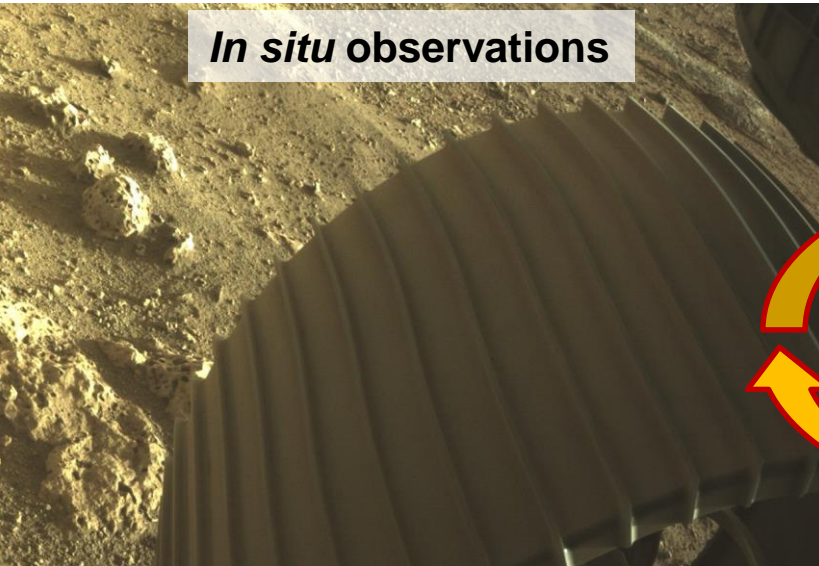


DEVELOPMENT OF TOOLS TO ASSIST **SUPERCAM** AND **SHERLOC** DATA ANALYSIS FOR DETECTING VIBRATIONAL FEATURES OF **MOLECULAR BIOSIGNATURES** AND **HIGH PRESERVATION POTENTIAL MINERALS**

Goals: Detection and identification of organic compounds and potential molecular biosignatures; Evaluation of the preservation state of possible organics; Support selection of samples to cache.

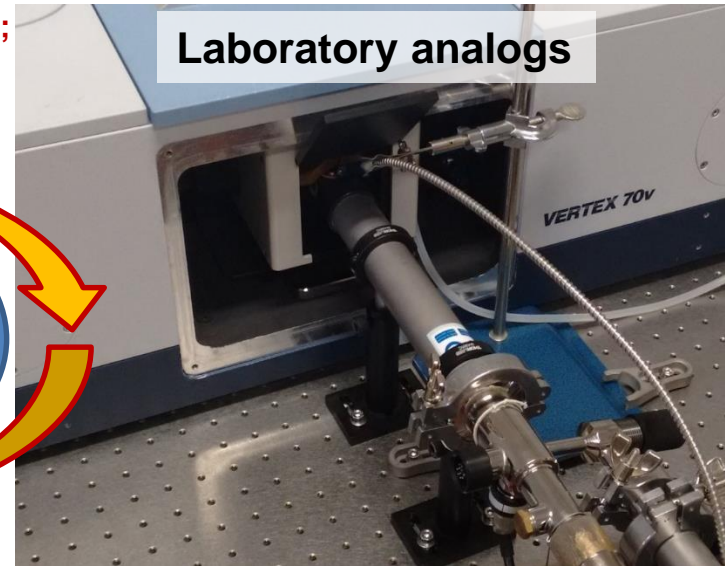
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In situ observations

- Preparation of Mars soil analogs;
- UV irradiation processing;
- Detectability/sensitivity tests of SuperCam and SHERLOC.

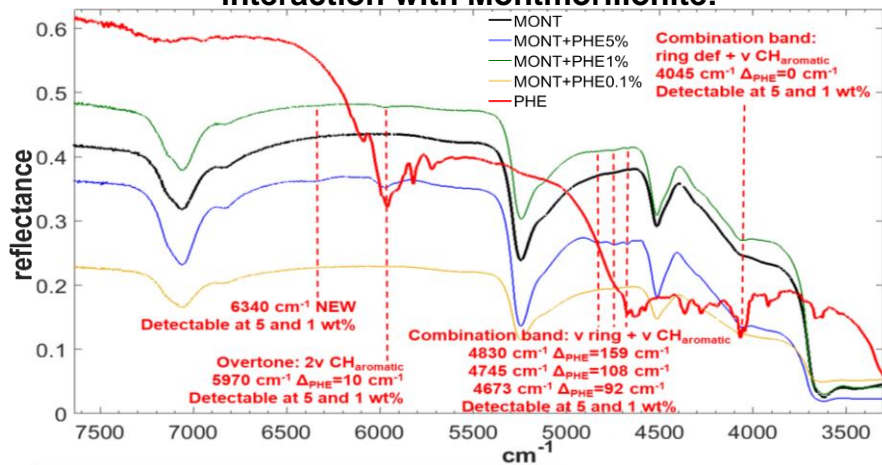


Laboratory analogs

How do vibrational features of organics change due to interaction with minerals, oxidants and salts under Martian conditions?

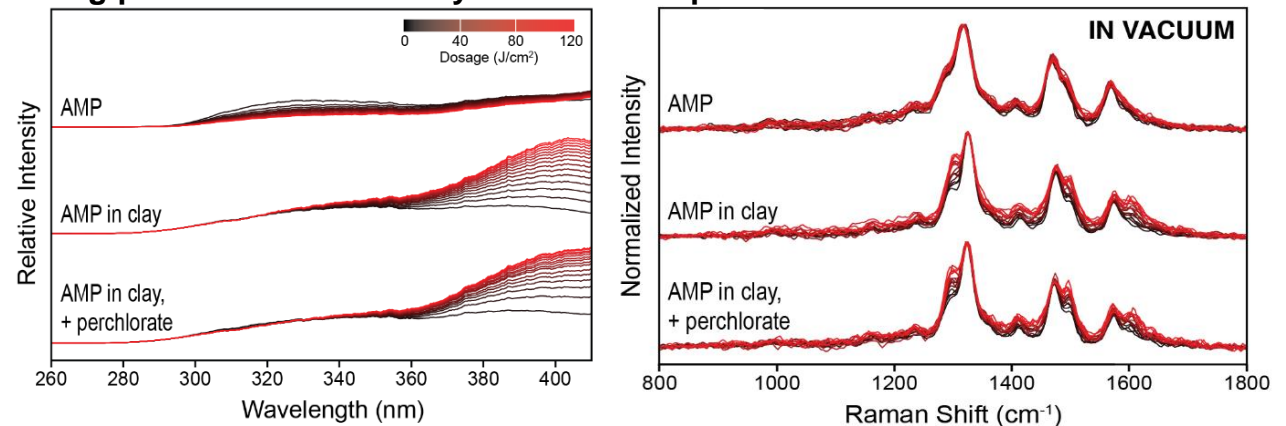
Reference dataset for interpreting mission data

NIR features of L-Phenylalanine affected by interaction with Montmorillonite:



[Fornaro, Brucato et al., Front. Astron. Space Sci. 2020]

Fluorescence and Raman spectra of AMP adsorbed on Montmorillonite with and without Mg-perchlorate affected by cumulative exposure to SHERLOC-like UV laser:



[Hollis, Fornaro et al., Astrobiology 2021]