

## Abstract - CURE Summer 2013

Much of astrobiology relies on the use of analog sites as a means to understand extreme environments on other planets. We are interested in understanding anthropogenic effects on the Mojave Desert microbial communities and chemical environment. To do this, we ask “are microbial communities, as well as the area’s chemical and environmental dynamics, different at various locations along I-15’s desert corridor?”. Using a custom Deep Ultraviolet Native Florescence/Raman Spectrometer (DUVNF/RS), we are non-invasively detecting the types of organics and microbes deposited on samples exposed to the Mojave environment.

We placed sterile/clean inorganic surfaces at three locations in the Mojave for up to three months. Two locations were adjacent to the I-15, and another at a more remote location. Samples were collected and scanned by deep UV native florescence to generate 2D chemical maps.

The fluorescence maps show both organic and inorganic deposition with chemical variability between samples based on location. Secondary analysis with deep UV Raman will provide additional detail. In addition to the data collection, the totality of the number of samples and amount of data collected led to the development of a new custom database system to organize results and ease data analysis.