

THE SCAR GPS CAMPAIGNS - GEODETIC INFRASTRUCTURE FOR THE IPY

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Since 1995 the SCAR GPS Campaigns play an important role in the realization of the International Terrestrial Reference System (ITRS) in Antarctica. In 1999 an Antarctic solution from the observation campaigns 1995 to 1999 became part of the International Terrestrial Reference Frame (ITRF2000) as a densification solution for the first time. In 2004 again a solution using Antarctic observation data from 1995 to 2004 was sent to the ITRF Combination Centers to densify the new ITRF2004.

We will present a new solution of the SCAR GPS Campaigns. We will focus on the rigorous combination of the Antarctic densification network with the global solution on the level of normal equations. The benefits from this rigorous combination in terms of accuracy, reliability and reference frame stability will be outlined. The results will be compared to other realizations of the reference frame in Antarctica.

The determined time series of station positions provide an excellent information on Antarctic neotectonics. The obtained station motions will be discussed with respect to plate tectonics and glacialisostatic adjustments.

In conclusion, a dense network with accurate and reliable station positions will be available in the upcoming International Polar Year 2007/2008, which is essential for a variety of different IPY projects.