The geocentric reference system for the Americas

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SUMMARY

An accurately materialized reference system by means of a constantly maintained reference frame is needed both for engineering and for the geosciences. The national mapping agencies must face today the challenge of providing a reference frame capable to support applications ranging from the collection of information geo-referenced with precision of a few meters, to monitor movements of a few millimetres caused by global change processes. The challenge is threefold: i) to establish and operate a complex infrastructure for collection, distribution, processing, analysis and archiving of the geodetic measurements; ii) to keep a highly qualified technician staff; and ii) to educate the user community for a proper use of the geodetic products according to the needs of each application. For nearly two decades SIRGAS is contributing to face the above mentioned challenges in Latin America and the Caribbean. Established with support of the International Association of Geodesy (IAG) and the Pan American Institute of Geography and History (PAIGH), SIRGAS succeeded in determining a continental-wide reference frame linked to the International Terrestrial Reference Frame (ITRF) that, in 2001 and 2005, was recommended by the United Nations' Cartographic Conference to be adopted by all the America's countries. This contribution describes the activities developed by SIRGAS, which encompass: i) the maintenance of a continuously observing network of over 250 GNSS stations distributed all over the continent and its associated data centres; ii) the operation of nine processing centres and two combination centres that deliver to the community high quality geodetic products on a weekly basis; and iii) a variety of capacity building activities targeted either to geo-information producers and geo-information users.