

Understanding the change in the VLBI scale behaviour detected in the ITRF2020

Karine Le Bail (Chalmers University of Technology, Department of Space, Earth and Environment), Tobias Nilsson (Lantmäteriet – The Swedish Mapping, Cadastral, and Land Registration authority), Rüdiger Haas (Chalmers University of Technology, Department of Space, Earth and Environment) and Fredrik Lindé Nyström (Chalmers University of Technology, Department of Space, Earth and Environment)

Abstract. The new realisation of the International Terrestrial Reference System, the ITRF2020, became available in April 2022. It shows a significant change, after 2013.75, in the behaviour of the scale defined by the Very Long Baseline Interferometry (VLBI) technique.

In a previous work, we identified various reasons for such a change by investigating the impact of geophysical mismodeling, observation network non-homogeneity, and the inclusion of data from stations with technical problems.

The latter aspect was investigated for only three specific stations of the IVS network. In this work, we study position residuals of all IVS stations with a focus on the period 2013.75 to 2020 in the goal of identifying significant changes or noisy structure that could impact the behaviour of the scale in VLBI global solutions.