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Tidal phenomena sensed with co-located geodetic techniques at TIGO Concepción, Chile.

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We use co-located techniques at the fundamental geodetic station TIGO in Concepción (Chile) to study tidal phenomena. TIGO is located close to the south east Pacific coast in the middle of Chile, close to the river Bio Bio. The station is equipped with Very Long Baseline Interferometry (VLBI), Satellite Laser Ranging (SLR), Global Navigation Satellite Systems (GNSS), a superconducting gravimetry meter, meteorological devices and additional complementary sensor systems, e.g. soil moisture sensors. Within 50 km distance to the station there are also two tide gauge stations which recently were tied by levelling, gravimetry measurements and GNSS observations to the TIGO station. One of the tide gauges is monitoring the level of the river Bio Bio while the other one is monitoring the sea level of the Pacific ocean. Due to TIGO's status as fundamental station with a large number of co-located equipment the station will be an important South American contribution for the Global Geodetic Observing System (GGOS). We analyze the data of the different sensors, in particular GNSS, VLBI and the gravimeter, together with data of the complementory sensors and tide gauges. We concentrate on the comparison and combination of in particular ocean loading and hydrological signals, while we also try to isolate the polar motion signal in the gravity record.