

Plotting NP range residuals - SGF web development

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Introduction

The Space Geodesy Facility website (<http://sgf.rgo.ac.uk>) has been redesigned, reorganised and rewritten. It contains information for the general public about the day to day activities of the SGF and also describes the importance of the work of the SGF in terms of contributing to the definition of a stable geodetic reference frame and supporting scientific satellite missions.

The website shares technical information on many operational aspects of the SGF's work for the interest of other SLR stations. It also has pages that display data collected at the station and results from local analysis.

SGF Website

To navigate the new SGF website the side panel contains headings for different areas. The [Home](#) page introduces the site and the [News](#) page contains reports on the latest developments at the SGF. The tab titled [What does the SGF do?](#) opens to reveal further pages on specific areas of works, such as [satellite laser ranging](#) and [absolute gravimetry](#).

The [Supporting Satellite Science](#) tab opens to reveal sections on the different satellites supported by SLR at the SGF. The [Analysis](#) tab contains sections on the analysis of data from the on-site techniques that is undertaken at the SGF.



Home

Welcome to the NERC Space Geodesy Facility

The Space Geodesy Facility operates multiple geodetic techniques to make a major contribution to the formation of a highly-precise global reference frame and supports satellite missions to study the dynamic Earth.

Located near to the village of Herstmonceux in East Sussex, the NERC Space Geodesy Facility (SGF) is actively supporting geodetic and geophysical science.

The SGF makes range observations to enable orbit determination for scientific satellite missions that study the oceans, ice sheets, land mass, gravity field and climate of the Earth in order to better understand the processes at work.

The SGF is part of the International Laser Ranging Service (ILRS) and International GNSS Service (IGRS) networks. It is appointed by the ILRS as one of the eight ILRS Analysis Centres and was

Tracking satellites by Satellite Laser Ranging

The [Operations](#) tab contains information pages on various aspects of the SGF operation, some of which are only of interest to observers at the SGF. The [System Specifications](#) tab contains technical information on all aspects of the SGF, including details of the specific instrumentation in use.

The [Daily Quality Checks](#) tab contains local analysis of data, such as laser analysis, GNSS data and CPF orbit prediction quality checks. A list of SGF publications and presentations is available from the [SGF Presentations and Publications](#) tab.

Normal Point Orbit Residuals

The SGF is an ILRS Analysis Centre and every day it produces a 7-day solution from the most recent LAGEOS and Etalon data. An output from this analysis are the range residuals of every normal point relative to the final orbits.

In an effort to provide greater feedback to ILRS stations these residuals are plotted each day and made [available on the SGF website](#). They can be used as a diagnostic of range measurement quality on a single normal point basis. Particularly valuable in this context are times when more than one station is ranging simultaneously to a given satellite. The 7-day orbits are smoothed averages and so do not adjust for the pass by pass differences caused by small changes in atmospheric drag, solar pressure and geopotential. This results in individual pass laser observations appearing as slopes on the plots.

The plots are interactive and the website user can zoom in and out and select areas of the plot. It is also possible to choose which stations are plotted.

