



Vertical distribution of dust and water ice during 2018 dust storm from TIRVIM and NIR solar occultations onboard ExoMars/TGO

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The ExoMars Trace Gas Orbiter (TGO) is a joint ESA-Roscosmos mission to Mars that has been launched in March 2016. The aerobreaking phase has ended in February 2018 followed by the start of nominal scientific work on the near-circular 400 km orbit in April 2018. The Atmospheric Chemistry Suite (ACS) is a set of three spectrometers (NIR, MIR, and TIRVIM), capable to observe Mars atmosphere in solar occultations, nadir and limb geometry. TIRVIM instrument is a Fourier-spectrometer operating in the $1.7\text{--}17\ \mu\text{m}$ spectral range. NIR instrument is a near-infrared spectrometer covering the $0.7\text{--}1.6\ \mu\text{m}$ spectral range with a resolving power of $\geq 20,000$. Both spectrometers are operated in solar occultation and nadir modes.

The main fraction of aerosols on Mars consists of mineral dust, while H_2O ice and CO_2 ice crystals are also encountered depending on the season and location. Combination of TIRVIM and NIR spectra obtained in solar occultation mode permits spectral separation of dust and H_2O ice clouds particles and retrieval of vertical distribution of aerosols. In this work, we will report analysis of aerosol properties during 2018 dust storm.

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