CYGNSS Field Campaign

Nai-Yu Wang (CISESS-MD) participated in the first Cyclone Global Navigation Satellite System (CYGNSS) soil moisture Cal/Val campaign that took place in San Luis Valley Colorado on August 20-22, 2019. The San Luis valley is a region in south central Colorado with a small portion overlapping into New Mexico. It is the headwaters of the Rio Grande. The averaged elevation of the valley is 7600 feet above the sea level and is a high desert climate.

During the 3 days of fieldwork, we visited three sites and collected samples of soil moisture, surface roughness, vegetation types/heights, and soil gravimetric sampling. These measurements will be useful for interpreting the CYGNSS San Luis overpass data, and all the procedures developed and the experience gained will be a great help as CYGNSS expands the Cal/Val fieldwork to other sites next year.

The soil was generally rocky and dry (see figure 2), which made it tough to collect soil samples. The soil moisture values did not exceed 0.15 m$^3$/m$^3$, with the majority below 0.1 m$^3$/m$^3$.

Figure 1. Target site Z1.

Figure 2. Example of soil/rock in Z1.
The 10 person’s crew (figure 3) include scientists from University of Southern California, MIT, NCAR, University of Michigan, and University of Maryland, and an ex-space shuttle commander.

Participation in the field campaign supports a new project funded by NESDIS/OPPA to explore the potential of using CYGNSS data to retrieve soil moisture and flooding inundation from space.

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Figure 3. The field campaign team.