

High-dispersion Spectroscopic Observations Of 8P/Tuttle With VLT/CRILES

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We present near-infrared observations of organic molecules in comet 8P/Tuttle.

Comet 8P/Tuttle is a Halley-type comet and its last perihelion was in early January 2008. Our observations were carried out on January 28 and February 4 using CRILES (CRyogenic high-resolution InfraRed Echelle Spectrograph) at the Very Large Telescope (VLT). We used a 0.2" slit which provided a spectral resolving power of ~80,000. We detected H₂O, OH, HCN, C₂H₂ on Jan 28, and H₂O, OH, CH₄, C₂H₆, and CH₃OH on Feb 4.

We find that 8P/Tuttle is depleted in HCN, C₂H₂ and C₂H₆ relative to H₂O compared with most other Oort cloud comets studied to date. Perhaps these depletions suggest that 8P/Tuttle formed in a different region from most Oort cloud comets, but it is also possible that the depletions are caused by repeated passages through the inner solar system.

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