

# MSL HUMIDITY OBSERVATIONS - FIRST RESULTS (version 72be8da on 2013-08-30 16:28:42 +0300 by AMH)

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**Abstract.** The Mars Science laboratory (MSL) called Curiosity made a successful landing at Gale crater early August 2012. MSL has an environmental instrument package called the Rover Environmental Monitoring Station (REMS) as a part of its scientific payload. REMS comprises instrumentation for the observation of atmospheric pressure, temperature of the air, ground temperature, wind speed and direction, relative humidity (REMS-H), and UV measurements. We concentrate on describing the measurement performance and first results of the REMS relative humidity observations during the first 100 MSL sols and constrain the REMS-H results by comparing them with indirect observations. The REMS-H device is based on polymeric capacitive humidity sensors developed by Vaisala Inc. and it makes use of transducer electronics section placed in the vicinity of the three (3) humidity sensor heads. The humidity device is mounted on the REMS boom providing ventilation with the ambient atmosphere through a filter protecting the device from airborne dust. The final relative humidity results appear

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to be convincing and are aligned with earlier indirect observations of the total atmospheric precipitable water content.

## **1. Introduction**

## **2. Background**

### **2.1. Section title TBD**

### **2.2. Observations**

### **2.3. Modeling and the characteristics of the Martian water cycle**

## **3. REMS-H Calibration**

## **4. REMS-H operations and performance**

## **5. REMS-H Observations and First results**

## **6. Concluding remarks and discussion**

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