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CAPABILITIES AND PRESENT STATUS OF THE SICAYA RADIO TELESCOPE IN PERU

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The private telephone company, Telefónica del Perú, stopped operations of the Sicaya Intelsat Station in 2000, we knew that they were looking for some institution to own the Station in 2002 and begun conversations. Finally in 2008, the whole communications station with a 32-meters parabolic antenna was donated to the Geophysical Institute of Peru. Many things have happened since that, but finally we are almost ready to have a radio telescope. National Astronomical Observatory of Japan contributed enormously to set up the radio telescope. Initially as a single dish radio telescope, it will observe methanol maser at 6.7 GHz of young stellar objects. In the near future, equipping for VLBI observations is in the scope. Sicaya is situated on the central part of Peru at 3,370 meters of altitude and the weather is benign for radio astronomical observations, also humidity is low and allows have radio telescopes free of rust.

The Nippon Electric Company (NEC) built a 32-m parabolic antenna for Intelsat communications purpose in 1983 in Sicaya at the central Andes in Peru. Then in 2008, the whole communications station with a 32-meters parabolic antenna was donated to the Geophysical Institute of Peru. See Figure1.

In Japan, one of the first telecommunications antenna transformed into a radio telescope was the Yamaguchi 32-m Radio Telescope (Fujisawa, et al, 2001) and recently a 30-m antenna in New Zealand (Woodburn, 2015), then we begun the transformation of our 32-m antenna. An uncooled receiver of 6.7 GHz is already installed and we tested successfully receiving G188.95+0.89 methanol maser (Menten, 1991) source line spectrum. Actually we are preparing the interface that will translate PC's angles to the Antenna Control Unit (ACU), on the PC the Field System software is running.

Fig. 1. The 32-m Radio Telescope of Peru at 3,370 m of altitude.

To process signals from the 6.7 GHz receiver we will use a PCI-VLBI card installed in a Linux (Debian) base PC. It uses a 10 MHz and 1 pps signals as references, we are implementing it now. We estimate that in the in the mid of 2017 will be ready to begin regular monitoring methanol maser sources.

Sicaya is considered as one the place to install a radio telescope, part of the project Caravan-Submm, Black Hole Imager in the Andes (Miyoshi, et al., 2016).

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