

Asteroid absolute magnitude and slope

This catalogue contains photometric parameters (absolute magnitudes and slopes) and their error estimates for 421,496 asteroids. The phase curves have been obtained from the re-calibrated Minor Planet Center photometry. The re-calibrated photometric data have been fitted with three phase functions: (H,G) , (H,G_1,G_2) , and (H,G_{12}) .

For the description of the phase functions please see [Muinonen et al. \(2010\)](#). For the description of the calibration and fitting procedures please see [Oszkiewicz et al. \(2011\)](#). Other related articles are [Oszkiewicz et al. \(2012\)](#) and [Bowell et al. \(2012\)](#).

If you are planning to use this catalogue please refer to [Oszkiewicz et al. \(2011\)](#) and [Muinonen et al. \(2010\)](#). For the post-processing of the catalogue: please note that the re-calibrated data are of low precision (roughly around 0.1 mag) and accuracy (roughly around 0.2-0.3 mag) which is reflected in the photometric parameters accuracy. If you have any questions concerning the database usage please contact [D. Oszkiewicz](#).

Get the [AAMS catalog file](#).

The Catalog Format

The catalog is distributed as zipped ASCII file with one record (line) per object. Values are separated with space and missing values coded with -999 999. Records are ordered by the designation number [†], and each record contains:

Column	Description
1	Asteroid designation (see footnote †)
	<i>H,G</i> phase function
2	<i>H</i> absolute magnitude
3	<i>G</i> slope parameter
4	<i>H</i> absolute magnitude right sided error
5	<i>H</i> absolute magnitude left sided error
6	<i>G</i> slope parameter right sided error
7	<i>G</i> slope parameter left sided error
8	rms
9	convergence flag (0 – not converged, 1 – converged)
	<i>H,G₁,G₂</i> phase function
10	<i>H</i> absolute magnitude
11	<i>G₁</i> photometric parameter
12	<i>G₂</i> photometric parameter
13	<i>H</i> absolute magnitude right sided error
14	<i>H</i> absolute magnitude left sided error
15	<i>G₁</i> slope parameter right sided error
16	<i>G₁</i> slope parameter left sided error
17	<i>G₂</i> slope parameter right sided error
18	<i>G₂</i> slope parameter left sided error
19	rms
20	convergence flag (0 – not converged, 1 – converged)
	<i>H,G₁₂</i> phase function
21	<i>H</i> absolute magnitude
22	<i>G₁₂</i> slope parameter

23	H absolute magnitude right sided error
24	H absolute magnitude left sided error
25	G_{12} slope parameter right sided error
26	G_{12} slope parameter left sided error
27	rms
28	convergence flag (0 – not converged, 1 – converged)

† A temporary designation code is used for asteroids without a designation number. The two first numbers of the temporary designation are left out, and the rest is concatenated together, e.g., temporary designation code for object 2000 AC 229 is 00AC229.

References

- K. Muinonen, I.N. Belskaya, A. Cellino, M. Delbo, A.-C. Levasseur-Regourd, A. Penttilä, and E.F. Tedesco. A three-parameter magnitude phase function for asteroids. *Icarus*, 209:542-555, 2010. ([ADS abstract](#))
- D.A. Oszkiewicz, K. Muinonen, E. Bowell, D. Trilling, A. Penttilä, T. Pieniluoma, L.H. Wasserman, and M.-T. Enga. Online multi-parameter phase-curve fitting and application to a large corpus of asteroid photometric data. *JQSRT*, 112:1919-1929, 2011. ([ADS abstract](#))
- D.A. Oszkiewicz, E. Bowell, L.H. Wasserman, K. Muinonen, A. Penttilä, T. Pieniluoma, D.E. Trilling, and C.A. Thomas. Asteroid taxonomic signatures from photometric phase curves. *Icarus*, 219:283-296, 2012. ([ADS abstract](#))
- E. Bowell et al. Spin-axis longitudes from the Lowell Observatory database. Submitted to *Meteoritics & Planetary Science*.