

Atmospheric gravity waves on Elysium Planitia as observed by the pressure sensor on Insight

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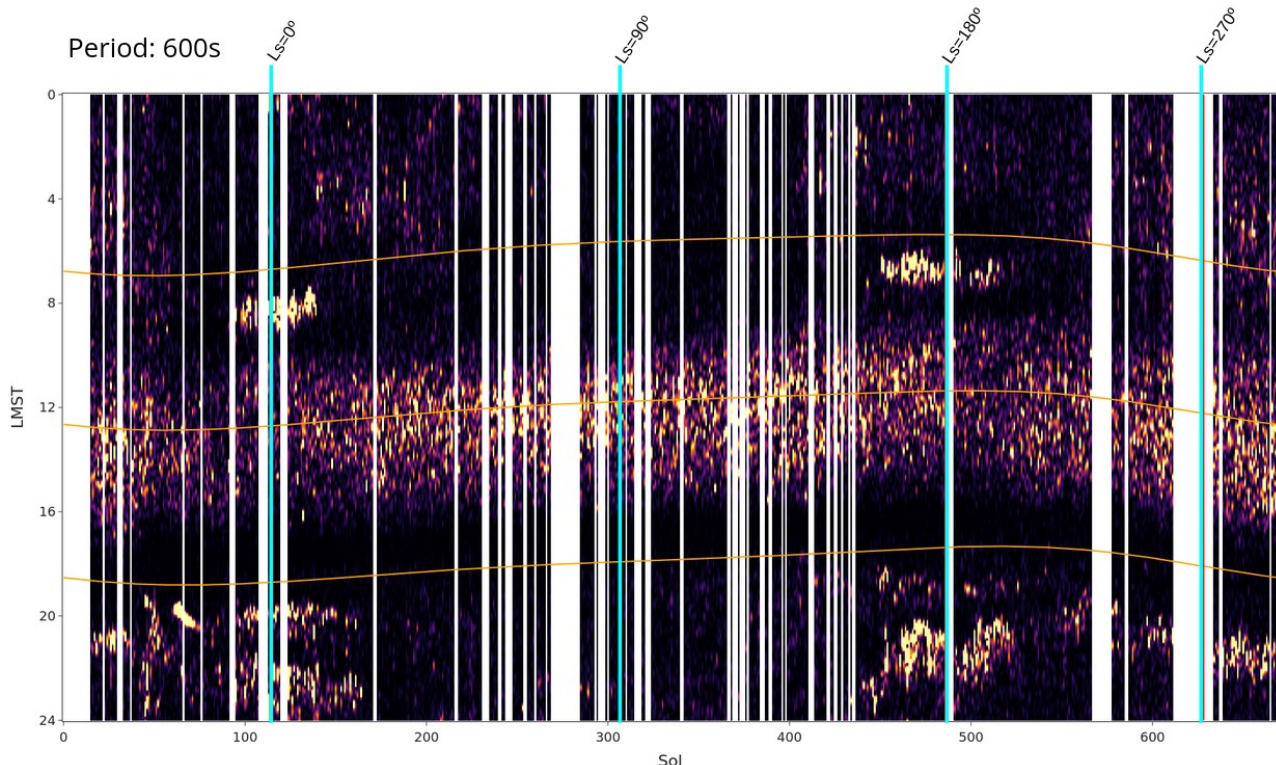
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As part of the Auxiliary Payload Sensor Subsystem (APSS; Banfield et al., 2019; Spiga et al., 2018), the NASA Insight mission included a pressure sensor (PS), which monitored the the martian atmosphere with unprecedented time resolution and covered the whole first Martian year of the mission with only a few gaps. This continuous coverage enable studies on atmospheric phenomena that can be measured in the pressure time series (Banfield et al., 2020).

This work is devoted to the analysis of gravity waves on the time series of the PS. We use the technique of wavelet analysis (Torrence & Compo, 1998) to estimate the wavelet power of the time series for different frequencies over the time.

Gravity wave activity is present mostly at the starting and the end of the dusty season after the twilight, which in in agreement with a previous study based on pressure time series acquired by MSL/REMS (Guzewich et al., 2021). The large amount of turbulence during the period of the daily cycle with the maximum insolation produces spurious signals in the wavelet that prevents us from analyze gravity waves at those hours.



References:

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