Cranfield UNIVERSITY

Report Prepared for the Department for Environment, Food and Rural Affairs

Report of Activity for LandIS Support



Quarterly Progress Report
1st January – 31st March 2010

Report of Activity for LandIS Support
For the Department for Environment, Food and Rural Affairs

by
Caroline Keay, Timothy Farewell, Andrew Rayner

Quarterly Progress Report
1st Jan – 31st Mar 2009
DEFRA Contract No. SP0901
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RESPONSIBILITY FOR THIS DOCUMENT
Please contact:
Caroline Keay
National Soil Resource Institute, Cranfield University
Email: c.keay@cranfield.ac.uk
Tel: 01234 750111 ext 2771

CHANGE HISTORY

Version	*Date*	*Summary of change*
1.0	22/04/2010	First Issue
1.1	29/04/2010	Adding comments to work in progress

Reference to this report should be made as follows:

KEAY, C.A.; FAREWELL, T.S.; RAYNER, A.P.; (2010). Report of Activity for LandIS Support for the Department for Environment, Food and Rural Affairs. Quarterly Progress Report Jan – Mar, 2010, NSRI research report number WN32150N for DEFRA, 13pp.

National Soil Resource Institute
Cranfield University, Bedford, MK43 0AL, UK
Tel: 01234 750111 ext 2771
E-mail: nsri@cranfield.ac.uk Webs: www.cranfield.ac.uk/sas/nsri/ www.landis.org.uk

Progress with the LandIS Support Contract

Reporting Period: 1 January, 2010 – 31 March, 2009

Database Maintenance

No specific maintenance issues are reported in this period. The LandIS 'Virtual Server' continues to provide good service to the project. The service team in the Cranfield University IT computing group provides a high standard of maintenance care and support.

Usage

The Soil Site Reporter (http://www.landis.org.uk/reports/) continues to be used extensively with numbers steadily increasing. In the current period there have been 25 new companies and 238 new users registered. This includes 12 new Universities and 182 new student registries. The Soilscapes viewer has received around 3,000 map requests per week over the last 3 months with a peak weekly request figure of 5,000.

The following figures illustrate the level of response and use of the reporter to-date (figures 1-2):

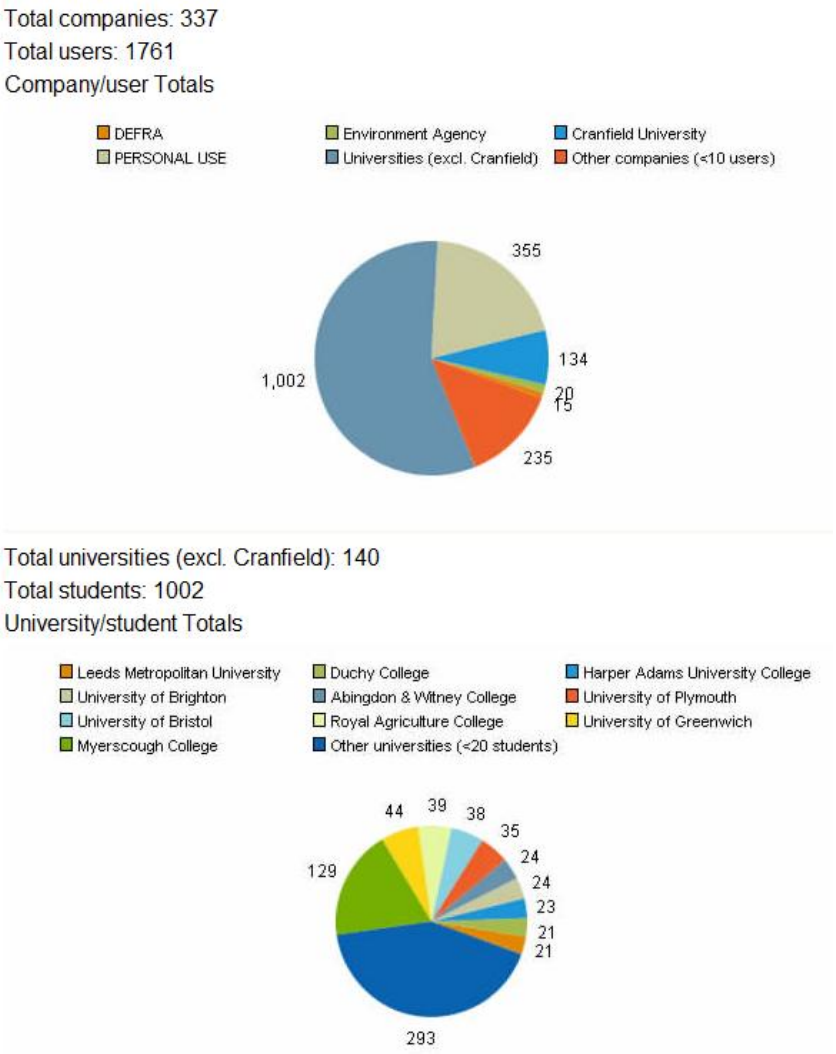


Figure 1 Summary of Soil Site Reporter uptake by user group

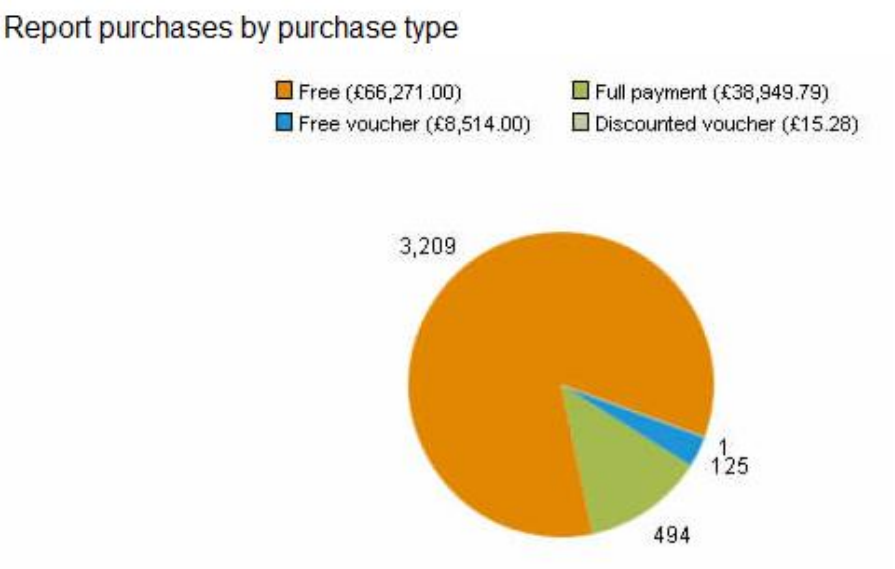


Figure 2 Summary of report types served by Soil Site Reporter

New Product Descriptions and Product Relationships

Work is progressing on the documentation of the interpreted soil datasets. These include descriptions of the relationships between the datasets and their derivation. Once complete, this documentation will allow better understanding of the inputs to each model, and the principals behind each interpretation. Where possible, relevant academic and related papers are being compiled for each data product.

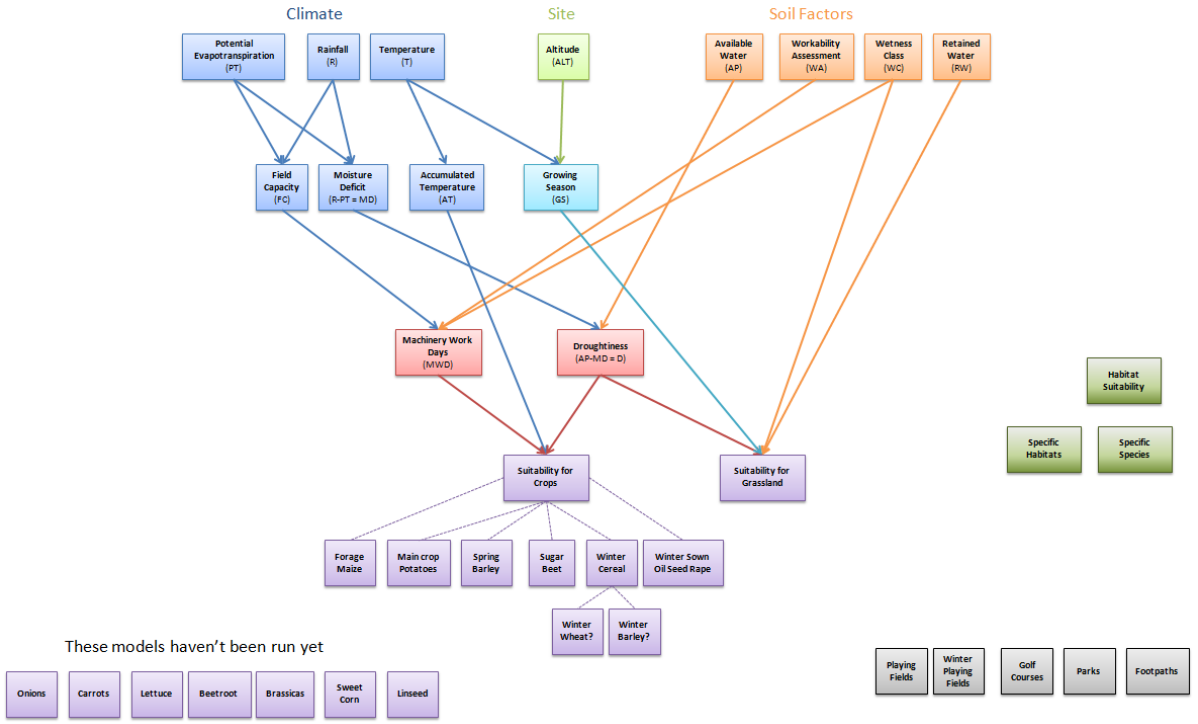


Figure 3 - data relationship diagram

Metadata

The open-source software tool 'GeoNetwork' (http://geonetwork-opensource.org/) is being used to serve as a metadata server for the LandIS soils data holdings. This quarter around 240 individual metadata records have been created for objects held in LandIS. These records have been created using the new metadata standard as defined by the INSPIRE Geoportal. The GeoNetwork server is however still within the Cranfield Intranet and we will be investigating making it available to the wider public in the coming months. Figure 4 and Figure 5 show screenshots from the new metadata system.

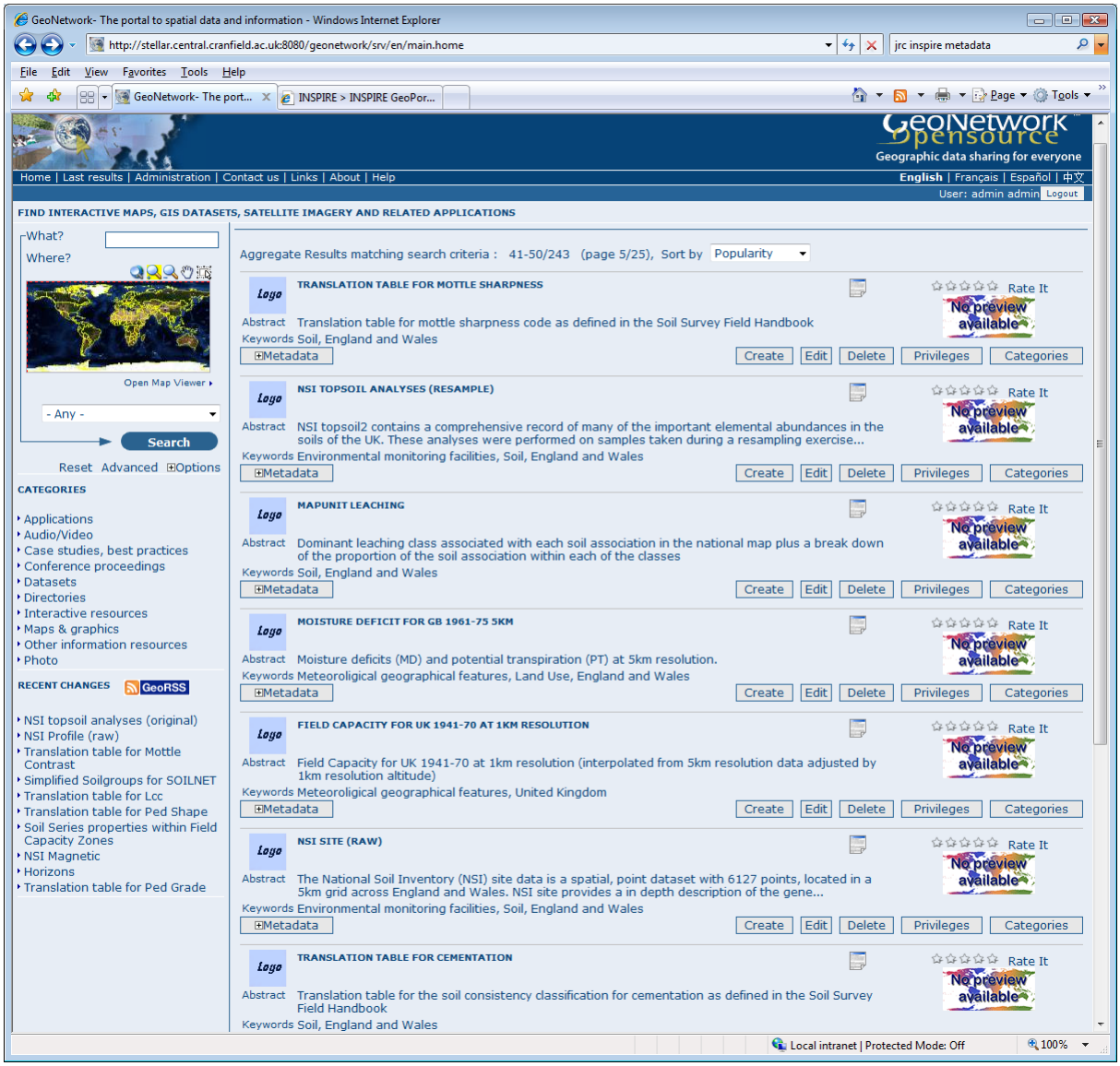


Figure 4 Sample screen shot showing a selection of the new LandIS metadata data records

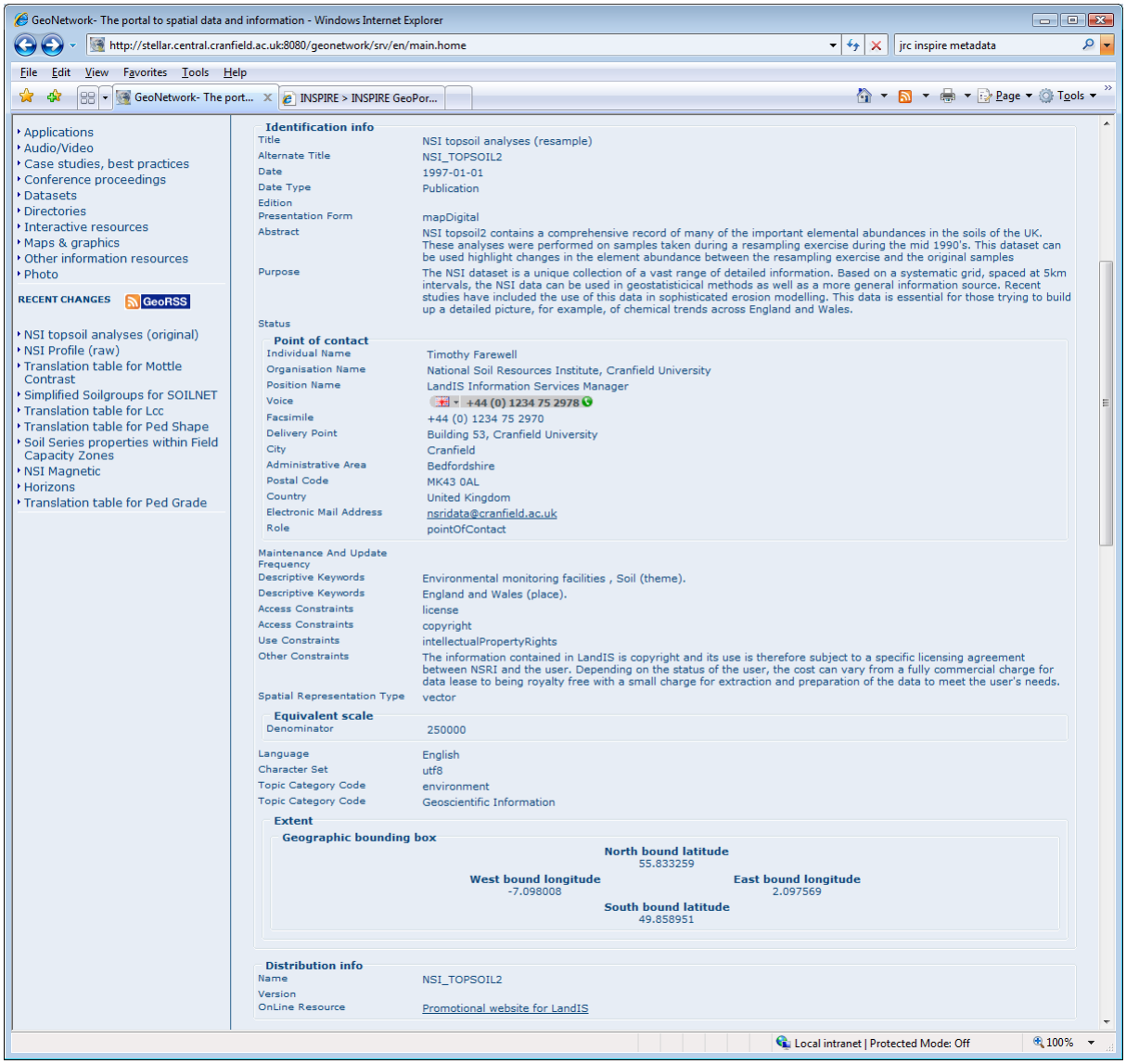


Figure 5 Sample of a Metadata Record for a selected LandIS object

Soils Site Reporter (v2)

Because the second version of the site reporter innovatively uses a number of different technologies to produce the reports, certain technical issues are slowing the final stages of development. We hope to find a work around / solution to these issues in the coming months.

Work In Progress

There are two more quarters to go before the end of the current LandIS Reference Site support contract. Over this period the LandIS team will be focusing on three areas:

Full metadata for LandIS products available to the general public via the GeoNetwork software tool

Work will continue to complete the new metadata entries for the LandIS soils datasets in the GeoNetwork server. It is anticipated that this system will ultimately be placed on a public-facing computer server.

Soil Site Reporter (v2) to be launched
We hope to launch the second version of site reporter later in 2010.

Data Product Documentation
Work will continue on the documentation of the interpreted soil datasets, focussing initially on the Soilscapes datasets and will also include National Map interpretations such as soil structure, HOST, landuse, ground movement and flood vulnerability.

LandIS PERSONNEL/TIME

Time put down to the LandIS project for the period Apr 09 to Dec 09 with budgeted days for Year 3 (Apr 09 to Mar 10) in brackets:

Caroline Keay	58	(58) days
Timothy Farewell	50	(50) days
Stephen Hallett	22	(28) days
Andrew Rayner	50	(50) days
Michelle Clarke *	6	(0) days
Mark Kibblewhite **	0	(2) days

* Michelle Clarke's assisted in the development of the new soil product descriptions. Her time will be taken from Stephen Hallett's allocation.
** Mark Kibblewhite is standing in for Dick Thompson's original role in the project and prior to recruitment of a succeeding NSRI Director.

Defra budget used between 1st April 2009 and 31st March 2010

£4,725 was spent from a budget of £5,800 for 12 Defra projects. This means there is still £1,075 left unspent in this year's up to the end of March. New data leases this quarter have been highlighted ***NEW*.**

The 6 data leases marked with a * were deferred from last years budget until the beginning of April, 2009.

NEW DATA LEASES FOR THE YEAR TO DATE

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Data Lease funded by DEFRA via the LandIS fund						
NERC / CEH*	1km resolution soil carbon database for England and Wales, giving the soil series in each 1km square together with particle size, bulk density and carbon content for layers 0-30cm and 30-100cm	To be used by CEH (Edinburgh) for DEFRA Project on Preparation of Annual Greenhouse Gas Inventory for LUCF in the UK	01/06/2008	31/07/2010	£200	£50,000
Forestry Commission*	NSI data points - DEFRA contract SP0521.	Forestry Commission research project EH66600E ' Carbon dynamics in forests'.	11/10/2008	10/10/2009	£200	£97,000
University of Stirling*	NATMAP vector, NSI topsoil, SOILSERIES hydrology, SOILSERIES pesticides.	Defra project: FC1177 "Development of a risk evaluation system for the establishment of Gyrodactylus salaris in English and Welsh river systems." Data to be used by David Morris.	23/02/2009	22/02/2010	£375	£112,000
Forestry Commission*	NATMAP vector - Breckland Forest area	Data to identify heathland areas and for use in forestry planning	25/02/2009	21/02/2014	£375	£3,000
Maslen Environmental*	Soilscapes for England and Wales.	Defra R&D project SP0573: Basis of the UK BAP target for the reduction in use of peat in horticulture Development of a map showing lowland raised peat bogs where the peat deposits have historically or are currently being extracted.	02/02/2009	01/02/2010	£375	£38,525
Environment Agency*	NSI Carbon/texture data Soil C (%)	DEFRA project SP0562 - 'Co-ordinate an expert group to assemble UK-wide data on soil carbon (and greenhouse gas fluxes) in the context of land management).	19/01/2008	18/01/2010	£375	£2,400

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
BBSRC	County-level soil property data defining, for the 3 most common soil types present:maximum organic carbon content(%); minimum soil organic carbon content (%); clay content (%); pH; bulk density (g/cm3); total soil porosity (% volume); water content at field capacity (1/3 bar tension) as a % of total water content at wilting point (15 bar tension) as a % of total porosity, of the topsoil layer; together with soil texture class and Hydrology Of Soil Types (HOST) grouping.	For use solely as input data to any version of the UK-DNDC model for the purpose of deriving emission factors for the UK N20 inventory as required by the Department of the Environment, Food and Rural Affairs (Defra). Ref: DEFRA project code: CC0266. 2008 - same project but code changed to AC0101. 2009 - DEFRA AC0112: Inventories of ammonia and greenhouse gases from UK agriculture	01/04/2009	31/03/2010	£200	£66,029
DEFRA	Soilscapes data.	DEFRA project ref: IF0128. The potential impact of Climate change on diseases influencing the UK strawberry industry.	19/05/2009	30/04/2011	£375	£24,078
DEFRA	NATMAP 1km, with Attributes and HOST.	Extending the evidence base on the ecological impact of fine sediment and developing a framework for targeting mitigation of agricultural sediment loss. DEFRA project code: WQ0128	01/07/2009	31/03/2012	£375	£28,000
DEFRA	1km NATMAP with Attributes.	Characterisation of soil structural degradation under grassland and development of measures to ameliorate its impact on biodiversity and other soil functions.DEFRA project code: BD5001.	01/07/2009	31/12/2013	£375	£23,000
Royal Veterinary College	Soilscapes- Wales Yr 2 & Yr 3 - Soilscapes England	To be used in a study of risk factors of disease introduction in a population of cattle herds and sheep flocks in Wales.DEFRA code:SE4002/CTA0301. (Single User licence)	01/05/2009	30/04/2010	£375	£19,263
BGS	NATMAP vector, HORIZON fundamentals - texture & carbon for topsoils for England and Wales.	DEFRA project SP0571 'UKCIP08 Scenarios & climate change pressures/threats to soils in England and Wales.	13/07/2009	12/07/2010	£375	£52835
DEFRA	NATMAP vector, soilscapes, legend, associations. SOILSERIES info, hydrology, pesticides, agronomy.	DEFRA project: IF0143 Modelling the spatial and temporal management of land-use to optimise biodiversity.	01/12/2008	30/11/2011	£375	£81,278

DEFRA	NATMAP vector and Soilscapes data	Defra and the Environment Agency - National ecosystem assessment project.	09/03/2009	28/02/2011	£375	£56938
				TOTAL (Defra Charges)	**£4,725**	**£603,346**

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
Crown						
Welsh Assembly Government ***NEW***	NATMAP vector, NATMAP1000, Soilseries pesticides.	For use withinAgri-Environment Monitoring and Services Contract Lot 3 (183/2007/08). Data to be used for other WAG projects - titles and information to be sent to Sara Larman to add to licence document. Large Multi-user licence.	13/07/2009	12/07/2010	£375	£25,325
Welsh Assembly Government ***NEW***	Trafficability map.	By Ian Rugg - WAG	01/02/2010	31/01/2011	£375	£17,000
Bona Fide Research						
University of Brighton	National Soil Map soil associations for the South East of England with text legend file 2/4/09 - Additional data supplied. MUSID - horizon and agronomy properties summarised	For a research and development project on Habitat Suitability Modelling on the South Downs	23/03/2009	22/03/2010	£375	£4,993
University of East Anglia	Digital version of the 'stability of topsoil structure' map.	Research project - RELU Biomass project team - increased biomass crop planting. 2-5 users.	15/06/2009	14/06/2011	£600	£24,000
University of Sheffield	NATMAP vector, SOILSERIES hydrology & agronomy, HORIZON fundamentals & hydraulics.	Non- commercial use. For Bona-fide research purposes. Project: 'Impact of catchment landscape structure on water quality variability' funded by Marie Curie fund. Small multi-user - 2-5 people.	25/05/2009	24/05/2012	£375	£87,697
University of Oxford	NATMAP vector, HORIZON Hydraulics.	Masters course - dissertation: N20 release from the Kennet Catchment.	13/07/2009	12/07/2010	£375	£500
University of Bristol	The blanket peat map for the UK derived from NATMAPvector and other sources. Data to be supplied by Jo Clark - University of Bangor.	Within EA-QUEST project.	20/07/2009	19/07/2010	£375	£37,675
University of East Anglia	NATMAP vector, legend, associations. SOILSERIES info, hydrology, agronomy. HORIZON fundamentals, hydraulics	Research project: 'Breckland Biodiversity Audit'. Related PhD project: 'Conservation ecology of	10/08/2009	09/08/2012	£375	£6,000

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
		European Nightjar'.				
University of Cardiff	SOILSCAPES, NATMAP vector, MUSID HOST, Flood Extent, NSI topsoil carbon.	Ecosystem services - UK National Ecosystem Assessment - Welsh chapter. Single user licence.	01/10/2009	30/09/2010	£375	£87,550
University of Leeds	GIS layer for soils & Attribute data.	Collaborative licence with Jo Clarke - Bangor University.	09/11/2009	08/11/2010	0	£37,675
University of Nottingham	HOST data for England and Wales	Within PhD research project for Christopher Parker.	01/12/2009	30/11/2014	£375	£46,000
BBSRC	NATMAP vector,NATMAP host, NSI 5km, SOILSCAPES	PhD - Lara Harrup	01/12/2009	30/11/2012	£375	£78,490
University of Miskolc (Consortium)	NATMAP vector & attribute table data Soil association info Representative profiles Georeference Full horizon description	EU FP7 research project - e-SOTER	21/12/2009	20/12/2010	0	£85,000
BGR (Consortium)	NATMAP vector & attribute table data Soil association info Representative profiles Georeference Full horizon description	EU FP7 research project - e-SOTER	21/12/2009	20/12/2010	0	£85,000
Wageningen University (Consortium)	NATMAP vector & attribute table data Soil association info Representative profiles Georeference Full horizon description	EU FP7 research project - e-SOTER	21/12/2009	20/12/2010	0	£85,000
Wageningen University (Consortium)	NATMAP vector & attribute table data Soil association info Representative profiles Georeference Full horizon description	EU FP7 research project - e-SOTER 3 USERS	21/12/2009	20/12/2010	0	£85,000
Svent Istvan University(Consortium)	NATMAP vector & attribute table data Soil association info Representative profiles Georeference Full horizon description	EU FP7 research project - e-SOTER 2 USERS	21/12/2009	20/12/2010	0	£85,000
University of Oxford	NATMAP vector, HORIZON Hydraulics.	Masters course - dissertation: N20 release from the Kennet Catchment.	13/07/2009	12/07/2010	£375	£55,855

Organisation	Abstract	Purpose of Use	Start Date	End Date	P&A	Uncharged Royalty
AEA Energy and Environment ***NEW***	NSI topsoil data.	Within Defra project RMP2106- investigating the potential contribution to atmospheric heavy metal concentrations from wind erosion from soils in NAEI (National Atmospheric Emission Inventory). 1/5/09 - Also for use within Defra project: CPEA15 - Pollutio	22/09/2009	21/09/2010	£375	£24,864
University of Leeds ***NEW***	NATMAP soilscapes for Yorkshire Dales	By Ute Bradter within his PhD - spatial model relating breeding waders to habitat features.	18/05/2009	17/05/2012	£375	£885
Environment Agency ***NEW***	Phosphorus data from NSI for England and Wales to correlate with P concentrations in rivers.	DEFRA project (ECSFDI).	25/07/2009	31/05/2010	£375	£24,864
University of East Anglia ***NEW***	NATMAPvector NATMAP5000 SOILSERIEShost SOILSERIESagronomy HORIZONfundamentals & hydraulics Field Capacity (5km) Moisture Deficit (5km) Machinery Work Days (5km) Rainfall (5km)	Within SFARMOD and CASCADE projects.	15/10/2009	14/10/2010	£200	£177,050
				TOTAL (Crown and Bona fide Research)	**£6,050**	**£1,161,423**



https://dspace.org/

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Keay, Caroline A.; Farewell, Timothy S.; Rayner, Andrew P.

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