

Diurnal dust variation from the PFS MEx observations

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An analysis of PFS measurements from the long-wavelength channel allows us to monitor the Martian atmosphere particularly dust and water ice opacities, temperatures and surface temperatures. The dataset includes the data collected from MY 27, 10 January 2004 to MY 33, 6 May 2017. The elliptical orbit of MEx enables us to perform observations at different local times thus the investigation of a local time variation of aerosols in the atmosphere. In this work we present a daily cycle of dust for special regions, different seasons and different Martian years. We find a special behavior of dust opacities with LT in the global dust storm occurred in MY 28. Thus, our study is separated for MY 28 and for other MYs. We observe a large maximum of dust opacity at midday in the dusty season of MY 28. The minimum of dust opacity is observed as a characteristic feature of night in the non-dusty seasons of other MYs. We conclude that during the global dust storm, dust varies largely between day and night. While during the non-dusty intervals for other MYs, dust differ slightly daily and a minimum of dust opacity is observed during night.