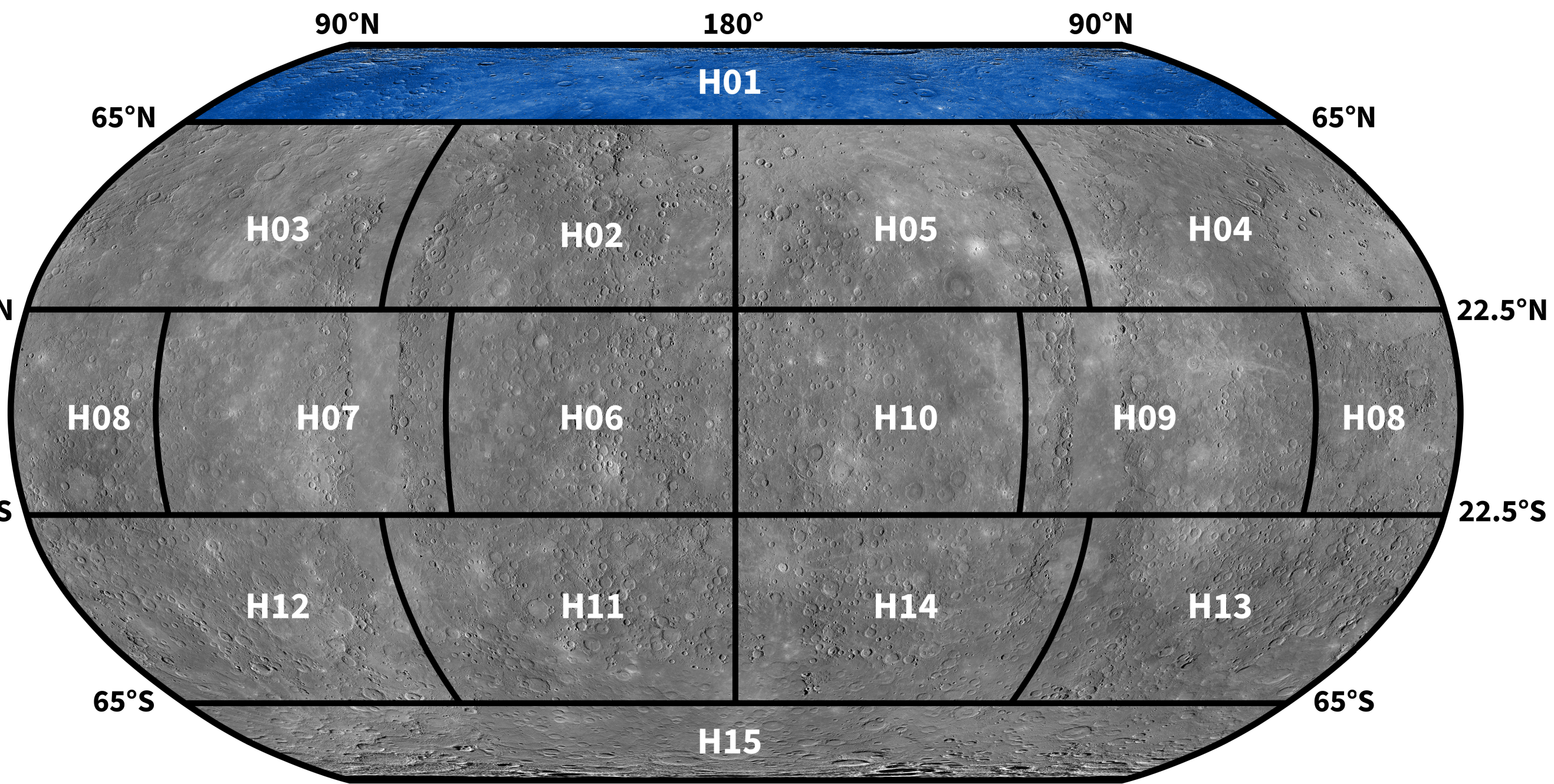


Geological Map of the Borealis Quadrangle (H01), Mercury

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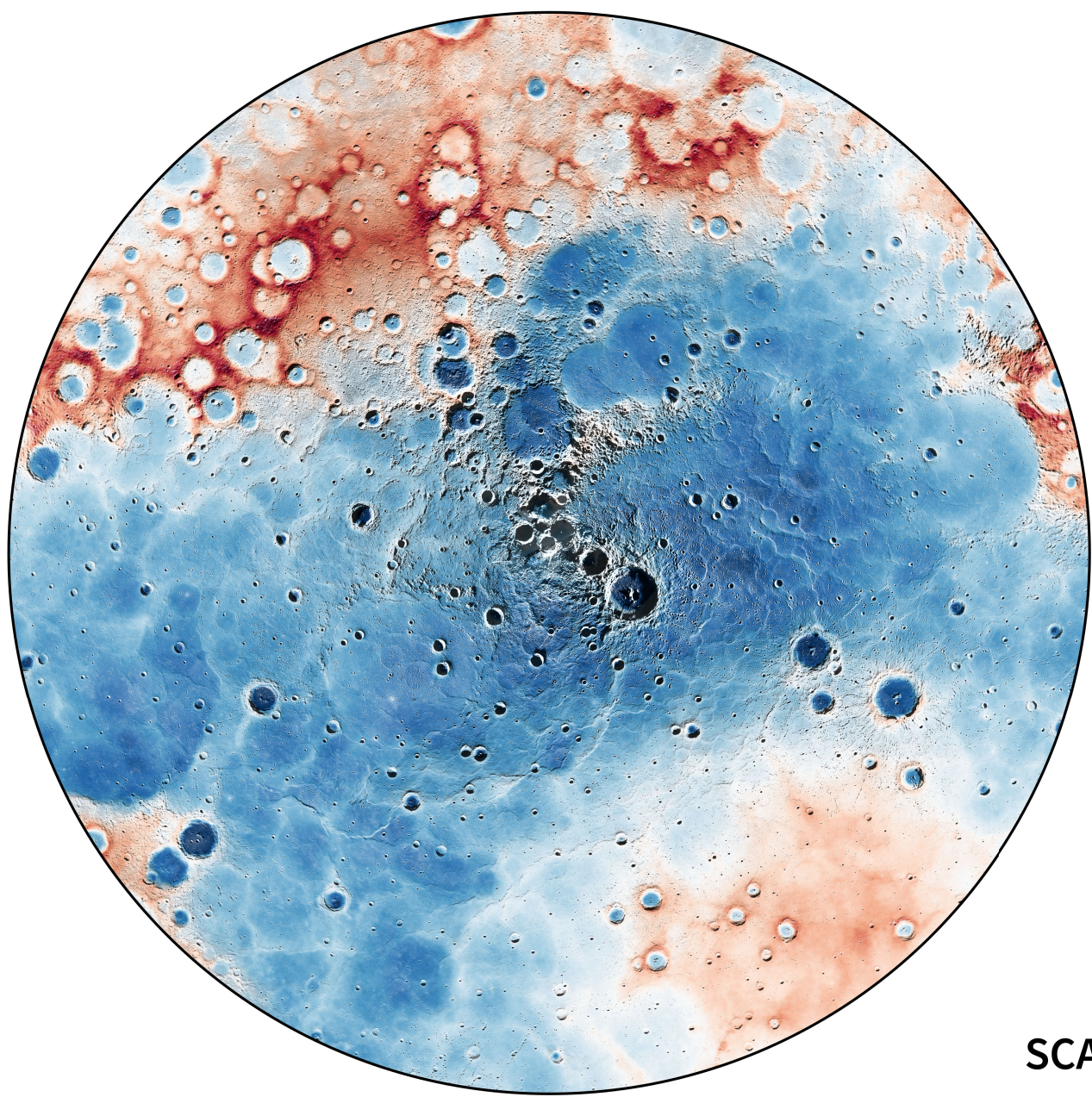


Robinson projection of Mercury's globe divided into 15 mapping quadrangles. H01 (Blue) is the mapping area.

SCALE: 1:40,000,000

MESSENGER USGS DEM overlain on BDR basemap

MESSENGER MDIS Enhanced Color mosaic overlain on BDR basemap



SCALE: 1:13,000,000

Mapping units

Plains materials

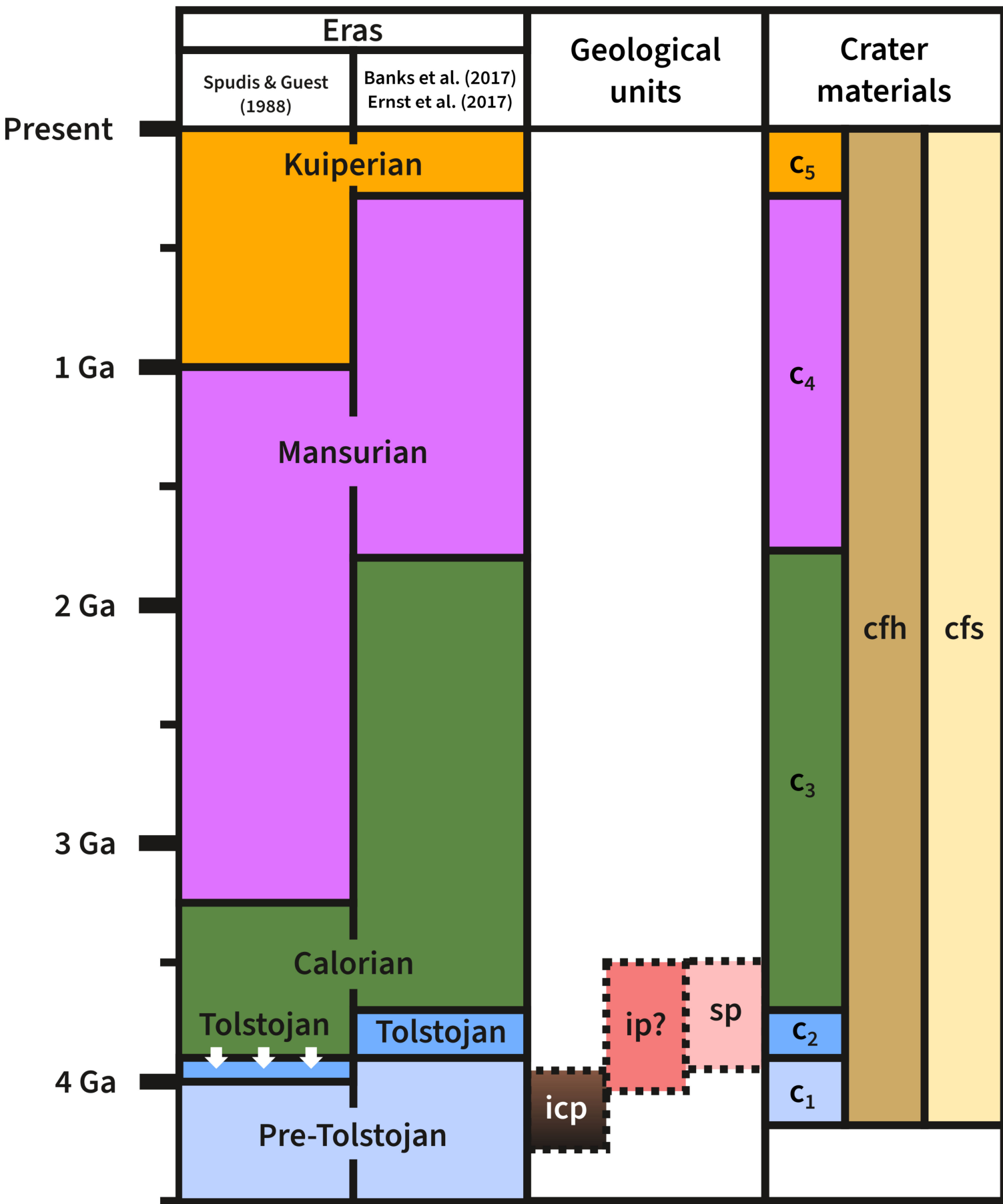
- Smooth plains
Sparsely cratered flat/gently rolling material. Isolated patches are probably ponded/perched impact melt whilst expanses of smooth plains likely to be volcanic in origin.
- Intermediate plains
Intermediate in surface roughness between smooth and intercrater plains. Originally smooth plains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

Crater materials (five degradation classes)

- c₅ crater — pristine
Crisp rims and internal crater structures. Textured ejecta blankets. Albedo rays present.
- c₄ crater — preserved
Sharp rims and internal crater structures. Textured ejecta blankets. Albedo rays absent.
- c₃ crater — degraded
Rims and internal structures somewhat subdued. Ejecta blankets present but lacking texture.
- c₂ crater — heavily degraded
Rims and internal structures subdued. Central peaks and distal ejecta are rare.
- c₁ crater — extremely degraded
Rims and internal structures incomplete or absent. Only the largest examples may have ejecta.
- Smooth crater floor
Sparsely cratered smooth floor material confined to craters. Possibly impact melt (c₃), and a combination of volcanic material/impact melt for other crater classes.
- Hummocky crater floor
Texturally rough or cratered material confined to within craters. Likely degraded internal structures and floor material.

Correlation of map units

(Showing relative and absolute ages of the mapped units)



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

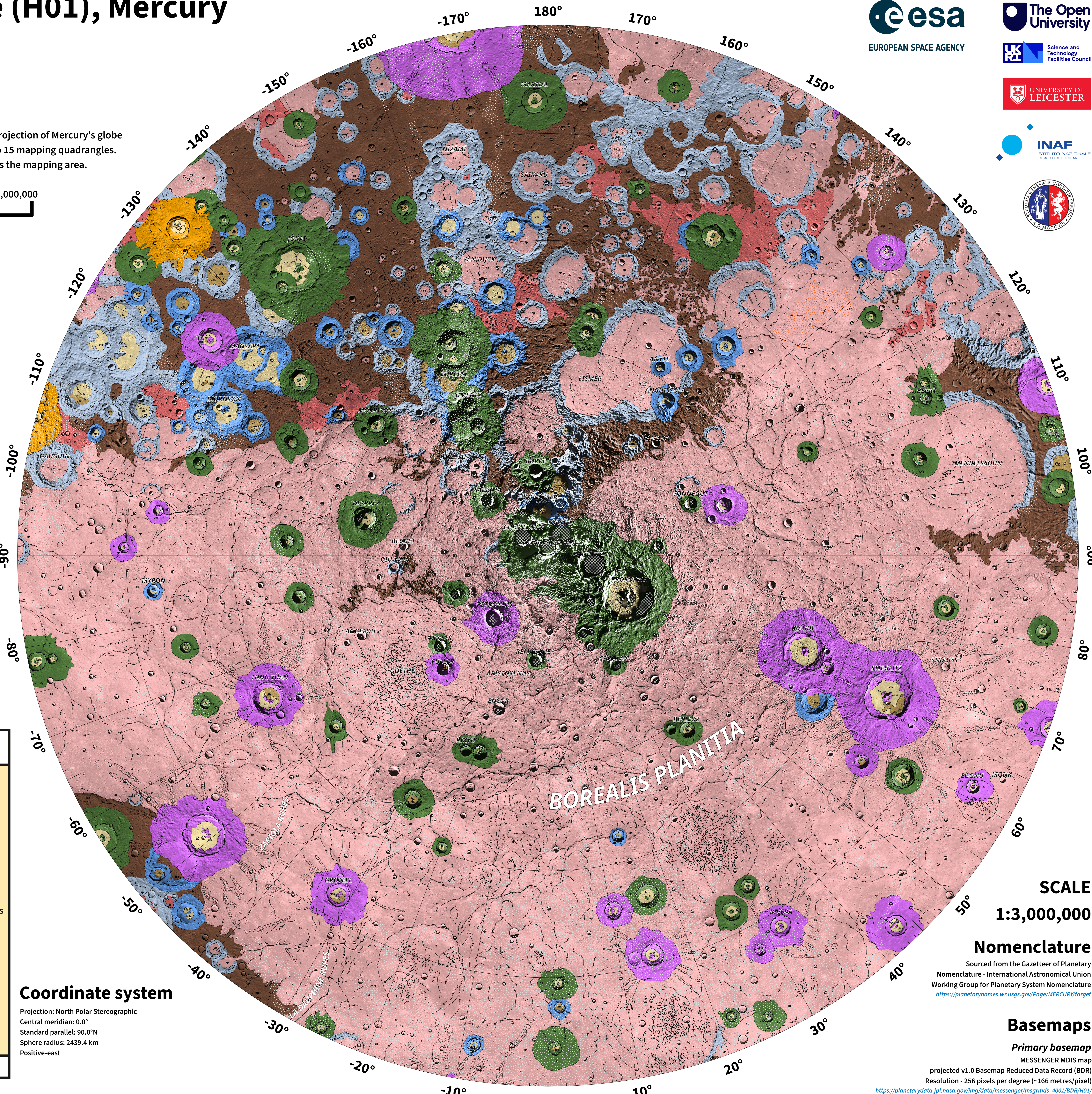
- Bright crater rays — high albedo ejecta material.
Hollows — high albedo irregular flat floored shallow depressions.
Faculae — bright diffuse red spots, putative pyroclastics.
Catenaes — Secondary crater chains/clusters.

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)
https://planetarydata.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

