

SOUTH POLAR REGION

**NOTES ON BASE**  
This is one sheet in a series of topographic map sheets covering that part of the surface of Mercury illuminated during the Mariner 10 encounters (Davies and Batson, 1975). The source of map data was the Mariner 10 television experiment (Murray, 1975).

**ADOPTED FIGURE**  
The map projections are based on a sphere with a radius of 2439 km.

**PROJECTION**  
The Mercator projection is used between the 57° parallels, and the polar stereographic projection is used for the polar regions north and south of the 57° parallels. Longitudes increase to the east in accordance with the International Astronomical Union (IAU, 1971). Latitudes are based on the assumption that a reference crater named Hun Kal (H-02) is centered on long 20° (Murray and others, 1974; Davies and Batson, 1975); this crater is too small to be shown at the 1:15 000 000 scale.

**CONTROL**  
Planimetric control is provided by a mosaic of digitally transformed and scaled 1:5 000 000 quadrangles. The quadrangles were controlled by different iterations of the Mercury control net. Although an attempt was made to tie all segments of the base mosaic to the November 1976 version of the net (Davies and Katayama, 1976), a few discrepancies as large as 40 km exist between the net and this map.

**MAPPING TECHNIQUES**  
Mapping techniques are similar to those described by Batson (1973b, b). Shaded relief maps at 1:5 000 000 were reduced to 1:15 000 000 and transformed where necessary to the projections of this sheet.

Shaded relief was portrayed with uniform illumination with the sun to the west, using airbrush techniques described by Inge (1972) and Inge and Bridges (1975). Shaded relief and albedo markings analysis and representation were made by Barbara J. Hall.

**ALBEDO MARKINGS**  
The albedo markings on this sheet consist primarily of ray patterns visible on Mariner 10 pictures. No attempt was made to derive absolute albedo values or to show regional albedo variations.

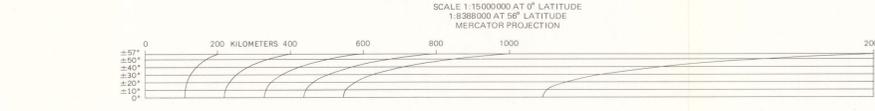
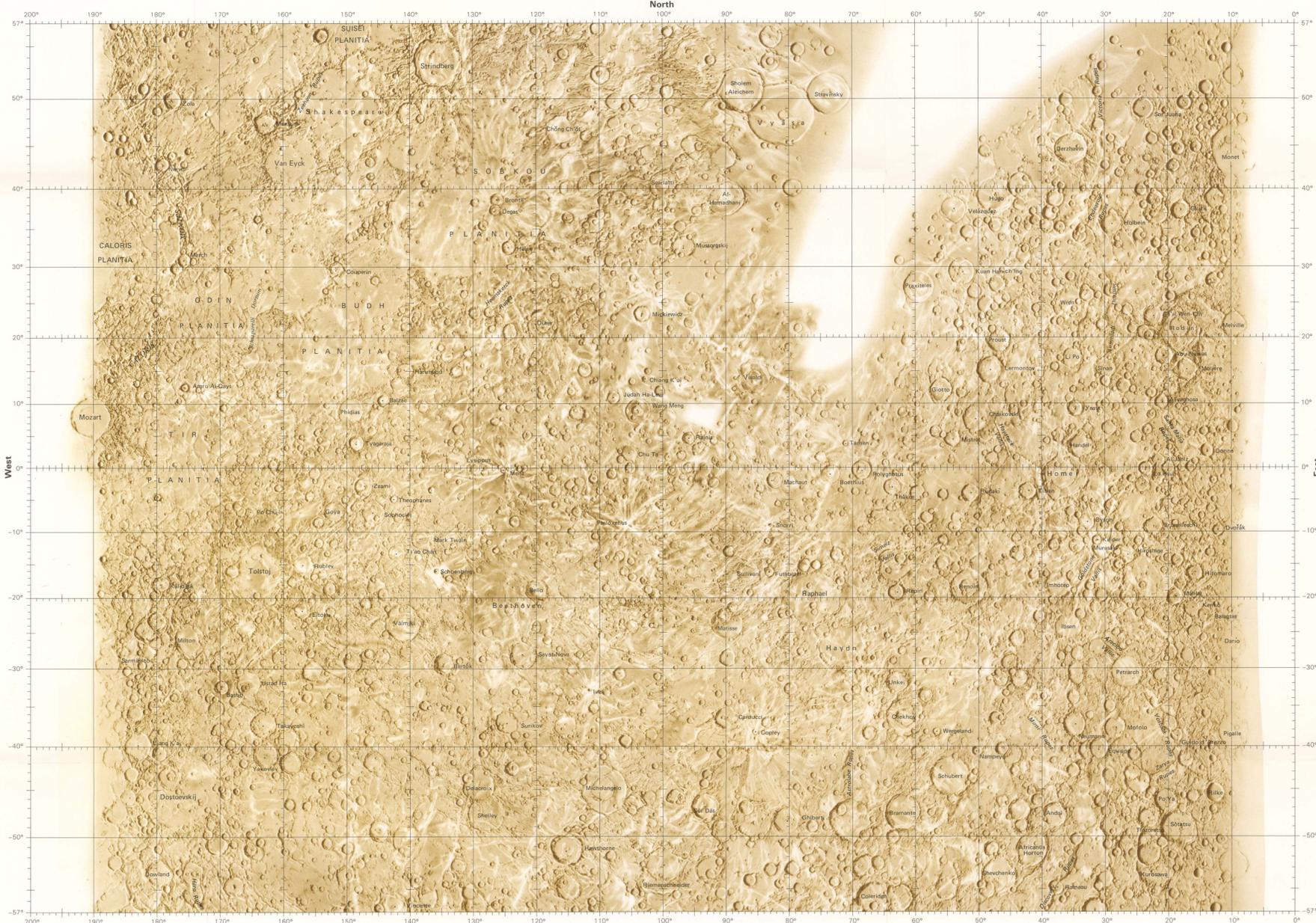
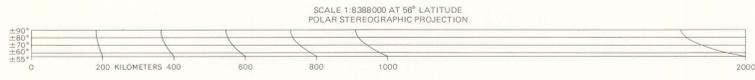
**COLOR**  
The color of the airbrush rendition was selected for optimum discrimination of detail and is not intended to represent the color of Mercury even approximately.

**NOMENCLATURE**  
All names on this sheet are approved by the International Astronomical Union (IAU, 1977).  
H 15M IRM: Abbreviation for Mercury (Hermes) 1:15 000 000 series; 1st edition shaded relief map; K, with albedo markings; M.

**REFERENCES**  
Batson, R. M., 1973a, Cartographic products from the Mariner 9 mission: *Journal of Geophysical Research*, v. 78, no. 20, p. 4434-4435.  
———, 1973b, Television cartography: U.S. Geological Survey, Open-File Report, Astrology 58, 35 p.  
Davies, M. E., and Batson, R. M., 1975, Surface coordinates and cartography of Mercury: *Journal of Geophysical Research*, v. 80, no. 17, p. 2417-2430.  
Davies, M. E., and Katayama, F. Y., 1976, The control net of Mercury: November 1976. The Rand Corporation, R-2089-NASA, 19 p.  
Inge, J. L., 1972, Principles of lunar illustration: *Aeronautical Chart and Information Center Reference Publication*, RP-72-1, 40 p.  
Inge, J. L., and Bridges, P. M., 1976, Applied photointerpretation for airbrush cartography: *Photogrammetric Engineering and Remote Sensing*, v. 42, no. 6, p. 789-796.  
International Astronomical Union, Commission 16, 1971, Physical study of planets and satellites. *IAU Proceedings 14th General Assembly 1970*. International Astronomical Union Transactions, v. 14B, p. 185-188.  
———, 1977, Physical study of planets and satellites. *IAU Proceedings 16th General Assembly 1976*. International Astronomical Union Transactions, v. 14B, p. 21-269.  
Murray, B. C., 1975, The Mariner 10 pictures of Mercury: An overview. *Journal of Geophysical Research*, v. 80, no. 17, p. 2342-2344.  
Murray, B. C., Batson, R. M., S. Davidson, G. E., Davies, M. E., Gault, D. E., Hapke, Bruce, O'Leary, Brian, Strom, R. G., Sorenson, Vernon, and Trask, Newell, 1974, Mercury's surface: Preliminary description and interpretation from Mariner 10 pictures. *Science*, v. 185, no. 4146, p. 169-179.



NORTH POLAR REGION



Interior - Geological Survey, Reston, Va. - 1979 - G-71978  
Prepared on behalf of the Planetary Geology Program,  
Planetary Division, Office of Space Science, National  
Aeronautics and Space Administration under contract  
W-13,709



**NOTE TO USERS**  
Users noting errors or omissions are urged to indicate them on the map and to forward it to U.S. Geological Survey, Building 4, Room 64, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

**MERCURY**  
**RELIEF AND ALBEDO MARKINGS VISIBLE ON MARINER 10 IMAGES**  
**H 15M IRM**  
1979

(Apothos) H SM 45/35	(Liguria) H SM 45/225	(Deveshwar (Cabeza)) H SM 45/155 H SM 45/224	(Victoria (Boris)) H SM 45/100
(Iberia) H SM 45/324	(Solluh (Cephar)) H SM 45/222	(Tolluh (Phosphorus)) H SM 45/223	(Bergius (Solluh)) H SM 45/225
(Cylind) H SM 45/35	(Solluh (Paraphos)) H SM 45/225	(Solluh (Solluh)) H SM 45/225	(Solluh (Solluh)) H SM 45/225

**ARRANGEMENT OF 1:5 000 000 MAP SHEETS ON MERCURY**  
The provisional name "Goetha" was changed to "Borealis", and the provisional name "Tolluh" was changed to "Solluh" by the International Astronomical Union in 1976 (IAU, 1977). The provisional names appeared on earlier editions of this index map as well as on the Tolluh (H-8) Quadrangle of Mercury. The number preceded by 1 refers to published shaded relief map.