

# Summary of ‘The Low-Degree Shape of Mercury’

PERRY ET AL.

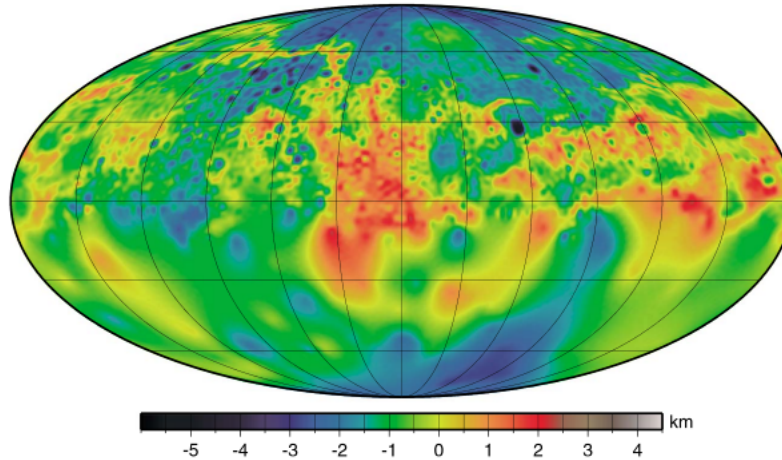
2015

<http://onlinelibrary.wiley.com/doi/10.1002/2015GL065101/pdf>

## 1 Summary

In ‘The Low-Degree Shape of Mercury,’ Perry et al. (2015) explains the geoid of Mercury using long-wavelength (radio) data obtained by the MESSENGER spacecraft during its time orbiting Mercury. The geoid of the planet, in conjunction with information concerning the overall shape of Mercury, can provide information concerning the rotational history, internal structure, and thermal evolution of the planet. In addition, the geoid of Mercury has helped reveal characteristics of the variations of elevation on the surface of the planet. Figure 1 from Perry et al. (2015) presents the topographical shape of Mercury, where the color bar at the bottom gives the elevation of the surface. This image provides a visual representation of the shape of Mercury’s surface, which can be combined with the radio-frequency occultation data from MESSENGER to conclude that there may be variations in mantle density that contribute to Mercury’s triaxial ellipsoidal shape.

FIGURE 1



**Figure 2.** Shape of Mercury from a damped, spherical harmonic fit to degree and order 128 to the MLA and occultation data shown in Figure 1. Color bar gives elevation in kilometers.

FIGURE 1. Figure 2 from the Perry et al. (2015) paper: “The Low-Degree Shape of Mercury”

## References

Perry, M. E., G. A. Neumann, R. J. Phillips, O. S. Barnouin, C. M. Ernst, D. S. Kahan, S. C. Solomon, M. T. Zuber, D. E. Smith, S. A. Hauck II, et al. (2015), “The low-degree shape of mercury.” *AGU Publications: Geophysical Research Letters*, 42.