

# Database of asteroid absolute magnitudes and slopes (AAMS)

D. A. Oszkiewicz

## Introduction

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] (ADS abstract available here). For the description of the calibration and fitting procedures please see Oszkiewicz et al. [2011] (ADS abstract available here). Other related articles are Oszkiewicz et al. [2012] (ADS abstract available here), and E. Bowell et al. [2012].

If you are planing 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-callibrated 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 the author.

## The Catalog Format

The catalog is distributed as zipped ASCII file with one record (line) per object at <http://wiki.helsinki.fi/display/PSR/Asteroid+absolute+magnitude+and+slope>. Values are separated with space and missing values coded with `–999999`. Records are ordered by the designation number\*, and each record contains:

---

\*A temporary designation 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 for object 2000 AC 229 is 00AC229.

Column	Description
1	Asteroid designation*
—	$H, G$ phase function —
2	$H$ absolute magnitude
3	$G$ slope parameter
4	$H$ absolute magnitude right sided error
5	$H$ absolute magnitude left sided error
6	$G$ slope parameter right sided error
7	$G$ slope parameter left sided error
8	rms
9	convergence flag (0 – not converged, 1 – converged)
—	$H, G_1, G_2$ phase function —
10	$H$ absolute magnitude
11	$G_1$ photometric parameter
12	$G_2$ photometric parameter
13	$H$ absolute magnitude right sided error
14	$H$ absolute magnitude left sided error
15	$G_1$ slope parameter right sided error
16	$G_1$ slope parameter left sided error
17	$G_2$ slope parameter right sided error
18	$G_2$ slope parameter left sided error
19	rms
20	convergence flag (0 – not converged, 1 – converged)
—	$H, G_{12}$ phase function —
21	$H$ absolute magnitude
22	$G_{12}$ 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)

Table 1: Record description

## References

- K. Muinonen, I. N. Belskaya, A. Cellino, M. Delbò, A.-C. Levasseur-Regourd, A. Penttilä, and E. F. Tedesco. A three-parameter magnitude phase function for asteroids. *Icarus*, 209:542–555, October 2010.
- 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, July 2011.
- 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, May 2012.
- E. Bowell et al. Asteroid taxonomic signatures from photometric phase curves. *Meteoritics & Planetary Science*, Submitted, 2012.