

Reprocessing of the SIRGAS reference frame from January 2000 to December 2020

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The operational SIRGAS products refer to the IGS reference frame valid at the time when the GNSS data are routinely processed. A first reprocessing campaign of the SIRGAS reference network was performed in 2010 in order to determine SIRGAS coordinates based on absolute corrections for the GPS antenna phase centre variations and referring to the IGS05 reference frame. A reprocessing referring to the IGS08/IGb08 frame was not undertaken. In this way, the SIRGAS weekly normal equations presently refer to: IGS05 – from the GPS week 1042 (Jan 2, 2000) until week 1631 (Apr 16, 2011); IGS08 – from week 1632 (Apr 17, 2011) to week 1708 (Oct 6, 2012); IGb08 – from week 1709 (Oct 7, 2012) to week 1933 (Jan 28, 2017); IGS14 – from week 1934 (Jan 29, 2017) to week 2105 (May 16, 2020) and IGb14 – since the GPS week 2106 (May 17, 2020). In order to evaluate the long-term stability of the SIRGAS reference frame, a new reprocessing of the SIRGAS GNSS historical data from Jan 2000 to Dec 2020 based on the IGS14/IGb14 reference frame was accomplished by the Regional Network Associate Analysis Centre for SIRGAS (IGS RNAAC SIRGAS) of the International GNSS Service (IGS). This contribution presents a performance evaluation of the SIRGAS stations, a new multi-year solution covering 21 years of SIRGAS observations, and the main features gained from this reprocessing.