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Properties of a local dust storm on Mars' Atlantis Chaos by means of radiative transfer modeling.

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In this study we present the analysis of the dust properties in a local storm imaged in the Atlantis Chaos region on Mars by the OMEGA spectrometer (Bibring et al., 2004) on March 2nd 2005 (ORB1441_5). By means of an inverse radiative transfer code we study the dust properties across the region and try to infer the connection be-tween the local storm dynamics and the orography. OMEGA is a visible and near-IR mapping spectrometer, operating in the spectral range 0.38-5.1 μm with three separate channels with different spectral resolution. The instrument's IFOV is 1.2 mrad.
To analyze the storm properties we have used the inverse radiative transfer model MITRA (Oliva et al., 2016; Sindoni et al., 2013) to retrieve the effective radius reff, the optical depth at 880 nm τ880 and the top pressure tp of the dust layer. We used the Mars Climate Database (MCD, Forget et al., 1999) to obtain the atmospheric properties of the studied region to be used as input in our model. Moreover we used the optical constants from Wolff et al. (2009) to describe the dust composition. The properties from the surface have been obtained by ap-plying the SAS method (Geminale et al., 2015) to observations of the same region relatively clear from dust. All retrievals have been performed in the spectral range 500 $\div$ 2500 nm.
Here we describe the result from our analysis carried out on selected regions of the storm and characterized by a different optical depth of the dust.

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