

LAS 34697

Los Alamos National Laboratory

Project Description (Cont.): We will deploy our system in late September, 2023 (exact dates our TBD). The main deployment activity is preparing the 15 array “spokes” and laying out the coaxial cable (very low power) that connects each antenna to the central data logger. The array configuration will be two concentric circles of 15 antennae, surrounding a central antenna, shown in Fig. 1. Our array location is to the west of the AlasCom hill and tower. This location was chosen because:

- This area forms a kind of mesa, jutting out westward, and surrounded by cliffs on three sides. Thus, there is no through passage for snowmobiles.
- The brush is very thick and tall on this mesa, which makes it unattractive for hiking. With the exception of a single ATV path, it is nearly impossible to hike across because of the high brush.
- The ground is not too soggy like other areas, which become impossible to utilize after a heavy rainfall.
- Snowfall is relatively low in Tahneta Pass compared to other areas in Alaska. It is not considered a prime area for snowmobile and winter sports.
- We can lay out our array without having to cross streams or small ponds (see Fig. 1).

The most difficult task for our deployment, is preparing the 15 array spokes shown in Fig. 1; this will be achieved by towing a bush cutting device behind an ATV. The width of the spoke will be around 48”, i.e. the width of an ATV. We have identified a few companies that will accomplish this task for us. Brush removal is essential along the spokes because it ensures that the cables will lie flat along the ground. This keeps them protected, and away from becoming a hazard for large animals and the public.

The cable is quite heavy (125+ lbs per cable) so there is no need to secure it, and it will naturally adhere to the ground. However, 9 of 15 spokes will cross the existing ATV path, one time per cable. For these crossing the cables will be buried in conduit to protect them from ATV crossings. Note that it is waterproof and weatherproof cable that is resistant to any tampering. Our array will be deployed June - mid-September. At the end of the data collection season, the solar panels and all electronic equipment will be moved into storage at HAARP. The coax cable and antenna will remain, buried under snow, till early June when the system is restarted. However, the vertical component of the antenna will be removed at the end of the season in early October as an addition safety measure. While the system is operational, June-September, there are no active activities associated with this deployment. We will monitor state-of-health with a cellphone modem. The system is completely automated. There are no hazards associated with the system.

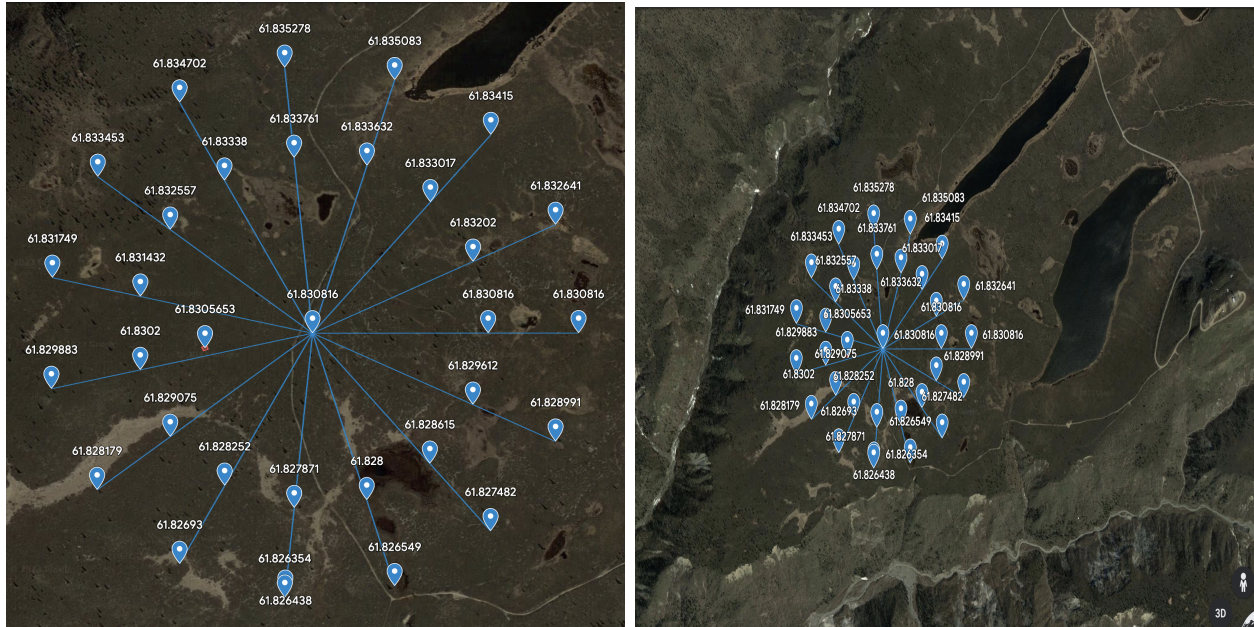


Figure 1: Figures showing the location of our array antennas and solar system. 30 antennae form two concentric circles around a central antenna (left). The proposed solar system location is the one inner marked spot with the red dot, directly west of the array center. The spokes of the array avoid crossing streams and small lakes. The ground is not as water saturated as open areas in Tahnetta pass; the vegetation is dense brush, 4-5' tall, which is extremely difficult to walk through. A single ATV track loops through the area (left). Also visible in the figure (right) is the mesa-like structure of this area. There are cliffs surrounding our site to the north, west and south. This limits recreational use in this area, both summer and winter. The relationship of our proposed array to the AlasCom hill and communication towers is also shown. The edge of our array is about 1 km away.