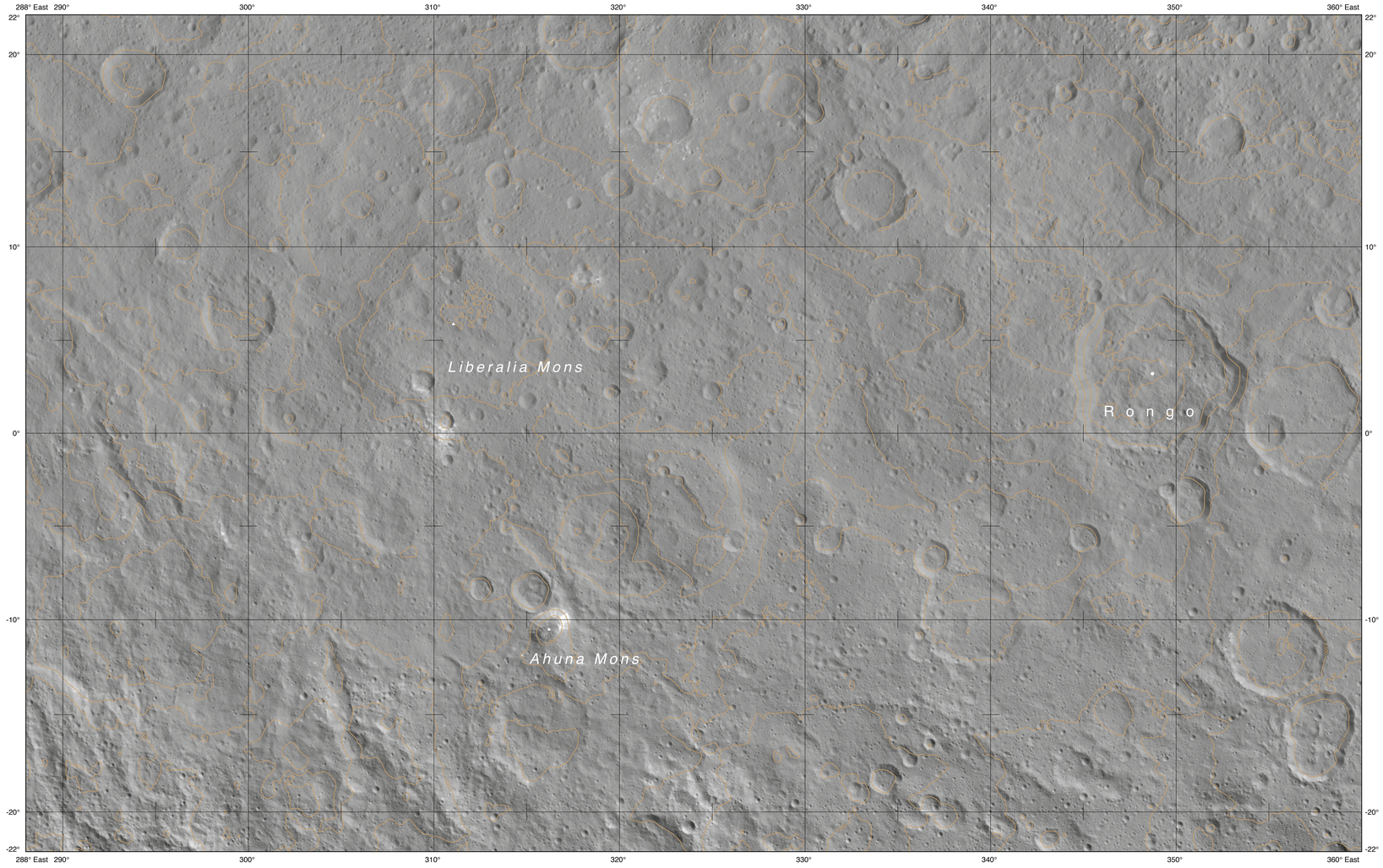
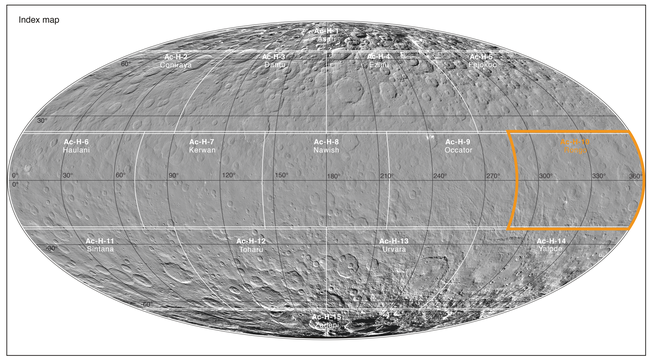


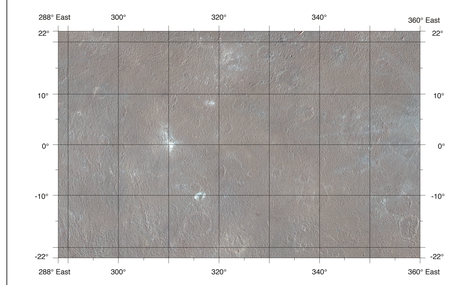
Scale 1:750 000

0 20 40 60 km

Index map

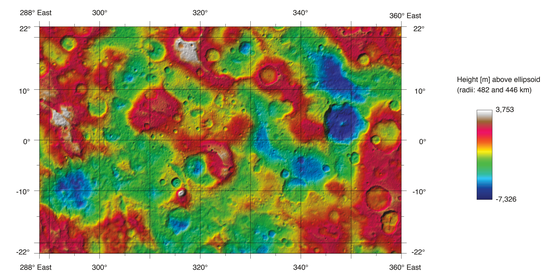


Color ratio



Channel	Filter - wavelength
Red	5 - 965 nm
Green	2 - 555 nm
Blue	8 - 438 nm

Color-coded and shaded relief



GENERAL NOTES

This map sheet is the 10th of a 15-quadrangle series [1] covering the entire surface of Ceres at a nominal scale of 1:750 000. The source of map data was the Dawn imaging experiment [2].
The Dawn mission journeys to the center of the main asteroid belt to orbit and explore the two most massive main belt asteroids, Vesta and Ceres [3,4]; it entered Ceres's orbit in March 2015. The spacecraft was developed by Orbital Sciences Corporation under the management of the Jet Propulsion Laboratory (JPL).
The Dawn framing camera has one clear filter and seven band-pass filters covering the wavelengths from the visible to the near-IR (0.4 to 1.05 microns). The camera has a focal length of 150 mm and a field of view of 5.5 degrees. At the heart of the camera is a charged coupled device (CCD) detector consisting of a 1024 square array of pixels, each 12 microns on a side. All images used in this atlas were taken during the HAMO (High Altitude Mapping Orbit) phase at an altitude of about 1,470 km.

MAP SHEET DESIGNATION

Ac-H	Asteroid Ceres - HAMO resolution
0.75M	Scale 1:750 000
0/324	Center point in degrees consisting of latitude/east longitude
COMT	Controlled orthophotomosaic with nomenclature and contour lines
2016	Year of publication

IMAGE PROCESSING

- Radiometric correction of the images
- Generation of a Digital Terrain Model (DTM) using stereo-photogrammetry [5]
- Ortho-rectification of the images
- Ortho-image mosaicking

CONTROL

For the Dawn mission, spacecraft position and camera pointing data are available in the form of SPICE kernels. SPICE is a data system providing ancillary data such as spacecraft and target positions, target body size, shape, and orientation, spacecraft orientation, instrument pointing used for planning space science missions and recovering the full value of science instrument data returned from missions (http://naif.jpl.nasa.gov/).

A 3-D control net was set up to correct errors in the nominal camera pointing and position data using a photogrammetric image block adjustment. The 3-D control net comprises about 2,350 HAMO clear filter images and consists of about 30,000 control points resulting from about 175,000 image points. The 3-D control point accuracy has been significantly improved from +/-200 m to +/-16 m.
Finally, the combination of adjusted orientation data and a precise shape model allowed the calculation of rectified ortho-images which were used for the production of controlled mosaics and basemaps.

The longitude system is defined by crater Kait at 0° East [6].

MAP PROJECTION

Mercator projection with two standard parallels at 13°N and 13°S
Scale is true at 13°N and 13°S
Adopted figure: sphere
Mean radius: 470 km

Grid system: planetocentric latitude, east longitude
Resolution: 140 m/pxl

CONTOURS

Contour lines were derived from a digital terrain model (DTM) of Ceres. The lateral resolution of the DTM is 135 m/pxl. The heights are geometric heights and refer to an oblate ellipsoid with a semi-major axis of 482 km and a semi-minor axis of 446 km.

———— Contour equidistance 2,000 m
Contour line values point to increasing heights.

NOMENCLATURE

By international agreement, craters are named after gods and goddesses of agriculture and vegetation from world mythology, whereas other geological features are named after agricultural festivals of the world. All names are approved by the International Astronomical Union (IAU). For a detailed list of IAU-approved names on Ceres, see the Gazetteer of Planetary Nomenclature at http://planetarynames.wr.usgs.gov/Page/CERES/target.

REFERENCES

[1] Greeley, R. and Batson, G., 1990, Planetary Mapping, Cambridge University Press, Cambridge.

[2] Sierks, H., Keller, H.U., Jaumann, R., Michalik, H., Behnke, T., Bubenhagen, F., Büttner, I., Carsenty, U., Christensen, U., Enge, R., Fiethe, B., Gutiérrez Marqués, P., Hartwig, H., Krüger, H., Kühne, W., Maue, T., Mottola, S., Nathues, A., Reiche, K.-U., Richards, M.L., Roatsch, T., Schröder, S.E., Szemery, I., Tschentscher, M., 2011, The Dawn Framing Camera, Space Science Review 163, 263-327.

[3] IAU, Minor Planet Names List: http://www.minorplanetcenter.net/iau/lists/MPNames.html.

[4] Russell, C.T. and Raymond, C.A., 2011, The Dawn Mission to Vesta and Ceres, Space Science Review 163, 3-23.

[5] Preusker, F., Scholten, F., Matz, K.-D., Roatsch, T., Elgner, S., Jaumann, R., Joy, S.P., Polanskey, C.A., Raymond, C.A., and Russell, C.T., 2015, Shape model and rotational state of dwarf planet Ceres from Dawn FC stereo images, European Planetary Science Congress 2015, Abstract ID: EPSC2015-186.

[6] Roatsch, Th., Kersten, E., Matz, K.-D., Preusker, F., Scholten, F., Jaumann, R., Raymond, C.A., and Russell, C.T., Ceres Survey Atlas derived from Dawn Framing Camera images, 2015, Planetary and Space Science 121, 115-120.

Image processing: Kersten, E., Matz, K.-D., Preusker, F., Roatsch, Th.,
Cartographic production and design: Kersten, E.

EDITOR

German Aerospace Center (DLR), Institute of Planetary Research, Roatsch, Th.
Please send comments, suggestions, and questions to Thomas.Roatsch@dlr.de.

Deutsches Zentrum für Luft- und Raumfahrt
German Aerospace Center