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AGU FALL MEETING

San Francisco | 14 - 18 December 2015

P53E-2168: Preliminary Geological Map of the Ac-H-2 Coniraya Quadrangle of Ceres: An Integrated Mapping Study Using *Dawn* Spacecraft Data

ABSTRACT

**Friday, 18 December 2015****13:40 - 18:00***Moscone South - Poster Hall*

To better understand the geologic history of dwarf planet Ceres, the surface has been divided into 15 quadrangles that are systematically mapped on the basis of images obtained by NASA's Dawn spacecraft, which began orbiting Ceres in April 2015. We will report on preliminary mapping results for the Ac-H-2 Coniraya Quadrangle based on Framing Camera (FC) mosaics from the Dawn Approach (1.3 km/px) and Survey (415 m/px) orbits. This quadrangle is located between 21-66°N and 0-90°E and is dominated by mostly highly degraded impact craters of diameters between 50 and 200 km and clusters of small- to midsize impact craters. Color data show that this quadrangle is generally darker than most regions of the southern hemisphere. Two prominent impact craters in this quadrangle have been named Coniraya and Gaue crater, respectively. Coniraya is the largest more or less intact impact crater with a diameter of 136 km, centered at 65.8°N/40.5°E. It appears shallow and its crater rim is heavily degraded but still continuous. At the current image resolution, textural differences between the interior and exterior of the crater are not visible. With a diameter of 84 km, Gaue crater appears to be the freshest large impact crater in this quadrangle. It is located at the eastern border of the Coniraya Quadrangle with a small central peak at 30°N/85.7°E. The crater rim is quite sharp and the ejecta blanket can be traced around the crater to a distance of ~200km from the crater center. Most of the crater floor around the central peak is covered by a smooth uniform unit with a lower impact crater population than the surrounding surfaces. Color data show that this smooth unit is darker than the surrounding surfaces. A similar unit can be found on the floor of a complex cluster of 10-56 km diameter craters at 32°N/40°E. With upcoming higher resolution data we will refine our geologic map and will specifically investigate possible formation processes of these smooth units.

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