Microscopy and Ground Truth

Life in the Atacama Design Review
December 19, 2003

Waggoner
CMU
Description and Motivation

Characterize life and its distribution in Atacama

Extended scope of project with hypothesis:

Life distribution is heterogeneous on a microscale (vs Chris McKay north-south characterization over 100s of km)

Sampling procedures are crucial for accurate characterization of the Atacama
Key Requirements

Reflectance spectroscopy
Imaging – macroscopy and microscopy
Use of fluorescent probes
Cell culturing – In Chile
Nucleic acid analysis – at site
Correlation with geology, climate, location
Sampling strategy crucial
Design Considerations

Expand ground truth with extended instr. Panel
Include more biologists, biochemists
Do more biology on site
Establish a sampling plan
Technical approach
Implementation Issues

Invovement of other NASA biologists?
Enhance involvement of Chong and Demergasso
Expand CMU biology
Budget supplement