

Life in the Atacama Field Journal

August 30-31, 2005

Salar Grande, Chile

Agenda

- Demonstrate some long-distance driving
- Test science transects

Status and Progress

Successfully debugged a problem with the CompactPCI power supply. As it turns out, the failure was not in the supply itself, but in a circuit attached to its outputs. We re-worked the circuit and eliminated the problem. The CompactPCI computers are now booting regularly.

Drove over 10 km today over rolling “plains” near camp. Starting early we began a long traverse to put Zoë to the test. Several long single-command traverses were recorded: 1500 m, 900 m, 2100 m and to top it off, a single command that set Zoë on a 3500 m traverse. Potential hazards included large rocks, small drainages and hills. The navigator worked admirably, dodging large rocks but fully taking advantage of Zoë’s mechanical strength. The rover executive oversaw these runs, including the last which took two hours to complete.

Tested detailed science transects. After the long traverses, we commanded Zoë to drive up near a fault line, where a number of lichens were observed. The rover drove a transect about 500 meters long and took about a dozen fluorescence imager chlorophyll-check data sets. This process significantly slows traverse, reducing the effective speed by a factor of around five. But the process is becoming more reliable at returning a lot of science data over small areas.

Debugged pan/tilt pointing difficulties. For the past two days we have observed that the pan/tilt unit did not home properly. The pan axis center seemed to have shifted. Recalibrating the device yesterday did not fix the problem. A mechanical fix seems to be needed, which will be carried out tomorrow morning. Permanent improvements must be built in Pittsburgh but could arrive at Site F.

In the afternoon we started a traverse about 1600 m away from camp. Zoë was commanded to pass through a “gate” consisting of two cairns nearly 1300 m away and end up at the center of camp. The robot performed very well, using dead reckoning and the simulated sun tracker (the compass) to pass through the gate perfectly and stop right behind the trucks in camp. After further traverses we ended the day at just under 29 km of autonomous traverse for the expedition, 14.7 km of which was done today.

**Weather**

Morning: heavy, dark cloud cover at first, breaking up by 9 or 10 am. Little to no wind, cool.

Afternoon: clear, remarkably strong winds. The very mild temperatures were made quite cold.

Quote of the Day

“Zoë threaded a needle over a kilometer away!”