Edgett, K. S. (2000), Mars eolian geology at airphoto scales: The large wind streaks of western Arabia Terra, Abstract 50511, *Geological Society of America Abstracts with Programs*, vol. 32, no. 7, p. 302.

Abstract No. 50511

MARS EOLIAN GEOLOGY AT AIRPHOTO SCALES: THE LARGE WIND STREAKS OF WESTERN ARABIA TERRA. EDGETT, K. S., Malin Space Science Systems, PO Box 910148, San Diego, CA 92191-0148, USA.

More than 27,000 pictures at aerial photograph scales (1.5-12 m/pixel) have been acquired by the Mars Global Surveyor (MGS) Mars Orbiter Camera (MOC) since September 1997. The pictures are valuable for testing hypotheses about geologic history and processes of Mars. Of particular interest are eolian features connected to surface albedo patterns. This work is focused on low-albedo wind streaks, some over 100 km long, in western Arabia Terra. Each streak is widest where it originates at an impact crater (typically 25-150 km diameter). The streaks taper downwind. Within the associated craters there is a lower-albedo surface that, in nearly all observed cases, includes barchan dunes indicative of transport in the same direction as the wind streaks. Upwind of the dunes there is usually an outcrop of layered material that might have served as a source for dune sand. MOC images show that the west Arabia streaks consist of a smooth-surfaced, multiple-meters-thick, mantle (smooth at 1.5 m/pixel) that appears to be superposed on local surfaces. No dunes are present, indicating that down-streak transport of sediment via saltation and traction have not occurred. Two models might explain the observed properties: (1) the streaks consist of dark silt- and clay-sized grains deflated from the adjacent crater interiors and deposited from suspension or (2) they are remnants (protected in the lee of impact crater rims) of a formerly much larger, regional covering of low albedo, smooth-surfaced mantle. The latter hypothesis is based on observation of low albedo mantled surfaces occurring south of west Arabia in Terra Meridiani. For reasons yet unknown, a large fraction of the martian equatorial regions are covered by low albedo, mesa-forming material that lies unconformably atop eroded layered and cratered terrain. Both hypotheses are being explored via continued selective targeting of new MOC images as well as analyses of the new data.

Key Words: Mars, eolian, sediment, martian, dunes