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Comparison of Phoenix Meteorological Data with Viking Data Using Model MLAM

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During 151 Martian days in 2008 the Canadian Meteorology experiment (MET) [1] on board NASA's Phoenix '07 Lander was providing for the first time surface based observations of atmospheric pressure, temperature and wind as well as dust and ice particles in the Martian Northern polar regions, 20 degrees north of the location of Viking Lander 2, the until then northernmost meteorological observatory on Mars.

Using the Mars Limited Area Model (MLAM), jointly developed by the Helsinki University and the Finnish Meteorological Institute to study mesoscale phenomena in the Martian Atmosphere [2], the observations can be put into a larger context suitable for comparison with long term measurements at the Viking landing site three decades earlier. The seasonal variations observed at both latitudes are very similar though the onset of winter dominated climate is faster at higher latitudes.
In case the re-activation efforts of Phoenix should be successful, first results for the Martian Spring at high latitudes will be shown, too.

The meteorological observations over a long period of time and at different latitudes are important for the preparation of the planned future Martian landing missions Mars Science Laboratory (MSL) 2011, the ESA - NASA ExoMars program 2016-2018 and the Finnish-Russian-Spanish MetNet mission after 2011, where different meteorological stations will be deployed at low and high latitudes and low and high altitudes. Mission optimization makes reliable climate estimates mandatory.

References
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