0380	14.160	0.240	4.337	0.2036	-	
15793	1993 TG19	15.10	0.15	3.497	0.926	0.1317	0.0916	15.460	0.240	3.482	0.0954	-	
16064	1999 RH27	16.80	0.15	4.106	0.592	0.0200	0.0060	16.560	-0.140	4.096	0.0250	-	
16115	1999 XH25	13.00	0.15	12.529	0.148	0.0710	0.0144	13.280	0.120	12.482	0.0553	-	
16173	2000 AC98	14.39	0.15	3.879	0.122	0.2059	0.0413	14.430	0.270	3.905	0.1958	-	
16403	1984 WJ1	13.70	0.15	4.147	0.115	0.3401	0.0193	13.740	0.370	4.238	0.3138	-	
16691	1994 VS	15.00	0.15	2.671	0.602	0.2476	0.0448	15.010	0.240	2.690	0.2419	-	
17060	Mikecombi	13.60	0.15	5.164	0.382	0.2405	0.0526	14.020	0.240	5.111	0.1667	-	
17470	1991 BX	12.60	0.15	11.699	0.373	0.1177	0.0194	13.280	0.120	11.565	0.0644	-	
17479	1991 PV9	13.20	0.15	6.352	0.429	0.2298	0.0537	13.640	0.240	6.285	0.1565	-	
17938	Tamsendrew	14.80	0.15	3.224	0.119	0.2043	0.0338	14.870	0.240	3.235	0.1903	-	
18096	2000 LM16	13.60	0.15	7.356	0.109	0.1185	0.0171	13.960	0.120	7.301	0.0863	-	
18503	1996 PY4	13.80	0.15	3.529	0.047	0.4290	0.0331	14.510	0.240	3.406	0.2391	-	
19763	Klimesh	13.20	0.15	7.270	0.138	0.1754	0.0464	13.270	0.240	7.291	0.1635	-	
19764	2000 NF5	15.80	0.15	1.572	0.071	0.3420	0.0770	16.280	0.300	1.552	0.2255	-	
20031	1992 OO	13.10	0.15	4.772	0.037	0.4481	0.0655	13.850	0.240	4.583	0.2425	-	
20932	2258 T-1	13.20	0.15	5.234	0.000	0.3276	0.0000	13.780	0.240	5.208	0.2003	-	
21088	1992 BL2	14.20	0.15	4.231	0.113	0.2060	0.0490	14.350	0.240	4.234	0.1793	-	
21720	Pilishvili	14.70	0.15	3.163	0.150	0.2328	0.0221	15.140	0.240	3.129	0.1585	-	

Table 4: *cont.*

Asteroid		*WISE*								Revised		Taxon.
		H	G	D (km)	δD (km)	p_V	δp_V	H	G	D (km)	p_V	
22166	2000 WX154	14.00	0.15	4.715	0.280	0.1995	0.0431	15.020	0.240	4.613	0.0815	-
23971	1998 YU9	14.55	0.15	8.152	0.094	0.0410	0.0011	14.570	0.120	8.070	0.0403	-
23979	1999 JL82	13.50	0.15	4.899	0.390	0.2930	0.0772	13.900	0.240	4.842	0.2075	-
24114	1999 VV23	13.10	0.15	4.967	0.170	0.4119	0.0589	13.520	0.240	4.881	0.2898	-
26045	1582 T-2	15.80	0.15	2.078	0.559	0.1959	0.0702	15.840	0.240	2.087	0.1872	-
26760	2001 KP41	15.40	0.15	5.400	0.374	0.0420	0.0100	15.580	0.050	5.380	0.0358	-
29168	1990 KJ	13.30	0.15	4.927	0.343	0.3483	0.0596	13.840	0.240	4.826	0.2208	-
29292	Conniewalker	13.40	0.15	4.581	0.217	0.3674	0.0485	13.590	0.240	4.571	0.3097	-
32953	1996 GF19	14.70	0.15	2.444	0.314	0.3897	0.1191	15.030	0.240	2.417	0.2941	-
34442	2000 SS64	14.62	0.15	4.992	0.074	0.1006	0.0092	14.540	0.120	4.993	0.1082	-
35389	1997 XO	14.30	0.15	4.345	0.000	0.1809	0.0000	14.690	0.120	4.261	0.1294	-
36492	2000 QW46	14.50	0.15	3.373	0.039	0.2461	0.0578	15.045	0.240	3.323	0.1534	-
40267	1999 GJ4	15.40	0.15	1.641	0.053	0.4530	0.0870	16.080	0.500	1.622	0.2483	-
42314	2001 VQ121	14.10	0.15	4.531	0.832	0.1971	0.1531	14.660	0.120	4.454	0.1218	-
45810	2000 QP32	14.70	0.15	2.304	0.308	0.4388	0.0831	15.320	0.240	2.234	0.2636	-
50822	2000 FH35	14.30	0.15	6.744	0.151	0.0740	0.0232	14.620	0.120	6.715	0.0556	-
51911	2001 QD68	13.10	0.15	12.304	0.141	0.0671	0.0145	13.520	0.120	12.249	0.0460	-
52762	1998 MT24	14.70	0.15	6.742	0.190	0.0510	0.0090	14.690	0.000	6.740	0.0517	-
62112	2000 RM99	13.70	0.15	5.331	0.272	0.2058	0.0328	13.880	0.120	5.288	0.1772	-
64588	2001 XX3	13.70	0.15	5.477	0.094	0.1950	0.0276	14.230	0.240	5.415	0.1224	-
66335	1999 JZ61	13.80	0.15	3.392	0.236	0.4637	0.0448	13.900	0.240	3.409	0.4187	-
68905	2002 JZ104	15.30	0.15	1.911	0.472	0.3668	0.1935	15.860	0.240	1.868	0.2292	-
71200	1999 XT236	14.60	0.15	6.610	0.146	0.0584	0.0122	14.885	0.120	6.591	0.0452	-
74355	1998 WJ12	14.40	0.15	4.469	0.380	0.1537	0.0733	14.760	0.240	4.446	0.1115	-
88188	2000 XH44	16.00	0.15	1.371	0.264	0.3740	0.1740	16.530	0.350	1.354	0.2355	-
88850	2001 SL222	15.90	0.15	3.377	0.788	0.0676	0.0485	15.630	0.120	3.387	0.0862	-
99475	2002 CR118	14.30	0.15	3.397	0.605	0.2916	0.1839	15.120	0.240	3.307	0.1446	-
100111	1993 FA51	14.80	0.15	6.098	0.198	0.0571	0.0089	15.040	0.120	6.082	0.0460	-
103067	1999 XA143	16.60	0.15	1.282	0.029	0.2460	0.0530	16.990	0.240	1.271	0.1750	-
105612	2000 RT99	13.90	0.15	5.507	0.329	0.1604	0.0309	14.450	0.240	5.454	0.0985	-
113846	2002 TV239	16.40	0.15	2.761	0.738	0.0638	0.0730	16.930	0.240	2.751	0.0394	-
139345	2001 KA67	16.70	0.15	3.101	0.139	0.0380	0.0080	17.060	0.240	3.112	0.0273	-
159669	2002 GY73	15.30	0.15	5.188	0.159	0.0498	0.0143	15.530	0.120	5.175	0.0405	-
206079	2002 RU66	14.90	0.15	3.987	0.831	0.1218	0.0433	15.120	0.120	3.966	0.1005	-
206400	2003 SW52	16.50	0.15	3.257	0.773	0.0418	0.0189	17.020	0.240	3.250	0.0260	-
232067	2001 UR220	15.20	0.15	4.750	0.000	0.0655	0.0000	15.340	0.120	4.726	0.0578	-
	2005 TQ27	15.40	0.15	3.969	0.139	0.0776	0.0159	15.690	0.120	3.952	0.0599	-

The *WISE* data were taken from http://wise2.ipac.caltech.edu/staff/bauer/NEOWISE_pass1/, file WISE_MBA_Pass1_Table_2011-09-16.txt, and from http://iopscience.iop.org/0004-637X/743/2/156/fulltext/, file apj408731t1_mrt.txt. The H and G data were taken from Table 2. The revised diameters and albedos were made from the *WISE* estimates using the H, G data and applying the recalculation formula of Harris and Harris (1997). The taxonomy data were taken from Tholen (1989), Bus and Binzel (2002), DeMeo et al. (2009), Xu et al. (1995), and Lazzaro et al. (2004), as compiled in Neese (2010); they are given in columns Taxon.(1) to (6) in the respective order (the last two columns are the data from Lazzaro et al., 2004, in the Tholen and the Bus&Binzel system, respectively). Column Taxon.(0) gives a "summary" of the taxonomic classifications; it is the union of capital letters from columns Taxon.(1) to (4) and the S classification from columns Taxon.(5) and (6).