



## **Relative humidity measurements in Michigan Mars Environmental Chamber**

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Finnish Meteorological Institute (FMI) has developed relative humidity measurement devices for past and future Mars lander missions: REMS-H for Curiosity, MEDA HS for Mars 2020 and METEO-H for ExoMars 2020. New calibration measurements are performed with ground reference models of these sensors in Michigan Mars Environmental Chamber (MMEC) during January 2019. The results will be given in EGU 2019.

Calibration of relative humidity devices requires in minimum two humidity points over the expected operational temperature and pressure range of the device. With two-point calibration the relative humidity devices can be used for scientific measurements with satisfactory quality but the uncertainty is notable. Stable humidity conditions between dry and saturation humidity in Martian conditions can be achieved reliably in very few laboratories in the whole world and MMEC in University of Michigan is one of those facilities.

During the measurement campaign the ground reference models are measured in multiple stable relative humidity points between dry and saturation in each temperature inside the operational range on Mars surface. The measurements are performed in Martian pressure and in carbon dioxide environment. With these new measurements the behaviour of the relative humidity devices can be modelled more accurately and the results are expected to improve the scientific accuracy of the relative humidity devices.