

American Astronomical Society (AAS) Division of Planetary Sciences (DPS) 30th Meeting
Abstract 20.02, *Bulletin of the American Astronomical Society*, v. 30, p. 1049, 1998.

The Mars eolian environment: Perspectives from Mars Orbiter Camera high resolution images

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Images at scales of 2–15 m/pixel from the Mars Orbiter Camera on the Mars Global Surveyor provide a view of Mars surface eolian processes and materials at a scale intermediate between lander images and Viking Orbiter data. These images reveal a variety of dune materials, superposition of dune types, geographically specific erosional styles, widespread (but not ubiquitous) mantling without bedforms, evidence of eolian erosion at altitudes 20 km and greater above the mean martian datum (presently at pressures less than 1 mb), and small scale dust erosion (from dust devils?). Dune forms indicate a prevalence of unidirectional sand-moving winds even in regions of complex topography. Dunes formed in multi-directional wind regimes are rare and, when seen, generally small. Superposed bedforms indicate significant changes in available particle size and/or shape, or sensitivity of transport to wind speed due to cementation or other forms of induration.