

## GLOBAL SHAPE OF ASTEROID (4) VESTA FROM DAWN FC STEREO IMAGES

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### Commission IV/ Working Group 8

**KEY WORDS:** Vesta, Dawn, Stereo-photogrammetry, Shape reconstruction

#### ABSTRACT:

The Dawn spacecraft has been in orbit around the asteroid (4) Vesta for approximately one year while the Dawn Framing Camera (Dawn FC) acquired several thousand images in three different imaging campaigns from different ranging distances (Russell et al., 2012). The three campaign orbits were circular, with a Survey altitude of 2735 km, a high-altitude mapping orbit (HAMO) altitude of 685 km, and a low-altitude mapping orbit (LAMO) of 200 km altitude. In Survey and HAMO the surface was imaged with scales of about 250 m/pixel and 65 m/pixel respectively (Jaumann et al., 2012). During HAMO, about 95% of Vesta's surface was illuminated and mapped under at least three different stereoscopic viewing conditions (Preusker et al., 2012). We have used these HAMO clear filter images to derive a digital terrain model (DTM) of Vesta with a lateral spacing of 92 m/pixel (see Fig. 1). We present the recent DTM results of the Dawn-FC stereo-processing as well as improved geodetic parameters of Vesta.

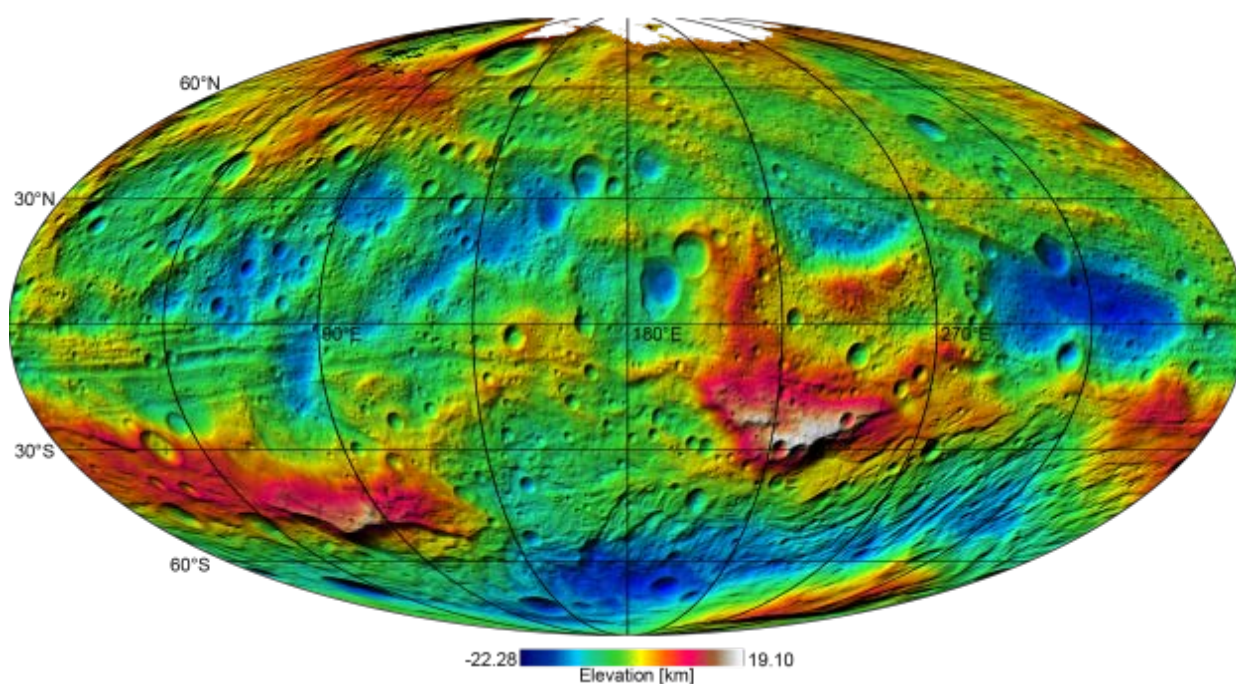
#### REFERENCES:

Jaumann et al., 2012. Vesta's Shape and Morphology. *Science* 336, pp. 687-690.

Preusker et al., 2012. Topography of Vesta from Dawn FC stereo images. *EPSC*, abstract EPSC-DPS2012-428.

Russell et al., 2012. Dawn at Vesta: testing the Protoplanetary Paradigm. *Science* 336, pp. 684-686.

#### FIGURES 1:



#### ACKNOWLEDGEMENTS:

We thank the Dawn team for the development, cruise, orbital intersection, and operations of the Dawn spacecraft at Vesta.