Biosignatures of Hypersaline environments (Salt Crusts) an analog for Mars. H. D. Smith (1) A. G Duncan (2) A. Davilla (1) and C.P. McKay.(3) 1 SETI Institue, NASA Ames Research Center. 2. Desert Sensors, Logan, Utah. And 3 Space Science Divison, NASA Ames.

Introduction:
Halophilic ecosystems are models for life in extreme environments including planetary surfaces such as Mars (Osterloo et al 2008). Our research focuses on biosignatures in a high organic preservation environment of salt crusts and the detection of these mineral and organic biomarkers by ground and orbital assests.

Halophiles contain pigments with identifiable spectroscopic features. We examine the salt crust layer by layer to determine the spectral properties of these halophilic extremophiles.

Method: In-situ spectroscopic measurements are taken to identify the biosignatures and characteristic spectroscopic features within each of the stratified microbial layers shown in Figure 1.

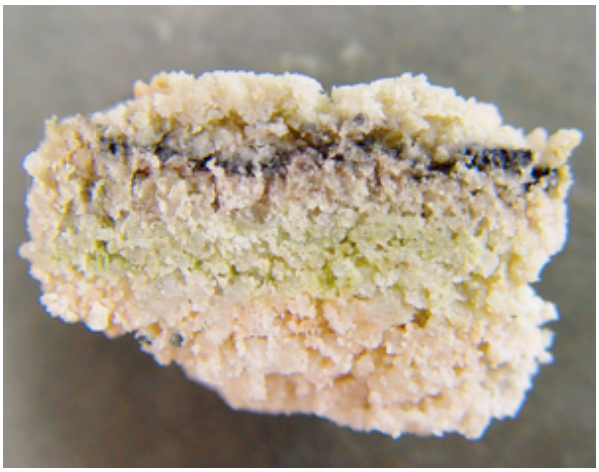

Figure 1.

We then subject the salt crust to extreme conditions to determine the biosignatures preservation in rapidly changing stressful mileu for the halophiles.

References: Osterloo, M. M.; Hamilton, V. E.; Bandfield, J. L.; Glotch, T. D.; Baldridge, A. M.; Christensen, P. R.; Tornabene, L. L.; Anderson, F. S. Chloride-bearing materials in the southern highlands of Mars. *Science (80-.).* **2008**, *319*, 1651–1654.