

ISIS - Feature #3911

Add new Mercury DEM, PCK and smithed CK kernels to ISIS for distribution

2016-04-25 02:16 PM - Kris Becker

Status: In Progress Priority: Normal Assignee: Kris Becker Category: Infrastructure Target version: N/A Impact: The addition of the MESSENGER PCK will result in a new definition for the default ellipsoid shape for Mercury. The DEM provides the first shape model for the planet as well. These changes will mainly pertain to Mariner 10 data. MESSENGER MDIS images have been subject to these modifications since it has been supported in ISIS. However, this work will now move the MESSENGER specific definitions to be used for all ISIS supported datasets of Mercury.	Software Version:
Description <p>The USGS, in collaboration with the MESSENGER team, has produced a global DEM of Mercury that we will add to the ISIS system for distribution. This DEM uses a new set of planetary constants (PCK) that will also need to be established in spiceinit when using the DEM.</p> <p>In addition, over 100,000 MESSENGER MDIS images were controlled and bundle adjusted. The images point/attitude was adjusted from the bundle adjustment procedure and CKs were created from these images. The CK kernels will also be added to ISIS for general use.</p> <p>The control network was used to create the Mercury DEM though specialized interpolation of adjusted radius values at every control point, over 12.5 million points unevenly distributed globally.</p> <p><i>References:</i> Becker, K, et al, "First Global Digital Elevation Model of Mercury", LPSC 47, 2015, http://www.hou.usra.edu/meetings/lpsc2016/pdf/2959.pdf Perry, M. et al, "The low-degree shape of Mercury", Geophysical Research Letters (AGU), 2015, http://onlinelibrary.wiley.com/doi/10.1002/2015GL065101/full</p>	

History

#1 - 2016-05-02 09:08 AM - Tammy Becker

- Status changed from New to Acknowledged

#2 - 2016-05-23 04:13 PM - Kris Becker

- Status changed from Acknowledged to Assigned

- Assignee set to Kris Becker

The DEM requires a specific PCK that must be associated with it. These two will be added at the same time and potentially updated as it becomes more formally recognized with the community (i.e., IAU report).

#3 - 2016-05-24 02:35 PM - Kris Becker

- Status changed from Assigned to In Progress

- Impact updated

The entries for the PCK and DEM are now provided in /work/projects/isis/latest/m03911. The system is currently built for Scientific Linux (RedHat-based) systems.

Users can test this out now.