

# United Kingdom

Asset name	Owner	Operator	Type of asset	Brief description of the asset
Merlin Radiation Detector	QinetiQ	QinetiQ	Sensor(s)	Small space environment monitor capable of being fitted to various spacecraft to provide wide-ranging environmental information.
Real-time space weather data	STFC	STFC	Data	Access to real time data from the NASA STEREO mission via the SSTD ground station
Real-time space weather data	STFC	STFC	Data	Access to real time data from the NASA/NOAA ACE mission via the SSTD ground station
Skynet 5 comms facilities	Paradigm	Paradigm	Other	extensive ground infrastructure for networking comms with ability to serve overseas sites and link to all UKK SSA related facilities
Ionosonde in Slough, Falklands, South Georgia			Sensor(s)	
GPS station network			Sensor(s)	
SAMNET magnetometer network		Lancaster university	Sensor(s)	stations in: UK, Faroe islands, Iceland & Russia
Magnetometers		BGS	Sensor(s)	Located at Eskdalemuir, Hartland, Lerwick
EISCAT (UK support)		STFC/RAL	Expertise	Supports and coordinates UK related EISCAT activities
Ionospheric modelling		Leicester U, Lancaster U.	Expertise	
IRIS: imaging riometer		Univ Lancaster	Sensor(s)	located in Finland.
CUTLASS (Co-operative UK Twin Located Auroral Sounding System)		Univ Leicester	Sensor(s)	HF radars at Pykkvibær, Iceland, and Hankasalmi, Finland. Part of global international Super Dual Auroral Radar (SuperDARN). Group also has several scientific instruments located in the arctic. The CUTLASS data are made available in real time via web site. SuperDARN cross polar cap potential maps for the northern hemisphere, to which the CUTLASS data contribute, are also available in real time from APL web site.
Expertise in solar s/c instrumentation		University College London/MSSL	Expertise	Flown relevant instrumentation on SOHO, Yohkoh, Hinode + others
Expertise in solar s/c instrumentation		STFC/RAL	Expertise	Flown relevant instrumentation on SOHO, STEREO + others
EGSO		Hosted at UCL/MSSL	Service	GRID test-bed aimed towards simplifying access to heterogeneous solar data. Currently operating at pilot.
SOARS: Spaceweather Operational Airlines Risks Service		University College London/MSSL	Service	Pilot service, part of the ESA space weather applications pilot project & member of SWENET
Solarmetrics		commercial	Expertise	startup geared towards providing space weather information and services to airlines
CEDEX radiation monitor		Univ Surrey	Sensor(s)	
Expertise in space plasma s/c instrumentation		University College London/MSSL	Expertise	Flown relevant instrumentation on e.g. Cluster
Incoherent radar Malvern			Sensor(s)	
DIFS: Daily Ionospheric Forecasting Service	Bae Systems	Bae Systems (UK)	Service	Nowcast and forecast HF and SATCOM signal propagation conditions
BINCASTS: Index Nowcast and Forecast	BGS	BGS (UK)	Service	Indices now and forecast
SWIMIC: Solar Wind Monitoring and Induction Modelling for GIC	BGS	BGS (UK)	Service	Nowcast and forecast GIC in Scottish power grid
SOARS: Spaceweather Operational Airlines Risks Service	MSSL/UCL	MSSL/UCL (UK)	Service	Service for airlines focussing on radiation and communication issues
GEOSHAFT	QinetiQ	QinetiQ (UK)	Service	Radiation hazard nowcast and alert at GEO
STIF	STFC/RAL	RAL (UK)	Service	ionospheric propagation parameters for European region
ASAP	Univ Bradford	Univ Bradford (UK)	Service	Forecast solar flare activity
EDAM	QinetiQ	QinetiQ	Service	3D electron density model
HOTRAY		British Antarctic Survey	Software	Ray tracing code for calculating the path, amplification and absorption of electromagnetic and electrostatic waves in hot magnetised plasmas. Potential applications to Galileo signals
PADIE		British Antarctic Survey	Software	Computer code for calculating pitch angle and energy diffusion rates for wave-particle interactions in connection with radiation belts. Potential applications to space weather modelling
BAS dynamic global radiation belt model		British Antarctic Survey	Software	Computer code for dynamic modelling of the Earth's radiation belts in 3d. Potential applications to space weather modelling

Global magnetic field models (e.g. scientific, International Geomagnetic Reference Field and World Magnetic Model)		British Geological Survey	Expertise	Leadership role in International Geomagnetic Reference Field
UK regional magnetic field model		British Geological Survey	Service	
Magnetic index forecast codes		British Geological Survey	Service	Includes services that contribute to SWENET
GIC analysis code for UK		British Geological Survey	Software	
Atmospheric radiation model		QinetiQ	Expertise	
Synthetic Aperture Trans-Ionospheric Radio Propagation Simulator (SAR-TIRPS)		QinetiQ	Software	
Kinetic modelling of coronal mass ejections		STFC/RAL	Expertise	
Integration of UCL GCMs with lower atmosphere GCMs		UK Met Office	Expertise	
Terrestrial thermosphere/ionosphere models		University College London	Software	CMAT2 goes from 15km to 500km plus plasmasphere and high-latitude connection into the magnetosphere
Thermosphere/ionosphere models for other planets, eg Mars, Jupiter		University College London	Software	
MIDAS ionospheric tomography/data assimilation software for ionospheric specification		University of Bath	Software	
Automated Solar Activity Prediction Tool		University of Bradford	Service	Used for detection and classification of sunspot groups, and solar flare prediction. It is online and near real time. <a href="http://spaceweather.inf.brad.ac.uk/">http://spaceweather.inf.brad.ac.uk/</a> Contributes to SWENET
SHARE radar - now called the Halley SuperDARN radar. Measurements of winds, tides and waves in the mesosphere and ionosphere. Part of global international Super Dual Auroral Radar		British Antarctic Survey	Sensor(s)	Operated by BAS from 1988 to 2008. Will resume operations at Halley 6 in Jan 2012.
New Falkland Islands radar - to start about 2010		British Antarctic Survey	Sensor(s)	
Meteor radar at Rothera		British Antarctic Survey	Sensor(s)	
Imaging riometer, being moved to Halley 6		British Antarctic Survey	Sensor(s)	
AARDDVARK network of radio receivers for measuring electron precipitation		British Antarctic Survey	Sensor(s)	
Search coil magnetometer, Halley 6		British Antarctic Survey	Sensor(s)	
Pulsation magnetometer, Halley5, will move to Halley 6.		British Antarctic Survey	Sensor(s)	
VELOX at Halley, for whistler detection and substorms		British Antarctic Survey	Sensor(s)	
Low power magnetometer network, poleward of Halley		British Antarctic Survey	Sensor(s)	
AIRIS riometer in Norway/ALOMAR		Lancaster University	Sensor(s)	
Ny-Alesund imaging Riometer		Lancaster University	Sensor(s)	In collaboration with China (PRIC)
Rainbow all-sky camera network in Iceland and Faroes		Lancaster University	Sensor(s)	during darkness and clear sky
Ionosonde at Tromsø		QinetiQ	Sensor(s)	Real-time data goes to SWPC Boulder
GPS receivers		QinetiQ	Sensor(s)	
CREDANCE monitor to fly with NASA Living with a Star Space Environment Testbed.		QinetiQ	Sensor(s)	Will monitor accumulated dose, energetic protons, heavy ion LET spectra, electron fluxes and charging currents. Approx launch date 2012.
EMU monitor to fly on Galileo.		QinetiQ	Sensor(s)	Similar capabilities to CREDANCE but additional proton channels.
QDOS aircraft radiation monitor		QinetiQ	Sensor(s)	To fly regularly on high latitude flights.
Ionosondes at Chilton and Port Stanley		STFC/RAL	Sensor(s)	Real-time data supports DIAS system and hence SWENET services. Real-time data goes to SWPC Boulder and hence to end users including MOD
Ground station: 12m S-band uplink/downlink antenna system 2.4m S-band downlink antenna system 4.5m S-band/X-band downlink antenna system		STFC/RAL	OT	Past space weather use: STEREO beacon mode (now too far away); ACE real-time solar wind (superseded by DLR service in Sep 2009)

Heliospheric Imager on NASA STEREO spacecraft		STFC/RAL	Sensor(s)	
Fabry-Perot measurements of thermosphere winds and temperatures in Svalbard and Scandinavia		University College London	Sensor(s)	during darkness and clear sky
Scanning Doppler Imager (SCANDI) measurements of thermosphere winds and temperatures		University College London	Sensor(s)	during darkness and clear sky
GPS receivers		University of Bath	Sensor(s)	
LEO beacon receivers		University of Bath	Sensor(s)	
Meteor radars		University of Bath	Sensor(s)	
Meridian chain of GPS scintillation receivers, jointly run with Bath: operational: Tromsø, Trondheim, Nottingham, Dourbes, Lagos (Nigeria) to be deployed: Kiruna, Lerwick, Aberdeen, Shrewsbury, Cyprus, northern Nigeria		University of Nottingham	Sensor(s)	
Magnetic field		Imperial College	Sensor(s)	Cluster, Rosetta, Ulysses, Cosmic Visions, cubesat
Thermal electrons (<1 eV to 30 keV)		MSSL	Expertise	Cluster, CRRES, Cassini, Cosmic Visions, miniaturisation studies
EUV spectroscopy		MSSL	Expertise	Hinode
Radiation dose		QinetiQ	Expertise	Shuttle, Concorde, Giove, ...
High-res space cameras		STFC/RAL	Expertise	STEREO (HI, EUVI, COR), SDO (AIA, HMI), SMEI, GOES
EUV spectroscopy		STFC/RAL	Expertise	SOHO
Medium energy (30 keV -1 MeV) particle detectors		STFC/RAL	Expertise	Cluster, Cosmic Visions
Radiation dose		Surrey	Expertise	Giove
CRRES satellite wave and particle database			Data	
World Data Centre for Geomagnetism			Service	
CHIANTI			Expertise	Atomic Database for Spectroscopic Diagnostics of Astrophysical Plasmas
ADAS			Expertise	Atomic Data and Analysis Structure
GAIA-VXO			Service	Global Auroral Imaging Access
UK Solar System Data Centre			Service	data & models for solar and STP studies World Data Centre C1 for STP
PROMPT ionospheric database			Data	Developed as UK input for COST-271
Solar archives			Service	Data from SOHO, STEREO and TRACE
CSDSweb			Service	Magnetospheric near-realtime conditions using Cluster
STPDF			Software	Data access system for STP/space weather data. Key data access component of ESA's SEDAT system
Clustran			Software	Library for coordinate transformations. Used in ESA's SEDAT system.
Database of Fabry-Perot measurements of thermospheric winds and temperatures			Data	30 years data, mostly over Scandinavia but also occasionally elsewhere.
Daily Ionospheric Forecasting Service		BAE SYSTEMS Advanced Technology Centre	Service	contributes to SWENET
Commercial applications of geomagnetic data and science, e.g. for oil and gas exploration and recovery and in navigation		British Geological Survey	Service	
Geomagnetic hazard modelling and analysis, e.g. for power system operators		British Geological Survey	Expertise	Includes services that contribute to SWENET
AuroraWatch UK		Lancaster University	Service	Over 25000 subscribers
Space weather Operational Airline Risks Service		MSSL	Service	contributes to SWENET
Spacecraft Hazard And Anomaly Forecasting Tool		QinetiQ	Software	contributes to SWENET
EDAMS33 real time HF propagation prediction service		QinetiQ	Service	web service that provides HF propagation information based on the EDAM real time ionosphere. Access if controlled.
Space-based auroral imagers, primarily at UV but also possibly at X-ray wavelengths		University of Leicester	Sensor(s), Expertise	Derived from systems on XMM and Swift
TRIO-CINEMA - 3 cubesat mission with US and Korea.		Imperial College London	Sensor(s)	Imperial College to supply magnetometer. Launch early 2012. <a href="http://mstl.atl.calpoly.edu/~bklofas/Presentations/DevelopersWorkshop2009/2_Science/4_Glaser-CINEMA.pdf">http://mstl.atl.calpoly.edu/~bklofas/Presentations/DevelopersWorkshop2009/2_Science/4_Glaser-CINEMA.pdf</a>
Proton, electron fluxes, ion LET spectra, total dose, charging currents		QinetiQ	Sensor(s)	GIOVE-A plus other Galileo GPS
Particle fluxes, aircrew ambient dose equivalent		QinetiQ	Expertise	Various regular flights
Solar wind physics		Imperial College London	Expertise	