Status of the TIGO VLBI Station in Concepción

Hayo Hase [1], Cristian Herrera [2], Pedro Pino [2], Cristian Beltran [2]

Abstract The main activities at the TIGO VLBI station during 2013 were observing 117 scheduled VLBI sessions and progressing with the future cooperation with Argentina for the new site near La Plata. The acronym TIGO will be replaced by AGGO, once the Tigo radio telescope is installed in Argentina.

1 General Information

Since 2002, TIGO has been located in the terrain of the Universidad de Concepción (longitude 73.025 degrees West, latitude 36.843 degrees South), in Concepción, Chile.

Fig. 1 The TIGO radio telescope.

2 Component Description

The IVS network station TIGOCONC constitutes the VLBI part of the Geodetic Observatory TIGO, which was designed to be a fundamental station for geodesy. Hence, the VLBI radio telescope is co-located with an SLR telescope (ILRS site), a GPS/Glonass permanent receiver (IGS site), and other instruments such as a seismometer, a superconducting gravimeter, and an absolute gravity meter.

The atomic clock ensemble of TIGO consists of three hydrogen masers, three cesium clocks and four GPS time receivers realizing the Chilean contribution to the Universal Time scale (Circular T, BIPM).

The technical parameters of the TIGO radio telescope as published in [1] have not been changed.

3 Staff

The 2012 VLBI staff consisted of three persons, as listed in Table 1. Pedro Pino left TIGO in September and was replaced by Cristian Beltran. The team was complemented by students Pablo Figueroa and Dr. Sabina Rayo performing night shifts.

1. Bundesamt für Kartographie und Geodäsie
2. Universidad de Concepción

Table 1 TIGO VLBI support staff in 2013.

Staff	Function	Email	Remark
Hayo Hase	Head	hayo.hase@tigo.cl	
Cristian Herrera	Informatic Engineer	cristian.herrera@tigo.cl	
Pedro Pino	Electronic Engineer	pedro.pino@tigo.cl	until September 2013
Cristian Beltran	Electronic Engineer	cristian.beltran@tigo.cl	until end of 2013
Sabina Rayo	student of mechanical engineering	sabina.rayo@tigo.cl	
Pablo Figueroa	student of telecommunications	pablo.figueroa@tigo.cl	
all VLBI operators		vlbistaff@tigo.cl	

4 Current Status and Activities

4.1 IVS Operation

During 2013, TIGO was scheduled to participate in 114 regular IVS experiments. Three 24-hour additional participations were carried out within the TANAMI project [2]. Table 2 gives an overview about the participation of TIGOCONC in 2013. Out of 117 requested observation days, 113 could be observed successfully, reaching an efficiency of 96.5%. The main reasons for data loss have been related to technical problems in the refrigerating system of the receiver, recording problems on bad data carriers, and unexpected delays in the customs liberation procedure of data carriers.

Table 2 TIGO's observation statistics for 2013.

Name	R1xxx	R4xxx	OHIGxx	T2	RD	TANAMI	Total
# of Exp.	51	50	6	4	3	3	**117**
Correlated	49	48	6	4	3	3	**113**
No result	2	2	0	0	0	0	**4**

4.2 Search for New Site for TIGO

The TIGO project is carried out on the basis of governmental decree 489. During the past few years the Chilean government did not respond to the call to support this bilateral cooperation project. For this reason the German Federal Agency of Cartography and Geodesy (BKG) looked for a new project partner in South America, and an agreement with the Argentinean science foundation Conicet was signed in October 2013. In the year 2014, the TIGO project will be closed in Chile and moved to the vicinity of the town of La Plata. The project will then be called **Argentinean German Geodetic Observatory (AGGO)**.

The future site was decided to be 500 m away from the existing Instituto Argentino de Radioastronomia (IAR). AGGO will be dependent on Conicet but independent from IAR. BKG and Conicet have laid out a development plan. In phase 1 AGGO will make use of TIGO as it was operated in Concepción. In phase 2 the installations within the containers will be moved to an operations building, so that containers older than 20 years can be abandoned.

5 Future Plans

The VLBI activities in 2014 will be focused on:

- execution of the IVS observation program for 2014,
- photogrammetric reflector survey, and
- overhaul and preparing the VLBI equipment for the move to Argentina.

References

1. Vandenberg, N.R.: International VLBI Service for Geodesy and Astrometry 1999 Annual Report, NASA/TP–1999-209243, 1999.
2. M. Kadler, R. Ojha, S. Tingay and J. Lovell, *The TANAMI Program: Southern-Hemisphere VLBI Monitoring of Relativistic Jets in Active Galaxies*, American Astronomical Society, AAS Meeting #211, #04.13; Bulletin of the American Astronomical Society, Vol. 39, p.732.