

Geological Map of the Borealis Quadrangle (H01), Mercury

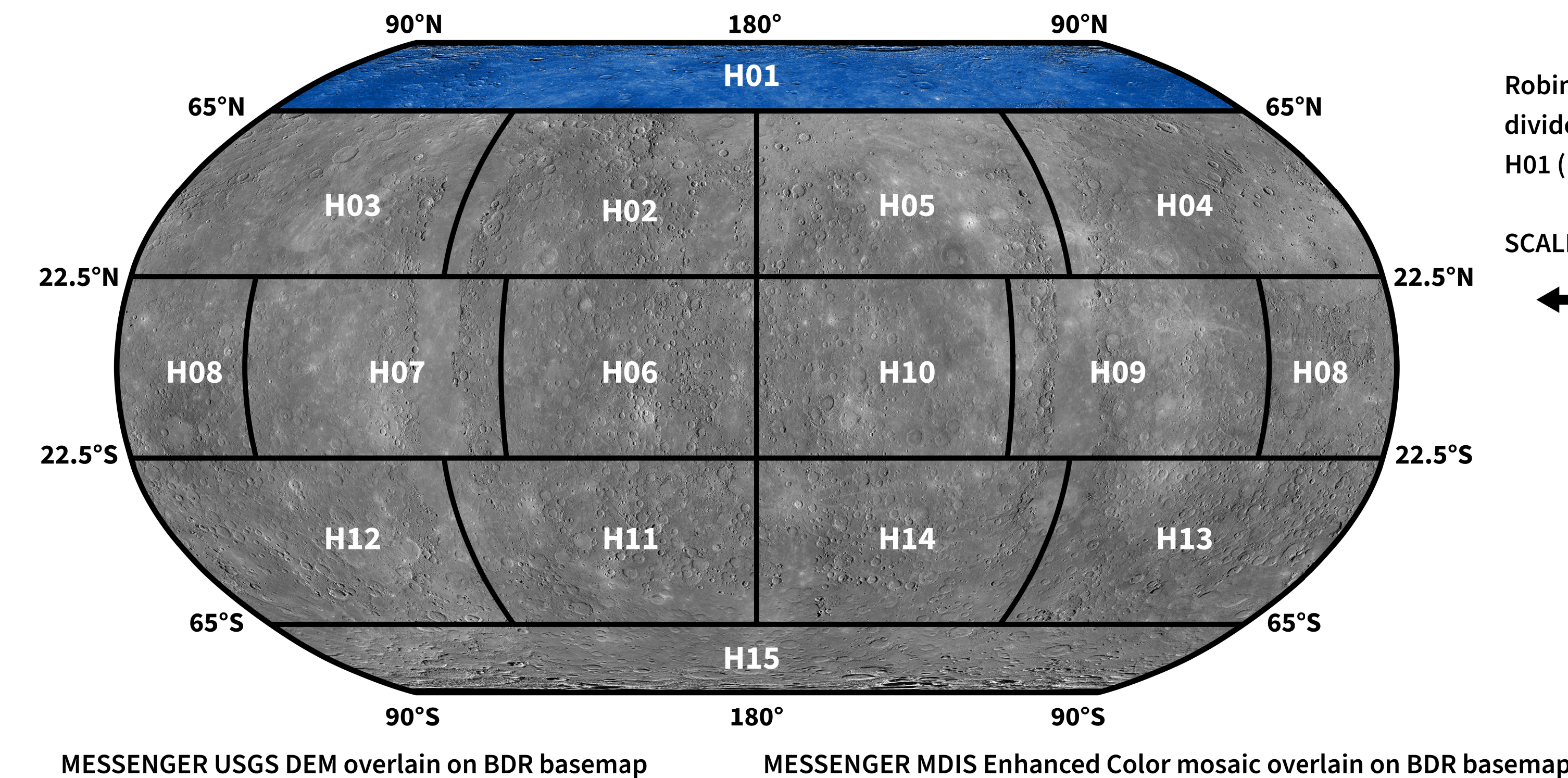
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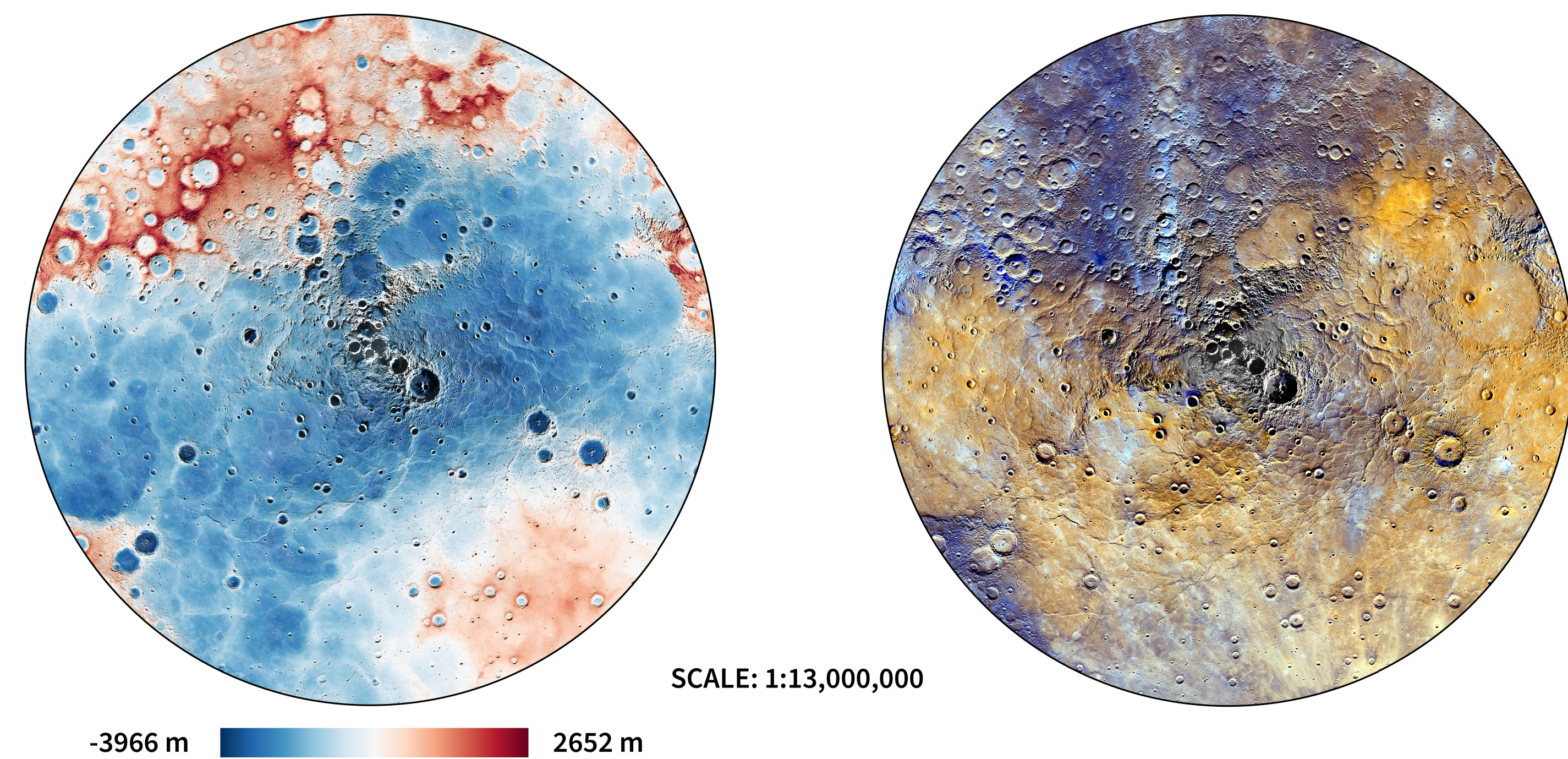
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Robinson projection of Mercury's globe divided into 15 mapping quadrangles. H01 (Blue) is the mapping area.

SCALE: 1:40,000,000



Mapping units

Plains materials

- | | |
|---|---|
|  | <p>Smooth plains</p> <p>Sparsely cratered flat/gently rolling material. Isolated patches are probably ponded/perched impact melt whilst expanses of smooth plains likely to be volcanic in origin.</p> |
|  | <p>Intermediate plains</p> <p>Intermediate in surface roughness between smooth and intercrater plains. Originally smooth plains that has been partially altered by cratering.</p> |
|  | <p>Intercrater plains</p> <p>Heavily cratered material with a rough texture. Originally volcanic plains that has been heavily reworked.</p> |

Crater materials (three degradation classes)

- | | |
|---|--|
|  | <p>C₃ crater — well preserved</p> <p>Fresh craters with crisp rims and internal crater structures. Textured ejecta blankets, sometimes albedo rays present.</p> |
|  | <p>C₂ crater — degraded</p> <p>Degraded craters with somewhat subdued rims. Internal crater structures present but slumped. No albedo rays.</p> |
|  | <p>C₁ crater — heavily degraded</p> <p>Incomplete and significantly subdued crater rims. No obvious internal crater structures. No ejecta.</p> |
|  | <p>Smooth crater floor</p> <p>Sparsely cratered smooth floor material confined to craters. Possibly impact melt (C₄), and a combination of volcanic material/impact melt for other crater classes.</p> |
|  | <p>Hummocky crater floor</p> <p>Texturally rough or cratered material confined to within craters. Likely degraded internal structures and floor material.</p> |

Geological contacts

- Certain
 - - - - - Approximate
 Uncertain

Crater rims

- | | |
|---|--|
|  | Rim crest of crater (diameter ≥ 20 km). |
|  | Rim crest of crater (≥ 5 km diameter < 20 km). |
|  | Rim crest of buried or subdued crater. |
|  | Irregular pit — possible volcanic vent. |

Tectonic structures

-  Thrust fault, certain – confident identification.
-  Thrust fault, approximate – approximate location identification.
-  Graben – a down dropped fault block.
-  Wrinkle ridge – compressional structures common in smooth crater floors and smooth plains.

Superficial units

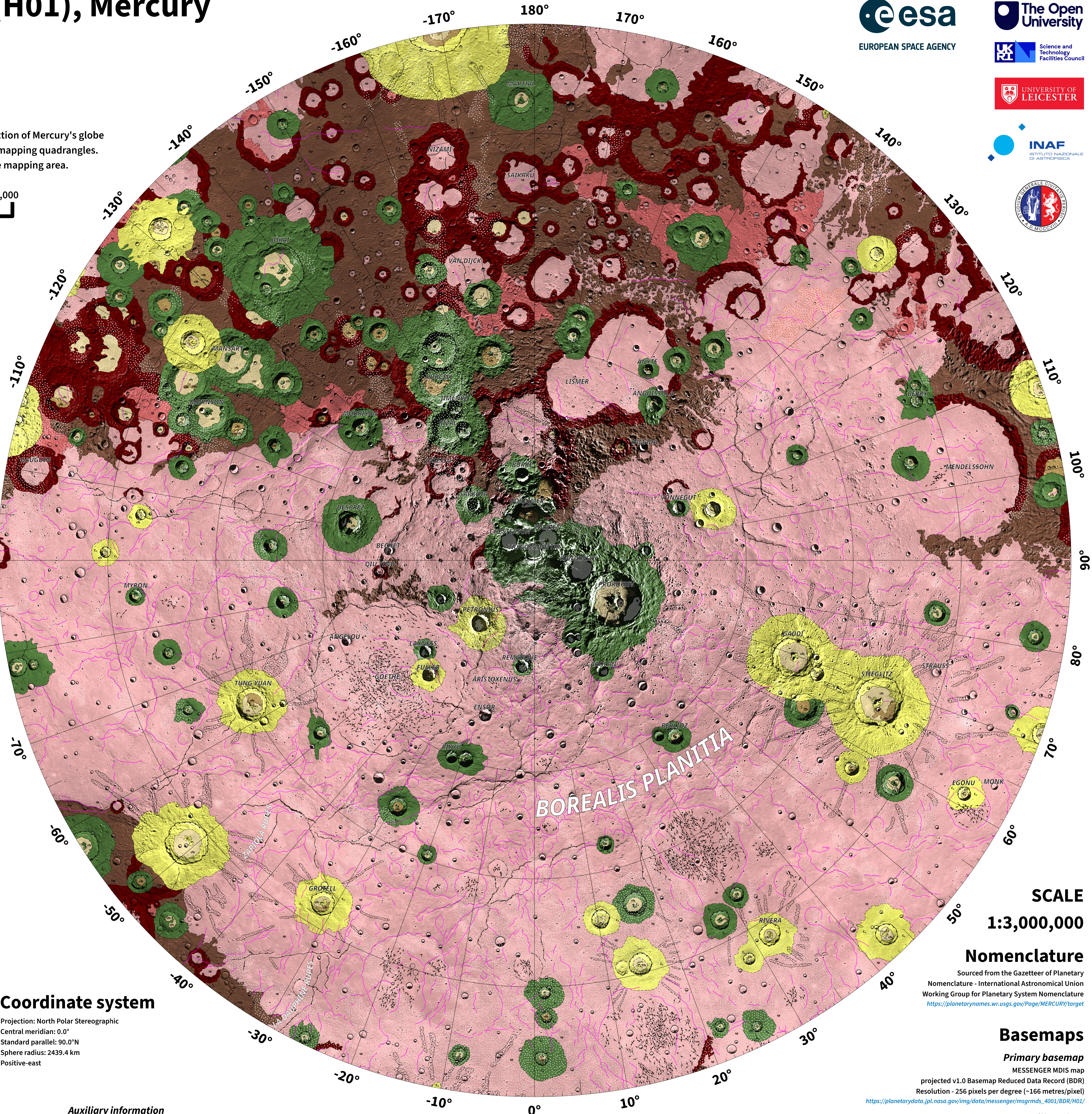
-  Bright crater rays — high albedo ejecta material.
-  Hollows — high albedo irregular flat floored shallow depressions.
-  Faculae — bright diffuse red spots, putative pyroclastics.
-  Catenae — Secondary crater chains/clusters.

Auxiliary information

- Areas of permanent shadow with radar-bright material (craters ≥ 5 km in diameter between 80–90°N) after Deutsch et al., 2016 (<https://doi.org/10.1016/j.icarus.2016.06.015>)

Coordinate system

Projection: North Polar Stereographic
Central meridian: 0.0°
Standard parallel: 90.0°N
Sphere radius: 2439.4 km
Positive-east



SCALE

1:3,000,000

Nomenclature

Sourced from the Gazetteer of Planetary
Nomenclature - International Astronomical Union
Working Group for Planetary System Nomenclature
<https://planetarynames.wr.usgs.gov/Page/MERCURY/target>

Basemaps

Primary basemap
MESSENGER MDIS map

projected v1.0 Basemap Reduced Data Record (BDR)
resolution - 256 pixels per degree (~166 metres/pixel)
jpl.nasa.gov/img/data/messenger/msgrmds_4001/BDR/H01/

Ancillary data

Mercury MESSENGER North Pole DEM
665m v2 (see Ancillary Data section at link below)
https://astrogeology.usgs.gov/search/map/Mercury/Topography/MESSENGER/Mercury_Messenger_USGS_DEM_Global_665m_v2
Mercury MESSENGER MDIS Basemap Enhanced Color
Global Mosaic 665m(64ppd)
https://astrogeology.usgs.gov/search/map/Mercury/Messenger/Global/Mercury_MESSENGER_MDIS_Basemap_EnhancedColor_Mosaic_Global_665m