

AREQUIPA SATELLITE TRACKING STATION.

P. R. Yanyachi¹ and D. R. McCormick²,

¹TLRS-3 NASA/Universidad Nacional San Agustín – raulpab@unsa.edu.pe,

²GSFC NASA – david.r.mccormick@nasa.gov

San Francisco Hill w/n – Characato Arequipa Peru

Phone 51-54-44821, Fax 51-54-448418 and e-mail t3mgr@unsa.edu.pe.

The TLRS-3 NASA station is located in southern Peru, at the Characato Observatory of the National University of San Agustín in the city of Arequipa. It is the oldest operating SLR station in South America, positioned in the Hill San Francisco, in the district of Characato, at an altitude of 2447.61m.

The operations of the station have evolved simultaneously with the techniques developed for satellite tracking. The tracking station began with the installation of the Baker-Nunn Camera in 1959. In 1973, the SAO-2 system was installed, and in 1990 the transportable Station TLRS-3 became permanent. The Station was founded on 1 July, 1959. In February 2004, the station was temporarily closed. It reopened in December, 2005.

Space geodetic techniques in operation at the TLRS-3 are: SLR Laser Tracking (1973), GPS Global Positioning System (1994), DORIS Orbitography Doppler (1990).

Through the years, the station has hosted other instrumentation and participated in other projects, some of them currently in operation: FPI Fabry Perot Interferometer by University Pittsburg, Michigan (since ~1988), and Clensom (since ~1990), REGINA GNSS receiver (since 2013), MISETA 1994 to 1998 and TIPS for a few months in 1996.

The Observatory of Characato, at the Geophysical Institute, has other equipment in operation: Seismological station (since 1962), Meteorological Station (since 1961) and Terrestrial Magnetometers (1959 to 2001).

Several future projects have been proposed: Telemetry and GPS Positioning of the volcanoes and surrounding hills, with the objective of observing the local deformation and seismic and volcanic risk; Baker Nunn restoration for sky patrol; SAO-2 Telescope restoration for Astronomy; SGP Next Generation station.

Since it was founded, scientists and NASA officials and students from various colleges and universities periodically visit the station. In 2007 and 2009, the station received visits from the United States ambassadors in Peru. The station has earned several awards from missions it supported. The 9 members of the station staff are affiliated with the National University of San Agustín (UNSA).

References:

[1] Jeffrey E.A. and Jentsch E. H. (1967) *Baker-Nunn Camera Manual Vol.1*, Smithsonian Institution Astrophysical Observatory. Cambridge MA.

[2] *Laser Transmitter System Manual (1983) Vol.1*, Smithsonian Astrophysical Observatory. Cambridge MA.

[3] *Transportable Laser Ranging System (TLRS-3/4) Technical Manual (1999) NASA Satellite Ranging Program, GSFC Greenbelt MARYLAND*