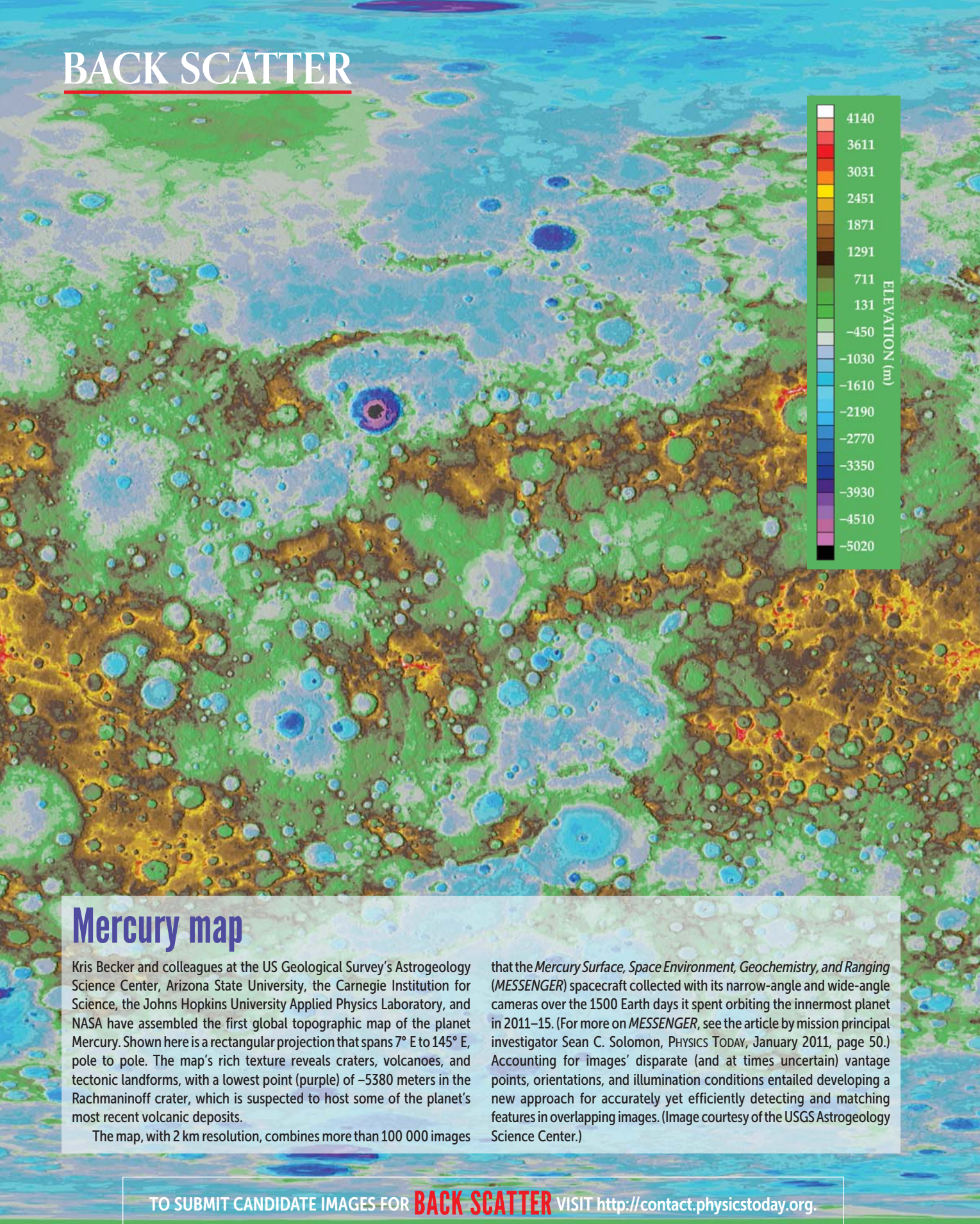


BACK SCATTER



Mercury map

Kris Becker and colleagues at the US Geological Survey's Astrogeology Science Center, Arizona State University, the Carnegie Institution for Science, the Johns Hopkins University Applied Physics Laboratory, and NASA have assembled the first global topographic map of the planet Mercury. Shown here is a rectangular projection that spans 7° E to 145° E, pole to pole. The map's rich texture reveals craters, volcanoes, and tectonic landforms, with a lowest point (purple) of -5380 meters in the Rachmaninoff crater, which is suspected to host some of the planet's most recent volcanic deposits.

The map, with 2 km resolution, combines more than 100 000 images

that the *Mercury Surface, Space Environment, Geochemistry, and Ranging (MESSENGER)* spacecraft collected with its narrow-angle and wide-angle cameras over the 1500 Earth days it spent orbiting the innermost planet in 2011–15. (For more on *MESSENGER*, see the article by mission principal investigator Sean C. Solomon, *PHYSICS TODAY*, January 2011, page 50.) Accounting for images' disparate (and at times uncertain) vantage points, orientations, and illumination conditions entailed developing a new approach for accurately yet efficiently detecting and matching features in overlapping images. (Image courtesy of the USGS Astrogeology Science Center.)

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