



This map sheet is the 7th of a 15-quadrangle series covering the entire surface of Dione at a nominal scale of 1 : 1 000 000. It is an update of the series which was released in 2008¹. The source of map data was the Cassini imaging experiment (Porco et al., 2004)².

Cassini-Huygens is a joint NASA/ESA/ASI mission to explore the Saturnian system. The Cassini spacecraft is the first spacecraft studying the Saturnian system of rings and moons from orbit; it entered Saturnian orbit on July 1st, 2004.

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The Cassini orbiter has 12 instruments. One of them is the Cassini Imaging Science Subsystem (ISS), consisting of two framing cameras. The narrow angle camera is a reflecting telescope with a focal length of 2000 mm and a field of view of 0.35 degrees. The wide angle camera is a refractor with a focal length of 200 mm and a field of view of 3.5 degrees. Each camera is equipped with a large number of spectral filters which, taken together, span the electromagnetic spectrum from 0.2 to 11 micrometers. At the heart of each camera is a charged coupled device (CCD) detector consisting of a 1024 square array of pixels, each 12 microns on a side.

Sd	Dione (Saturnian satellite)
1M	Scale 1 : 1 000 000
0/108	Center point in degrees consisting of latitude/west longitude
SMN	Semi-controlled Mosaic with Nomenclature
2011	Year of publication

- Radiometric correction
- Geometric correction
- Photogrammetric adjustment using limb-fitting techniques
- Map projection
- Photometric correction using the Hapke bidirectional reflectance function
- Processing of the mosaic

For the Cassini 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/orientation, spacecraft-orientation, instrument pointing and timing data. The SPICE kernels are available from the JPL Planetary Data System (<http://naip.jpl.nasa.gov>). When the orbit information was sufficiently accurate to be used directly for mapping purposes, the pointing information was improved using limb-fit techniques. Newly derived tri-axial ellipsoid models were used to calculate the surface intersection points. A spherical reference surface is used for map projections. The longitude system by Davies and Katayama (1983)² and adopted by the IAU/IAGLR (1991) is used for the longitude. The latitude system is the equatorial latitude (see Fig. 1). Cartographic Coordinates and Rotational Elements as standard (Archinal et al. 2011)³ is defined by crater Palinurus; this crater defines the 63° meridian.

Mercator projection onto a secant cylinder using standard parallels at 13°S and 13°N
Scale is true at 13°S / 13°N
Adopted figure: sphere
Mean radius: 562.53 km⁵
Grid system: planetographic latitude, west longitude

Names are suggested by the ISS-Camera-Team and approved by the International Astronomical Union (IAU). For a complete list of IAU-approved names on Dione, see the Gazetteer of Planetary Nomenclature at <http://planetarnames.wr.usgs.gov/>.

¹ Roatsch, Th., Wählisch, M., Hoffmeister, A., Matz, K.-D., Scholten, F., Kersten, E., Wagner, R., Neukum, G. and Porco, C.C., 2008, High Resolution Dione Atlas derived from Cassini-ISS images, *Planetary Space Sciences* 56, 1499-1505.

¹ Roatsch, Th., Wählisch, M., Hoffmeister, A., Matz, K.-D., Scholten, F., Kersten, E., Wagner, R., Neukum, G. and Porco, C.C., 2008, High Resolution Dione Atlas derived from Cassini-ISS images, *Planetary Space Sciences* 56, 1499-1505.

² Porco, C.C., West, R.A., Squyres, S., McEwen, A., Thomas, P.C., Murray, C.D., DelGenio, J.A., Ingersoll, A.P., Johnson, T.V., Neukum, G., Veverka, J., Dones, L., Brahic, A., Burns, J.A., Haemmerle, V., Knowles, B., Dawson, D., Roatsch, Th., Beurle, K. and Owen, W., 2004, Cassini Imaging Science: Instrument Characteristics and Anticipated Scientific Investigations at Saturn, *Space Science Review* 115, 363-497.

³ Davies, M.E. and Katayama, F.Y., 1983, The Control Networks of Tethys and Dione, *Journal of Geophysical Research* 88A, 8729-8735.

⁴ Archinal, B.A., A'hearn, M.F., Bowell, E., Conrad, A., Consolmagno, G.J., Courtin, R., Fukushima, T., Hestroffer, D., Hilton, J.L., Krasinsky, G.A., Neumann, G., Oberst, J., Seidelmann, P.K., Stooke, P., Tholen, D.J., Thomas, P.C. and Williams, I.P., 2011, Report of the IAU Working Group on Cartographic Coordinates and Rotational Elements: 2009, Celestial Mechanics and Dynamical Astronomy 109, 101-135.

⁵ Thomas, P.C., Burns, J.A., Helfenstein, P., Squyres, S., Veeverka, J., Porco, C.C., Turtle, E.P., McEwen, A., Denk, T., Giese, B., Roatsch, Th., Johnson, T.V. and Jacobson, R.A., 2007, Shapes of the Saturnian Icy Satellites and their Significance, *Icarus* 179, 573-584.

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