

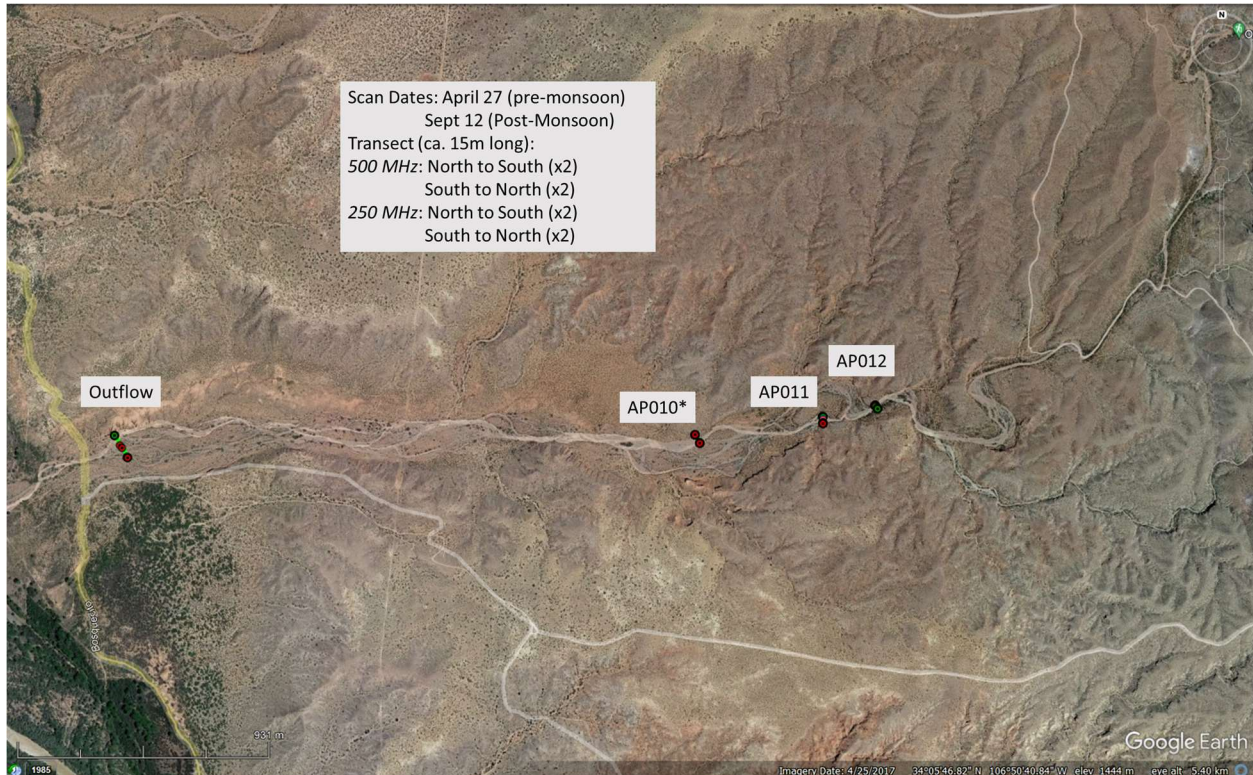
Experiment Report: Pinos Watershed Later Summer Scans (September 2022) (PIC 202277)

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A larger ongoing project is concerned with monitoring and measuring recharge, flow, and sediment transport in the Arroyo de los Pinos watershed near Socorro. We are piloting a use of GPR to verify bed-load transport measurements and repeatability of the GPR scans. These scans are collected in two directions (N->S and S->N) across the channel with two antennas (250 MHz and 500 MHz), repeated twice (two of each kind of transect). The Smart Cart set up for the SenSoft Noggin antennas is ideal for this experiment (including GPS, cables, battery, charger, and DVL/datalogger). The locations where GPR data are collected are located near the gravity monitoring stations (Alex Rinehart). Scans were collected in April 2022 (Proj 4) and September 2022 (Proj 5).

Layout and Execution: Most default settings were kept on the DVL for data collection (linescans, not grids); velocity was set to .15 m/ns in Proj 4 and 0.12 in Proj 5. GPS data were recorded using the external GPS. Actual resolution in the collected and processed data for the 250 MHz antenna is up to about 2.5-3m in both projects.

Scanning conditions across the channel were very rough and rocky, so the 500 MHz data is quite noisy. Scan path is very consistent between scans while avoiding obstacles and going up and down small berms and sand bars in the channel.



April 27 (upstream)

- Proj 4 .15 m/ns; located nearest gravity stations
- Less sand and vegetation, more gravelly



Sept 12 2022 – rescan April locations

- **Proj 5** .15 m/ns; located nearest gravity stations and trajectories from cairns where available
- 2 weeks after last rain, so pretty dry
- After full monsoon season: more veg
- Last flow event Aug 20 ish
- 250 MHz odometer: 1078.6; 500 MHz odometer: 1095.1

