

UK Environmental Observation Framework



Sharing environmental monitoring data;
Benefits, barriers and future standards

19th February 2013

Maple House, Birmingham

Welcome

- House keeping
- Fire alarms
- Refreshments



Agenda

- Aims of the workshop
- Data Advisory Group
- Environmental Monitoring in the UK
- INSPIRE Regulations
- INSPIRE Environmental Monitoring Facilities Theme
- Next Steps for EF INSPIRE data
- INSPIRE EF - benefits, barriers and opportunities

Aims: The Challenges

- How ready is the environmental monitoring community for INSPIRE compliance?
 - How prepared are you and your organisation?
 - How can INSPIRE compliance deliver tangible benefits for future environmental monitoring in the UK?
- INSPIRE EF***
- *Dec 2013 - Full Discovery Metadata, View Services & Download made available for INSPIRE Annex III datasets*
 - *Dec 2015 - Any new or extensively restructured Annex II & III datasets must be available in accordance with the data specifications set out in the Implementing Rules*

Aims: Meeting the Challenges

The workshop will:

- Consider the state of environmental monitoring in the UK
- Show case examples of how the EF theme will be implemented and discuss what this means for data users and providers
- Share good practice to ensure the UK can maximise the benefits of INSPIRE and
- Draw on existing expertise within the public sector environmental monitoring community.

The Data Advisory Group

- A network of producers and users of environmental observation data and information.
- Produce advice on topical issues.
- Management and future development of the UK-EOF Environmental Observations Catalogue.
- Assists in coordinating UK implementation of the INSPIRE Annex III Environmental Monitoring Facilities (EF) theme working with the UK Location Programme.

DAG Advice

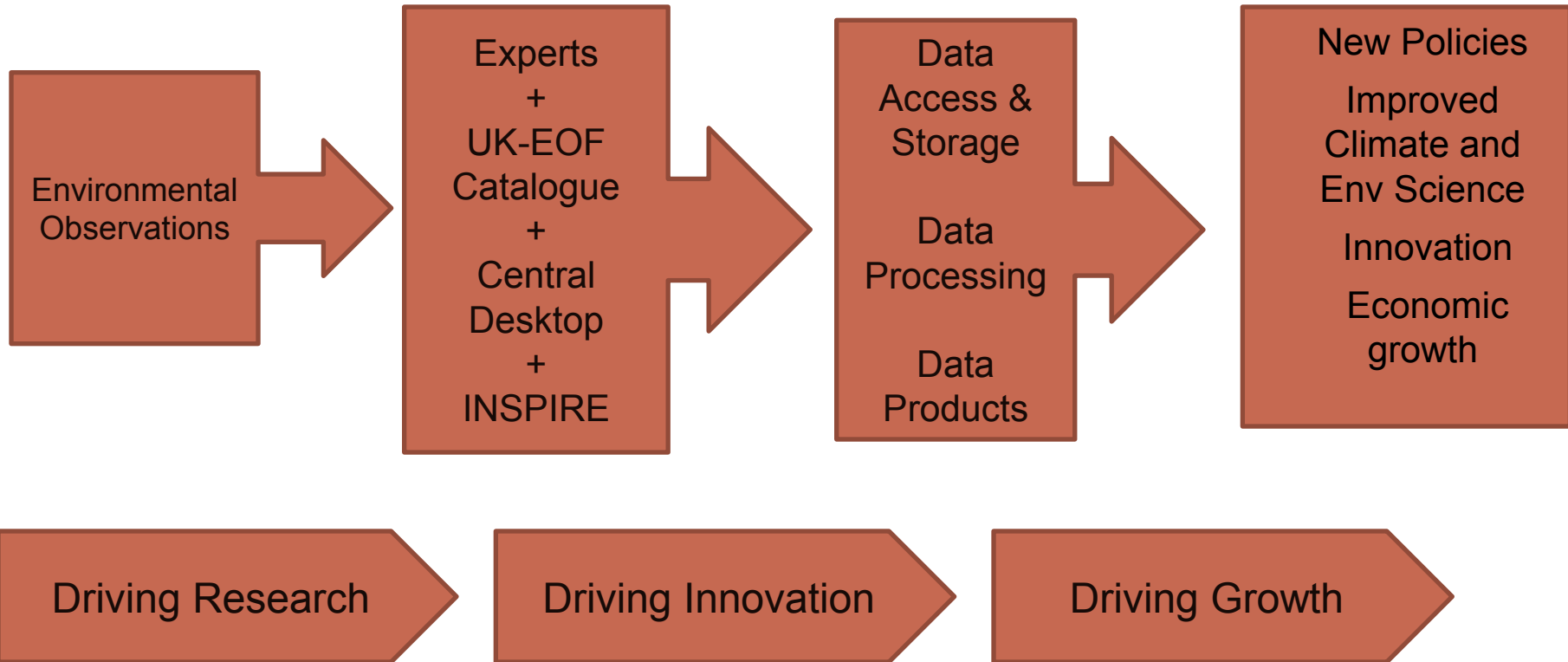
- Data standards
- Data policies
- Data Custodianship
- Licensing
- Data sharing and reuse
- Citation
- Data integrity
- Vocabularies
- Business needs
- Business benefits
- Others as they arise

UK-EOF Catalogue

Aim – Provide a definitive list of UK funded observation activities/programmes and link to their data.

We need an environmental observations catalogue to:

- support organisations and communities when undertaking observation decisions.
- feed into EU initiatives and other international initiatives



Data Advisory Group

Future steps – UK-EOF, DAG & INSPIRE

DAG will:

- Consider the INSPIRE EMF theme and impacts on the UK-EOF catalogue.
- Advise the UK-EOF on the best ways to link with other metadata sources e.g. other INSPIRE data themes.
- Inform the UK-EOF of updates and changes to their organisations database(s).
- Promote using the UK-EOF catalogue as a definitive list of observation activities.

Questions & Comments

UK Environmental Observation Framework



Environmental Monitoring in the UK

Helen Beadman – UK-EOF Programme Manager

19th February 2013

Maple House, Birmingham

Contents

- Introduction to UK-EOF
- Environmental monitoring in the UK
 - What
 - By Whom
 - At what cost
 - Why
- Wider activities of UK-EOF

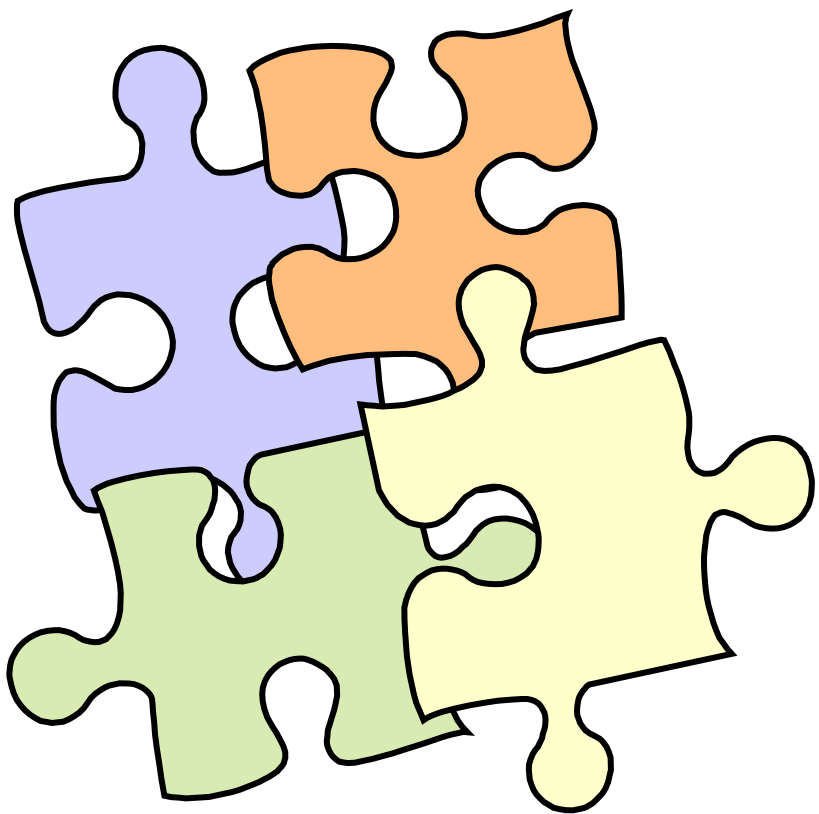
Environmental Observations



Vital source of information from global to local scale for:

- understanding and managing our changing environment
- guiding current and future policy, science and innovation
- economic benefit and quality of life

Environmental Monitoring – the picture in 2007



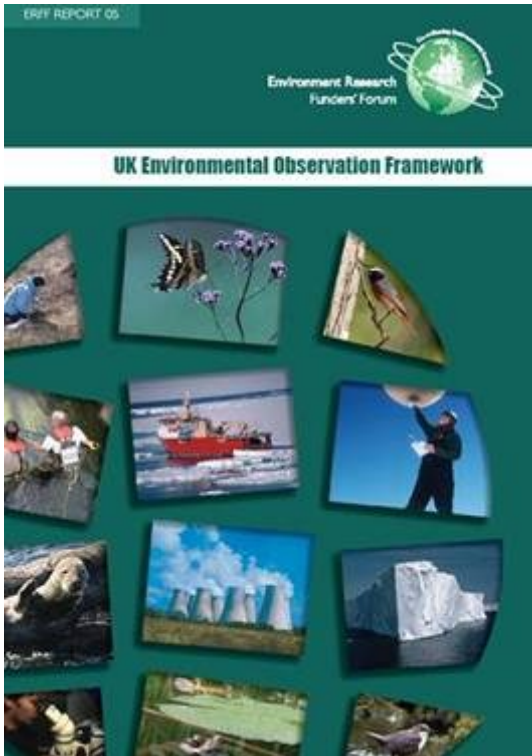
- **FRAGMENTED**
- **UNCOORDINATED**
- **LACKS STRATEGIC DIRECTION**
- **NO OVERALL OWNER**

Risk of

- Missed opportunities
- Poor data sharing
- Funding stopped for key time series
- Duplication of effort

Refs (ADAS, 2006), UKMMAS (Defra, 2005), GECC (2006)

UK-EOF Launched July 2008 to:



- Develop holistic picture of the observational needs of the UK and the role of such observations
- Share Knowledge & Information
- Understand use of observation data & tools for knowledge transfer
- Enable funding mechanisms for long-term observations
- Build strong community to share data & expertise



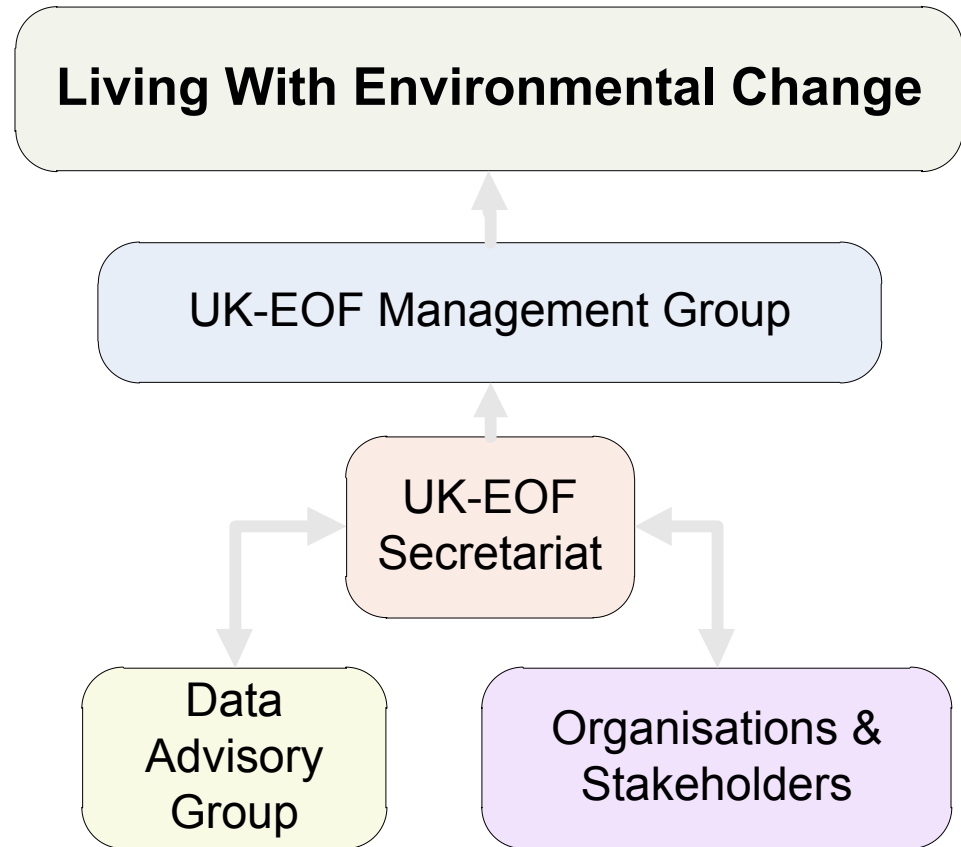
UK-EOF

Owned by LWEC
Members

Guided by UK-EOF
Management Group

Programme progressed
by Secretariat &
Stakeholders

Advised by Data Experts
and Steering Groups



UK-EOF

Aims to provide:

... holistic picture of the overall observational needs of the UK and the role of such observations ...*

*Includes all monitoring / surveillance, all technologies from satellite data to butterfly counts, made on behalf of or by the UK

UK Environmental Observation Framework

Decorative wavy lines in shades of green and yellow at the bottom of the slide.

Knowledge gathering – what, by whom, at what cost and why?

UK-EOF Catalogue

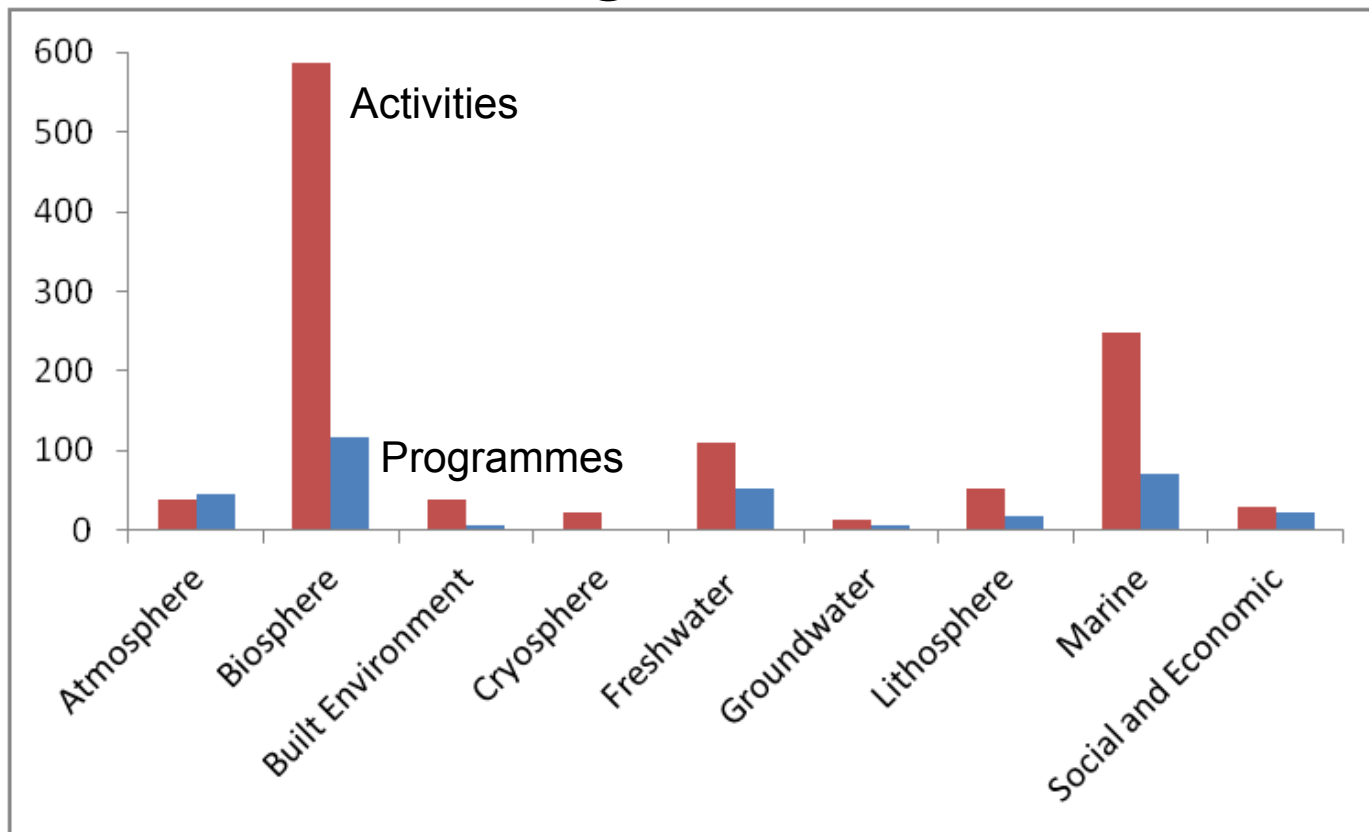
The screenshot shows the UK Environmental Observation Framework (UK-EOF) Catalogue search interface. The page features a navigation menu with links for Home, About us, Catalogue, Decision Support Framework, Statement of Need, Data Resources, and Contact us. The main content area is titled "Environmental Observation Activity Catalogue" and includes a search form with the following sections:

- Who is observing the environment?** Search by organisation: [text input]
- What is being observed?** Search by title or description of the activity: [text input]; Search by environmental domain: Atmosphere, Biosphere, Cryosphere, Freshwater (dropdown menu); Search by variable/parameter/keyword: [text input]
- Where is the work occurring?** Search by location: United Kingdom, Great Britain, England, Wales (dropdown menu)
- Why are the observations being collected?** Search activities collecting information for: Basic science, Characterising environmental issues/solutions, Characterising environmental issues/solutions Collaboration (dropdown menu)

At the bottom of the search form, there are two radio buttons: "Send summary results to screen" (selected) and "Send full results to spreadsheet". A "Search" button is located at the bottom right of the form.

- Online searchable metadata database of environmental observation activities
- At least 1150 activities – each have a unique ID for linking to outputs and data
- Major upgrade being undertaken

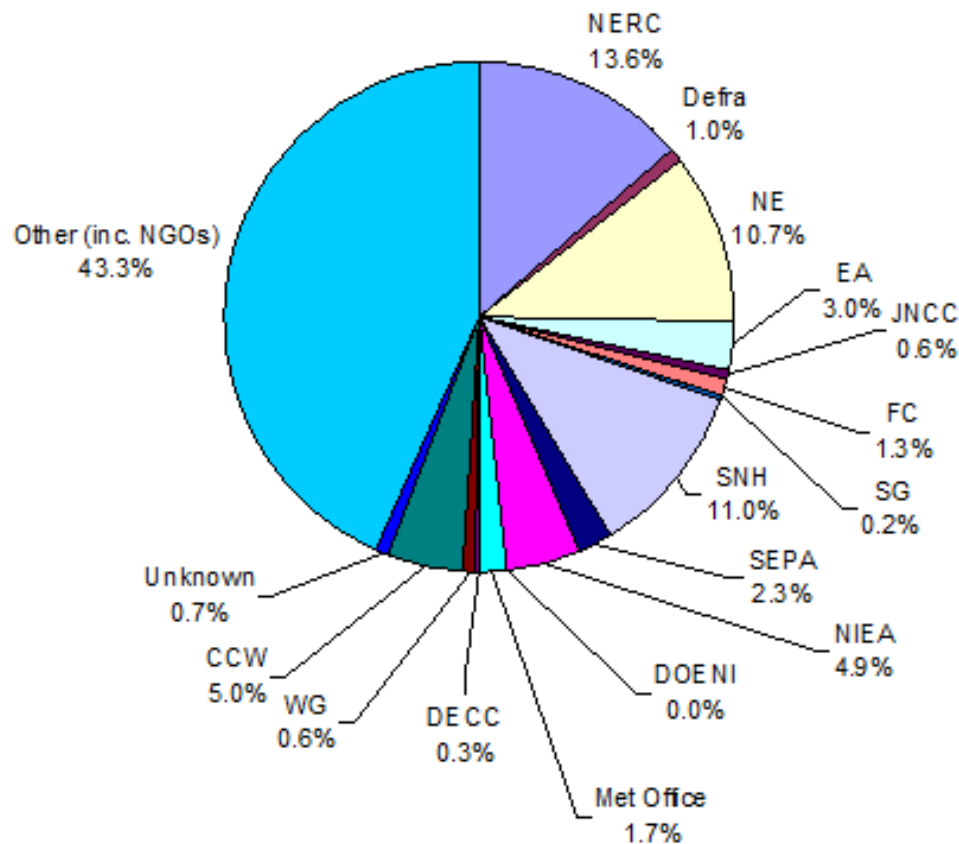
What is being observed?



- Biosphere accounts for 48% of activities

Who makes the observations?

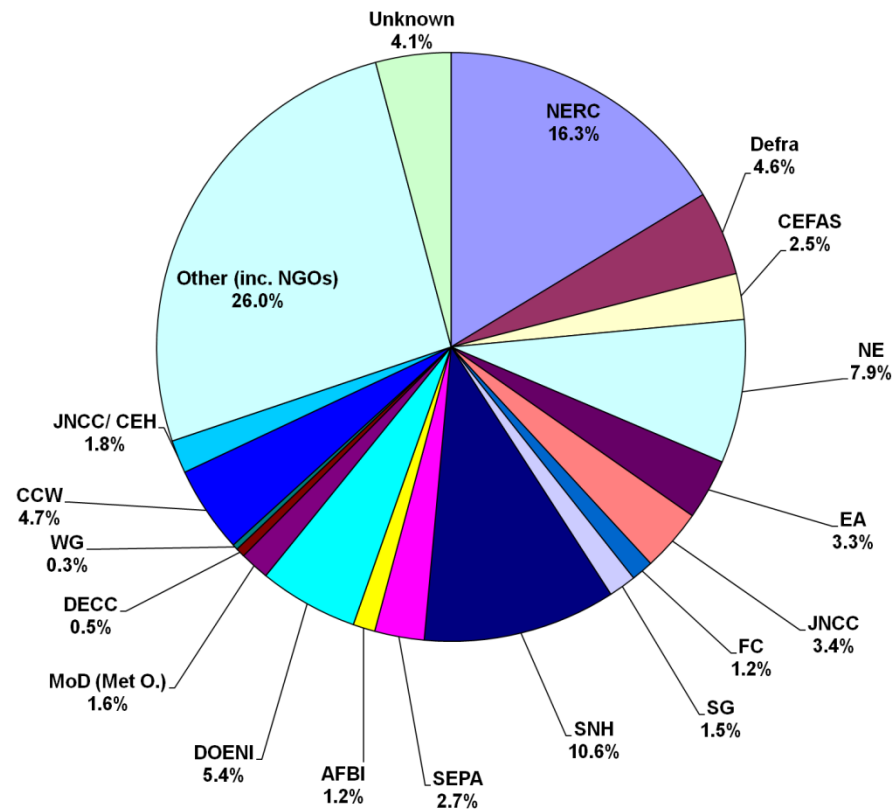
% of activities led by each organisation



- Over 400 organisations involved (private sector not included):
 - Leading work
 - Funding
 - Collecting data
 - Modelling
 - Data storage
 - Facilities
- Coverage is across environmental domains

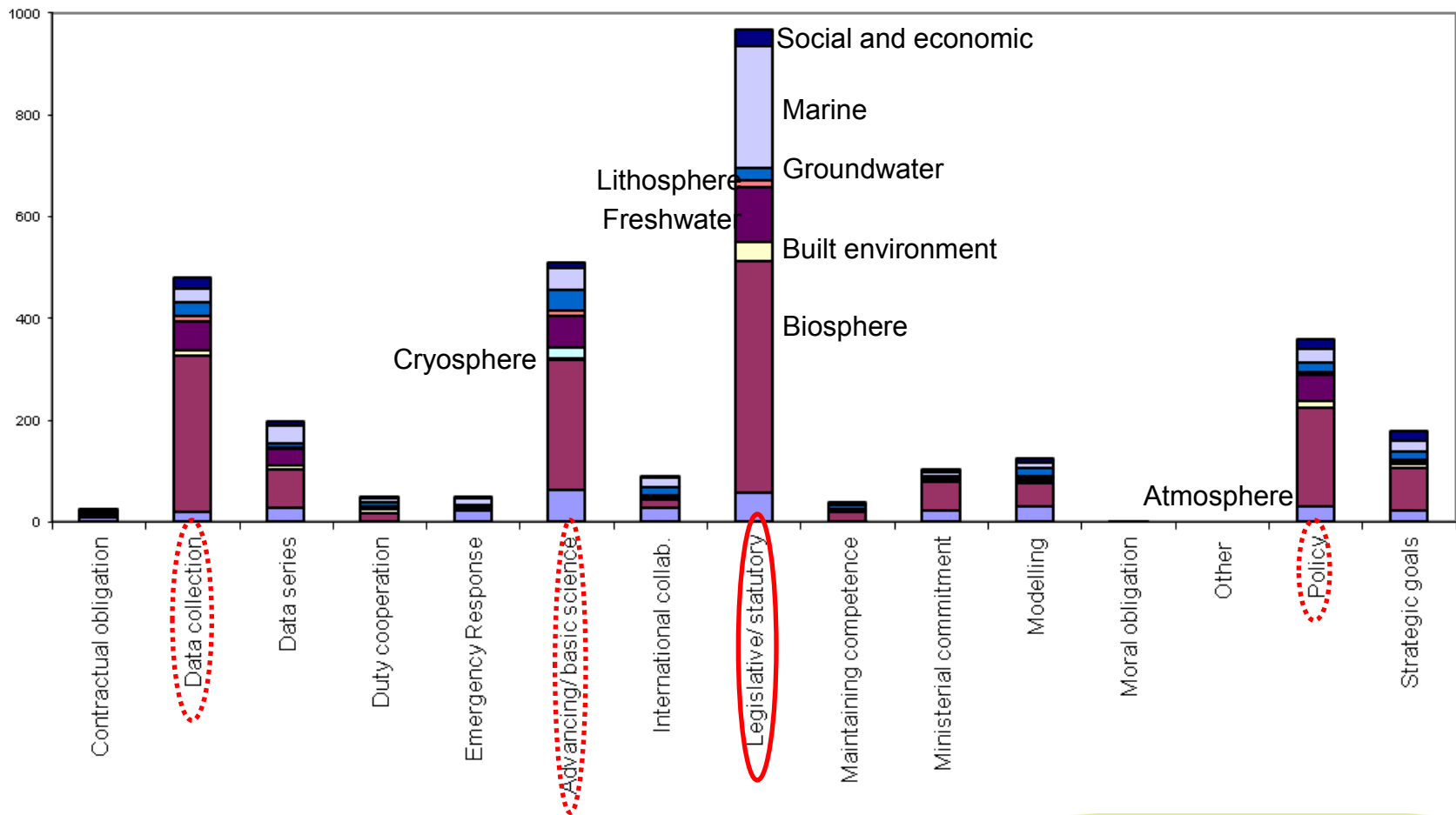
Who are funding the observations?

% of on-going activities for which the organisation is the lead funder



- Public sector funding organisations account for 80% of total funding
- An investment of at least £300m per annum

Why are the observations carried out?



Uses of the catalogue

The UK-EOF Catalogue has been used to support:

- NE mapping of monitoring sites
- UK response to GCOSIP10
- GCSAs Observations Committee
- Defra's Strategic Alignment Project - Consolidated Evidence stream

Other UK-EOF Tools

- Statement of Need
 - Review of:
 - environmental observation needs for the UK
 - evidence required to answer key questions
- Assessment Tool
 - assess observations against need or other queries
- Decision Support Framework
 - Supports transparent decision making on uses and funding of observations
- Data Advisory Group

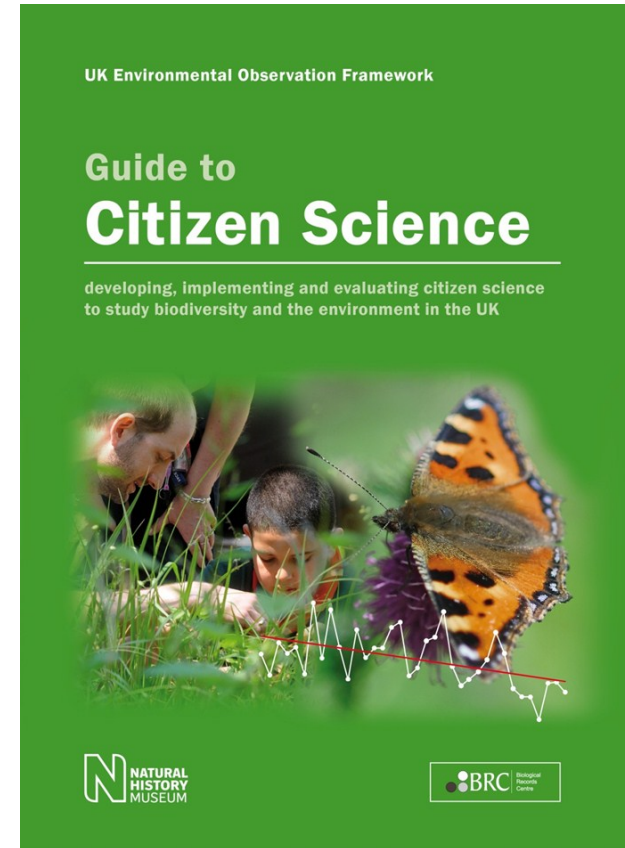
Current Activities

- Sustainable Funding Mechanisms
 - Providing support to the GCSAs Observations Committee
- Co-ordinating Climate Observations
 - Steering group and activities to improve understanding of the use being made of UK climate observation activities



Current Activities

- **Citizen science**
 - Commissioned guide and detailed report
 - Steering group continuing activities
- **Coincidence mapping**
 - Continuation of successful project initiated with NE to demonstrate opportunities for collaboration in monitoring across sites, infrastructure, data collection, management and sharing



Questions & Comments

UK Environmental Observation Framework



Introduction to INSPIRE: obstacles and benefits

Tim Ashelford
19th February 2013
Maple House, Birmingham

I will cover

- Public data policy and location data
 - » The UK Location Strategy
 - » Transparency and open data
 - » INSPIRE

- INSPIRE
 - » Requirements
 - » Timeline
 - » Scope
 - » What is available now & where to find it.

Open Data White Paper, June 2012

Foreword by the Rt Hon. Francis Maude

Minister for the Cabinet Office
and Paymaster General



“Data is the 21st century’s new raw material. Its value is in holding governments to account; in driving choice and improvements in public services; and in inspiring innovation and enterprise that spurs social and economic growth.”

Open Data
White Paper

Unleashing the Potential

#opendata

@uktransparency
@cabinetofficeuk

The Coalition Government has made a number achievements on transparency and Open Data

- Built the **largest data.gov** resource in the world, with over 8,400 datasets available
- Over 1000 location datasets published
- Published unprecedented data including transport, health, justice and education
- Over **£188bn of spending transactions** now published by central government



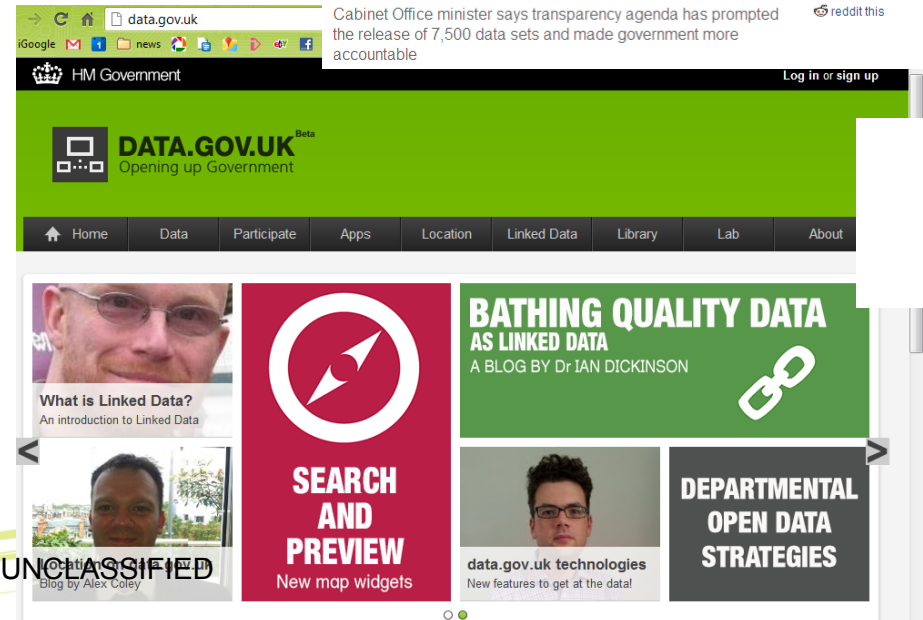
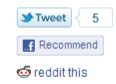
Data transparency is one coalition policy delivered on time, as promised

guardian government computing

Information management in public services

Open data 'new way of operating', says Francis Maude

Cabinet Office minister says transparency agenda has prompted the release of 7,500 data sets and made government more accountable



Transparency & Open Data

“From July 2010, government departments and agencies should ensure that any information published includes the underlying data in an open standardised format.”

Prime Minister David Cameron

“Government’s public data policy aims to promote transparency, empower citizens and deliver economic value”

- Transparency Board
- Data.gov.uk - single point of access to government data
- UK Government Licensing Framework - open government licence as the default
- Protection of Freedoms Act - amending Fol equiring datasets to be available in a re-usable format



UK Location Programme Strategic Drivers



UK Location Strategy (2008)

Place Matters - delivering better public services using location



INSPIRE (EU 2007 Reg.; UK 2009 Reg.)

Improving environmental policy making and delivery



Transparency & Open Data

(2010 Coalition Agreement)

Background

- The INSPIRE directive May 2007
- full implementation required by 2019.
- create a spatial data infrastructure.
- **enable the sharing of environmental spatial data**



INSPIRE Key Requirements

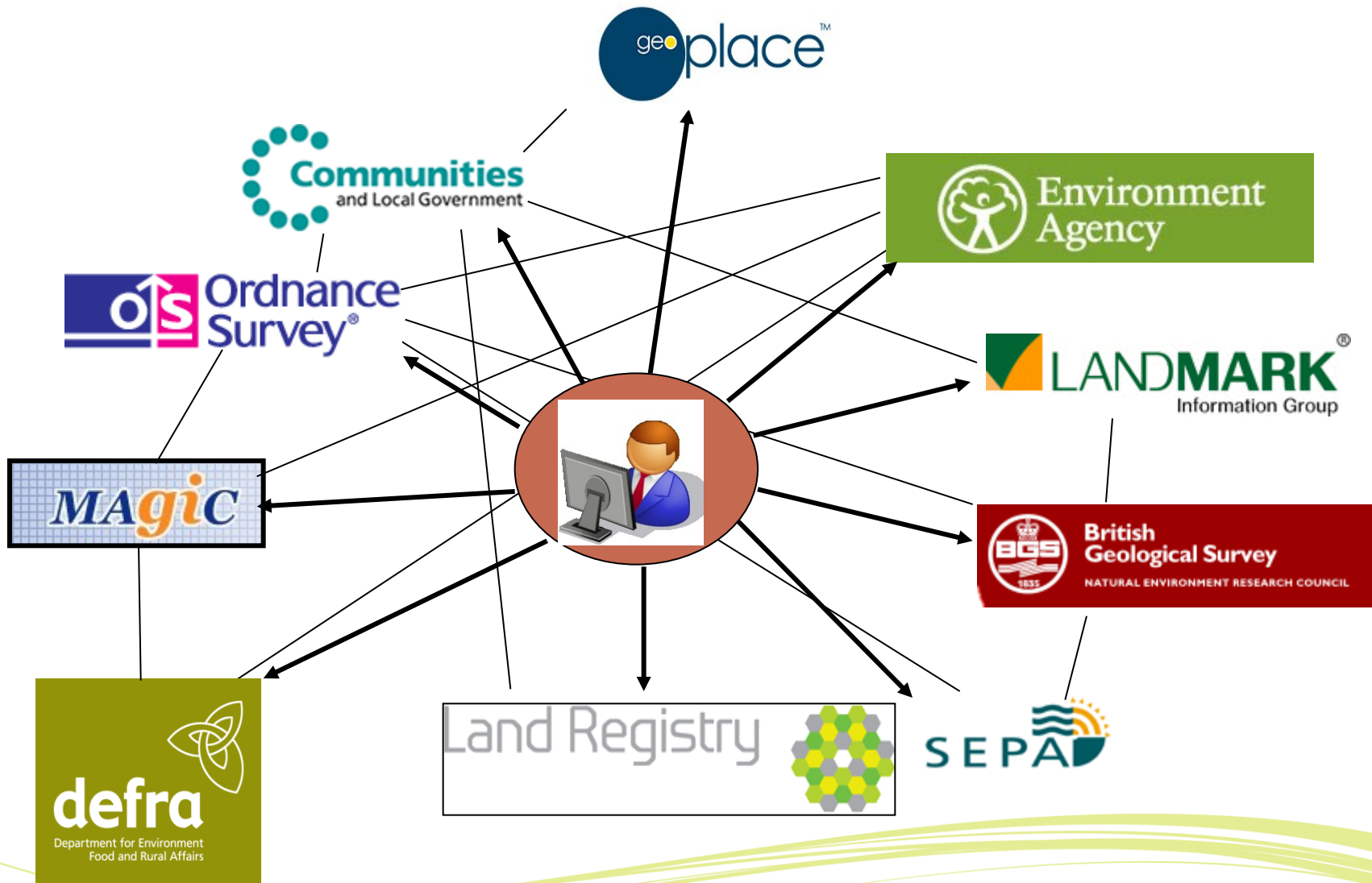
- Publish spatial datasets that are within scope of 34 legally defined themes
- Provide catalogues that allow users to identify what information is available
- Provide online services - discovery, view, download and transform (to enable data interoperability)
- Comply with EU data specifications - 1 per theme
- Have licensing arrangements that allow information to be shared
- Set up e-commerce arrangements where charging is applicable
- Monitor implementation
- Coordinate at member state level.

Data as a service

- INSPIRE standards for services
- OGC standards based
- Discovery - catalogue web service
- View - web map service
- Download - web feature service/ Bulk download.
- Transformation - transformations applied at publication, no requirement for separate transformation service.



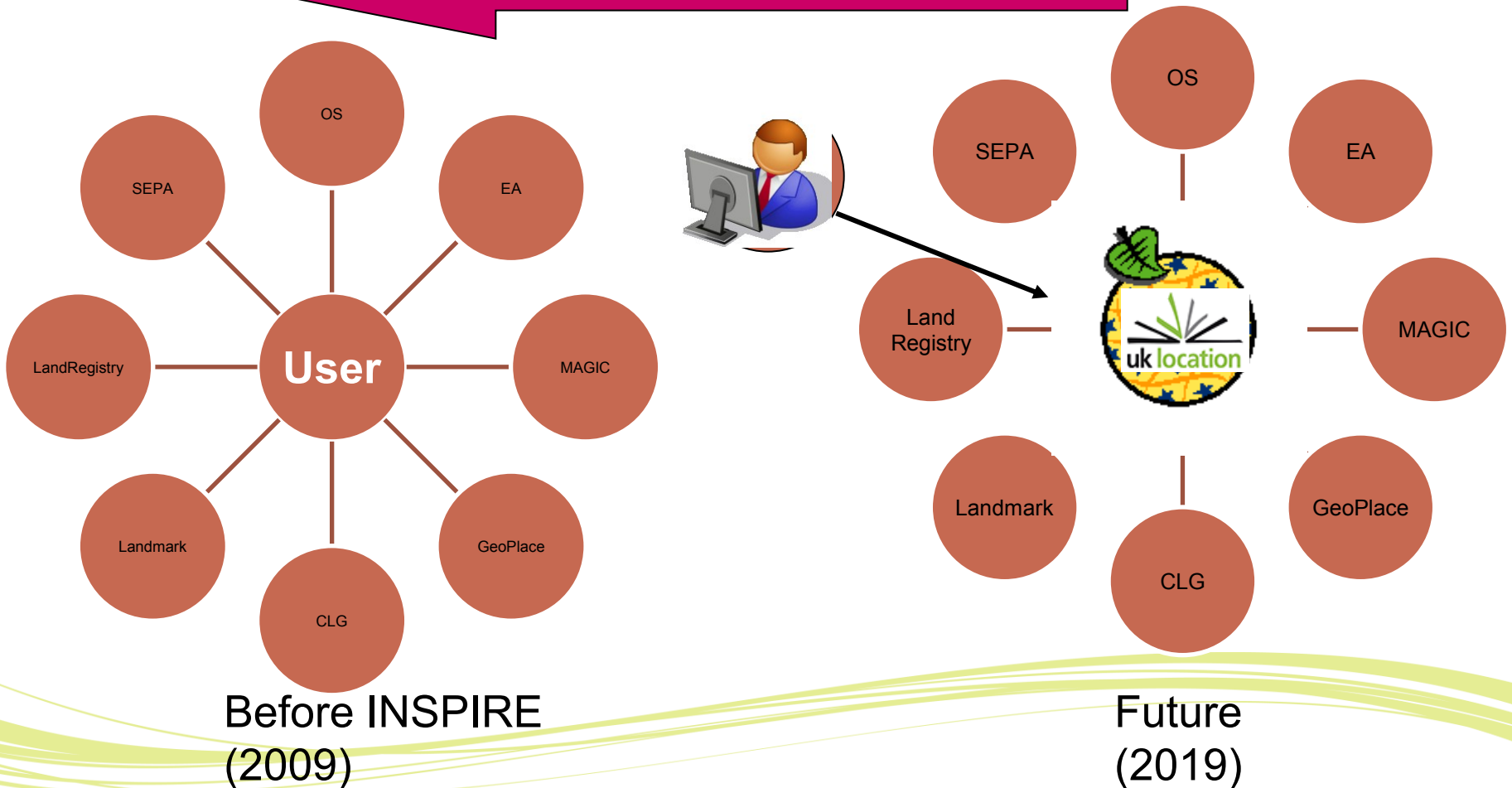
Situation before INSPIRE



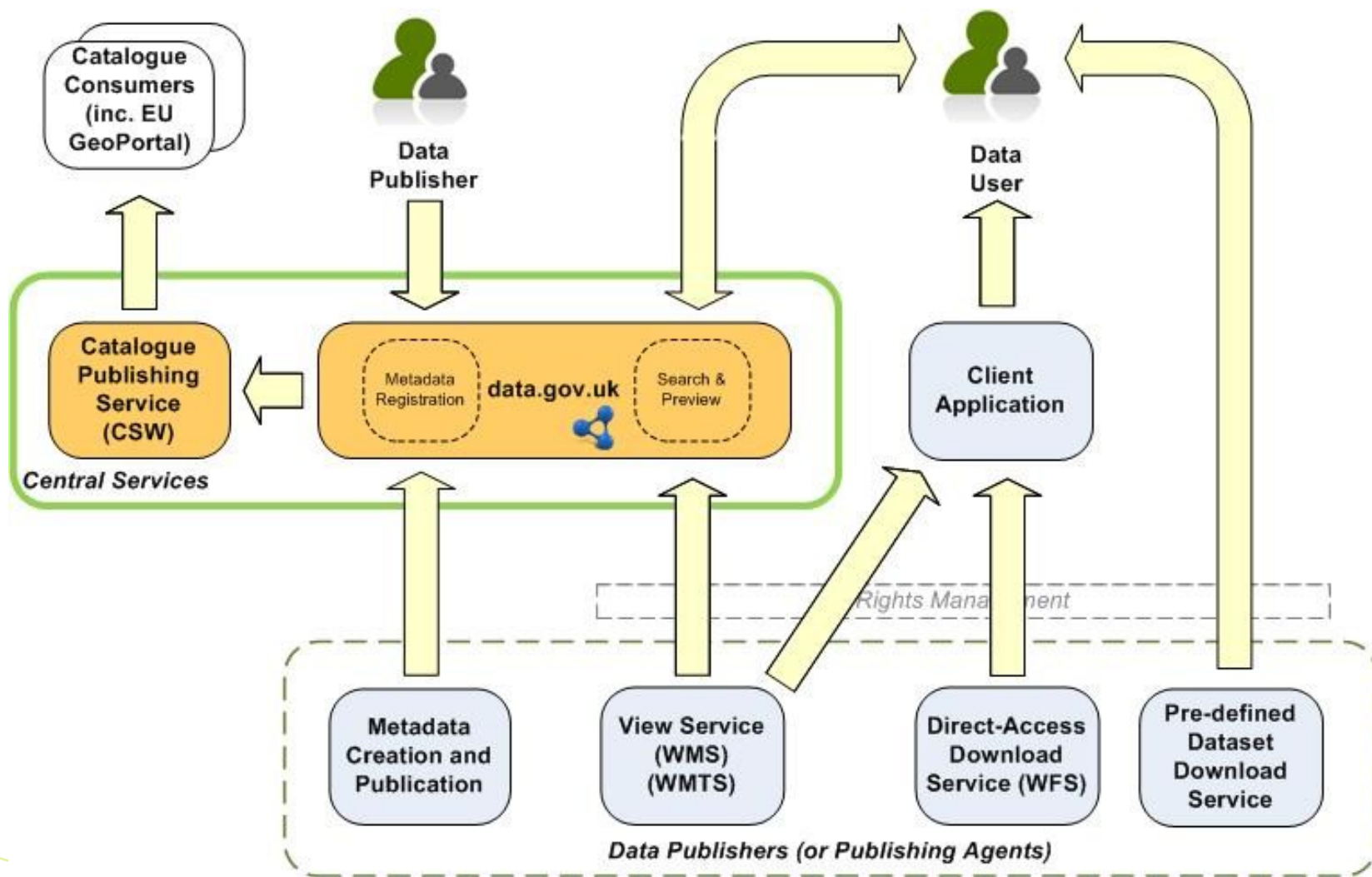
Impact of INSPIRE

Integration, Interoperability, Efficiency

Time, Resources



The UK Location Infrastructure



Data obligations

- 34 data themes are defined within INSPIRE over 3 Annexes
- Legal responsibility for datasets:
 - created under public task (statutory duty)
 - held electronically with a geographic reference
- **Does not require collection of new data**
- Infraction

Spatial Data Themes

Annex I

1. Co-ordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses *
6. Cadastral parcels
7. Transport networks *
8. Hydrography
9. Protected sites *

Annex II

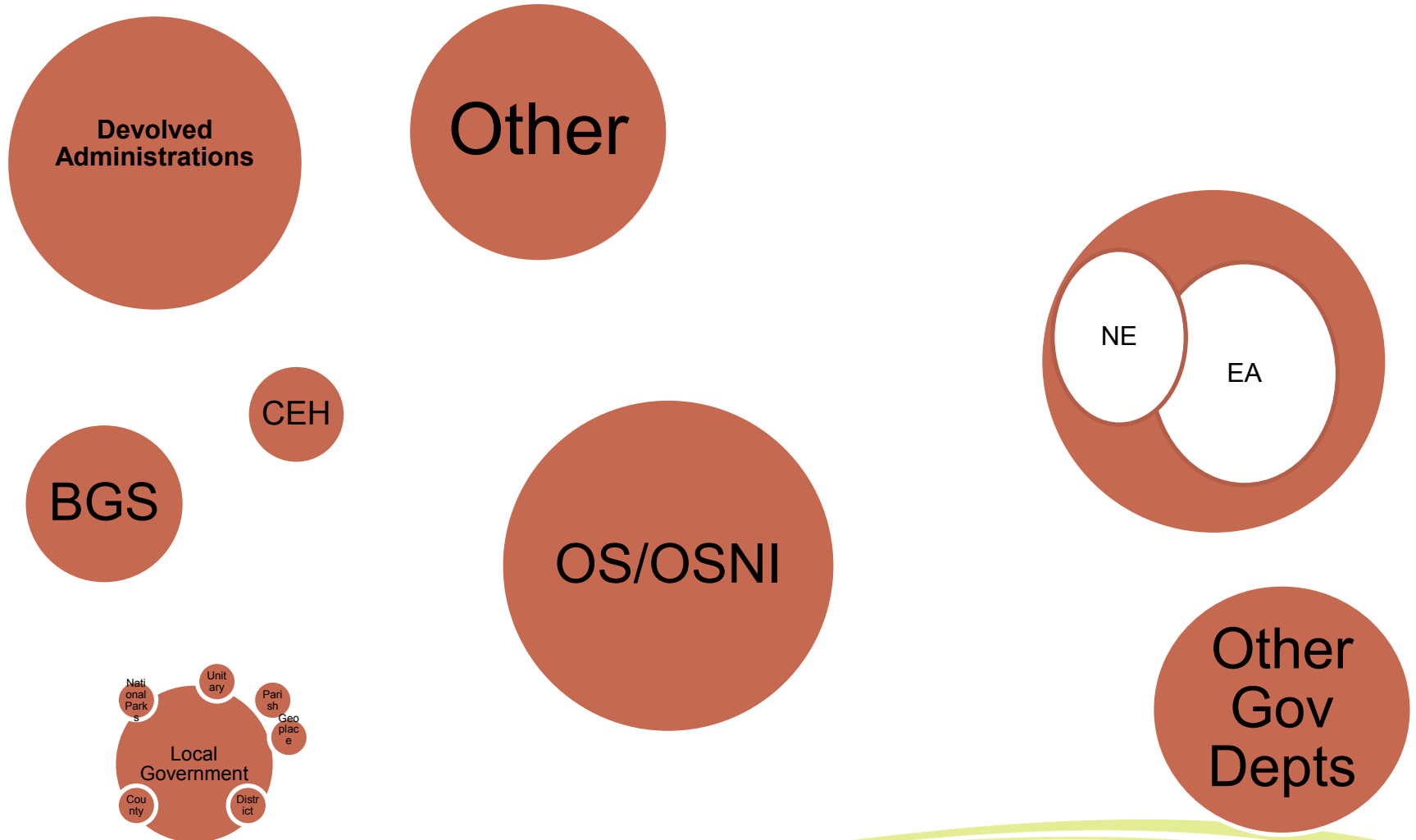
1. Elevation
2. Land cover
3. Ortho-imagery
4. Geology

* Local government proposed data supplier

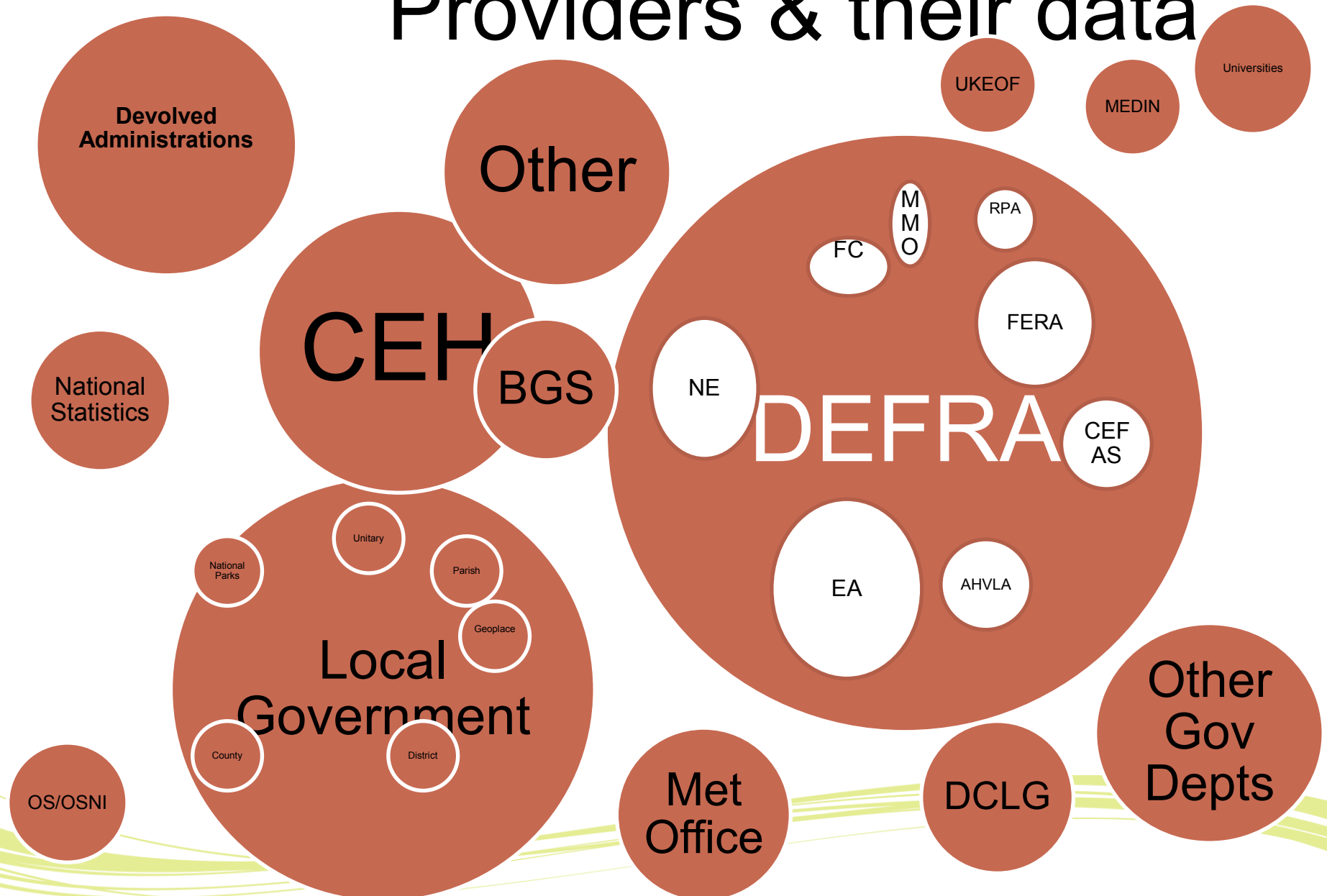
Annex III

1. Statistical units
2. Buildings *
3. Soil
4. Land use *
5. Human health and safety*
6. Utility and governmental services *
7. Environmental monitoring facilities *
8. Production and industrial facilities *
9. Agriculture and aquaculture facilities
10. Population distribution – demography
11. Area management / restriction / regulation zones and reporting units*
12. Natural risk zones*
13. Atmospheric conditions*
14. Meteorological geographical features
15. Oceanographic geographical features
16. Sea regions
17. Bio-geographical regions*
18. Habitats and biotopes*
19. Species distribution
20. Energy resources*
21. Mineral resources*

INSPIRE Annex I & II Data Providers & their data



INSPIRE Annex III Data Providers & their data





marinescotland



Llywodraeth Cymru
Welsh Government

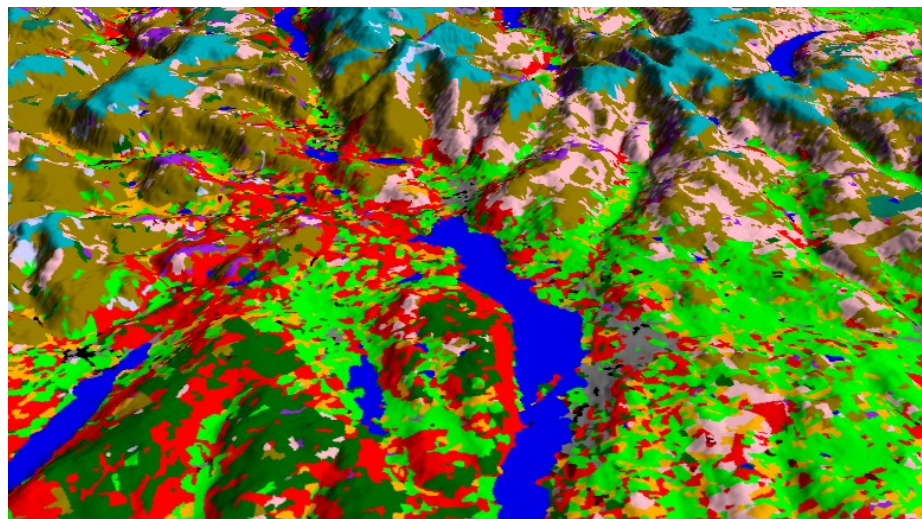


Geological Survey
of Northern Ireland

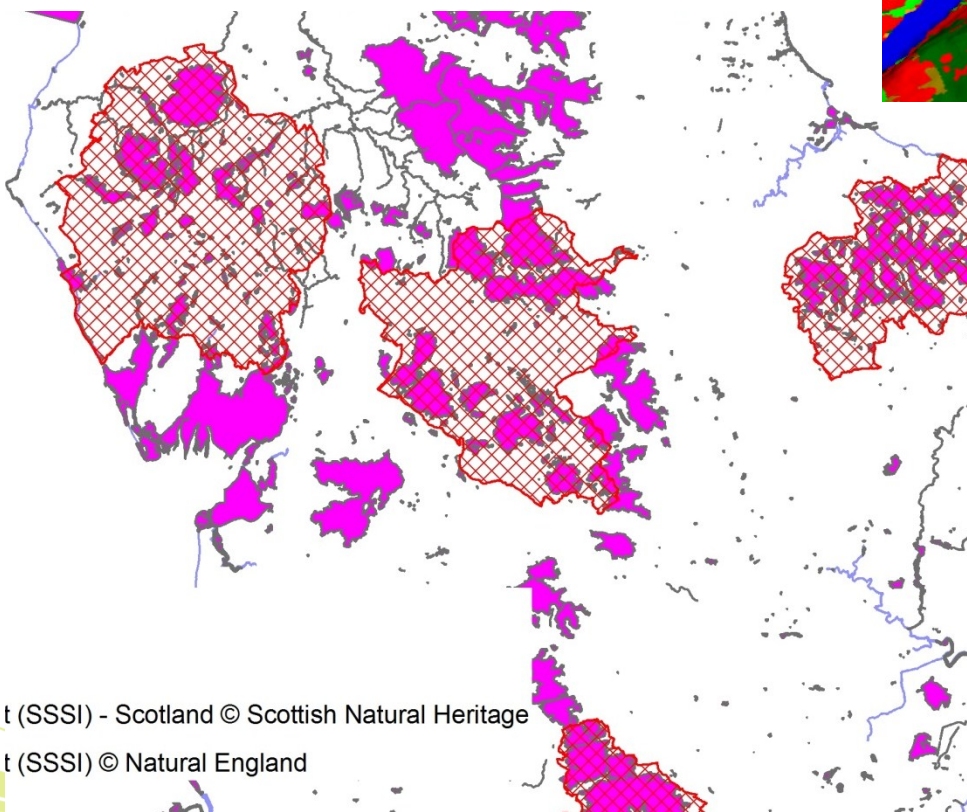


Annex I & II data published

Land cover and
terrain model

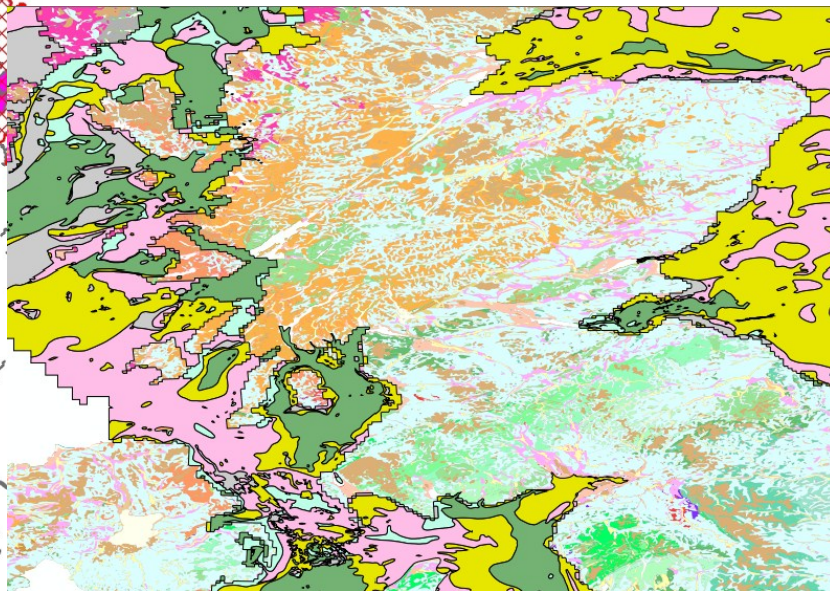


Protected sites



t (SSSI) - Scotland © Scottish Natural Heritage

t (SSSI) © Natural England



Bedrock and superficial geology

A word about licensing

- Access to data is managed through licensing:
- Options:
 - Open access (open government license)
 - Open access for non-commercial use
 - Restricted access (personal, national security or commercial sensitivity and interest)
 - Third party interest (OS license, derived data, exemptions, Public Sector INSPIRE WMS End User Licence", "<http://www.bit.ly/wmseul>)
- See UK Location Data Sharing Operational Guidance for information

Data Specifications

INSPIRE_DataSpecification_Hydrography_v3.0.1.pdf - Adobe Acrobat Professional

File Edit View Document Comments Forms Tools Advanced Window Help

Create PDF Combine Files Export Start Meeting Secure Sign Forms Review & Comment

18 / 175 100% Find

INSPIRE	Reference: INSPIRE_DataSpecification_HY_v3.0.1.pdf		
TWG-HY	INSPIRE Data Specification on <i>Hydrography</i>	2010-04-26	Page 1

Figure 2 – Package relationships in the Hydrography application schemas

29.700 x 20.988 cm

INSPIRE Deadlines

Nov 2011	Discovery & view Services for Annex I and II data compliant
Dec 2012	Download and transformation services available for existing Annex I and II datasets Initial Operating Capability
Dec 2012	Any new or extensively restructured Annex I datasets must be available in accordance with the data specifications set out in the Implementing Rules (common formats to achieve consistency)
Dec 2013	Full Discovery Metadata, View Services & Download made available for INSPIRE Annex III datasets
Dec 2015	Any new or extensively restructured Annex II & III datasets must be available in accordance with the data specifications set out in the Implementing Rules (common formats to achieve consistency)
By 2017	Publish INSPIRE Annex I compliant Data
By 2020	Publish INSPIRE Annex II & III compliant Data



Data Search

4
Results

Fukushima

You can refine your search results using the filters below

Licence

Non-Open Government Licence (4)

Tag

- radionuclide (4)
- STAR_NOE (4)
- radioactive contamination (3)
- CEH Biogeochemistry Programme (3)
- vegetation (2)

Sort by relevancy popularity title last updated

Fukushima monitoring data (STUK)

Publisher: [Centre for Ecology & Hydrology](#) Updated: 08 Feb 2013
 Provider: STUK

In Finland, air samples, fallout samples and milk samples were collected and analysed. The total fallout of I-131 was 35 Bq/m2 and cesium fallout 3.5Bq/m2. In milk samples no...

Observations of Fukushima Fallout in Great Britain

Fukushima Sampling Locations Web Map Service (WMS)

View Resources (1) History

Description

Following the Fukushima accident in March 2011, grass samples were collected from around Great Britain. This web map service indicates the sites where those samples were collected



Data Resources (1)

Web Map Service (WMS)

WMS Details Direct Link



Preview on Map Add to Preview List

Extent: Latitude: 58.99° to 50.24° Longitude: -5.76° to 2.17°

Contains Ordnance Survey data (c) Crown copyright and database right (2012) Contains Royal Mail data (c) Royal Mail copyright and database right (2012). Contains bathymetry data by GEBCO (c) Copyright (2012). Contains data by Land & Property Services (Northern Ireland) (c) Crown copyright (2012).

Licence

Access limitations: Licence terms and conditions apply

Contact

Enquiries: Email: enquiries@ceh.ac.uk

Tags

- CEH Biogeochemistry Programme CEH Project NEC04023 Environmental monitoring facilities Fukushima Great Britain I-131 Japan STAR_NOE caesium foodstuffs infoMapAccessService radioactive contamination radioecology radionuclide vegetation

Social

Tell the world about this dataset!

Tweet 0 Share 0 Google +1 0

Developer tools

« Go Back

Map Preview

DATA.GOV.UK

Layers

Backdrop Map Projection: ETRS89

- Backdrop Map
 - http://masigpublic.nerc-lancaster.ac.uk
 - EF
 - EF.SampleLocations

Active Layers

Legend

Information



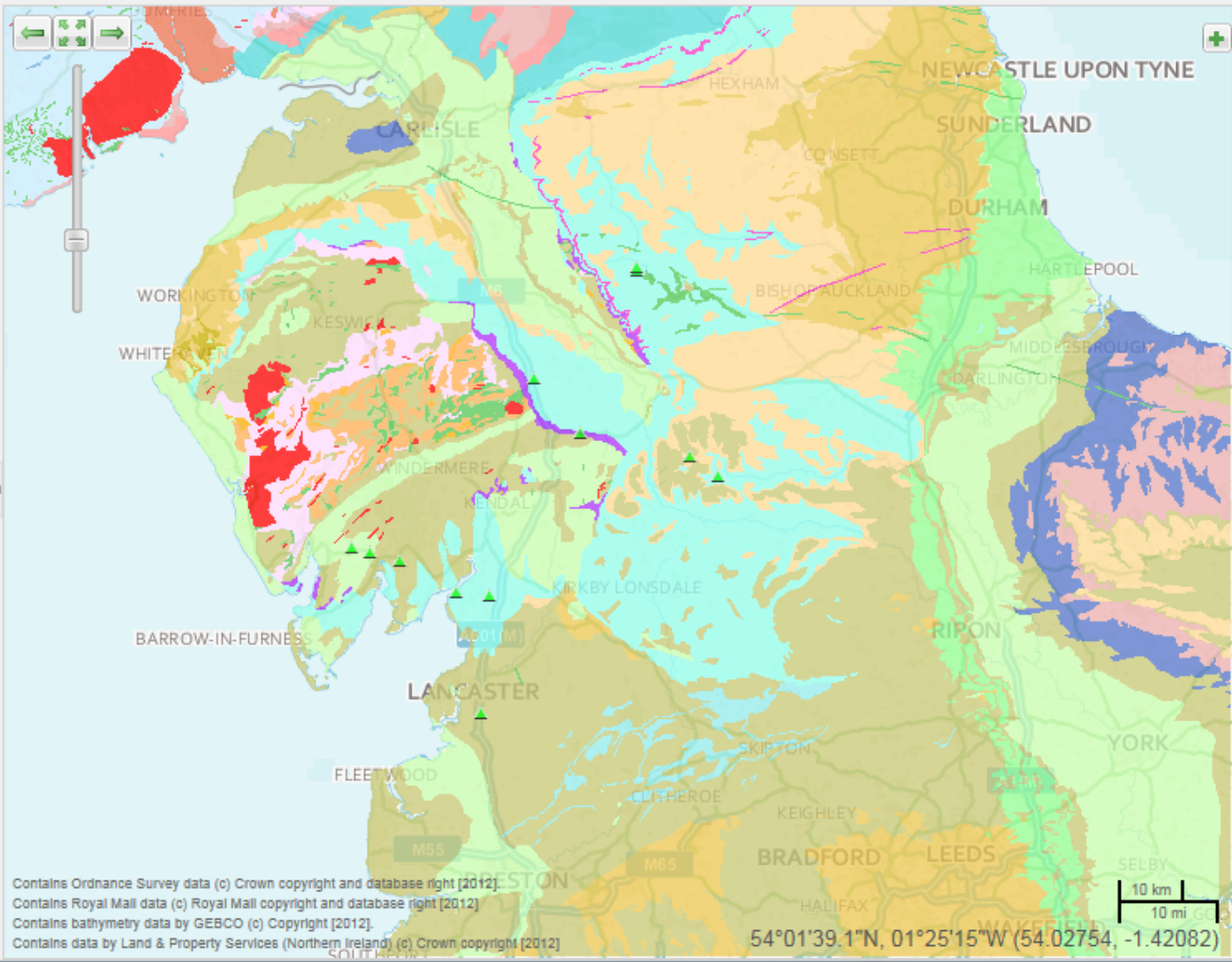
« Go Back

Map Preview

DATA.GOV.UK

- Layers
- Active Layers
- Legend

- EF.SampleLocations
- ▲
- GBR BGS 1:625k Bedrock Lithology
- ANORTHOSITE
 - BRECCIA AND METABRECCIA
 - BRECCIA, CONGLOMERATE AND SANDSTONE
 - CHALK
 - CHALK AND SANDSTONE
 - CLAY AND LIGNITE
 - CLAY, SILT AND SAND
 - CLAY, SILT, SAND AND GRAVEL
 - CONGLOMERATE AND [SUBEQUAL/SUBORDINATE]
 - CONGLOMERATE, SANDSTONE, SILTSTONE AND I
 - DIAMICTITE
 - DOLERITE AND THOLEIITIC BASALT
 - DOLOMITISED LIMESTONE AND DOLOMITE
 - DOLOSTONE
 - FELSIC LAVA
 - FELSIC LAVA AND FELSIC TUFF
 - FELSIC TUFF
 - FELSIC TUFF



Contains Ordnance Survey data (c) Crown copyright and database right [2012]
 Contains Royal Mail data (c) Royal Mail copyright and database right [2012]
 Contains bathymetry data by GEBCO (c) Copyright [2012]
 Contains data by Land & Property Services (Northern Ireland) (c) Crown copyright [2012]

Next Steps

- Understand what location data your organisation maintains
- Identify data that is in-scope of INSPIRE
- Look at how your data is published (if it is)
- Consider issues such as licensing, IP, charging
- Start transforming data to INSPIRE Spec
- Decisions:
 - Agree priorities for data publication particularly for INSPIRE
 - Agree publication approaches for datasets EOF catalogue
 - Agree data sharing policies if you don't have them (licensing etc)

– Publish metadata, view& download services for Annex Dec 2013

Conclusions

- UK Location & INSPIRE are a good fit with current government data policy
- INSPIRE places legal obligations on public bodies
- Annex I & II delivery was successful and not too painful
- Annex III and data transformation are a significant challenge

Any Questions?

Questions & Comments

UK Environmental Observation Framework



Inspire EMF Specification

Keiran Millard, HR Wallingford

Facilitator Inspire SR+OF Themes

19th February 2013

Maple House, Birmingham

EMF Specification

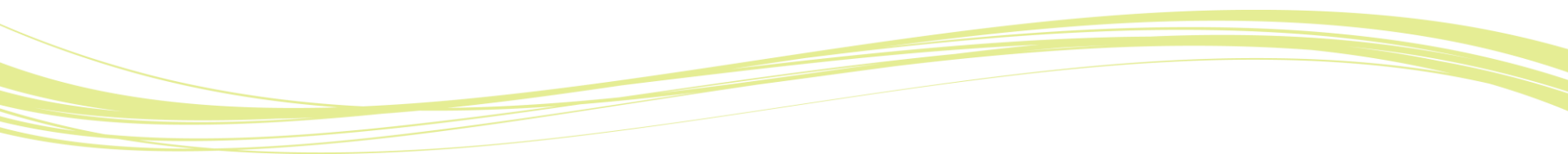
- Inspire EMF (Environmental Monitoring Facility) is potentially one of the most important datasets to the UK, given
 - the costs of deploying and operating infrastructure to provide data.
 - EMF provide a lot of the data for the Inspire themes that underpins policy and decision making

EMF Data Specification

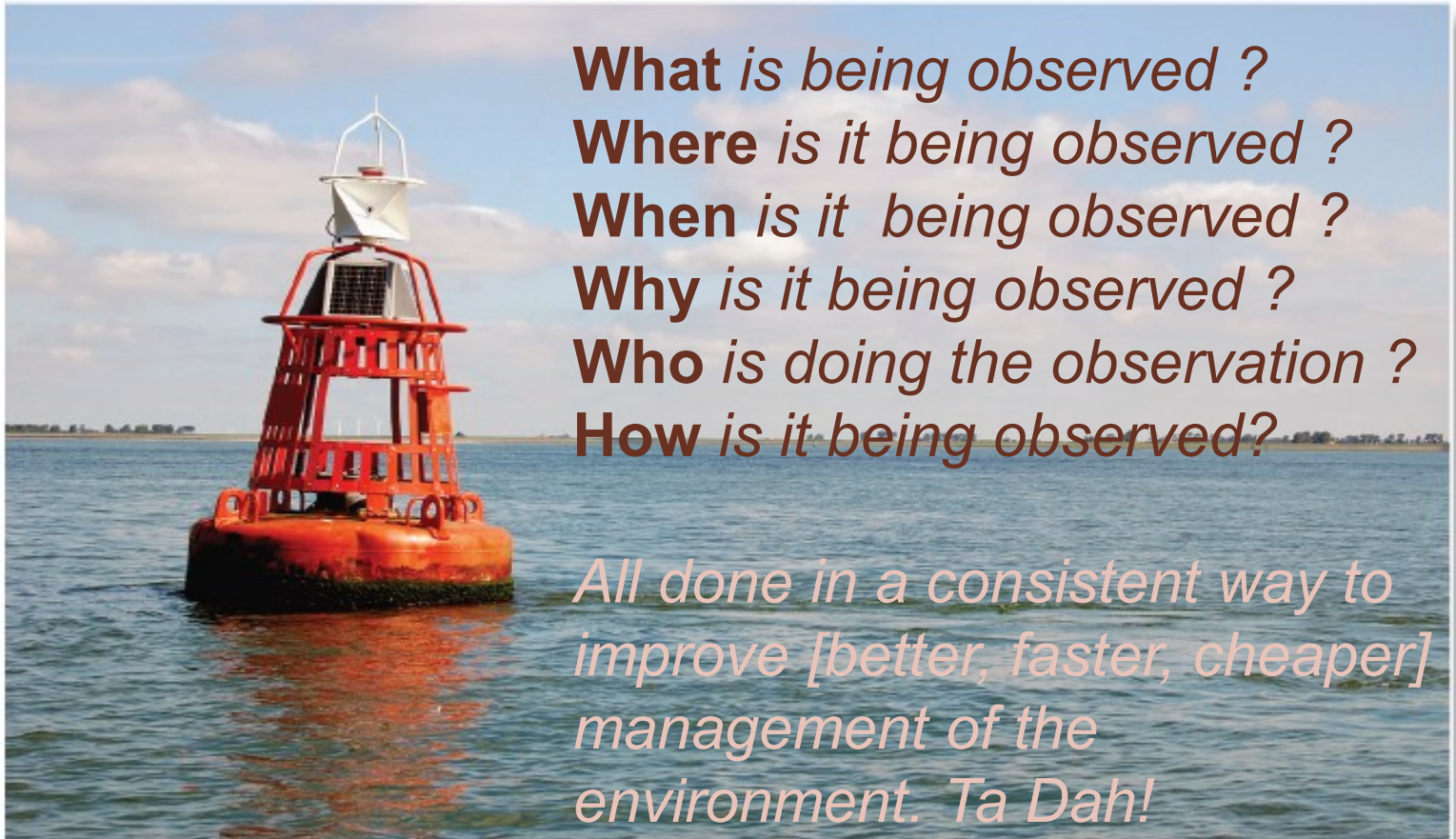
Legal Definition

Location and operation of environmental monitoring facilities includes observation and measurement of emissions, of the state of environmental media and of other ecosystem parameters (biodiversity, ecological conditions of vegetation, etc.) by or on behalf of public authorities [Directive 2007/2/EC].

“A generic model [for monitoring facilities] which can be used across various domains and leave the necessary freedom to thematic domains to bring in specific needs while keeping a shared structure. So the data specification provides a common structure but not a thematic harmonisation across domains”



The EMF rationale



What is being observed ?

Where is it being observed ?

When is it being observed ?

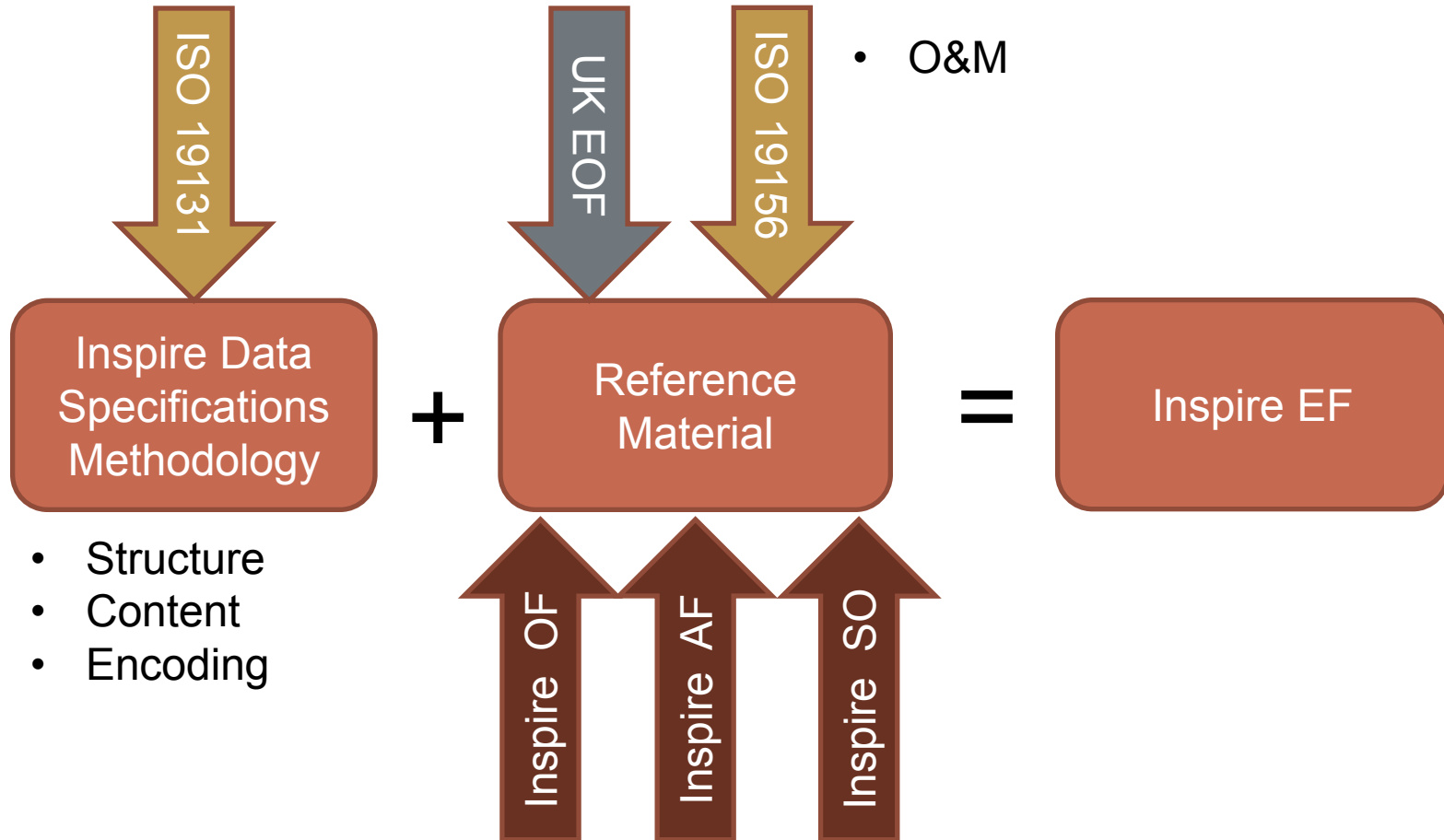
Why is it being observed ?

Who is doing the observation ?

How is it being observed?

All done in a consistent way to improve [better, faster, cheaper] management of the environment. Ta Dah!

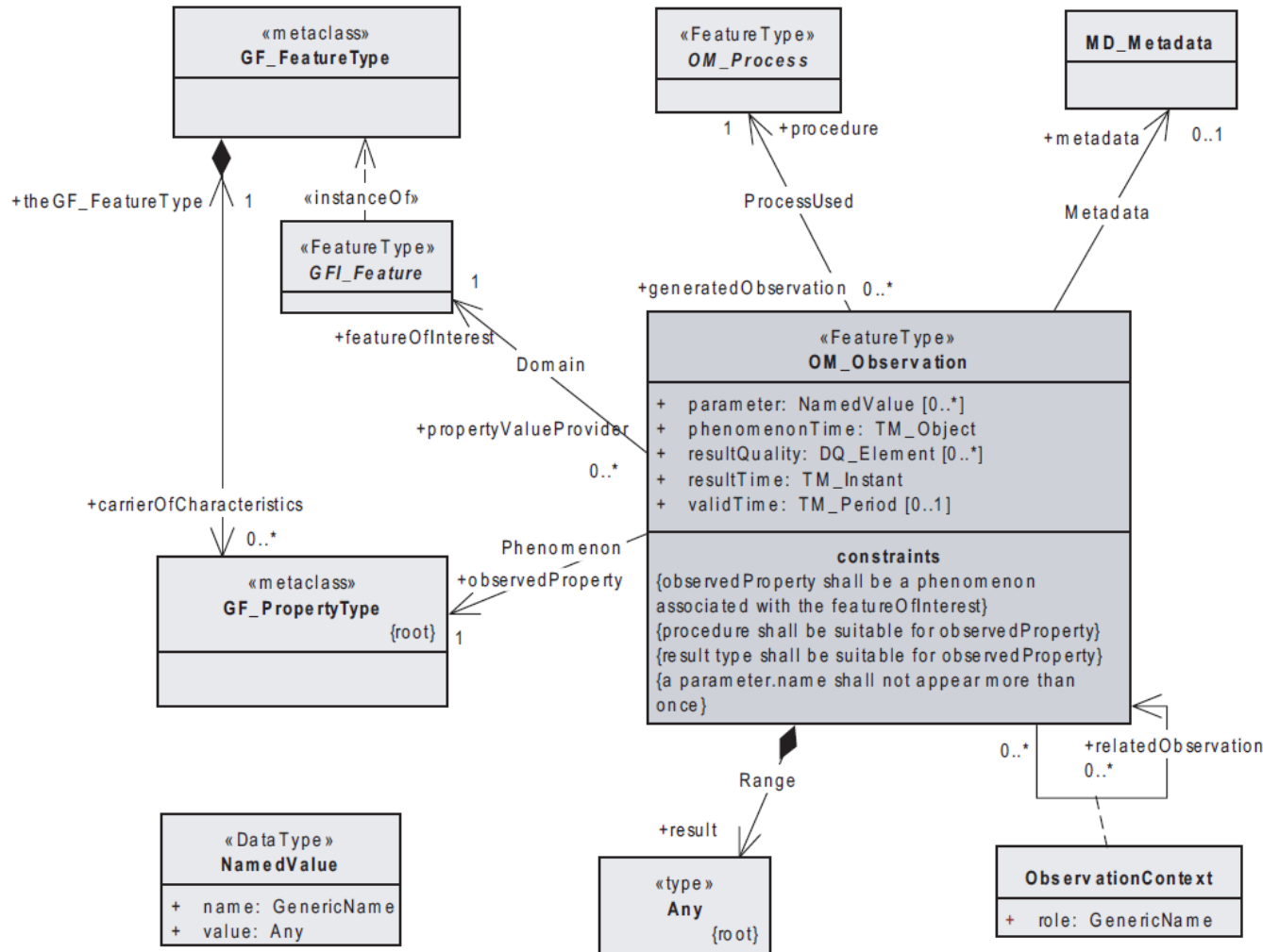
How EF was made



What O&M Says

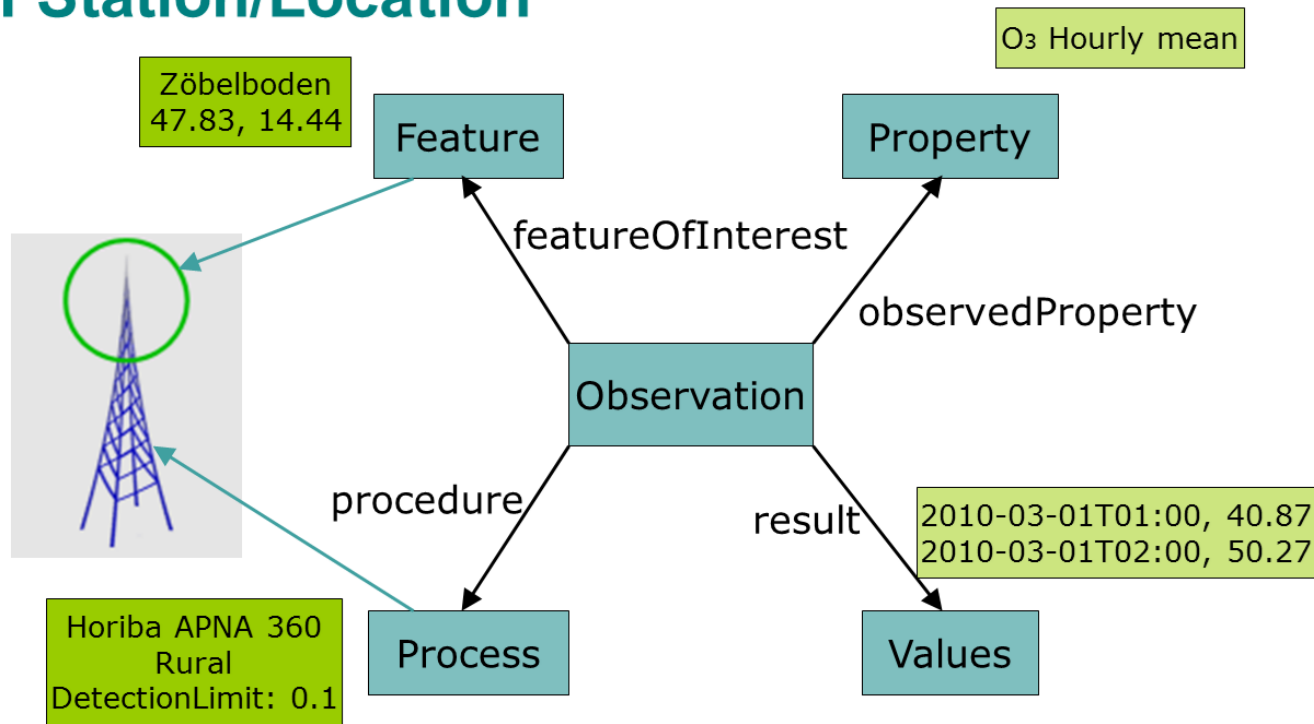
“An Observation is an action whose **result** is an estimate of the value of some **property** of the **feature-of-interest**, at a specific point in **time**, obtained using a specified **procedure**”

After Cox 2008

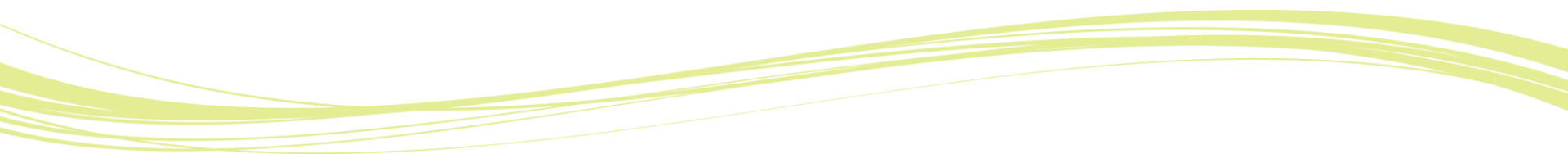


What O&M Means

Fol Station/Location



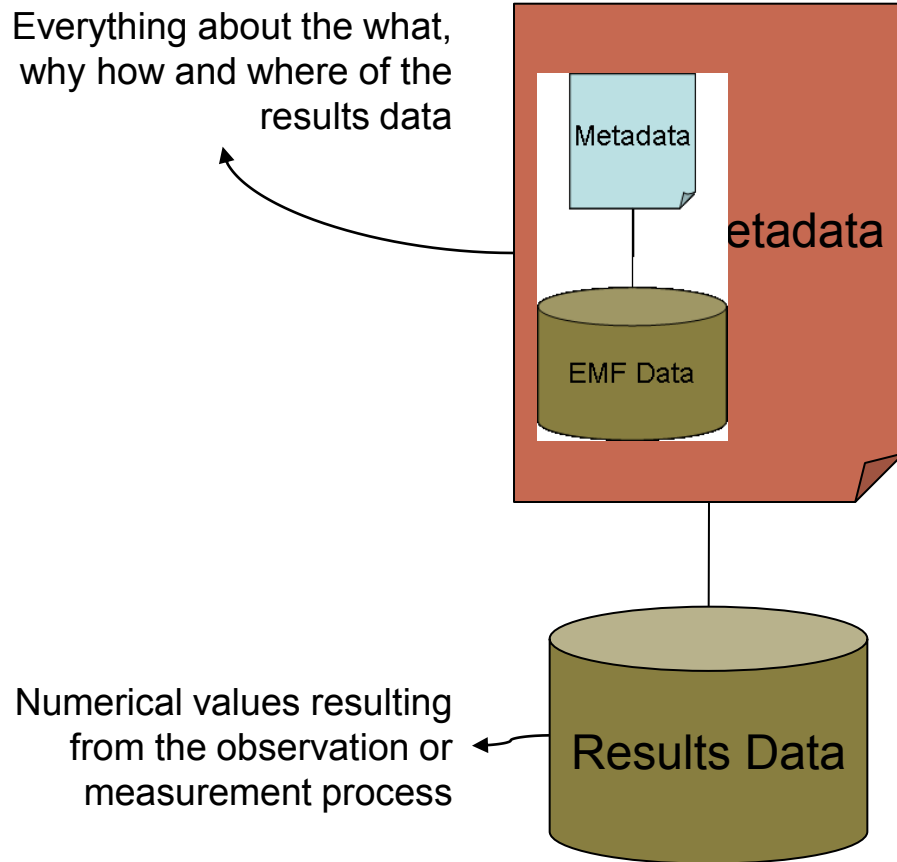
EMF Specification

- The EMF data specification describes what should go into a dataset of ‘facilities’ that observe and measure the environment
 - The EMF data set does describe the ‘what, when, where, why, who and how’ of an observation and measurement activity
 - The EMF dataset does not contain the results of the observation or measurement activity
 - The EMF dataset will have its own metadata
- 
- Decorative wavy lines in shades of light green and yellow at the bottom of the slide.

EMF Specification

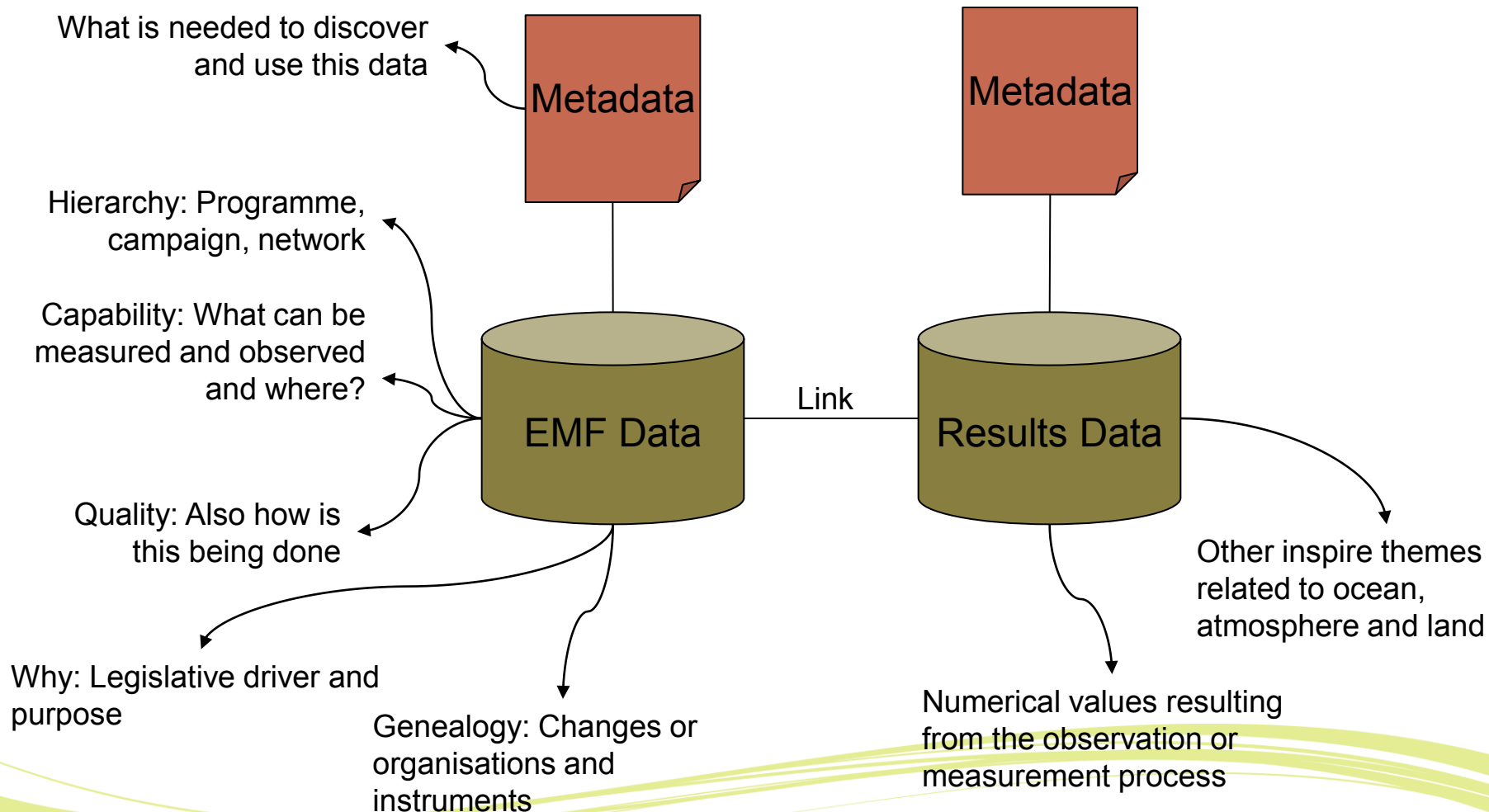
- The structure might look complex but it enables domain communities to specify environmental monitoring facilities and the linked observations and measurements to the appropriate level of detail which is relevant for data exchange.
- EMF defines **ONLY** vocabulary which has to be used cross domains and provides an option to access information from a cross domain point of view.

EMF as a dataset



- Traditionally we have thought about EMF-type data only being published as metadata for the results data
- This gives a very heavy metadata record

EMF and other Inspire Specifications



EMF Example : Ocean Monitoring

I am a dataset about an environmental monitoring facility located in bounding box (lat, lon). The dataset is called "UK OSPAR Gabbard Smartbuoy" and is about an in-situ device to measure the ocean. The record was created in 2012 by the UK Environment Agency. You may view me and download me without restriction. I am supplied in the GML format

I am a dataset about an ocean geographic feature located in bounding box (lat, lon). The dataset is called "Gabbard Temperature and Salinity 2003-2006" and is about a timeseries of measurements of temperature and salinity measured by the Gabbard Smartbuoy [ref EMF]. The record was created in 2006 by Defra. You may view me and download me without restriction. I am supplied in the NetCDF_CF format

I am a fixed measurement bouy. My name is Gabbard and I have ID 123. I am managed by Cefas which is government Agency of Defra. My purpose is to collect data on temperature and salinity as part of UK compliance to the OSPAR convention. I am located in the Southern North Sea (polygon) and I measure at a single point location (lat, lon). Temperature and salinity are measured using [devices] following these [methods]. I started observations in June 1995 and I am still recording data. My annual running cost in 2008 was £x,000. My results datasets IDs are [ID's]

Link

Time	Temperature	Salinity
YYYYMMDD HH:MM:SS+Z	15.2	35
YYYYMMDD HH:MM:SS+Z	15.5	36
YYYYMMDD HH:MM:SS+Z	16	37
YYYYMMDD HH:MM:SS+Z	16.2	37
YYYYMMDD HH:MM:SS+Z	16.1	36
YYYYMMDD HH:MM:SS+Z	16.3	36
YYYYMMDD HH:MM:SS+Z	15.9	35
YYYYMMDD HH:MM:SS+Z	15.2	35
YYYYMMDD HH:MM:SS+Z	15.5	36
YYYYMMDD HH:MM:SS+Z	16	37
YYYYMMDD HH:MM:SS+Z	16.2	37
YYYYMMDD HH:MM:SS+Z	16.1	36
YYYYMMDD HH:MM:SS+Z	16.3	36
YYYYMMDD HH:MM:SS+Z	15.9	35
YYYYMMDD HH:MM:SS+Z	15.2	35
YYYYMMDD HH:MM:SS+Z	15.5	36
YYYYMMDD HH:MM:SS+Z	16	37
YYYYMMDD HH:MM:SS+Z	16.2	37
YYYYMMDD HH:MM:SS+Z	16.1	36
YYYYMMDD HH:MM:SS+Z	16.3	36

EMF Example : Ocean Monitoring

I am a dataset about an environmental monitoring facility located in bounding box (lat, lon). The dataset is called "UK OSPAR Gabbard Smartbuoy" and is about an in-situ device to measure the ocean. The record was created in 2012 by the UK Environment Agency. You may view me and download me without restriction. I am supplied in the GML format

I am a dataset about an ocean geographic feature located in bounding box (lat, lon). The dataset is called "Gabbard Temperature and Salinity 2003-2006" and is about a timeseries of measurements of temperature and salinity measured by the Gabbard Smartbuoy [ref EMF]. The record was created in 2006 by Defra. You may view me and download me without restriction. I am supplied in the NetCDF_CF format

Geospatial element of the EMF dataset is a point on map

The OF data set is the actual data

Channel Coastal Observatory - Real time data - Microsoft Internet Explorer provided by HRW - Default IE GPO

http://www.channelcoast.org/data_management/real_time_data/charts/

search

site map

news

latest updates

newsletters

programme

background

aims

design

survey techniques

analysis

survey schedule

administration

general

contact us

FAQ

vacancies

links

abbreviations

education

national programmes

procurement

Overlays

- Regional monitoring
- ARGLUS
- GPS
- Other

NEW - view the wap | http://www.channelcoast.org/data_management/real_time_data/charts/index.html version of this page on your wml enabled mobile.

Alerts system - receive custom alerts from the observatory (please give us your feedback)

Location	Deployed	Type	Owner
Arun Platform	2008-05-28	PT	Arun DC

Channel Coastal Observatory - Real time data - Microsoft Internet Explorer provided by HRW - Default IE GPO

http://www.channelcoast.org/data_management/real_time_data/charts/?chart=79

search

site map

news

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education

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procurement

Rye Bay

Waves

Wave Spectra

Download Spectra

Latest

Information

Statistics

Display to date:

Prev

Range

Next

Day

Select today

View Table Data

Time (GMT)	Latitude	Longitude	Wave Height (m)	Max Wave Height (m)	Tpeak (s)	Tz (s)	Mean Direction (degrees)	Spread (degrees)	Sea Temp (°C)
23-02-2012 12:30	50.85277	0.79082	0.87	1.36	5.6	3.7	221	17	6.2

Date: Highest Hs 2012

03-01 4.7m

Wave Height Turn off storm threshold

Metres

Time Date: 23/02/12

Legend: Hmax, Hs, Storm Threshold

EMF Example : Woodland Survey

I am a dataset about an environmental monitoring facility located in bounding box (lat, lon). The dataset is called "UK Flora Biodiversity Inventory – Warburg Reserve" and is about floral species observation. The record was created in 2008 by BBOWT. You may view me and download me without restriction. I am supplied in the GML format

I am a dataset about a biotope located in bounding box (lat, lon). The dataset is called "Warburg Reserve Floral Biodiversity Survey 2002" and is about a biodiversity and abundance of floral species observed at multiple locations in the Warburg Nature Reserve by Warburg Flora Survey [ref EMF]. The record was created in 2002 by BBOWT. You may view me and download me without restriction. I am supplied in GML Format

I am an observation network. My name is Warburg Flora Survey and I have ID 456. I am managed by BBOWT which is conservation charity. My purpose is to collect data on floral diversity and abundance as part of UK compliance to the UN biodiversity convention. I am located in the Warburg Nature Reserve (polygon). I count floral species observed at multiple single point locations (lat, lon) following these [methods]. I started observations in August 1985 and I am still recording data. Four survey are undertaken each year. My annual running cost in 2009 was £x,000. My results datasets IDs are [ID's]

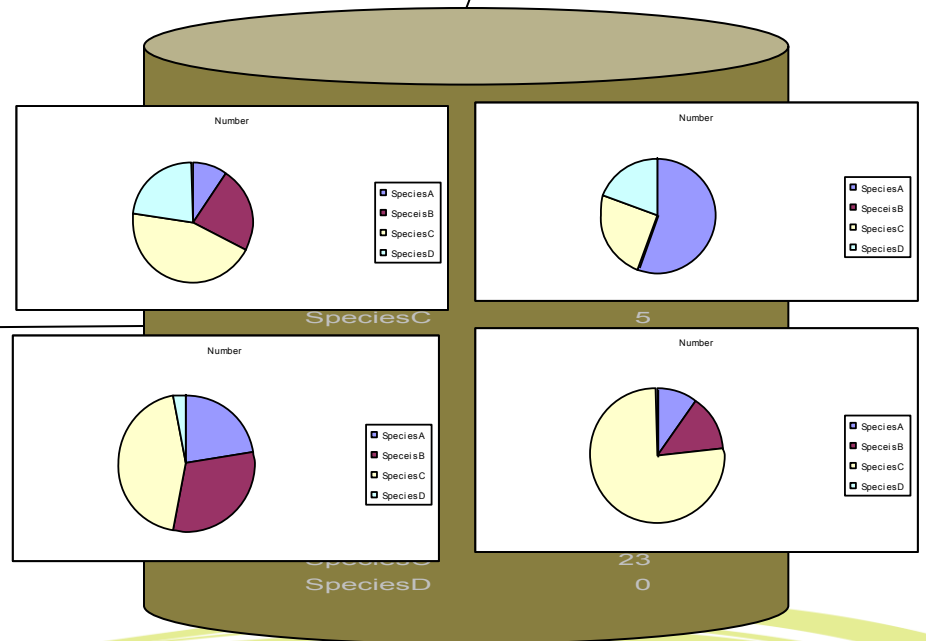
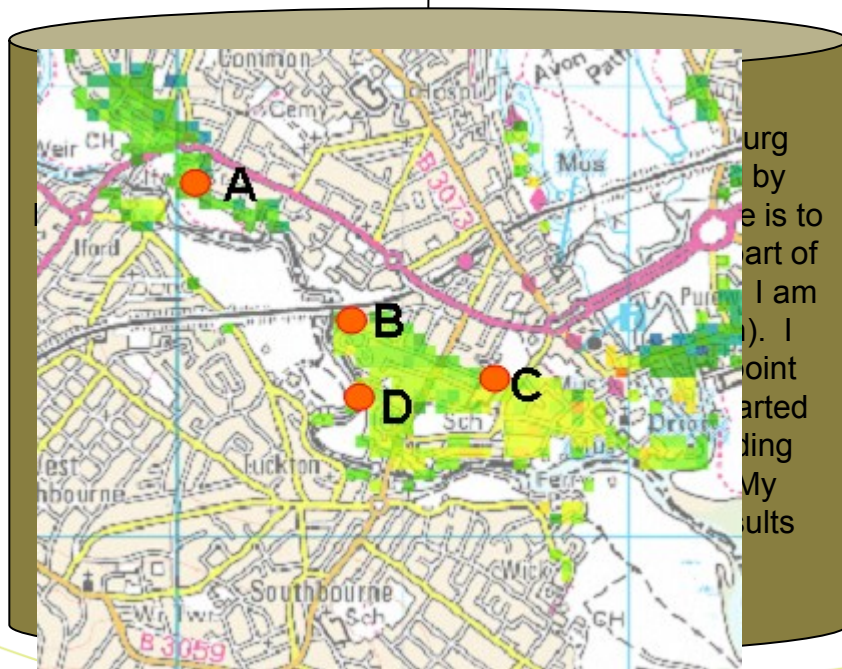
Link

Site1	Number	
SpeciesA		10
SpeciesB		23
SpeciesC		45
SpeciesD		23
Site2	Number	
SpeciesA		11
SpeciesB		0
SpeciesC		5
SpeciesD		4
Site3	Number	
SpeciesA		34
SpeciesB		45
SpeciesC		67
SpeciesD		4
Site4	Number	
SpeciesA		3
SpeciesB		4
SpeciesC		23
SpeciesD		0

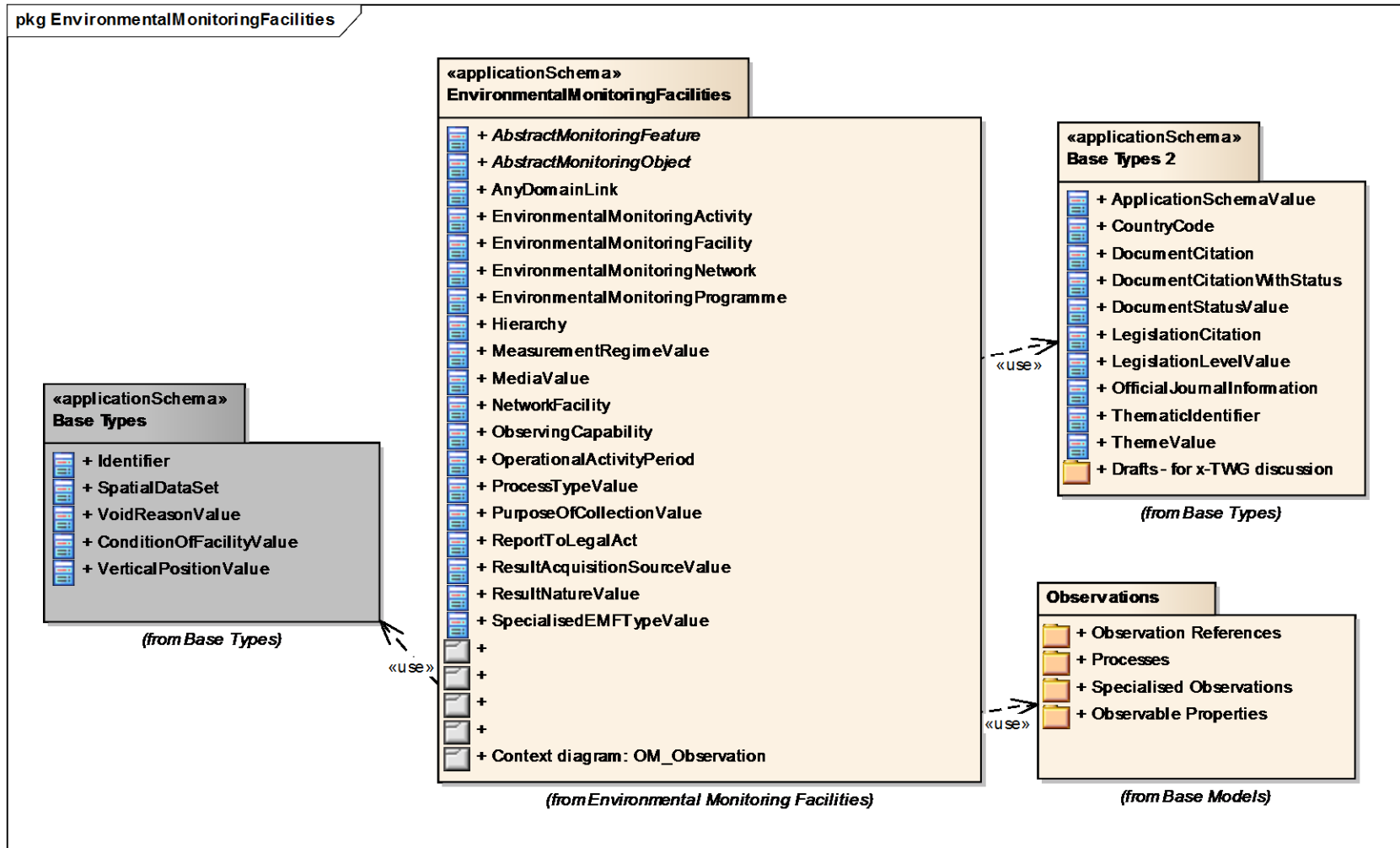
EMF Example : Woodland Survey

I am a dataset about an environmental monitoring facility located in bounding box (lat, lon). The dataset is called "UK Flora Biodiversity Inventory – Warburg Reserve" and is about floral species observation. The record was created in 2008 by BBOWT. You may view me and download me without restriction. I am supplied in the GML format

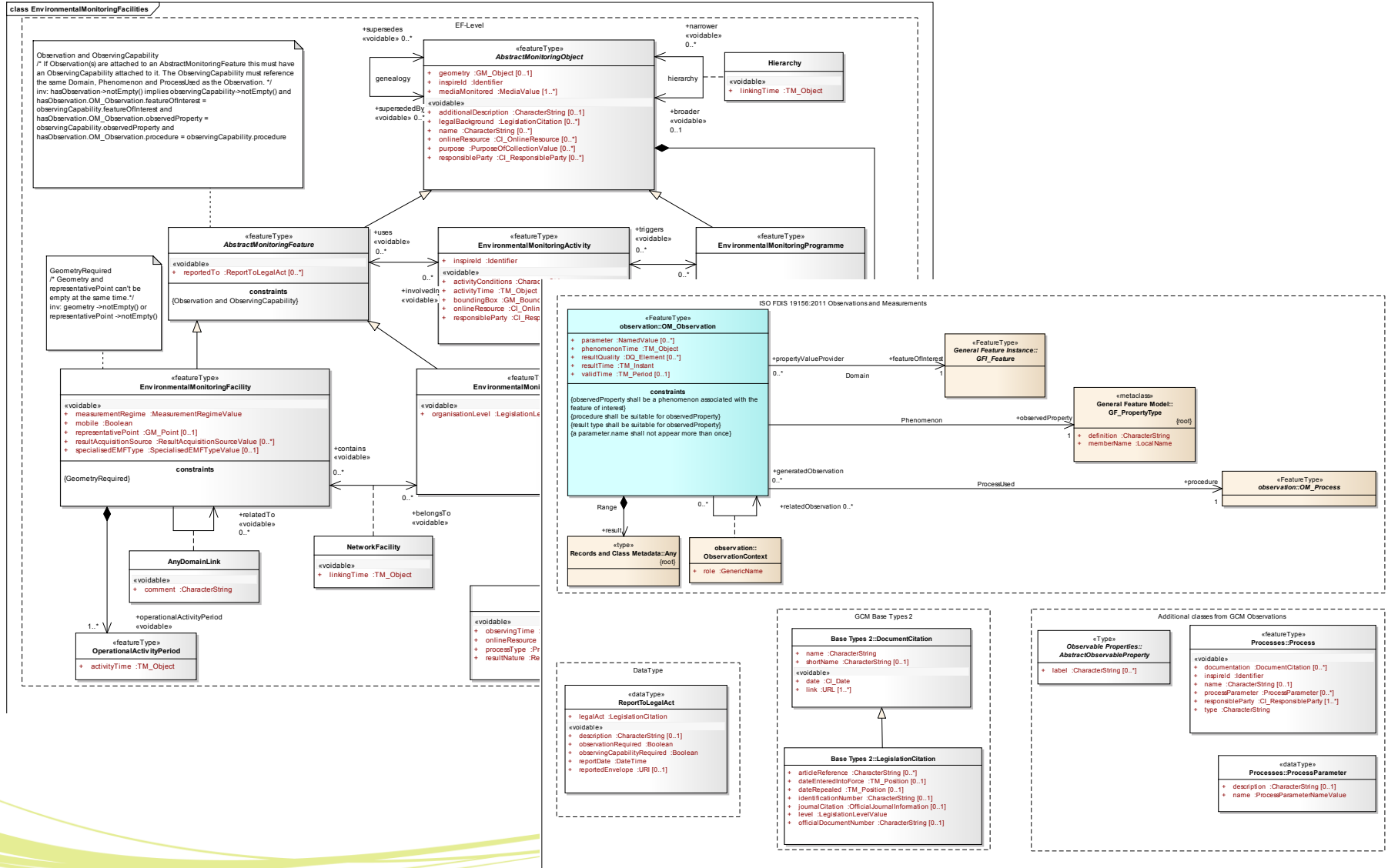
I am a dataset about a biotope located in bounding box (lat, lon). The dataset is called "Warbrg Reserve Floral Biodiversity Survey 2002" and is about a biodiversity and abundance of floral species observed at multiple locations in the Watburg Nature Reserve by Warburg Flora Survey [ref EMF]. The record was created in 2002 by BBOWT. You may view me and download me without restriction. I am supplied in GML Format



EMF as UML

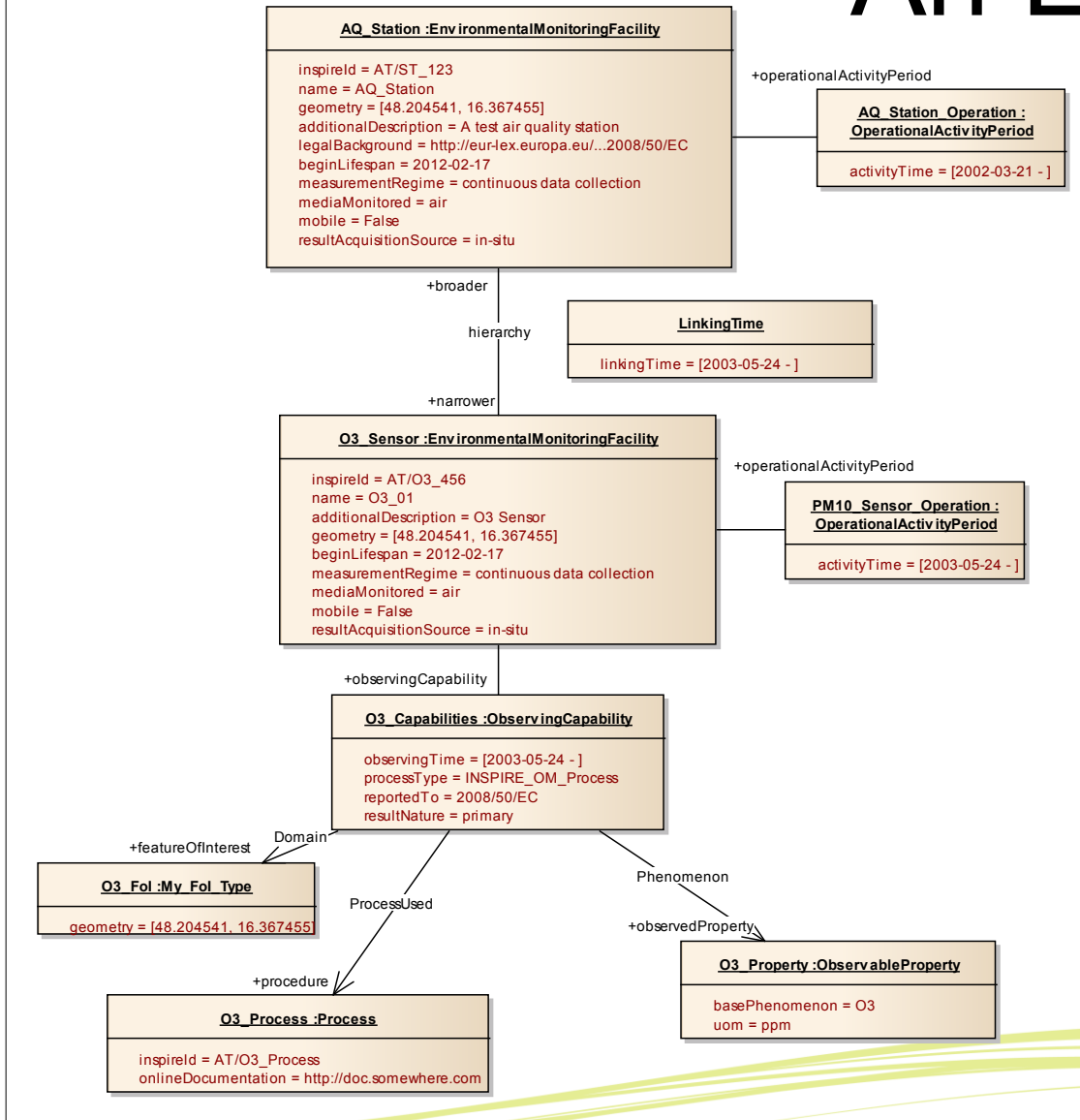


The Full Package

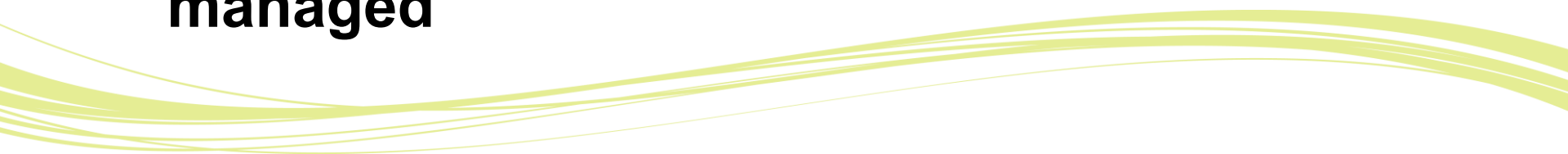


An Example

object EF Station Simple



To Conclude

- The EF specification is a new way of looking at the 5W+H of observing and measuring the environment
 - It's a dataset in its own right, separate from the results data
 - EF and results dataset need to be logically linked
 - **The dataset provides for performance and capability of observation networks to be managed**
- 
- Decorative wavy lines in shades of light green and yellow at the bottom of the slide.

Questions & Comments

UK Environmental Observation Framework




Next Steps for EF Data

Mike Brown and Philip Trembath

19th February 2013

Maple House, Birmingham

Overview

- EOF Catalogue Background
 - Why are we doing it
 - Limitations of existing catalogue
 - New EF Data Structure for the catalogue
 - Use Cases
 - New UK-EOF Catalogue Development
 - Future extendibility
- 
- Decorative wavy lines in shades of light green and yellow sweep across the bottom of the slide.

Why a UK-EOF Catalogue

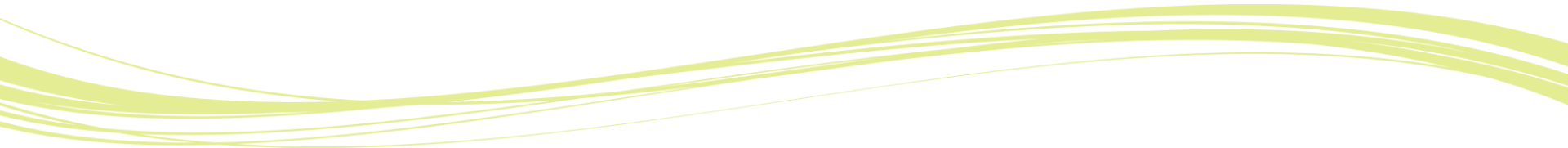
Aim

- Share knowledge and information on observation programmes so that we know what environmental parameters are being monitored by or for the UK, by whom, how, why and at what cost.

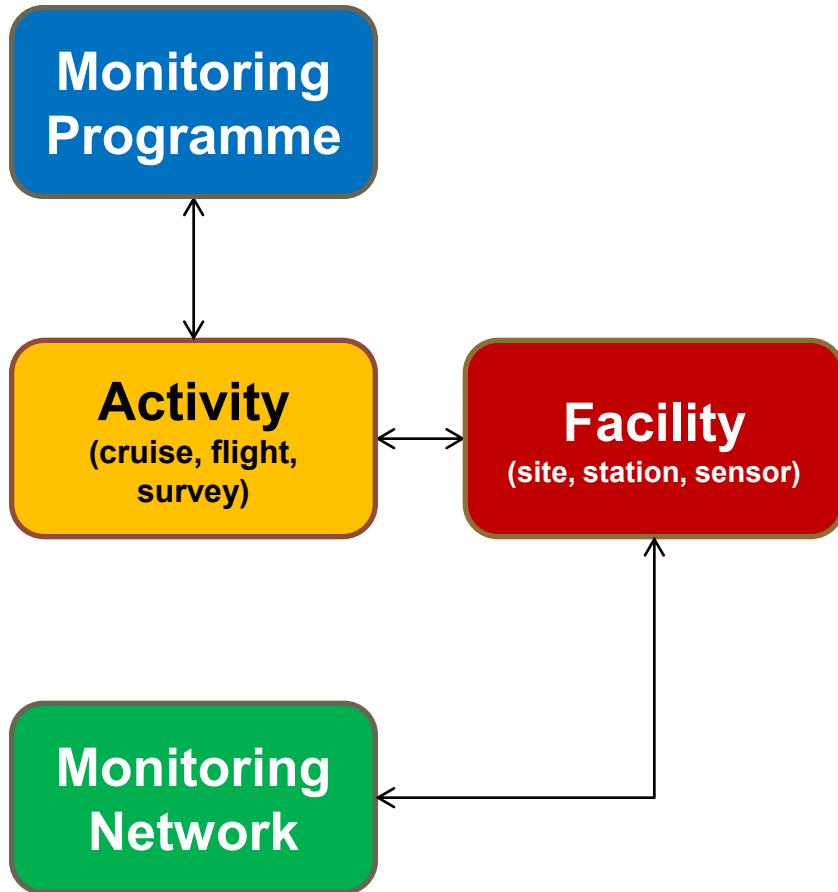
Why

- To support organisations and communities when undertaking observation decisions
- Re-use of facilities, instruments, data.
- To help stakeholders meet legal obligations

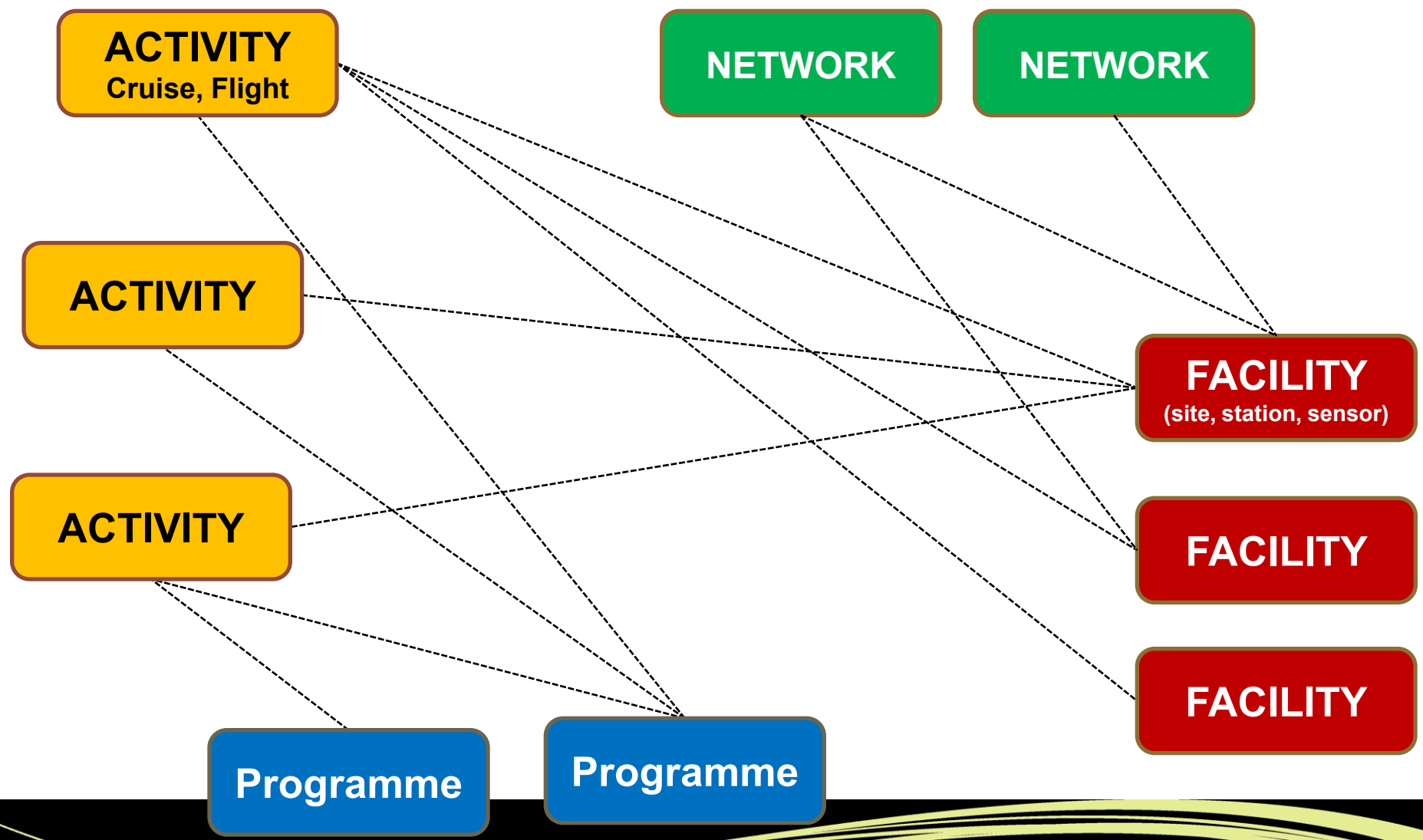
Limitations of existing Catalogue

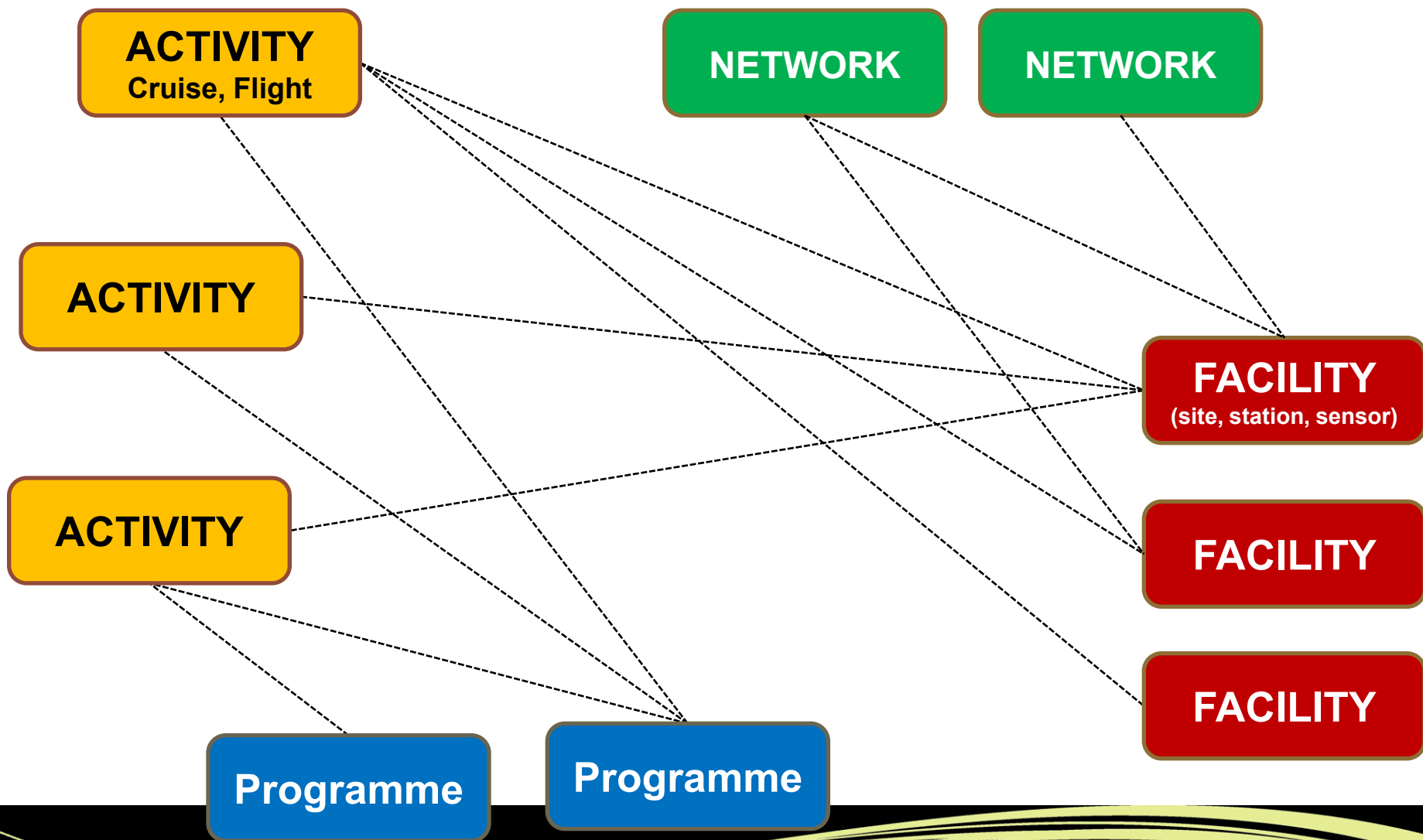
- Gap between the current solution and stakeholders requirements
 - Limited functionality of existing system
 - Metadata quality issue
 - Legal obligation
- 

Terminology



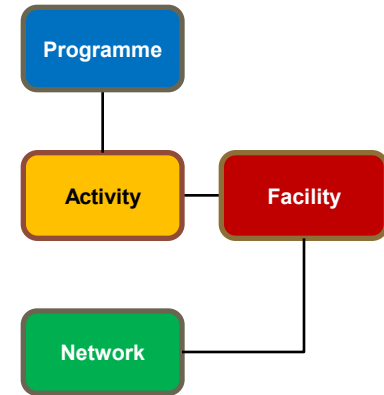
RELATIONSHIPS



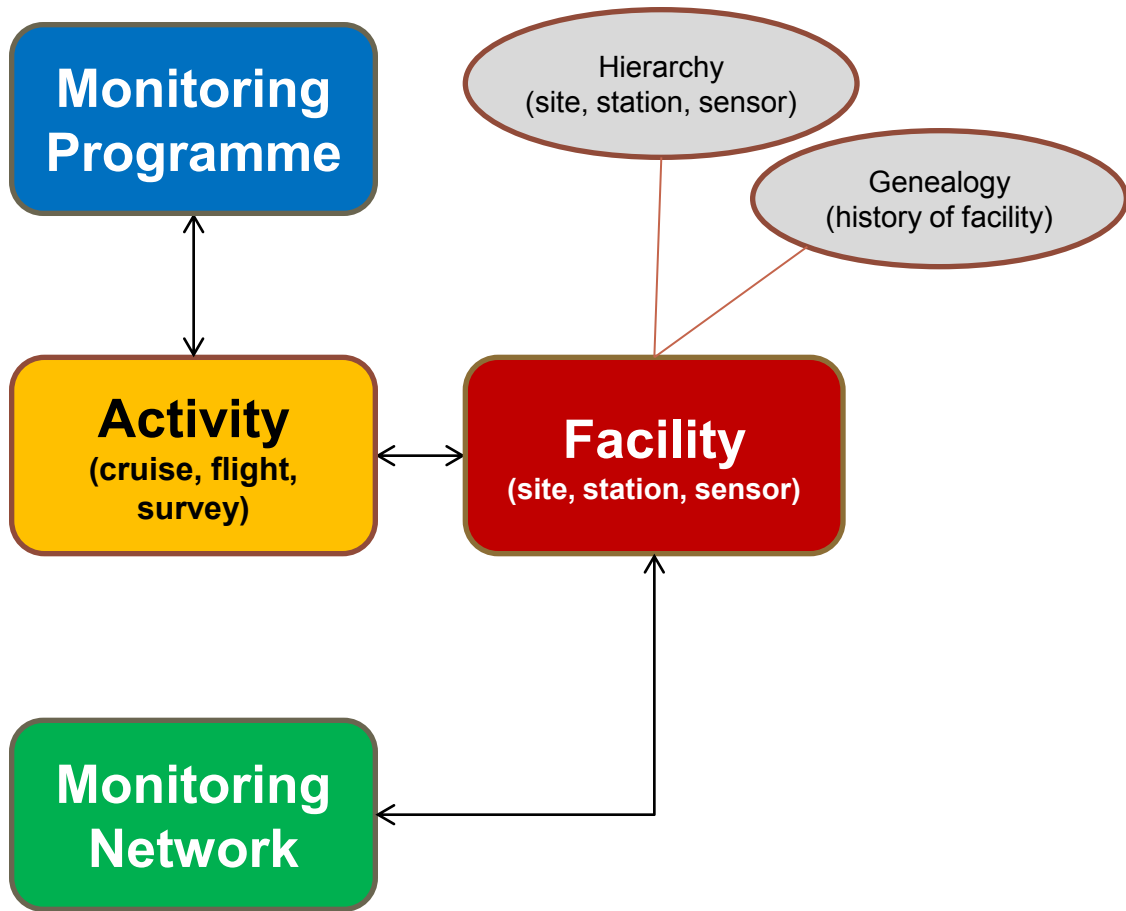


Core - Use Cases I

- ☑ Where is site A ?
- ☑ Which activities (e.g. cruises) comprise network B?
- ☑ How many cruises collected data for monitoring programme C ?
- ☑ How many sites does organisation D operate?
- ☑ Where is activity E carried out?
- ☑ What sites exist *near* site A?



Core EF + composition and history



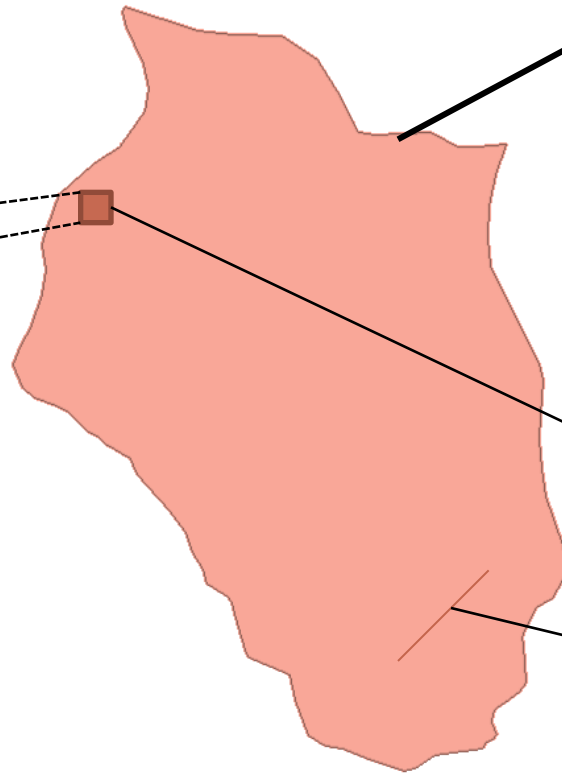
Hierarchy of facilities

**Cairngorms
NNR**

AWS

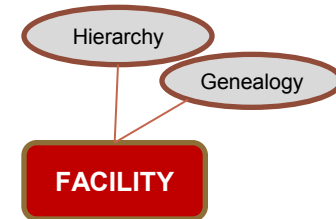
Pitfall traps

anemometer
barometer

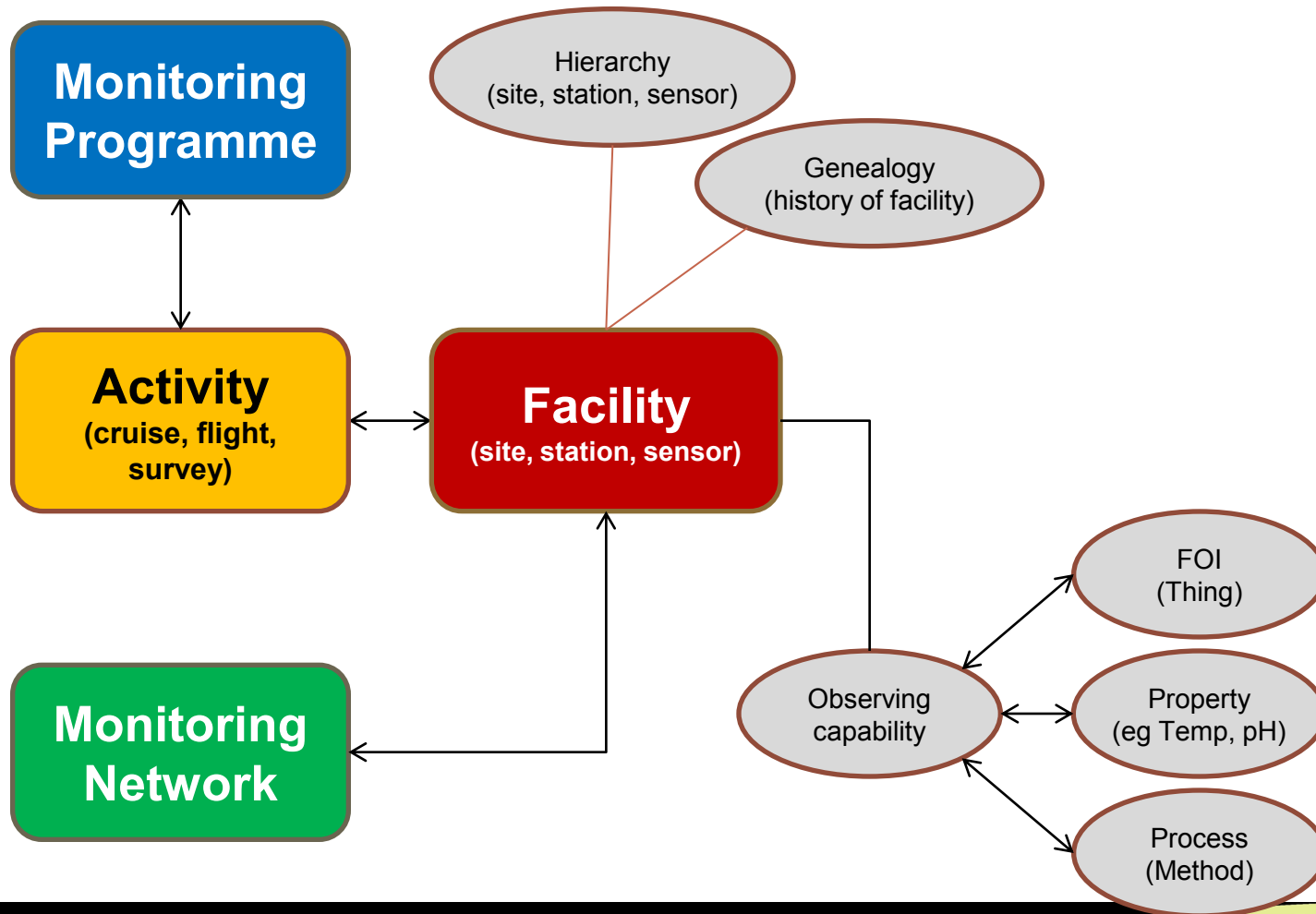


Core EF + Use Cases II

- ✓ What monitoring platforms exist at site A ?
- ✓ What instruments are mounted on platform 674B?
- ✓ Where is sensor 3748756?
- ✓ *Where else are sensors of this **type** being used?*
- ✓ *When was platform 674B upgraded to automatic operation*
- ✓ *What is the history of platform 344G at site A?*

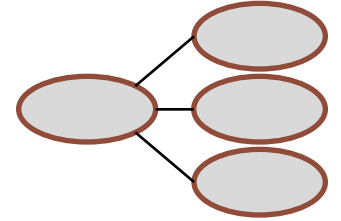


Core EF + capability (what is able to be recorded)

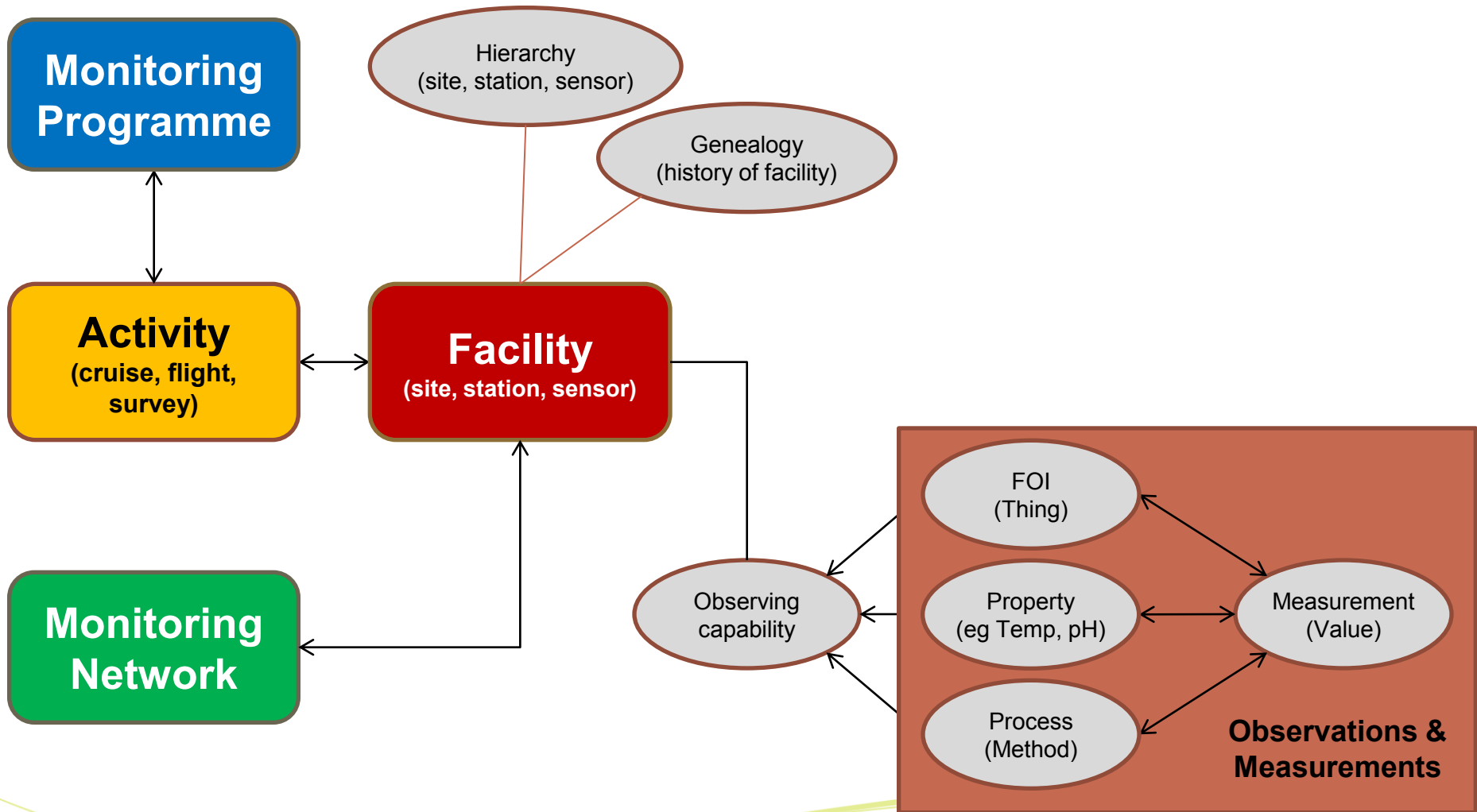


Use Cases III

- ☑ What can be monitored at site A ?
- ☑ Where else can we monitor river flow ?
- ☑ Can we monitor flow using method X anywhere ?
- ☑ Can I rationalise our use of ships / monitoring stations?

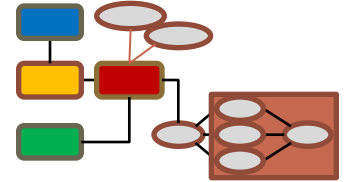


Complete EF - Access Data

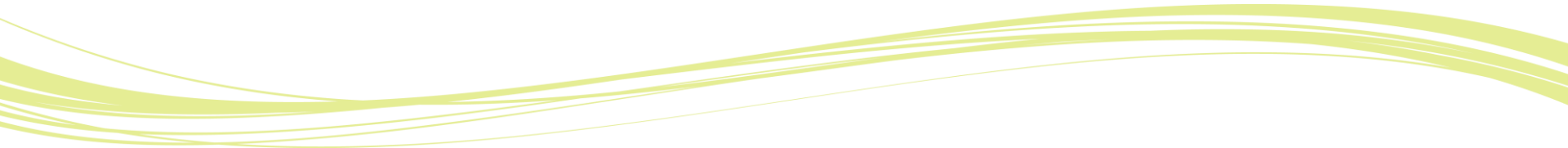


Use Cases IV

- ☑ What has been monitored at site A ?
- ☑ Give me the river flow data generated from Activity B
- ☑ What data did Programme Z generate ?
- ☑ Give me all the data from Network G for Lancashire



Catalogue Development



Simple Search – networks, activities, facilities

The screenshot shows a web browser window with the URL `testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/search/simple.asp?feature=%`. The page header is teal and contains the text "UK-EOF Catalogue Development Site" and navigation links for "Search", "Reports", "Admin", "Help", and "Philip Trembath". Below the header are three buttons: "Simple Search", "Map search", and "Add an activity".

The search filters section includes:

- Search: programmes networks activities sites stations sensors
- For:
- Include inactive

The search results are displayed in three colored boxes:

- Environmental Change Network** (Network): A green box with a "Network" label in the top right corner.
- Environmental Change Network - Flow Monitoring** (Activity): An orange box with an "Activity" label in the top right corner. Description: "Dataset includes results for river flows (mean annual discharge and Q95)."
- Environmental Change Network (ECN): Moor House, Upper Teesdale NNR** (Facility): A red box with a "Facility" label in the top right corner. Description: "Environmental Change Network (ECN) site. All key terrestrial and freshwater protocols conducted at the site since 1992. Site also used widely (by CEH, other research institutes and academia as a Research Platform)".

Map Based Search – filtered by keyword

The screenshot displays a web browser window with the URL `testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/search/map.asp?featureName`. The page header is a teal bar with the text "UK-EOF Catalogue Development Site" and navigation links for "Search", "Help", and "Login". Below the header are three buttons: "Simple Search", "Map search", and "Add an activity".

A "Filter" section is visible, containing a text input field with the value "metal", a checkbox for "include inactive" which is unchecked, and "Apply filter" and "Clear" buttons. The main content is a map of the United Kingdom and Ireland, showing various cities and red location pins. A popup window titled "UK Heavy Metals Network" is open over a pin on the East coast of England. The map includes standard navigation controls on the left and a "Zoom to town/city" input field at the bottom with the text "eg Birmingham or Pitlochry" and a "Go" button.

Example of an Activity

The screenshot shows a web browser window displaying the UK-EOF Catalogue Development Site. The browser address bar shows the URL: testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/feature/activity/index.asp?acti. The site header includes navigation links for Search, Reports, Admin, Help, and Philip Trembath. Below the header, there is a link to return to search results and the title 'UK Heavy Metals Network'. A tabbed interface is visible, with 'Description' selected. The main content area displays the following details for the activity:

Description	Finance & Funding	Quality	Facilities	Keywords	Networks	Contacts	Online Resources	Metadata
Name	UK Heavy Metals Network							
Identification code	4008							
Monitoring type	Monitoring							
Description	The aim of the network is to measure the background concentrations and deposition of heavy metals. The sites in the network were specifically chosen as they are rural locations which are not influenced by nearby emission sources such as industrial plants or major roads. Data obtained from the monitoring sites are analysed and used to create maps of the UK showing the concentrations and deposition of heavy metals in both air and precipitation. These maps are used to identify the areas where the metal deposition is most likely to cause a pollution effect.							
Objective	Heavy metals in air and rain							
Status	Active							
Active	from: 01/09/2003							
Frequency of observations	metals in air air samples -weekly, metals in rain (varies from weekly to 4 weekly, depending on sites), Hg in air (network) fortnightly, Hg in rain (monthly), continuous Hg monitoring (Auchencorth & Harwell only) every 5 minutes							
edit								

Edit records

testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/feature/activity/index.asp?acti

UK-EOF Catalogue
Development Site

Search Reports Admin Help Philip Trembath

Back to search results

UK Heavy Metals Network

Title UK Heavy Metals Network

Identification code 4008

Monitoring type Monitoring

Description The aim of the network is to measure the background concentrations and deposition of heavy metals. The sites in the network were specifically chosen as they are rural locations

Objective Heavy metals in air and rain

Status Active
If "other" please state:

Active from: 01/09/2003
to:

Notes Defra funded monitoring network with additional CEH Science Budget added value

Frequency of Observation metals in air air samples -weekly, metals in rain (varies from weekly to 4 weekly, depending on sites), Hg in air (network) fortnightly, Hg in rain (monthly), continuous Hg monitoring

Submit Cancel

Frequency of ob

on sites), Hg in air only) every 5

by metals. The sites by nearby emission are analysed and in both air and t likely to cause a

Which facilities contribute to an activity

testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/feature/activity/index.asp?acti

UK-EOF Catalogue
Development Site

Search Reports Admin Help Philip Trembath























« Back to search results

UK Heavy Metals Network


Description Finance & Funding Quality **Facilities** Keywords Networks Contacts Online Resources Metadata

Geographic area: United Kingdom

Facilities used by this activity:

Auchencorth Moss		
Banchory		
Beacon Hill		
Cockley Beck		
Heigham Holmes (National Trust)		
Holme Moss		
Inverpolly		
Kent County Council (Detling)		
Lough Navar		
Monkswood		
Penallt		

Add a new facility



Map data ©2013 Basarsoft, Google, DRION-ME - Terms of Use

ENLARGE MAP

Facility record example


testw2k3sql.nerc-lancaster.ac.uk/fieldwork_dev/feature/facility/site.asp?facilityI

UK-EOF Catalogue
Development Site

Search Reports Admin Help Philip Trembath

« Back to search results

Auchencorth Moss



Map

Show sites nearby

Site »

- Activities
- Owner(s)
- Updates

Site name	Auchencorth Moss
Site ID	10952
Description	NT220562

[edit](#)

Which activities use this facility (show nearby sites)


testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/feature/facility/site.asp?facilityI

UK-EOF Catalogue
Development Site

Search Reports Admin Help Philip Trembath

« Back to search results

Auchencorth Moss



Show sites nearby

Site	<p>Activities which use this site:</p> <ul style="list-style-type: none"> Carbon Catchment: Auchencorth Moss EMEP supersite Heavy Metals (C02164) UK Acid Gas and Aerosol monitoring network (AGAnet) UK Heavy Metals Network UK National Ammonia Monitoring Network
Activities »	
Owner(s)	
Updates	

Details of nearby facilities

testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/feature/facility/site.asp?facility1

UK-EOF Catalogue
Development Site

Search Reports Admin Help Philip Trembath

« Back to search results

Auchencorth Moss

4909: Tweed at Peebles Gauge

Map

Show sites nearby

Site »

Activities	Site name Auchencorth Moss
Owner(s)	Site ID 10952
Updates	Description NT220562

[edit](#)

Incorrect data

The screenshot shows a web browser window displaying the UK-EOF Catalogue Development Site. The browser's address bar contains the URL: `testw2k3sql.nerc-lancaster.ac.uk/fieldwork.dev/search/map.asp?featureName`. The website header includes navigation links for Search, Reports, Admin, Help, and Philip Trembath. Below the header are three buttons: Simple Search, Map search, and Add an activity.

A filter section is visible with the following details:
- Filter
Name: include inactive Apply filter Clear

The main content is a map of the United Kingdom and Ireland. A red pin is located in the Celtic Sea, south of the southwest coast of England. A popup window is open over this pin, displaying the text: "Upland Waters Monitoring: Historic sites". The map shows various cities and towns across the UK, including Limerick, Waterford, Cardiff, and Plymouth. The Google logo and "Celtic Sea" label are visible at the bottom left of the map area. At the bottom right, there is a zoom control and a search box with the text "Zoom to town/city: eg Birmingham or Pitlochry" and a "Go" button.

What it means for data Providers

- CEH/UKEOF will be contacting you
 - Are YOU the right person to ask and if not who?
 - Q. Is your data up to date
 - Q. What is the location or area of the activity
- Getting data into the catalogue
- Bulk upload and reporting
- Manual editing

Major Risks

- Lack of stakeholder engagement through development = “not fit for purpose”
- Garbage in = Garbage Out
- Failure to Keep Records up to date = loss of confidence in solution

Benefits

- More effective use of assets
 - Common standards facilitate better communication
 - One solution, many users
 - Strategic Planning
 - Funding opportunities
 - Legal obligations met
- 
- Decorative green wavy lines at the bottom of the slide, consisting of several overlapping, curved lines in various shades of green.

Future Potential

- Linking to established Vocabularies?
 - E.g. Geonames/OS Open linked data
 - Ask questions such as show me where we are measuring X in
 - “same county”
 - “adjacent county”
 - “Near the river X”
- Linking to the data ?

Questions & Comments

The benefits, barriers and opportunities from implementing the INSPIRE EF theme in the UK

- Nominate a rapporteur per table
- Discuss and note;
 - Benefits (15 minutes)
 - Barriers (15 minutes)
 - Opportunities (15 minutes)
- Feedback from each table (5 minutes per table)

Lunchtime task

- How ready is your organisation?
 - Using a post-it note, indicate how ready you think your organisation is for complying with INSPIRE EF.

Wrap up

- Workshop summary
- Feedback to EEA