Fresh Exposures of Hydrous Fe-bearing Amorphous Silicates on Mars

- Discovered relatively fresh exposures of a hydrated, amorphous material along the wallrock slopes in Coprates Chasma, Mars.

- CRISM reflectance spectra extracted from the deposits exhibit broad absorptions at 1.42, 1.94, and ~2.25 µm that are most consistent with laboratory spectra of nanophase hydrated Fe-rich allophane and Fe-rich opal.

- At this time, the Fe-rich allophane/opal deposits at Coprates appear to have some of the strongest hydration signatures yet detected on Mars using CRISM data, indicating a young exposure time and minimal time for dehydration.

- The discovery of new Fe-bearing hydrated amorphous silicates by orbital spectroscopy provides additional information about the history of water and aqueous alteration on Mars, and is consistent with the detection of hydrated amorphous phases by rovers on the martian surface.