D2.4 Continuity Indicator Database (CIDB) Availability Test Report

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http://www.dublincore.org/

Executive Summary

The Continuity Indicator Database (CIDB) 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.

This deliverable (D2.4) documents the Continuity Indicators Database that was delivered as D2.3, Continuity indicators for GEOSS components. It explains the motivations for developing a continuity database, sets out the selected indicators and states why they were chosen, and goes on to explain the structure of the database. The continuity database was demonstrated during the 2nd GEO Science and Technology Stakeholders Workshop held in Bonn in August 2012. This event was used to test the utility of the database and structured comments were gathered from the participants; these form a chapter in this report and are the basis for a set of recommendations.

The main recommendation is that the continuity database be incorporated in the GEOSS Common Infrastructure, perhaps as part of the GEOSS Science and Technology Service Suite. This will secure the database for the future, but resources would still be required to maintain and update the data beyond the lifetime of the EGIDA project. It is not clear where these will come from at the present time. Once EGIDA is completed, this challenge will be passed on to the GEO Implementation Boards.

Contributing organisations: NERC-BGS, BLB, CREAF, DMI, HZG, and the GEO Science and Technology Stakeholders Forum

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Acronyms and Abbreviations

Abbreviation	Name
ADC	(GEO) Architecture and Data Committee
CIDB	Continuity Indicator Database
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. Continuity Indicator Database (CIDB)

The Continuity Indicator Database (CIDB) (D2.3) has been developed in order to enable its users to query the continuity of a particular GEOSS registered component in more detail than is possible in the registry (http://geossregistries.info/holdings.htm), for example by extending this query to the associated data sources and products that feed the component. At the moment, it is focused on GEOSS registered components and the examples selected are biased towards satellite observations, but it is constructed in such a way that these are not restrictions on its future development and extension to other datasets; continuity of any data product can be understood without restriction to the GEOSS registered components, which were only selected as an important initial testing resource.

The Continuity Indicators of significance are documented in EGIDA Deliverable D2.3 and these have formed the basis of the information in the CIDB. The main continuity indicators incorporated in the CIDB at this time are:

- Operational Status (relating to the current functioning of the data source)
- Funding Source (relating to the funding and associated management)

Other continuity indicators were initially considered, but these failed to provide consistent and practical information on the continuity of any of the Components and associated Data Products.

Information populating the CIDB has been gathered from a variety of open sources and remains in the public domain.

Although designed as a prototype and a test for provision of a Continuity Indicator service, it is the long-term view of EGIDA WP2 that the CIDB should become part of the GEOSS Science and Technology Service Suite (GSTSS: see http://www.gstss.org/).

2. CIDB Structure

The CIDB structure is based on providing a link between the GEOSS registered Components and the Platform on which is located the source of data (Package or Sensor; see explanation below) that was used to generate the associated data product.

The CIDB has been designed in MSAccess 2007, with a secondary version in MSAccess 2003.

There are 5 main data tables:

- Platform (any physical structure housing EO instrumentation)
- Package (EO instrumentation)
- Sensor (individual measurement device)
- Components (GEOSS registered Component)
- Products (data products associated with the Component)

The tables are generic to ensure that any relevant information can be included. Each contains a set of descriptive fields, some of which are linked to individual dictionaries in order to restrict the input of free text and thereby improve the possibility of linking this database to other elements of the GCI.

There are links between particular tables to ensure accurate associations for data entered:

1. Component and Product tables linked
2. Platform, Package and Sensor tables linked

In order to understand the continuity of the registered Components, it is essential to generate a linkage between:

3. Component and Package

This is to ensure that continuity of the Component will be changed by malfunctions or discontinuation of the sensor packaged whose data was used to generate the data products associated with the component.

This linkage has never before been generated and therefore the CIDB provides a unique tool for understanding the continuity of Components.

3. CIDB Tables

The CIDB is structured around 5 main data tables (see Appendix 1 Data Tables) that are linked to specific dictionaries (see Section 4.), in order to restrict free-text entry. Information in the CIDB was gathered by BGS with additional information requested from WP2 partners.

Tables:

- **Platform**: Information collated from a number of EO open information sources[1] encompassing satellite, airborne, marine and ground-based platforms. Information contained in certain fields may be incomplete for a platform.
- **Package**: Information collated from the EO open information sources on the instrument packages on-board the associated platform. Information contained in certain fields may be incomplete for a given package.
- **Sensor**: Information collated from the EO open information sources on the individual piece of equipment providing measurements. Information contained in certain fields may be incomplete for a given sensor.
- **Component**: Information gathered from the GEOSS Component and Service Registry (http://geossregistries.info/holdings.htm). Information contained in this table reflects the GEOSS registered Components at 30/06/2012, when there were 412 registered Components. It is important to note that there have been alterations to the registry since this date – for example, by 08/11/2012 there were 436 registered Components. An initial cut-off date was set in order to concentrate on generating linkages to assess continuity. If the CIDB is incorporated into the GEOSS STSS, this table should either be auto-populated with information, or the Component table become the Component registry in the STSS and use appropriate links to maintain currency. The maintenance of currency is clearly beyond the project's remit.
- **Product**: Information gathered by accessing the Component information link. Gathering data has been very difficult due to the buried nature of the product information through the associated URL. Much of the information is contained in

[1] http://ceos-sysdb.com/CEOS/db/db_missions_high_level.php | http://www.nasa.gov/missions/index.html http://space.skyrocket.de/ | http://www.jaxa.jp/projects/sat/index_e.html | http://www.nesdis.noaa.gov/SatInformation.html http://database.eohandbook.com/database/missiontable.aspx | http://www.esa.int/esaEO/index.html http://ilrs.gsfc.nasa.gov/missions/satellite_missions/index.html | http://www.eumetsat.int/Home/Main/Satellites/index.htm http://www.itc.nl/research/products/sensordb/searchsat.aspx | http://www.cnes.fr/web/CNES-en/461-cnes-programmes-alphabetical-index.php | http://www.inpe.br/ingles/# | http://www.cast.cn/CastEn/index.asp http://www.conae.gov.ar/eng/satelites/satelites.html | http://www.cresda.com/n16/n92006/n92066/n98575/index.html http://www.asc-csa.gc.ca/eng/satellites/default-eo.asp | http://www.dlr.de/dlr/en/desktopdefault.aspx/tabid-10376 http://www.iodp.org/ships/platforms | http://www.iris.edu/hq/instrumentation http://www.isro.org/satellites/earthobservationsatellites.aspx | http://www.godac.jamstec.go.jp/cruisedata/e/ http://www.jpl.nasa.gov/missions/ | http://www.kari.re.kr/eng/index.asp | http://eo.belspo.be/Directory/Satellites.aspx

nested websites and there is often little or no information provided on the actual Platform, Package or Sensor used for its production.

4. CIDB Dictionaries

The CIDB contains a series of dictionaries that are linked to fields in the main CIDB data tables in order to constrain the data recorder from free-text entry where practically possible.

4.1. Agency

Current list of 262 organisations that have some responsibilities for either the Platform, Package, Sensor, GEOSS registered Component, or generation of the Data Products.

Also includes NOT APPLICABLE, NOT ENTERED, NOT KNOWN markers to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.2. Funding Source – Continuity Indicator

Nature of funding source: Academic, Commercial, EU, Federal, FP7, Global, Government, National, Organisational, Private, Public, Regional, Research, Sponsored or Unknown.

Also includes a NOT ENTERED marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.3. Management

Initially, the nature of the Component's management was considered as a continuity indicator, but this proved very difficult to quantify due to the complexity in the interaction between organisations associated with the Component. The nature of the management focused on: Research; Commercial; Operational; Academic; Government; Mixed; and Unknown.

The Management dictionary has not been linked to any other table of information, but WP2 does foresee the potential to include this as a field in the DIC_Agency and therefore provide additional information on the continuity where information on the organisation responsible for the Component is provided, in a future implementation within the GSTSS.

4.4. Measurement Unit

Any measurement unit required for association with table information. These include:

- temporal units: days, hours, minutes, months, seconds, weeks, years
- angular units: degrees
- microwave frequency units: GHz, MHz
- wavelength units: kilometres (x10^3m), metres (x10^0 m), centimetres (x10^-2m), micrometres (x10^-6m) and nanometres (x10^9m)

Also includes a PLEASE CHECK marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.5. Node Type

These are mainly of concern for satellite platforms and include Ascending, Descending and Geostationary.

Also includes a N/A marker to show when this category is applicable.

4.6. Operational Status – Continuity Indicator

There are currently (8/11/2012) 10 categories of operational status that can be associated with the Platform, Package, Sensor and GEOSS registered Component. These include:

- That are currently funded and have launched and provided data: Ceased (Not), Continuous, Currently Flown, Errors, Intermittent, Operational
- That are in the pipeline: Approved, Considered, Planned, Under Development

Also includes a PLEASE CHECK marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.7. Orbit Type

Particularly associated with the orbital characteristics of satellite Platforms: Circular, Circular Near-Polar, Equatorial, Geostationary, Inclined, Lunar Swing-By, Lunar-Polar, Polar-synchronous, Sun-synchronous, Tasked.

Also includes a PLEASE CHECK marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.8. Platform Type

Designed to encompass all possible types of platform on which packages and sensors are located:

- Land Based: Land Fixed, Land Mobile
- Marine Based: Marine Fixed, Marine Mobile
- Airborne: Aircraft, Balloon, Helicopter
- Space Based: Satellite, Shuttle, Space Station

Also includes a PLEASE CHECK marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.9. Product

Details of products specified from accessing the GEOSS Component URL information links. This has not been used for providing additional information and therefore may be excluded on revision of the CIDB.

4.10. Replacement Schedule

The replacement schedule was initially included in the CIDB as a Continuity Indicator. Options were Scheduled; Alternative; None; Unknown.

On further development of the CIDB, Replacement Schedule was superseded by the ability to select alternative Sensor Subtypes (i.e. other sensors that could replace sensor), which provides a more efficient option for determining the continuity of the Component.

4.11. Resource Category

This attribute relates specifically to the Component information. Information on the resource category has been extracted from the GEOSS registry of Components.

There are 10 main categories or resource: Alerts, RSS, and Information Feeds; Analysis and Visualisation; Catalogues, Inventories and Metadata Collections; Computational Models; Datasets; Initiatives; Monitoring and Observing Systems; Software and Applications; and Websites and Documents. They also includes an UNKNOWN marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

At the moment, the CIDB focuses on providing linkages between the Components assigned to the Datasets and Monitoring and Observation Systems resource categories but it could be extended to others in a future implementation.

4.12. Revision Frequency

This attribute relates to the temporal provision of a new Data Product:

- Specific: Specific, Bi-hourly, Hourly, 3-hourly, Diurnal, Daily, Weekly, Monthly, Quarterly, Bi-Annual, Annual, Decadal
- Continuous
- Intermittent
- Static

Also includes an UNKNOWN marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.13. Sensor Type

Designated to encompass all possible types of sensor: Laser, LiDAR, Microwave, Optical, Solar, UV, Water Vapour, X-ray.

4.14. Sensor SubType

Designed to encompass all possible types of spectral coverage:

- Optical: MWIR, NIR, SWIR, TIR, VIS, VISB, VISG, VNIR
- Optical Ranges: MWIR-TIR, NIR-SWIR, Panchromatic, SWIR-MWIR, UV-MWIR, UV-NIR, UV-SWIR, UV-TIR, UV-VIS, VIS-SWIR, VIS-TIR, VNIR-SWIR, Full
- Microwave: C-band, Ka-band, K-band, Ku-band, L-band, S-band, U-band, W-band, X-band
- Specific: UV, X-ray, Solar, Water Vapour

Also includes a PLEASE CHECK marker to enable users to understand that not all of the information in the tables is, or can always be, complete.

4.15. URR EO Parameter

As a potential way to facilitate future incorporation of the CIDB into the GEOSS Science and Technology Service Suite, this attribute was included to enable flagging of data products that are available to potentially satisfy requests by users in the User Requirements Registry[2]: (http://www.scgcorp.com/urr/).

Filtration of the URR Lexicon by Earth Observation Parameter provided this listing.

Not all Data Product entries will have a potential URR EO Parameter association, as users may not have flagged a requirement that a particular product meets.

4.16. Geographic Coverage

Although this information is not provided as a separate Dictionary, the information specified in 4_Product_ID table for the Geographic Coverage field can be used to define some specific geographic information regarding the product. Example information is: Global Land; Atlantic Ship Track; Lake; Australia; GOES East Footprint; and so forth.

WP2 envisage this information as a potential continuity indicator, as the detail it provides may facilitate the sourcing of alternative data products/datasets with the same coverage if the Sensor or Platform used to generate a Component Data Product ceases to function.

5. Links to the GCI

GEOSS Common Infrastructure allows users of Earth observations to access, search and use all the data, information, tools and services available through the GEOSS. The infrastructure consists of four main elements:

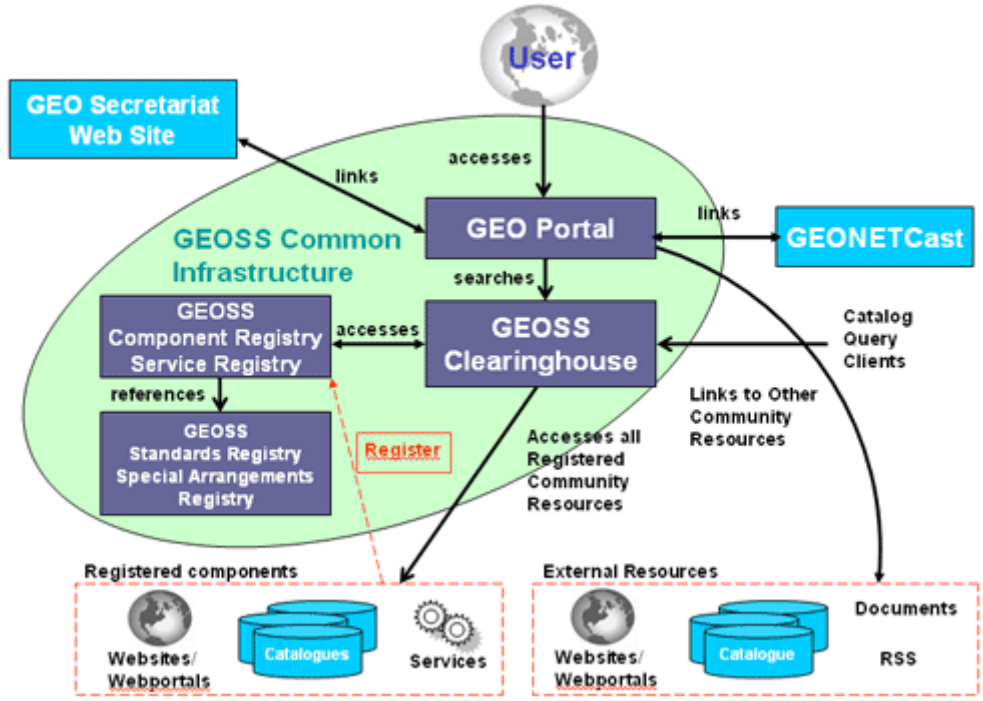
- GEO Portal: provides direct web interface through which the user accesses GEOSS and searches for information and services.
- GEOSS Clearinghouse: engine drives the entire system, connects directly to the various GEOSS components and services, collects and searches their information and distributes data and services via the Portal to the user.

[2] The User Requirements Registry (URR) is an integral part of the GEOSS Common Infrastructure (GCI) that allows answering questions related to a user-driven design and functionality of GEOSS. The URR collects user-related information, such as user types, their applications and activities, the requirements of the applications in terms of EOs and other products, and the needs in terms of research, infrastructure, technology and capacity building that would enable or improve applications. This information is collected in standard formats and nomenclature across disciplines and SBAs. Interconnectivity of the entries in the URR is captured with a novel link concept, and this information enables the prioritization of applications, requirements and needs, gap analyses and the determination of the relevance of a given data product (Plag et al., 2012).

The URR is inherently linked to other components of the GCI, including the Discovery and Access Broker, the Semantic Registry, the Best Practices Wiki, and the Standards and Interoperability Registry. The URR has a number of controlled vocabularies, and these vocabularies are being aligned with the GCI Semantic Registry. Any semantic issues arising from differences in the URR-controlled vocabularies and similar vocabularies used outside of the URR and GCI are handled by the GCI Semantic Registry

- GEOSS Components and Services Registry: similar to a library catalogue, with essential details provided by contributing governments and organisations, which assists the clearinghouse and user to identify GEOSS resources of interest.
- GEOSS Standards and Interoperability Registry: GEOSS contributors are enabled to configure their system so they can share information with other systems, vital to ability of GEOSS to function as a true system of systems and provide integrated and cross-cutting information and services. Contributors can share ideas and proposals informally via associated Standards and Interoperability Forum.

Each element of the GCI has been contributed by one or sometimes several GEO Members and Participating Organisations. Their commitment and generosity in assuring its operation and continuity will remain vital to the success of GEOSS.



EGIDA WP2 envisages the CIDB as an integral part of the GCI being closely linked to the GEOSS Component and Service Registry through the parameters outlined in the document.

5.1. Additional Thoughts: ISO Standards

There are a number of International Standards that may be relevant to the future upgrade and implementation of the CIDB. It is useful to record them here for future reference.

ISO 19115:2003 defines the schema required for describing geographic information and services. It provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data. It is applicable to the cataloguing of datasets, clearinghouse activities, and the full description of

datasets; geographic datasets, dataset series, and individual geographic features and feature properties. It defines mandatory and conditional metadata sections, metadata entities, and metadata elements; a minimum set of metadata required to serve the full range of metadata applications (data discovery, determining data fitness for use, data access, data transfer, and use of digital data); optional metadata elements to allow for a more extensive standard description of geographic data; and a method for extending metadata to fit specialised needs.

ISO 6709:2008 for computer data interchange of latitude and longitude suggests that decimal degrees generally be used, allowing sexagesimal notation: degrees, minutes, and decimal minutes or degrees, minutes, seconds and decimal seconds.

ISO 23950:2003 defines a client/server based service and protocol for Information Retrieval from databases. It specifies procedures and formats for a client to search a database provided by a server, retrieve database records, and perform related information retrieval functions. The protocol addresses communication between information retrieval applications at the client and server; it does not address interaction between the client and the end-user.

ISO 19135:2005 specifies procedures to be followed in establishing, maintaining and publishing registers of unique, unambiguous and permanent identifiers, and meanings that are assigned to items of geographic information. In order to accomplish this purpose, ISO 19135:2005 specifies elements of information that are necessary to provide identification and meaning to the registered items and to manage the registration of these items.

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6. Results of CIDB Demonstration

Demonstration of the prototype CIDB was performed in a side room during the 2nd GEOSS Science and Technology Stakeholder Workshop in Bonn on 30th August 2012. This enabled a test of the database by a large group of relevant Stakeholders from across the GEO Science and Technology Community.

Interrogation topics performed during the CIDB demonstration:

- Gap Analysis (geographic, sensor, product type)
- Product and Dataset discovery
- Platform/package/sensor availability
- Alternative platform/package/sensor availability
- Continuity of Platform and Sensor/Product and Dataset
- Degree of Agency involvement
- Degree of Product type/categorisation

Positive and negative comments on use, flexibility, content and relevance of the CIDB:

1. Value of the CIDB system as an information source
    - ✓ Easy to use
    - ✓ Ability to assess gaps/continuity
    - ✓ Ability to generate statistics of current situation
    - ✓ Incredible ease of addition information to the system
    - ✓ Useful one-stop-shop considering current disaggregation of information
    - ✓ Potential to flag up critical observations
    - ✓ Provides quick check on organisational responsibilities
    - x What does 'Component' really mean
    - x It doesn't go far enough
    - x Metadata discovery was limited
    - x Uncertainty in accuracy of information
2. Level of information represented in the CIDB
    - ✓ Useful one-stop-shop considering current disaggregation of information
    - ✓ Potential to flag up critical observations
    - ✓ Provides quick check on organisational responsibilities

- x Not enough in situ information currently incorporated
- x There is not enough product information contained in the database
- x Limited information on standards used, such as INSPIRE
- x Not necessarily best option to get users with different needs to use the same standards
- x Focuses only on Datasets and Monitoring and Observation systems continuity

3. CIDB interrogation
   - ✓ Great speed of return
   - ✓ Queries are able to provide relevant information
   - x Inability to interrogate other than the current set questions
   - x Limited by current links between packages and products (incomplete information)
4. Flexibility of linkages
   - ✓ Generic nature of structure enables potential addition of other information
   - ✓ Ability to flag up potential problems in product availability through Platform/Package/Sensor malfunction
   - ✓ CIDB has potential to provide link directly to the data rather than through nested websites
   - ✓ Linkages can enable further interrogation queries
   - x It doesn't go far enough
   - x Focuses only on linkages for Datasets and Monitoring and Observation systems
5. Added value from dynamic linking of Products to Platforms
   - ✓ Wide stakeholder potential including manufacturer information
   - ✓ Ability to flag up potential problems in product availability through Platform/Package/Sensor malfunction
6. Sufficient information on Continuity
   - ✓ Operational status of Platform/Package/Sensor incredibly useful particularly with ability to generate information on alternative sources
   - ✓ Useful one-stop-shop considering current disaggregation of information on this topic, which requires extensive research to find at the moment

- x Continuity of Components other than categories of Datasets and Monitoring and Observation Systems only provided through funding nature
- x No current process to highlight continuity issues as only an interrogation answer
- x No quantification of 'Continuity' in the CIDB
- x Information needs to be continually updated whether by the platform owner, package manufacturer or Component organisation
- x Uncertainty in accuracy of information particularly on the funding nature, which may fluctuate for the responsible organisation
- x Suggested use of crowd-sourcing to update Platform/Package/Sensor continuity information

7. Is there potential for the CIDB to meet the needs of your organisation
   - ✓ Useful one-stop-shop considering current disaggregation of information
   - ✓ Useful for finding alternative data sources
   - x Not enough in situ information currently incorporated
   - x Uncertainty in accuracy of information
8. Rate your perceived importance of CIDB within your community
   - ✓ Potential for CEOS interest
   - ✓ CIDB might persuade people to go register their components as there is an increased potential for a return from the system
   - x Not enough in situ information currently incorporated
   - x Would like CIDB to harvest keywords from web information to suggest registration of Components/Data Products that would be particularly useful
9. Likelihood of using CIDB in future
   - ✓ Useful teaching tool
   - x To become useful, the CIDB must be continually updated and maintained
10. CIDB relationship to GEOSS STSS
    - ✓ Worthy of support and maintenance beyond EGIDA as a living database maintained in real-time
    - ✓ Potential tool to refine GEOSS Component Registry information
    - ✓ CIDB attempts to have a common structure to enable interaction with other GEOSS services
    - ✓ Encourage CIDB to be incorporated in the GEOSS web

- ✓ Ability to provide conceptual recommendation to GEOSS
- x Where does the GCI fit in

Comments on the future of CIDB:

1. No current longevity plan for CIDB, due to cessation in EGIDA FP7 funding:
    - Encourage CIDB to be incorporated in the GCI and/or GSTSS
2. No current maintenance plan for CIDB, due to cessation in EGIDA FP7 funding:
    - To become useful it needs to be continually updated whether by the platform owner, package manufacturer or Component organisation
    - There is a potential for other organisations to maintain certain elements
3. Potential to provide ISO recommendation for 'Continuity'
4. Satisfaction in seeing a practical deliverable rather than yet another report

7. Assessment of Continuity

The method of continuity assessment adopted by the CIDB is to link the tables through a series of common fields. EGIDA WP2 has taken a simple category approach to indicating the risk of continuity based on particular parameters:

- Green: low risk
- Amber: medium risk
- Red: high risk

Continuity indicators and their categorisation:

- Operational Status:
    - Green (Continuous; Operational)
    - Amber (Awaiting Launch; Errors; Intermittent; Planned; Approved; Under Development)
    - Red (Ceased; Considered; Unknown)
- Funding Source
    - Green (Global; Regional; National; Government)
    - Amber (Academic; Research; Public)
    - Red (FP7; Grant; Private; Organisational; Sponsored; Unknown)
- Scheduled End of Life
    - Green (prior to end of lifespan date)
    - Red (passed end of lifespan date)

It is also important to note that continuity of any particular component may be affected by variation in the political stability of the geographic area on, or over which the platform position or track can be associated. As a consequence, the geographic coverage and the platform type are potential continuity indicators, although not easily quantified.

There is a need to relate back to the Component that is at risk of discontinuity based on the risk categorisation. Risk of discontinuity is generated through exploitation of links between CIDB tables and information contained in the specific fields.

8. Test of CIDB Components Availability

There is potential for automatic flagging of components that are at high risk of discontinuity:

- Auto-colour coded entry in the CIDB: details highlighted on interrogation of CIDB
- Auto-email GEO Portal: automatically email GEO Portal team with news when risk of discontinuity of Component is increased
- Breaking news on GEO Portal: automatically incorporated as news feed when risk of discontinuity of Component is increased
- Continuity announcements in the Latest News section on earthobservations.org: automatically announce new discontinuities to earthobservation.org

9. Summary

The CIDB prototype was designed to address the continuity of Components Registered in the GEOSS Components Registry by developing and populating new links between Components, Associated Data Products, Platforms, Packages and Sensors that did not previously exist in a formal structure.

Current challenges in doing this include accessing information from the Component registry such as the actual data products that are registered and also providing information on the sources of data that were used to generate the products, which is not always clear.

There is no current change management, so no effective process for information update by the organisation providing a component.

The CIDB has the potential to:

- Provide easy access to continuity issues for particular platform/package/sensor
- Provide easy access to continuity issues for funding of Component organisations
- Provide information on alternative sources of data
- Provide Gap Analysis Tool: topics, technology, sensor subtype, or spatial gaps
- Provide early warning to organisations on Component continuity issues
- Expand to incorporate other things based on the generic nature of terminology
- Expand to provide links to the actual data

- Expand to incorporate GCI and/or other GEOSS GSTSS through a 'source' field to enable linkage
- Enable statistics of current state of affairs

10. Recommendations

Various recommendations arise from this work and once EGIDA has been completed these will be put to the relevant GEO Implementation Boards for consideration in 2013. In order to prevent the CIDB from becoming yet another snap-shot in time, there needs to be:

- continuous update of information provided by responsible organisations on new EO platforms, packages and sensors that are deployed
- continuous update of information provided by responsible organisations on failure or malfunctions of EO platforms, packages and/or sensors
- continuous update of information relating to Components added to the GEOSS Component registry
- continuous update of information relating to Data Products from the Organisation responsible for the registered Component, particularly specifying the sources of data involved in product generation during registration

Longevity and currency of the CIDB is of key importance. If this Deliverable is to be of use to the EO community then there must be a long-term plan for maintenance of the content and retention of the CIDB as a live entity. The greatest amount of time has been expended in the development of the CIDB, populating the CIDB with enough information to enable linkages to be made to assess continuity. Maintenance of the CIDB will involve a much smaller level of effort, but will nevertheless require investment of time and resources beyond a project like EGIDA.

EGIDA WP2 envisages the CIDB as a GEOSS system that:

- will be used for continuity and gap analysis in the future
- assist GEO in the evaluation of the broader relevance of specific observational infrastructure and system components (EGIDA D2.1)
- assist in identifying systems that are currently run in research mode and are heavily relied upon to become candidates for sustained operation (EGIDA D2.5)

EGIDA WP2 recommends the incorporation of the CIDB into the GCI as part of the GEOSS Science and Technology Service Suite (http://www.gstss.org/eos/).

Appendix 1 Data Tables

Platform

Field Name	Data Type	Caption	Description
PlatformID	AutoNumber	PlatformID	Identifier within Platform table
PlatformName	Text	Name	Documented Name of Platform
PlatformALTName	Text	Alternative Name	Any other name Platform may be known as
PlatformType	Number	Platform Type	Type of Platform (Satellite; Aircraft; Boat…) Linked to Dictionary
Organisation IDPrimary	Text	Responsible Organisation	Organisation responsible for Platform Linked to Dictionary
OrganisationIDOthers	Text	Additional Organisation(s)	Additional organisation(s) responsible for Platform
LaunchDate	Date/Time	Launch Date	DD/MM/YYYY of Platform launch
EndOfLife	Number	End Year	Year in which Platform is expected to cease operation
Status	Number	Operational Status	Known operational status of Platform Linked to DIC_Operational_Status
TrackType	Number	Track Type	Orbital nature of Platform track Linked to Dictionary
Inclination	Number	Inclination	Inclination of Platform track of Satellite Type
Periodicity	Number	Periodicity	Time taken for Platform to perform 1 revolution around Earth
PeriodicityUnits	Number	Periodicity Units	Measurement units of orbital period Linked to DIC_Measurement_Unit
Node	Number	Ascending/Descending	Ascending or Descending of Satellite Platform, if known
RepeatCycle	Number	Repeat Cycle	Time taken until Platform repeats geographic coverage
RepeatCycleUnits	Number	Repeat Cycle Units	Measurement units of repeat cycle Linked to DIC_Measurement_Unit
URL	Hyperlink	URL	URL link to information on the Platform
Comments	Text	Comment	Any additional relevant information
X	Number	X	X position of platform in ± decimal degrees (if known)
Y	Number	Y	Y position of platform in ± decimal degrees (if known)
ProjSys	Text	Projection System	Commonly used descriptor of projection system for (X,Y)
OrbitalTrack	Hyperlink	Orbital Track	URL link to current Platform location
Summary	Memo	Summary	Platform explanation
DateEntered	Date/Time	DateEntered	Auto Date for data entry

Package

Field Name	Data Type	Caption	Description
PlatformID	Number	PlatformID	Identifier of Platform on which Sensor Package resides, as specified in Platform table
Platform	Text	Platform	Documented Name of Platform on which Sensor Package resides Linked to Platform.PlatformName
SensorPackageID	AutoNumber	PackageID	Identifier of Sensor Package within Package table
SensorPackageAbbreviation	Text	Abbrev.	Common abbreviation of the Sensor Package
SensorPackageFullName	Text	Full Name	Expansion of Sensor Package Abbreviation
URL	Hyperlink	URL	URL to information about the Senor Package
Status	Number	Operational Status	Operational status of package Linked to DIC_Operational_Status
OrganisationIdPrimary	Text	Responsible Organisation	Organisation responsible for Sensor Package Linked to Dictionary
OrganisationIdOthers	Text	Additional Organisation(s)	Additional Organisation(s) responsible for Sensor Package
Taskability	Yes/No		Indication of whether the package can be tasked (tick)
OperationalArea	Text	Coverage	Nature of geographic area that data is acquired over Select from specific text options
X	Number	X	X position of Platform in ± decimal degree, if known
Y	Number	Y	Y position of Platform in ± decimal degree, if known
ProjSys	Text	Projection System	Commonly used descriptor of projection system for (X, Y)
RepeatCycle	Number	Repeat Cycle	How long before coverage is repeated
MeasurementUnits	Text	Repeat Cycle Units	Units for Repeat Cycle value Linked to DIC_Measurement_Unit
DateEntered	Date/Time	DateEntered	Auto Date of data entry

Sensor

Field Name	Data Type	Caption	Description
SensorPackageID	Number	SensorPackageID	Identified of Sensor Package within Package table
SensorID	AutoNumber	SensorID	Identifier of Sensor within Sensor table
SensorAbbreviation	Number	Abbrev.	Common abbreviation of the Sensor Package on which the Sensor resides Linked to Package table
SensorType	Text	Sensor Type	Type of Sensor, i.e. Optical; Microwave... Linked to DIC_Sensor_Type
SubType	Text	Sensor Subtype	Subtype of Sensor, i.e. VIS; X-band... Linked to DIC_Sensor_SubType
Mode	Text	Mode	Operational Mode of Sensor, if appropriate
No_of_Bands	Text	No. Bands	Operational Mode of Sensor, if appropriate
Wavelength	Text	Wavelength	Wavelength (or range) of Electromagnetic energy measured by Sensor Subtype
WavelengthUnits	Text	Wavelength Units	Measurement units of wavelength Linked to DIC_Measurement_Unit
SpatialResolution	Text	Spatial Resolution	Spatial resolution of Sensor Subtype IFOV
SpatialUnits	Text	Spatial Units	Measurement units of spatial resolution Linked to DIC_Measurement_Unit
Status	Text	Operational Status	Known operational status of Platform Linked to DIC_Operational_Status
DateEntered	Date/Time	DateEntered	Auto Date of data entry

Product

Field Name	Data Type	Caption	Description
ProductID	AutoNumber	ProductID	Identified of Product within Product table
URREOProperty	Text	URR EO Parameter	Earth Observation Parameter categorisation from GEOSS User Requirements Registry Linked to DIC_URR_EOParam
ProductName	Text	Product Name	Name of the Product associated with Component
ProductType	Text	Product Type	Type of parameter that is observed by the Data Product
COMMENTS	Memo	Comments	Specific information on the Product including detail on associated Sensor(s) / Sensor Package(s) / Platform(s) to enable continuity indication
RevisionFrequency	Text	Revision Frequency	Period between discrete outputs associated with the Product Linked to DIC_Revision_Frequency
RevisionType	Text	Geographic Coverage	Geographic Coverage of Product
ComponentID	Number	ComponentID	Identifier of Component within Component table associated with the Product
DateEntered	Date/Time	DateEntered	Auto Date of data entry

Component

Field Name	Data Type	Caption	Description
ComponentID	AutoNumber	ComponentID	Identifier within Component table
ComponentName	Text	Component Name	Documented name of Component in GEOSS Registry
GEOSSRegistryURL	Hyperlink	GEOSS URL	URL to Component entry in GEOSS Registry
GEOSSComponentRegistryID	Text	GEOSS ID	Identifier for Component in GEOSS Registry
UUID	Text	GEOSS UUID	UUID for Component in GEOSS Registry
ResourceCategory	Text	Resource Category	Category of Component as specified in GEOSS Registry Linked to DIC_Resource_Category
ResponsibleOrganisationOriginal	Text	Component Organisation(s)	Responsible organisation(s) associated with the Component, as detailed in the GEOSS Registry
PrimaryOrganisation	Text	Responsible Organisation	Organisation responsible for Component | Linked to DIC_Agency
OtherOrganisations	Text	Additional Organisation(s)	Additional Organisation(s) responsible for Component
ContactDetails	Text	Contact Details	email address for contact as specified in GEOSS Registry
URL	Hyperlink	URL	'URL to Component Information' from Registry
Language	Text	Language	Written language of webpage information
OperationalStatus	Number	Operational Status	Indicator of status of component Linked to Dictionary
AssociatedProduct(s)	Text	Product(s)	Detail extracted from accessing URL
AssociatedProduct(s)Extra	Text	Additional Product(s)	Detail extracted from accessing URL
Comments	Memo	Comments	Any additional information, such as URL problems, or sensor details
AssociatedSensor	Text	Associated Sensor(s)	Detail extracted from accessing URL
AssociatedPlatform	Text	Associated Platform(s)	Detail extracted from accessing URL
DateEntered	Date/Time	DateEntered	Auto Date of data entry