THE METEOROLOGICAL EXPERIMENT ON THE MARS SURVEYOR '98 POLAR LANDER. D. Crisp and the MVACS Met Team (David Crisp, MS 180-404, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109, David.Crisp@jpl.nasa.gov) .

When it lands on Mars on December 3, 1999, the Mars Surveyor '98 Mars Polar Lander (MPL) will provide the first opportunity to make in-situ measurements of the near-surface weather climate, and volatile inventory in the Martian south polar region. To make the most of this opportunity, the MPL's Mars Volatiles and Climate Surveyor (MVACS) payload includes the most comprehensive complement of meteorological instruments ever sent to Mars. Like the Viking and the Mars Pathfinder Lander, the MVACS Meteorological (Met) package includes sensors for measuring atmospheric pressures, temperatures, and wind velocities. This payload also includes a 2-channel tunable diode laser spectrometer for in-situ measurements of the atmospheric water vapor abundance near the ground, and improved instruments for measuring the relative abundances of oxygen isotopes (in water vapor and CO_2) and a surface temperature probe for measuring the surface and sub-surface temperatures. This presentation will provide a brief overview of the environmental conditions anticipated at the surface in the Martian regions. We will then provide an overview of the MVACS Met instrument and describe the MET sensors in detail, including their principle of operation, range, resolution, accuracy, sampling strategy, heritage, accommodation on the Lander, and their control and data handling system. Finally, we will describe the operational sequences, resource requirements, and the anticipated data volumes for each of the Met instruments.