

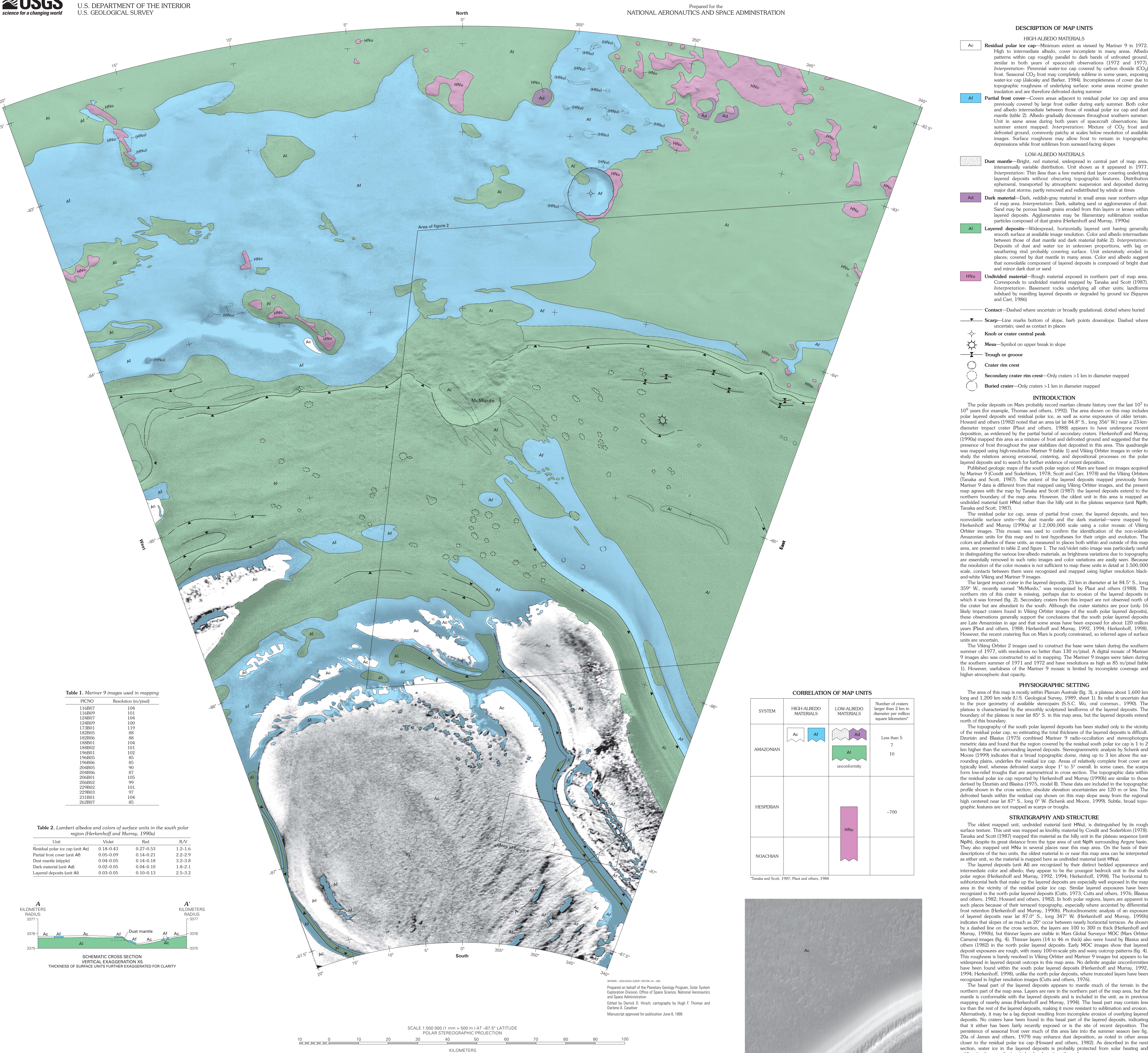


Table 1. Mariner 9 images used in mapping

PICTNO	Resolution (m/pixel)
116807	104
116809	101
124807	104
124809	104
127801	119
132201	85
182206	88
188801	104
188802	85
196801	102
196805	85
196806	85
204805	87
206801	104
206802	99
229802	104
229803	107
231801	94
262807	85

Table 2. Lambert albedos and colors of surface units in the south polar region (Herkenhoff and Murray, 1990a)

Unit	Violet	Red	R/V
Residual polar ice cap (unit Ac)	0.18–0.43	0.27–0.53	1.2–1.6
Partial frost cover (unit Af)	0.05–0.09	0.14–0.21	2.2–2.9
Dust mantle (dtpm)	0.04–0.05	0.14–0.18	3.2–3.8
Dark material (unit Ad)	0.02–0.04	0.10–0.10	1.8–2.1
Layered deposits (unit Al)	0.03–0.05	0.10–0.13	2.5–3.2

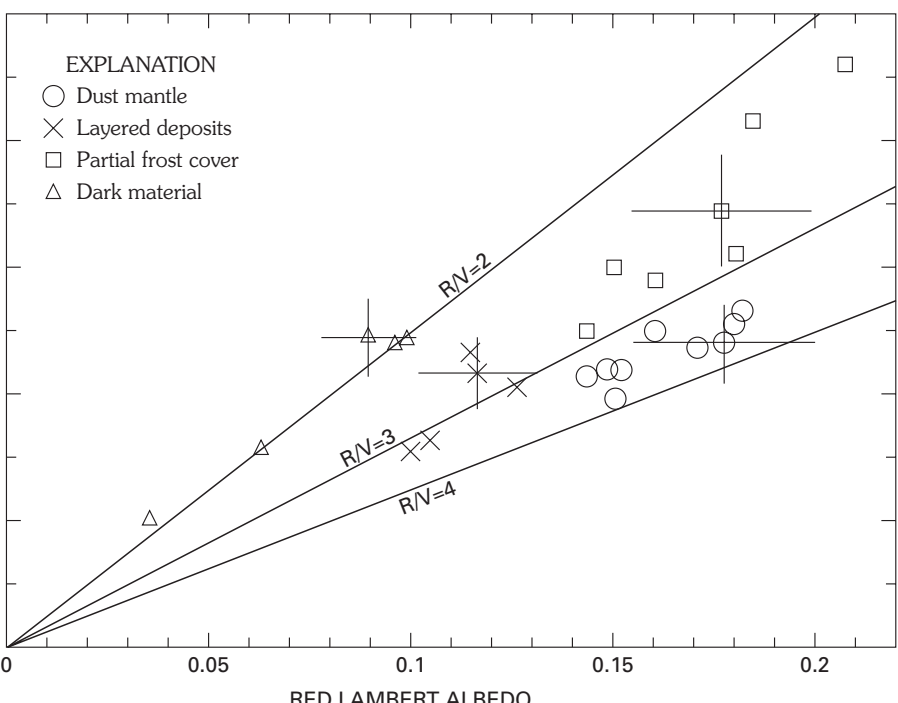
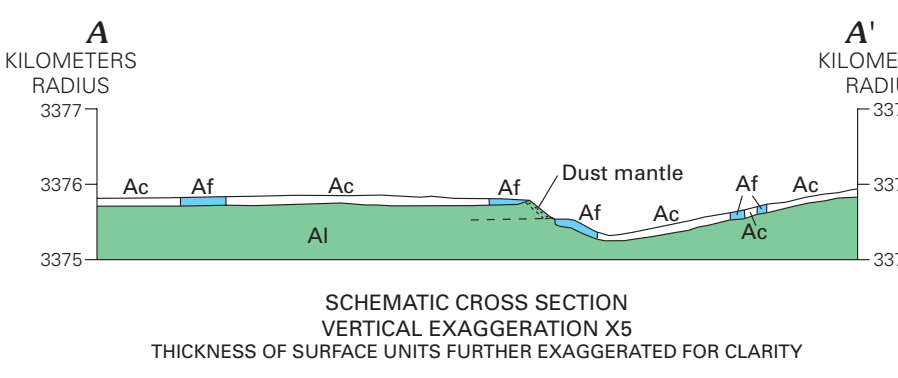


Figure 1. Violet Lambert albedo plotted against red Lambert albedo for four surface units in vicinity of south residual polar cap of Mars (some exposures outside map area). Lambert albedos derived by dividing observed reflectance (corrected for atmospheric scattering) by cosine of incidence angle. Error bars represent coefficient of 13 percent uncertainty in absolute albedo and sampling errors in 5 sized by 5 pixel areas. Albedo variations along lines of constant red-to-violet ratio (R/V) mainly due to slope differences (Herkenhoff and Murray, 1990a).

Figure 2. Viking Orbiter image 421879 of partly eroded 23-km-diameter crater McMurdoo (left inset) and secondary craters in south polar layered deposits, centered at 85.0° S, 352° W. Orthographic projection with north toward top; illumination from right; resolution 133 m/pixel. Arealographic longitude, L_s = 348.4° (southern summer). Note troughs subparallel to scarp right of center. HNu, undivided material; Al, layered deposits; Af, partial frost cover; Ac, residual polar ice cap.

Figure 3. Index map showing location of major physiographic features and 1:500,000-scale maps in Planum Australe region completed in Mars Geologic Mapping Program. Mars Transverse Mercator (MTM) numbers indicate latitude and longitude of center of map. #number indicates published U.S. Geological Survey map.

GEOLOGIC MAP OF THE MTM-85000 QUADRANGLE, PLANUM AUSTRALE REGION OF MARS

By
Ken Herkenhoff
2001

Figure 4. Mars Global Surveyor MOC (Mars Orbiter Camera) image 7306 of part of south polar residual ice cap (unit Ac) and layered deposits (unit Al), centered at lat 86.9° S, long 350° W, taken during southern spring when surface was 9 snowed by CO₂ frost. Illumination from right. Arrow indicates ~240-m-diameter crater (not mapped; near right edge; note circular depressions and arcuate scarps just above arrow. Because of seasonal frost cover, summertime albedo variations (seen on map) are not visible, and unit Af is not labeled.

Figure 4. Mars Global Surveyor MOC (Mars Orbiter Camera) image 7306 of part of south polar residual ice cap (unit Ac) and layered deposits (unit Al), centered at lat 86.9° S, long 350° W, taken during southern spring when surface was 9 snowed by CO₂ frost. Illumination from right. Arrow indicates ~240-m-diameter crater (not mapped; near right edge; note circular depressions and arcuate scarps just above arrow. Because of seasonal frost cover, summertime albedo variations (seen on map) are not visible, and unit Af is not labeled.