

Ices in Titan's lower stratosphere

Analyses of Cassini CIRS far-infrared limb spectra of Titan at 15N, 15S, and 58S reveal a broad emission feature between 70 and 270 cm^{-1} , restricted to altitudes between 60 and 100 km. This emission feature is chemically different from Titan's photochemical aerosol, which has an emission feature peak around 145 cm^{-1} . The shape of the observed broad emission feature resembles a mixture of the solid component of the two most abundant nitriles in Titan's stratosphere, that of HCN and HC₃N. Following the saturation vapor pressure vertical profiles of HCN and HC₃N, the 60 to 100 km altitude range corresponds closely to the vertical location where these nitriles are expected to condense out and form small, suspended ice particles. This is the first time ices in Titan's stratosphere have been identified at latitudes south of 50N. Results and physical implications will be discussed.