

Callisto Valhalla Crater

Image web site: <http://www.solarviews.com/raw/jup/callist1.gif>
<http://www.solarviews.com/raw/jup/callist2.gif>
<http://pds.jpl.nasa.gov/planets/images/full/jupiter/callval.jpg>
<ftp://seds.lpl.arizona.edu/pub/images/planets/jupiter/callisto1.gif>

Callisto basic data:

- distance from Jupiter: 1,883,000 km
- diameter: 4800 km
- mass: 1.08×10^{23} kg

Valhalla impact crater:

- Picture was first obtained by Voyager 1, March 6, 1979.
- Multi-ring basins
 - Largest impact structures that have been observed in solar system
 - The complex system of scarps that surrounds the central basin of multi-ring basins.
 - Formed from large impacts into a lithosphere overlying an asthenosphere
 - Fluid motions set up in the asthenosphere cause fractures in the lithosphere giving rise to the rings.
 - Hard to define the diameter of the actual crater
- Valhalla is the largest known impact structure in the solar system
 - Other multi-ring basins include Mare Orientale on the Moon and Caloris Basin on Mercury.
 - Mare Orientale on the Moon is 900 km across.
- Valhalla is 300 km across at the central bright region
 - The multi-ring extend from about 3000 km to 4000km in diameter.
- Its topography is so subdued that each of the visible ring scarps rises only 1-2 km above its surroundings
- The impact of Valhalla probably taken place at a time when Callisto's lithosphere was thin and its mantle was hot and mobile enough to smooth out the surface topography.

Resources:

An Introduction to the Solar System: Edited by Neil McBride and Iain Gilmour

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