



## **Recent results on Titan's aerosols from the ACP instrument**

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Aerosols in Titan's atmosphere play an important role in determining its thermal structure. They also serve as sink for organic vapours and can act as condensation nuclei for clouds formation, where the efficiency will depend on their chemical composition. The ACP instrument collected two distinct atmospheric samples over separate altitude ranges (130-35 km and 25-20 km, respectively) during the Huygens probe descent . The Gas Chromatograph and Mass Spectrometer (GCMS) which is the instrument of the probe, primarily devoted to analysis of atmospheric gases, was also used for the analysis of vaporized particulates through coupling to the ACP.

From the results of the chemical analysis of the collected aerosols, by pyrolysis at 600°C, ammonia (NH<sub>3</sub>) and hydrogen cyanide (HCN) have been identified as main pyrolysis products. This clearly shows that the aerosol particles include a solid organic refractory core. NH<sub>3</sub> and HCN are fingerprints of the chemical structure of the complex organics constituting this core, proving the inclusion of nitrogen in the process for the formation of Titan's aerosols. We will report also on recent results obtained after new data analysis of the instrument.