



Non-migrating Thermal Tides in the Upper Atmosphere of Mars

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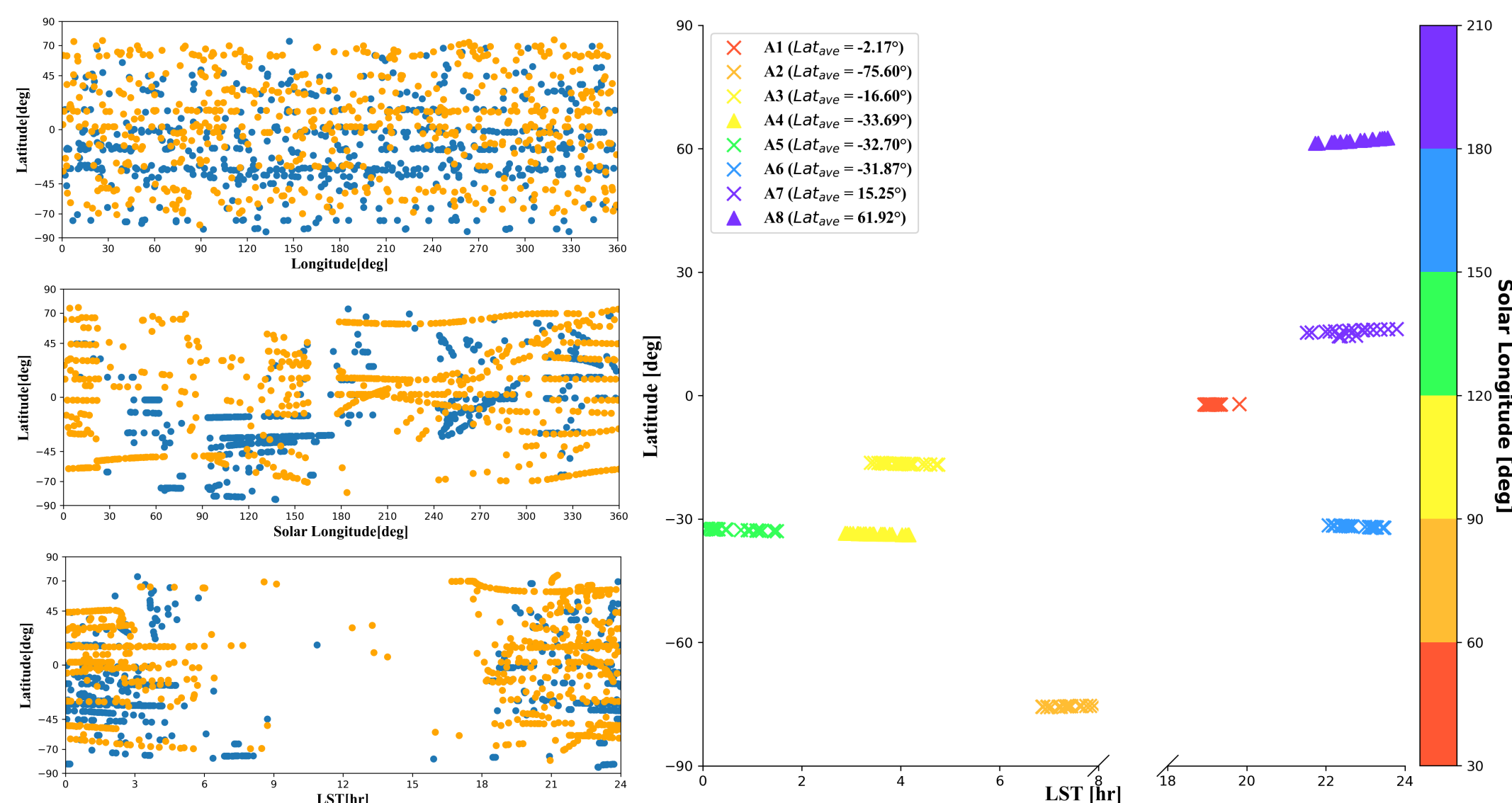
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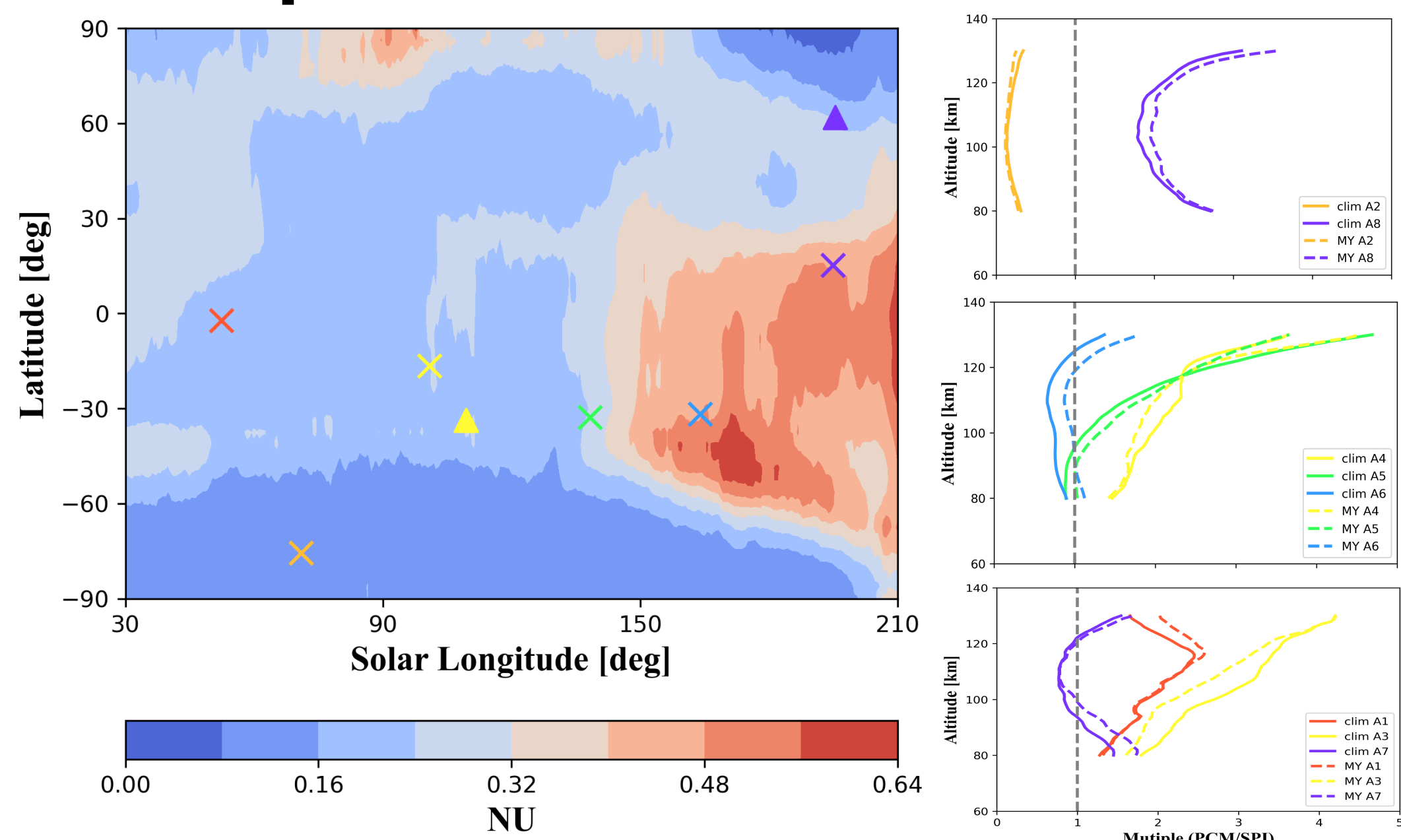
Abstract

Thermal tides have been observed throughout the Martian atmosphere. On Mars, non-migrating thermal tides in the neutral thermosphere are important sources of thermospheric variations. Several dominant nonmigrating tides have been identified in previous observations and simulations of the Martian atmosphere, e.g. [1-5]. Previous work has mostly focused on the tides in the southern hemisphere and for three wave modes (waves 1-3), by using the Spectroscopy for Investigation of Characteristics of the Atmosphere of Mars (SPICAM) data on the nightside [6]. However, the role of wave-4 in some regions cannot be ignored. In this work, we fit the wave-k model [7] to these observations and simulations (the Mars PCM) [8] in bins to study the global and variational characteristics of nonmigrating tides at 80 to 130 km altitude.

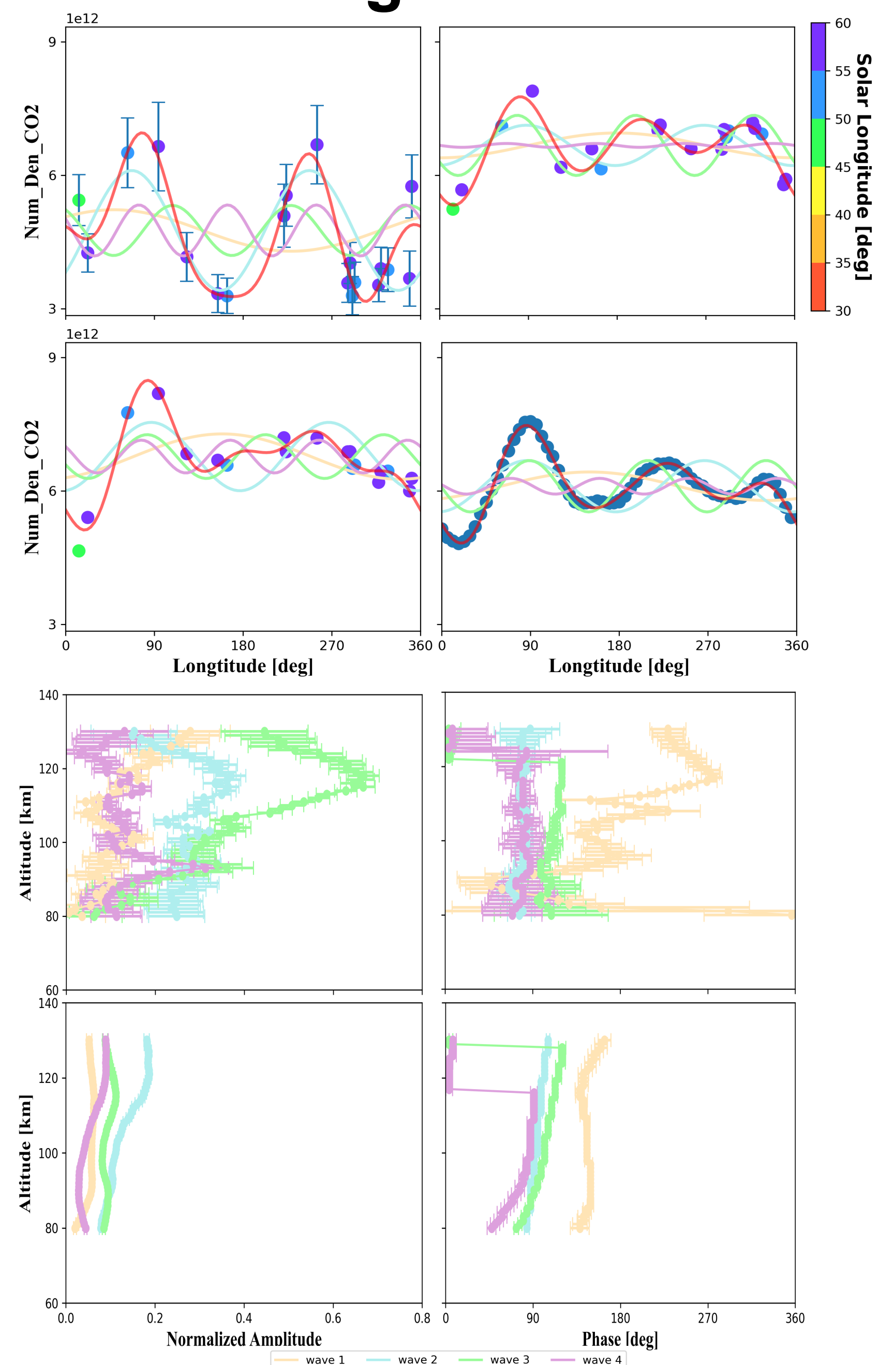
Distribution of SPICAM Data



Comparison of PCM & SPICAM



Fitting results



References

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