



SARI: interactive GNSS position time series analysis software

Alvaro Santamaría-Gómez

GET, Université de Toulouse, CNRS, IRD, UPS, Toulouse, France

GNSS position time series contain signals induced by earth deformation, but also by systematic errors, at different time scales: from sub-daily tidal deformation to interannual surface loading deformation and secular tectonic plate rotation and uplift. This software allows users to visualize time series, from GNSS positions or any other series, and interactively remove outliers and discontinuities, fit models and save the results. A comprehensive list of features is included to help the user extracting relevant information from unevenly sampled series, including spectral analysis with the Lomb-Scargle periodogram and wavelet transform; signal filtering with the Kalman filter and the Vondrák smoother; and estimation of the time-correlated stochastic noise of the residuals. The software is written in R and can be run on a local machine, if all the package dependencies are satisfied, or remotely via a public web server with no other requirement than an Internet connection.