John R. Weirich
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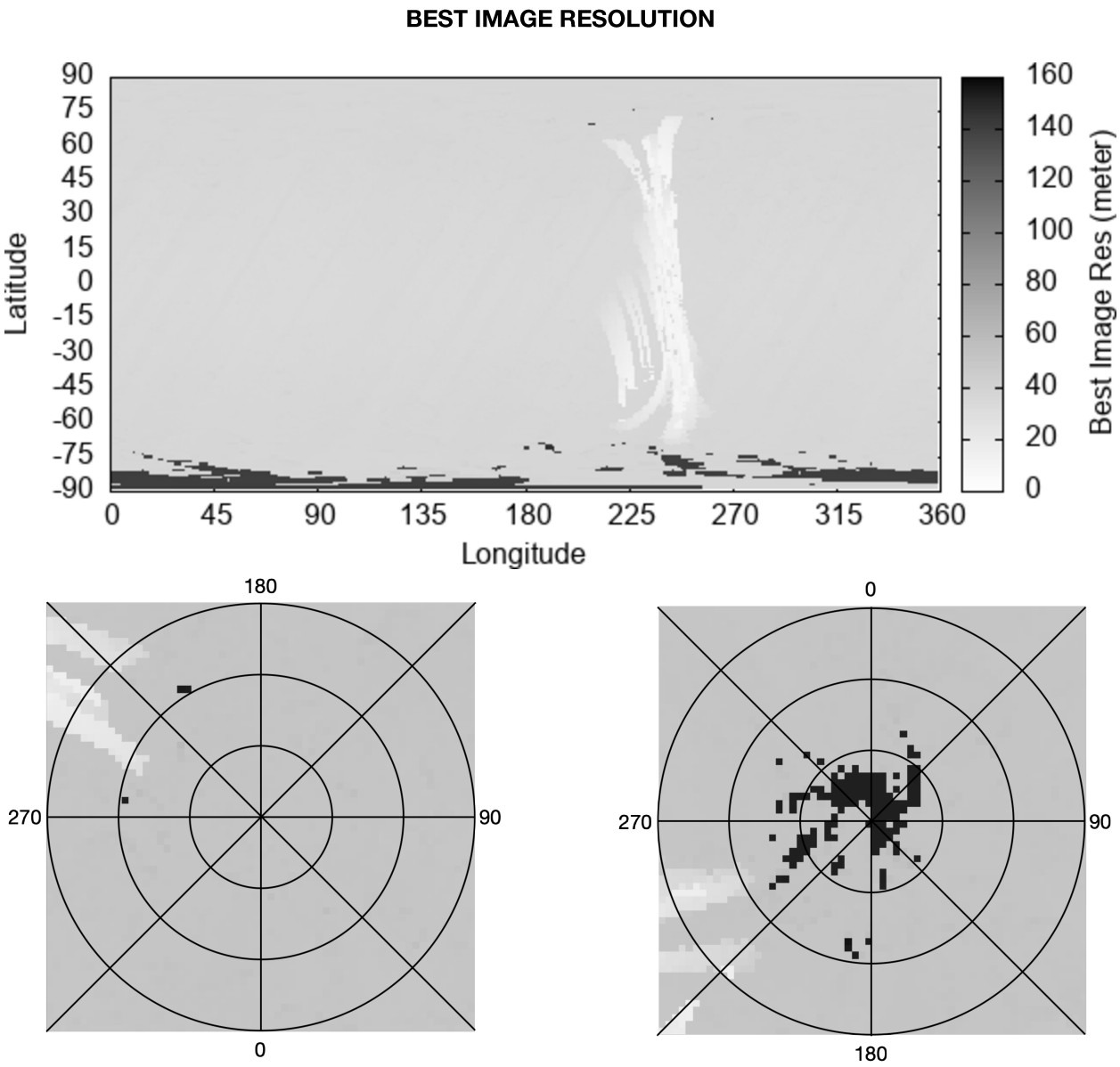
Assessment of Ceres

This document contains products used to assess the quality of the Ceres global DTM in this bundle. Ceres has an imaging campaign that would be classified as sufficient for SPC's purposes. Details of the assessment data found in productdescription.pdf should be read before proceeding. Taken as a whole, the assessment data indicates the uncertainties given in the product description are accurate.

Below are figures of the assessment data, along with a short exposition on the quality of each. Figures of radius and albedo are included. All figures shown here are available in the bundle as digital files except for the polar views. The polar views reproject the data from the digital files. For assessment figures, the grayscale progression has been adjusted so brighter regions always represent better quality data.

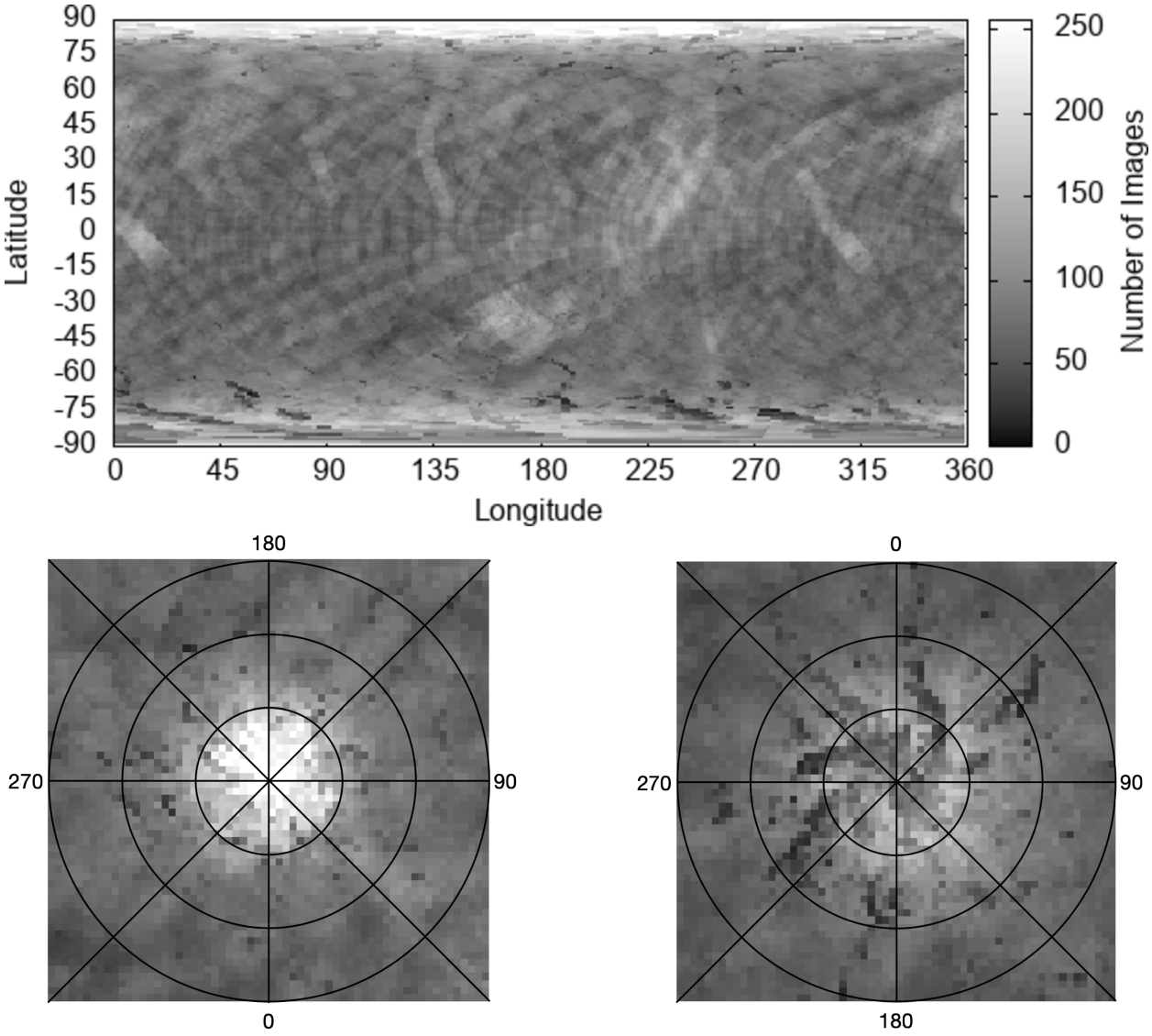
Spacecraft Imaging Campaign



Top: This panel presents the same information as ceres_bestimg_c.cub. The worst image resolution is about ~145 m/px and occurs poleward of ~-70° latitude. Most low resolution images are at the south pole. The best image resolution is ~8 m/px and occurs in a swath from North to South between about 210 and 265 E longitude. The majority of Ceres has been imaged at ~35 m/px. This resolution is higher than all the regional DTMs GSD, and much higher than the global models GSD, giving confidence to the estimated radius uncertainties.

Bottom: These two panels show the North (left) and South(right) projection of the data. Circles indicate 80, 70, and 60 latitude. The brightness scale is similar to the top panel.

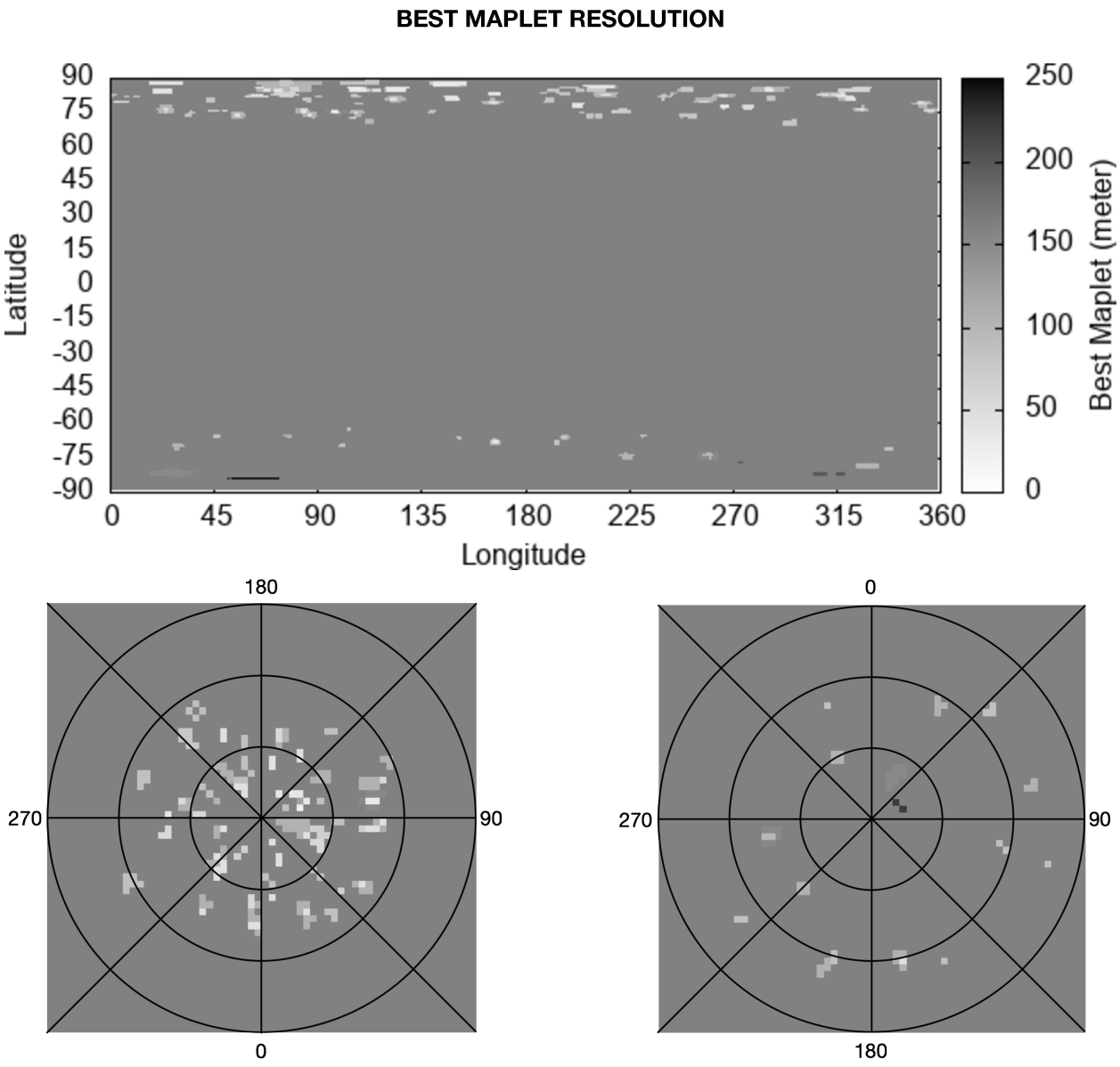
NUMBER OF IMAGES



Top: This panel presents the same information as ceres_numimg_c.cub. Number of images is everywhere greater than 5, and usually (i.e. ~98% of the surface) greater than 45. The number of images give confidence to the estimated radius uncertainties

Bottom: These two panels show the North (left) and South(right) projection of the data. Circles indicate 80, 70, and 60 latitude. The brightness scale is similar to top panel.

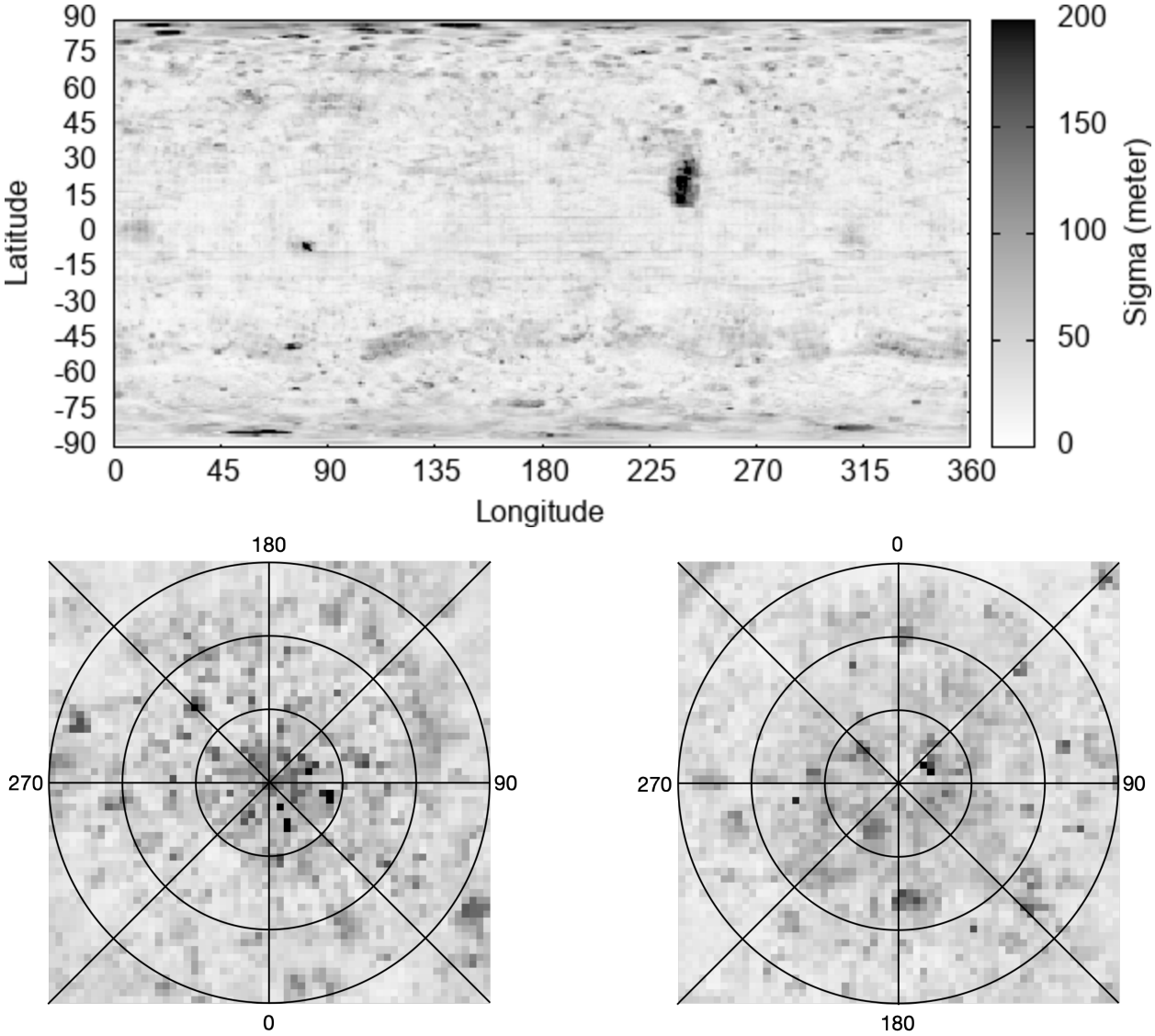
Global DTM Assessment



Top: This panel presents the data in ceres_bestmap_c.cub. Most of Ceres is covered by maplets with a GSD of 160 m. Craters near the poles have higher resolution maplets, reaching to 16 m in some places, though a few bins at the south pole have maplets with a GSD of 250 m. The best maplet resolution is much greater than the global model, giving confidence to the global model uncertainties.

Bottom: The two panels show the North (left) and South(right) projection of the data. Circles indicate 80, 70, and 60 latitude. The brightness scale is similar to top panel.

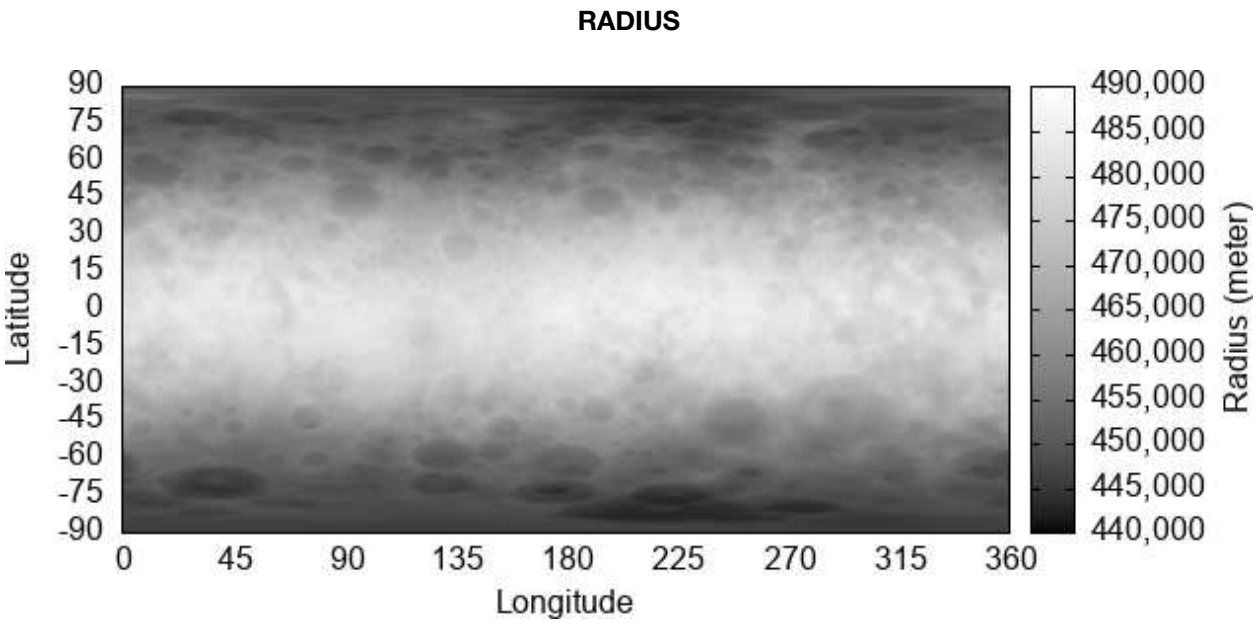
SIGMAS



Top: This panel presents the data in ceres_sigmas_c.cub. The worst sigma is ~570 m, which is less than half the GSD of the Q=512 model, indicating the maplets agree to a high confidence level. Sigmas of ~250 m occur near the poles where there is a smaller range of sun angles. **Sigmas everywhere are good for the global model, hence the reasons for higher sigmas in various regions are outside the scope of this project.**

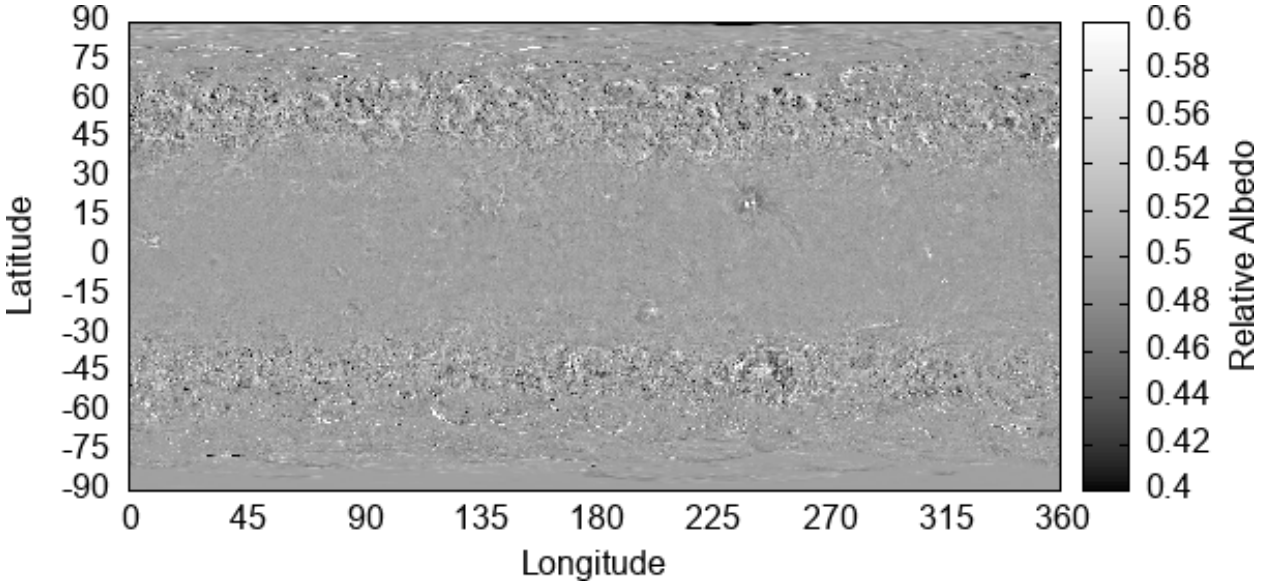
Bottom: The two panels show the North (left) and South(right) projection of the data. Circles indicate 80, 70, and 60 latitude. The brightness scale is similar to top figure.

Global DTM Values



This figure presents the data in ceres_radius_c.cub and ceres_radius_g.tif.

RELATIVE ALBEDO



This figure represents the data in ceres_albedo_c.cub and ceres_albedo_g.tif.