

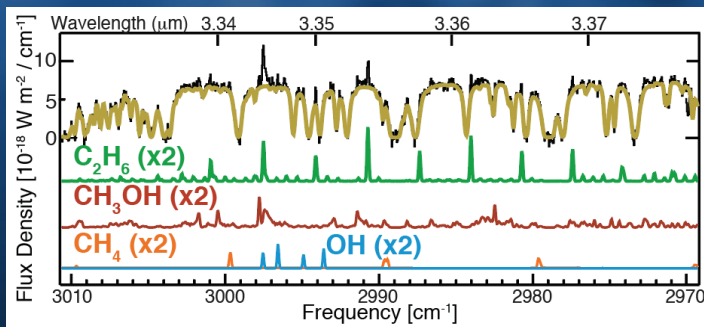
What Can Ices in Comets teach us about the Early Solar System?

Observations of comet C/2013 V5 (Oukaimeden) from Keck Observatory revealed dramatic short-term changes in relative abundances between water and trace organic compounds in the coma.

- The spatial analysis implies the presence of at least two phases of ice in the nucleus of this comet, but the dramatic changes in abundance ratios of water and organics are rare in infrared studies of comets.



Comet C/2013 V5 (Oukaimeden), 2014 Sep 6.



DiSanti et al. 2019

- The observed 24-hour variation demonstrates an uneven distribution, suggesting that ices were processed in different ways prior to their incorporation into the nucleus, potentially in distinct regions of the nascent Solar System.
- The material in comets encodes the best-preserved record of the early Solar system, and these results provide key information regarding physical conditions and processing of material at this time.