

NERC SERVICES & FACILITIES

NERC SPACE GEODESY FACILITY

MISSION STATEMENT

To make laser range measurements to the special satellites that carry retro-reflectors, according to priorities assigned by the NERC Space Geodesy Steering Committee, and in accordance with international projects and priorities;

To ensure that the range measurements are of the highest possible accuracy;

To contribute the data promptly to the international SLR data centres;

To operate geodetic GPS and GLONASS receivers on the site and contribute the data regularly to the international GPS/GLONASS data centres;

To maintain and develop the software and hardware of the systems in order to give high reliability and to keep the precision of the systems at the current state of the art;

To achieve a high productivity level of numbers of satellite passes tracked;

To assist and collaborate with UK analysts in their use of satellite tracking and related data

In order to fulfil its mission the Space Geodesy Facility will:

maintain an up-to-date knowledge of international developments of hardware and software in satellite tracking technology;

contribute to the international advancement of the technology, particularly in the areas of orbital predictions, software data processing, and the use of photo-diode detectors;

maintain a constant vigilance for sources of measurement error;

participate fully in UK and international co-ordination of SLR and GPS/GLONASS activities;

carry out data analysis and research, in order to maintain a real awareness of what the users require from the data

User Communities:

The observations from the facility are contributed to international data centres, together with data from other geodetic facilities around the World. The data are used in combination with data from all precise space geodetic techniques by analysis groups world-wide and within the UK for a variety of studies, including oceanography, glaciology, the gravity field of the Earth, tides in the Earth and oceans, a global reference frame, and crustal motion. These data products are used widely by the oceanographic and solid earth science groups within the UK and world-wide.

Membership of the NERC Space Geodesy Facilities Steering Committee, 2012

Dr M. King (Chairman) (2010)
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Ex-officio members:

Dr Adele Gardner, NERC S&F Management Team
Dr G Appleby, Head, SGF
Dr R Kelman, NERC Earth Observation
Dr R Bingley, Deputy Director, BIGF
Dr D Baker, Manager, BIGF

Range Finding Ny:YAG Laser System (JK Lasers)
KHz Laser system (Hi-Q Lasers)
2xControlled Atmosphere Tents
Laser Emitting & Receiving Telescope (Contraves)
Telescope Control Unit (Heasons)
Tip/Tilt Mirror Mounting And Controller
Compensated SPAD Detector (PESO)
SPAD detector (PESO)
CCD TV Camera + Frame Grabber
ISIT Camera
Replacement Digital high-gain camera system
S Band Radar System
Oscilloscope For Radar
4x Oscilloscopes
FG5 Absolute Gravimeter (Micro-G)
New model dropping chamber for AG
GRX GG Pro GPS/GLONASS Receiver (Leica)
Z12 GPS Receiver (Ashtech)
Z18 GPS/GLONASS Receiver (Ashtech)
Septentrio GPS/GLONASS T-Receiver
Active Hydrogen maser
Leica AR25 GNSS antenna
2x Timing Modules (Stanford)
2x Four Channel Digital Time Interval Generator
Event Timer (Thales, SGF)
Disciplined Frequency Standard
2x Universal Time Interval Counters (Stanford)
1x Operational 40cm Cassegrain Telescope in Dome
Starlight Express CCD imaging colour camera
3x 40cm Cassegrain telescopes, non-operational; one on-loan to Hx
Science Centre.
2xLINUX PC servers
2xLaptops
Digital Projector
Workshop lathe

Finance 2011/12

The staff profile at SGF is 1xB5, 4xB6 and 2xB7. Staff costs include out-of-hours payments for laser/MoD observing sessions.

Local overheads are estimates of the costs at Herstmonceux of electricity and oil (£10,000 per year), local Council Rates (£1,500), telephone/fax line and call charges (£1,000), computer equipment licensing and servicing plus site rent to ISC, Herstmonceux (£1,300).

Recurrent charges include engineering R&D, lasers, radar and gravimeter maintenance.

Travel and subsistence includes involvement at national (CU, UCL, SO) and international meetings and conferences (2 to ILRS in Germany, 1 to EGU in Vienna, 1 to AGU 2011) and actual costs of HoS attendance at SGF.

Capital expenditure is separately detailed below. The major cost was a new and higher-spec dropping chamber for the AG

Item	£k
Staff Costs	320
Local Overheads	20
Recurrent	20
T&S	14
Sub-total	374
Capital:	
Drop chamber for AG	45
Digital Oscilloscope	15
Pulse-selector unit for YAG	12
High-gain replacement camera	12
Total	458
Income (MoD)	106