



Analysis of SPICAM UV and near IR solar light scattered at the limb by aerosols.

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SPICAM has measured scattered light at the limb of Mars, in UV and IR simultaneously. The UV spectrometer channel (between 200 and 300 nm) carries valuable information about the size and number of dust particles above 50 km up to 80 km. In particular, the radiance factor increases with altitude in UV, while the IR spectrometer (1 to 1.7 μm) shows a radiance factor decreasing with increasing altitude, demonstrating a change in the size of the aerosol particles. Combining the two sets of data, we are able to draw a consistent picture of dust and cloud vertical profile at several locations and seasons along the martian year. Especially, the UV channel is sensitive to a high altitude small dust component which is directly detected for the first time (simultaneously with stellar occultation measurements in extinction). Such a dust component may have a strong effect on climate through its ability to trigger water condensation and produce clouds, to promote transport of water and to locally modify atmospheric thermal equilibrium. Finally, the size and number of these small aerosol particles should give constraints on the nature of this dust component.