

Science Weekly Debrief

For slides and the WebEx recording on ODOCS, click [here](#) then follow the path: Folders \ Documents and Drawings \ OSIRIS-REx Bennu Proximity Operations \ Science Status \ Science Weekly \ 2019-09-05.

Working group & instrument team updates

AWG/particle science – Carl Hergenrother

Particles continue to be observed in Orbital C data. Activity appears to be episodic. A possible minor ejection event was observed on 24–25 August. Gravitationally bound particles (lasting in the Bennu environment for a few days) on the order of 2 cm in diameter have also been detected. Several particles are seen in images from 29 August apparently falling back toward the asteroid, suggesting that we may have narrowly missed an ejection event. Sufficient data are available for OD-based estimation of the ejection location and time. The particle detection, track, and object databases are up and running, with a delivery of ~250 objects expected soon.

IPWG – Carina Bennett

The new global mosaic is undergoing final IPWG review. The next step will be to submit it to SPOCflight for formal data product approval. For a preview, see the WebEx recording on ODOCS. The mosaic spans the full range of latitudes and longitudes; when wrapped in SBMT, it works well up to about ± 80 degrees latitude. The mosaic primarily combines data from Flybys 3, 4A, and 4B, with a few images from Flybys 5 and 6. BenBen appears with more unshadowed detail than has previously been available. A lower-resolution version of the mosaic will also be produced for easier viewing.

Public release will hold off until the Bennu basemap paper (Bennett et al., in prep) is published; however, team members will be able to use the mosaic for presentations. Carina is working with Heather Roper on a large-size printed version for the Drake building lobby wall. Physical copies for Headquarters and the Kennedy Center are also desired. A handout version for public outreach was suggested.

SAWG/OVIRS – Amy Simon

High-phase OVIRS data from 3 and 31 May were analyzed for evidence of dust plumes. Plumes would appear as faint fluorescence, so background subtraction is critical to remove any signature from the instrument. Most spectra show nothing, but a few had an unexpected, discontinuous feature at 1 micron after subtraction. The feature appeared every time that OVIRS was at a given position relative to Bennu. Optical analysis indicates that at just the right orientation, rays hitting the edge of the solar calibrator could result in a focused signal being received by OVIRS. The signal is therefore thought to be an artifact of viewing geometry. No evidence of plumes is detected. These findings may be folded into the OCAMS dust search paper or a companion paper.

AltWG – Dante Lauretta

The acceptance review of shape model v42 was successful. FDS validation indicates compliance. The shape model and DTMs will be delivered today.

Other updates

Asteroid Science workshop – Dante Lauretta

Project review of just under 60 abstracts is complete. The deadline for submission to the workshop is Friday 6 September. The PI and Editor will review abstracts against the publication plan to see where it would make sense for new manuscripts to be proposed.

PDS status – Kate Crombie

Peer review of the second encounter delivery is in progress. The next delivery is scheduled for 17 November.

Upcoming meetings

The next Science Weekly will be Thursday 12 September.

Science Objective Summary

Each day of the week (DOY 245–252), NavCam will collect pairs of nadir long-exposure images every ~12.5 minutes. These observations support the goal of characterizing and monitoring particles in the Bennu environment.