D2.6 STC Web Applications Service

Title	D2.6 STC Web Applications Service
Creator	NERC-BGS
Creation date	08/11/2012
Date of last revision	14/12/2012
Subject	Description of provision for STC Web Applications Service
Status	☐ Draft ☒ Final
Publisher	EGIDA WP2
Type	Text
Description	Explains how the Continuity Indicator Database D2.3 described in D2.4 and any process for identifying, assessing and accepting new GEOSS component agreed by GEO could be turned into a web application in the future.
Contributor	NERC-BGS
Format	DOC
Source	NERC-BGS
Rights	☐ Restricted ☒ Public
	EGIDA-Deliverable-template.doc
Language	En
Relation	WP2 – T2.1
Coverage	Not applicable

These are Dublin Core metadata elements. See for more details and examples:

http://www.dublincore.org/

Executive Summary

This deliverable (D2.6) has been generated within EGIDA Work Package 2: Support of GEO Task ST-09-01. EGIDA WP2 aims to actively engage and incorporate Science and Technology communities in developing GEOSS by providing direct support to the GEOSS Science and Technology Roadmap concerning the GEO Task ST-09-01, specifically activities 1c (Assess the requirements for continuity and long-term monitoring) and 1e (Respond to Science and Technology needs and priorities). The deliverable specifically relates to the former task.

The development of the GEOSS over time requires an objective assessment of the continuity of GEOSS components and a Continuity Indicator Database (D2.3) was developed to facilitate this. A more accessible, web-based home is required for this database. At the same time, new observational infrastructure needs to be identified, proposed, assessed and accepted to help grow GEOSS. There are various ways to facilitate this, one of which is for GEO to instigate a formal process. Should GEO decide that this approach is needed, it could also be supported by an online web application service. This deliverable (D2.6) assesses potential techniques for the design of a web service to support the submission and review of proposals for such candidate observing systems to be accepted in GEOSS, setting out the main elements of such a system. It also gives a worked example of the information that would need to be provided, based on a real observing system.

Many candidates systems would currently be run in a research mode and so the process includes consideration of the finances that would be required to move the infrastructure to an operational status; views would need to be sort from GEO Members and Participating Organisations on the potential to provide such funding as a key part of the review process, before the appropriate GEO committee(s) reached a decision.

The Web application service has been designed for maximum compatibility with the GEO-portal; earthobservations.org; the GEOSS Component and Services Registry; and GEOSS Standards and Interoperability Registry.

Contributing organisations: NERC-BGS

Contents

Acronyms and Abbreviations

Abbreviation	Name
ADC	(GEO) Architecture and Data Committee
CIDB	Continuity Indicator Database
D	Deliverable
EC	European Commission
EO	Earth Observation
EU	European Union
FP7	Seventh Framework Programme
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GMES	Global Monitoring for Environment and Security
ST-09-01	GEO Task ST-09-01: Catalysing Research and Development (R&D) Funding for GEOSS
ST-09-02	GEO Task ST-09-02: Promoting Awareness and Benefits of GEO in the Science and Technology Community
S&T	Science and Technology
SBA	Societal Benefit Area
STC	(GEO) Science and Technology Committee
T	Task
WP	Work Package

1. STC Web Application Service

This report sets out the steps required to develop a web-based service to do two things. The first is to make available and continue to populate the Continuity Indicator Database, D2.3, which was described in deliverable D2.4, with observational infrastructure not currently in GEOSS. At the moment, the database is a stand-alone MS Access database. It provides links between components in the GEOSS Registry and the data, data products, sensors, sensor packages and platforms that support those components and the User Requirement Registry. This enables a user's stated requirements to be assessed in light of our ability to meet them with an observation and also indicates the continuity status of the component that can do this. Such linkages have not been made previously and will be invaluable in, for example, supporting GEOSS gap analyses. However, to realise the full potential of this it needs to be made more accessible to users by the creation of a web-based application that provides a user-friendly front end to the database. Secondly, if GEO decides that a formal process to allow candidate observational infrastructures to be nominated, assessed and incorporated over time is needed, perhaps as a way to encourage the science and technology community to contribute their assets to GEOSS, then this too could be supported by a web application. In developing such an application, which could range from a simple web page to provide a front end to the database and forms to provide information on candidate observational infrastructure, to a more complex web application, the following considerations apply:

- Who should host the database and web application service?
    a. An EGIDA partner like BGS could do this initially, but not in the long term.
    b. In the longer term, a more natural home would be somewhere in the GEOSS Common Infrastructure: this might be the GEO-Portal, itself; earthobservations.org; the GEOSS Component and Services Registry (designed, developed and maintained by GEOSS AR-07-01); or another appropriate part of the GCI, e.g. the Standards and Interoperability Registry.
- What source of funding could maintain such a web application service
    a. The EGIDA project budget could only cover the scoping and specification of such a web application service and not its long-term maintenance.
    b. Incorporation somewhere in the GCI would require a GEO Partner or a GEO Participating Organisation to fund maintenance in the longer-term, either by taking on the maintenance and development or by providing a budget for another appropriate organisation to do the same.
- Which Script language should be used?
    a. HTML?
    b. Javascript?
    c. A combination of HTML and Javascript, as for the above mentioned web services already within the GCI?

2. Proposed Web Application Service

Along with an appropriate, user-friendly front end to the Continuity Indicator Database, to provide access to continuity information on existing GEOSS components, GEO may have a need to provide a mechanism for new components to be nominated, described, reviewed and accepted. The WP2 proposal for this is for a web-based online form for the proposer to provide: 1) information on the Candidate Observing System; 2) justification for the need for the system to become operational, and 3) letters of support from organisations that require continuous data. At the outset it would be beneficial for the proposer to sign in with new registration credentials; this would enable the proposer to save details of the proposal at any stage in their profile and return to the proposal submission when desired.

2.1. Web Application Service Welcome Page

This section would contain:

- Welcome information
- Overview of the proposal review process (see Section 2.6
- Contact information for queries

2.2. Section 1 – Detail of Candidate Observing System

This section of the online form should contain the main details of the Candidate Observing System together with detail of current funding nature. In order to comply with the GCI, the information provided must cover the important fields from GEOSS Component and Service Registry, GEOSS Standards and Interoperability Registry and Continuity Indicator Database:

- Full name of Candidate Observing System: *e.g. Coastal Observing System for Northern and Arctic seas*
- Abbreviation of Candidate Observing System: *COSYNA*
- GEOSS Registered Component Status: *Approved*
- Current responsible organisation(s): *HZG*
- Contact email: *gisbert.breitbach@hzg.de*
- URL to candidate observing system: *www.cosyna.de*
- Resource Category: *Monitoring and Observation System*
- Funding Nature: *Research*
- Operational Status: *Continuous Operational*
- Observation Type: *Marine*
- Geographic Coverage: *Northern and Arctic Seas*
- Societal Benefit Areas: *Climate; Ecosystems; Water*

- Platforms involved (link to Continuity Indicator Database, CIDB): *BSH "North Sea II"; FINO-3; BSH "North Sea III"; RV "Heincke"; BSH "Ems"; BSH "German Bight"; BSH FINO-1; Helgoland; Wadden Sea Pole; Directional Waverider Buoys; Guxaven; Glider; RV "Prandtl"*
- Packages involved (link to CIDB): *ScanFish (Prandtl, Heincke); X-band Radar; HF-Radar; Multibeam echosounder (Prandtl); Acoustic Doppler Current Profiler (Prandtl, Heincke); FerryBox (Prandtl, Heincke); Radar Doppler Current Profiler (Prandtl, Heincke); Accelerometer (Waverider)*
- Sensors involved (link to CIDB); *X-band Radar; HF-Radar (108MHz – 13.5MHz); Conductivity Probe (ScanFish); Dissolved Oxygen Probe (ScanFish); Suspended Matter Probe (ScanFish); Temperature Probe (ScanFish); Optical Fluorescence Sensor (ScanFish); Volume Scattering Sensor (ScanFish); Acoustic Pinger (ScanFish)*
- Associated Data Products (link to CIDB): *Current Fields; Water Levels; Chlorophyll (ScanFish); DWD hourly atmospheric data; BSH hourly river run-off; Sea-Surface Temperature (FerryBox); Sea-Surface Salinity (FerryBox); Salinity (ScanFish); Turbidity (ScanFish); Algal fluroescence (ScanFish); Oxygen (ScanFish); Temperature (ScanFish); Wave Height (Waverider); Wave Length (Waverider), Wave Period (Waverider)*

2.3. Section 2 – Justification

This section should be free-text (English language) for the proposer to provide justification of both the opportunity and the need to move the observing system from the research mode to operational mode. Included in this section should be an indication of the level of funding required to maintain the system in operational status and assessment of possible sources.

- Justification
- Funding Requirement for Operational Status

2.4. Section 3 – Letters of Support

In order to support the subsequent assessment of the need for the Observation System to have operational status rather than to exist in research mode, this section should enable the uploading of letters of support from different Member States and/or Participating or other Organisations that require operational data from the system and might fund it:

- Upload Letter of Support 1-n (up to a certain number; say, 5 letters?)

2.5. Section 4 – Submission

This section would contain:

- Submission of proposal

2.6. Notification of Submission

Automatic email will be sent to the contact email provided in Section 1.

3. Review Process

The Web application would contain a set of routines to enable swift assessment of the proposal.

- Automatic rejection of the proposal if there are blank entries in the form
- Automatic forwarding of the proposal to a central contact
- Automatic notification of submission success to the proposer
- Automatic forwarding of proposal to a predefined contact list of the associated Societal Benefit Areas
- Automatic forwarding of proposal to the Principal of the associated Member State(s) and Participating Organisations that might be in a position to fund, requesting views
- Automatic forwarding of proposal to the web master of the GEOSS Component and Services Registry
- Automatic forwarding of proposal to the web master of the GEOSS Standards and Interoperability Registry
- Automatic forwarding of proposal to the web master of the Continuity Indicator Database

The following sections outline a suggested review process in order for a Candidate Observing System to be proposed to join GEOSS and run in Operational mode, should funding permit.

3.1. Phase 1: Submission of Proposal

- Online form
- Proposal completed by proposer (Individual / Organisation / Consortium)
- Online form prevented from submission unless ALL fields completed
- Submission to central contact
- Acknowledgement of proposal receipt (automatic on keyword) by central contact

3.2. Phase 2: Review of Proposal

- Peer reviewers selected (automatic from keyword SBA / Theme)
- Proposal sent to peer reviewers list (automatic email) with deadline set
- Peer reviewers acknowledge receipt and accept or reject their tasking
- Peer reviewers review proposal along with any views submitted by GEO Members and Participating Organisations
- Peer reviewers submit reviews to central contact (await until 80% reviews received after deadline)

- Recommendations collated by central contact
- Collated recommendations sent to committee by central contact
- Review of collated recommendations by appropriate GEO committee(s)

3.3. Phase 3: Decision on Proposal

- Meeting of committee(s) (telephone conference / video conference)
- Decision made by committee(s) to Approve / Rewrite / Reject proposal
- Committee(s) inform central contact of decision

3.4. Phase 4: Notification of Proposal Success

- Feedback given by central contact to proposer on decision reached by committee
- If approved, central contact appends information to Continuity Indicator Database

4. Summary

There are two elements to the proposed STC web services. The first is aimed at making the Continuity Indicator Database more accessible by linking to it from an appropriate web page within the GCI. Discussions should be held during 2013 with the GEO Implementation Boards and related bodies to assess where this should be. The second is to have an on-line system for submitting observational infrastructures for consideration as a new component of the GEOSS and attempting to identify funding for the shift from the research to the operational domain. The need for a formal process to submit such candidates is a matter for GEO. If the consensus is reached that such a process is required, it could be supported by a simple web based application procedure, backed up by the appropriate GEO structures. This report sets out the main elements of such a web application service, to aid its subsequent design if and when such a scheme is adopted by GEO, including a worked example from a real observing system to illustrate the provision of the stipulated information.