

D210.1 Service Architecture Components

EUFODOS – Improved Information of Forest Structure and Damages

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CO	Confidential, only for members of the consortium (including the Commission Services)	

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EXECUTIVE SUMMARY

This report provides a review and outline of all the main components that form the building blocks or service architecture components for the EUFODOS project implementation. This requires defining the frame conditions for project activities; in the case of the EUFODOS project services developments, this means building an optimal trade-off between the Forest Downstream Service requirements, user needs and technology constraints. This report and its related activities have the aim to assess the different requirements for implementing various Forest Downstream Services for different users in Europe.

Most of the concepts and issues presented in this report have a legacy in the GMES Service Element on Forest Monitoring (GSE FM) which successfully provided forest Downstream Services (FDS) to a variety of users in Europe and internationally.

The report first presents the Organisational Structure of EUFODOS bringing together key players from the research community, Service Providers and the user community and further presents the User Executive Body and explains its role within the Consortium and the project, especially to contribute to report reviews, identify user needs and representing the user community. All procedures related to Management Issues such as Reporting, Decision Making and Conflict Resolution as well as collaboration procedures with associated projects are described in the report. The assessment of new markets and the extension of the user community are the main objectives behind the dissemination strategy of EUFODOS. Primary tools for dissemination are the project website, user federation (UEB), brochures, publications and service related training and workshop.

The Service Architecture report includes also the regulation related to the entry / exit for new / current members further described in the EUFODOS Consortium Agreement as well as the description of production procedures for Forest Downstream services and products. Whilst the ordering of the data remains the responsibility of the service providers also coordinated data access agreements (GMES data warehouse, Geoland2) have to be taken into account and require a common (project) EO data access strategy. Troubleshooting, Quality Control procedures and standards, adopted for the various steps of the production process, are also described. More details about Quality Control procedures are provided in the Quality Management Plan.

The important issue of Intellectual Property Rights (IPR) is also described in this report in terms of identify the main IPR aspects that will affect EUFODOS and which hitherto have been addressed in a limited manner in the EUFODOS Consortium Agreement. The FP7 IP Rules is examined in detail and recommendations on how to manage IPR related to Ownership, Protection of Foreground, Access Rights to Background, and Dissemination are provided as strategies for the EUFODOS project to implement.

Another key component is the INSPIRE relevant harmonisation process necessary for Service implementation. EUFODOS will involve the users in each service case, and provide the responsible administrations with the project results and information for review and endorsement.

Table of Contents

ISSUE RECORD	2
EXECUTIVE SUMMARY	2
1. Introduction	5
2. Organisational Structure and Management	5
2.1 Partnership Organisation	5
2.2 UEB for EUFODOS	7
2.2.1 UEB Organisation and Structure	7
2.2.2 Role of the UEB	7
2.3 Partnership Management Issues	7
2.3.1 Reporting	8
2.3.2 Decision Making	8
2.3.3 Conflict Resolution and Settlement of Disagreement	8
2.4 Procedures for Collaborating with associated Projects	9
2.5 Project Periodic Reporting and Review Process	9
2.6 Dissemination	9
3. Partnership Service	10
3.1 Partnership Commitment to End Users	10
3.2 Entry of New Members/Exit of Current Members	10
4. Production Procedures	11
4.1 Production Chain operation Procedures (Ordering, Tracking, Handling)	11
4.2 Troubleshooting Procedures	12
4.3 Quality Control Procedures	12
5. Strategy for Managing Intellectual Property Rights (IPR)	12
5.1 Definition of IPR Terms	12
5.2 Identification of Critical Issues and Recommended Strategies for Management	13
5.3 Protection of Foreground	13
5.4 Dissemination (including Publication) of Foreground	14
5.5 Access Rights – General Principles	15
6. INSPIRE relevant harmonisation processes	16
6.1 Status and (relevant) news of the INSPIRE process	17
6.1.1 Metadata	17
6.1.2 Network Services	17
6.1.3 INSPIRE Data Themes	17
6.2 Recommendation of appropriate measures / elements for (full) compliance with INSPIRE requirements	18
6.2.1 Metadata Guidelines (v1.2) respective “Normative References”	18
6.2.2 Network Services (Discovery Services)	19
6.2.3 Network Services (View Services)	19
6.2.4 Network Services (Download Services)	20
7. ANNEX	22
7.1 Abbreviations & Acronyms	22

Tables

Table 1: Roles and Responsibilities of Service Network Members.....6

Figures

Figure 1: EUFODOS Service Network Structure6
Figure 2: Organisation of the EUFODOS Project.....8

1. Introduction

A key requirement of the European Commission's (EC) Framework Programme 7 (FP 7) Space Call and Work Programme for 2010 related to GMES activities was the organisational framework for effective project implementation. This requires defining the frame conditions organisationally and technically for developing operational services. Thus the Work Package Frame Conditions for Downstream Operations is focussed on this development. The main objective of the WP is, "to develop overarching organisational frame conditions for:

- Effective beneficiary interaction
- Utilisation of the Forest Core products
- Effective implementation of Forest Downstream Services (FDS)

This involves the formation of the FDS Service Network of partners with the Service Providers, Users and Research Community; the development of a Service Partnership Protocol (co-operation procedures and communications); the organisation of a User Executive Body (UEB); co-ordination and organisational arrangements with ESA and other EO data providers and with EEA on in-situ data provision. Also important is the development of a consortium Intellectual Property Rights (IPR) Strategy and the harmonisation of EUFODOS spatial data and services with INSPIRE standards..

Most of the concepts and issues presented in this report have a legacy in the GMES Service Element on Forest Monitoring (GSE FM) which successfully provided forest Downstream Services (FDS) for a period of 7 years to a variety of users in Europe and internationally. Thus the report will use material from the GSE FM Service Partnership Protocol GSE-FM-T2-S4, 2009.

This report will address these various issues. The next Chapter 2 will review important issues of the Organisational Structure of EUFODOS and its Service Network. Chapter 3 will then present some main aspects of a Service Partnership Protocol, which are guidelines for the management of SN activities. The next Chapter will then provide information on Production Processes that require organisation at SN level. Chapter 5 and 6 will then present the Consortium IPR Strategy and relevant INSPIRE Standards that the EUFODOS Consortium should be aware on.

2. Organisational Structure and Management

This Chapter will present main issues that affect the organisation of the EUFODOS service delivery. Thus the first issue to be described is the Service Network-which encompasses more than the Consortium as it includes the user community and the various roles and responsibilities. Some of the main partnership management issues related to the Service Network will also be described, as the EUFODOS Management Plan covers mainly the project management functions.

2.1 Partnership Organisation

The EUFODOS consortium has partners that are from the research community, Service Providers and the user community, operating in a formalised manner based on contractual obligations and the regulations that govern FP7 projects. In order for the EUFODOS project to have sustainability beyond the project contract such that partners can continue to offer Forest Downstream Services it is important to develop a partnership organisation that provides a structure for future co-operation. Thus the EUFODOS Service Partnership organisation or the Service Network (SN) has to be defined. The main groups or components for the SN are the following:

- The User Executive Body
- New Users

- Operational Service Providers
- Research partners

In the context of the EUFODOS Project the management of the SN will reside with the Project Co-ordinator; however in a future scenario the management should be a collaborative effort between the various groups. The relation between the various groups in the SN and the other stakeholders is depicted in Figure 1.

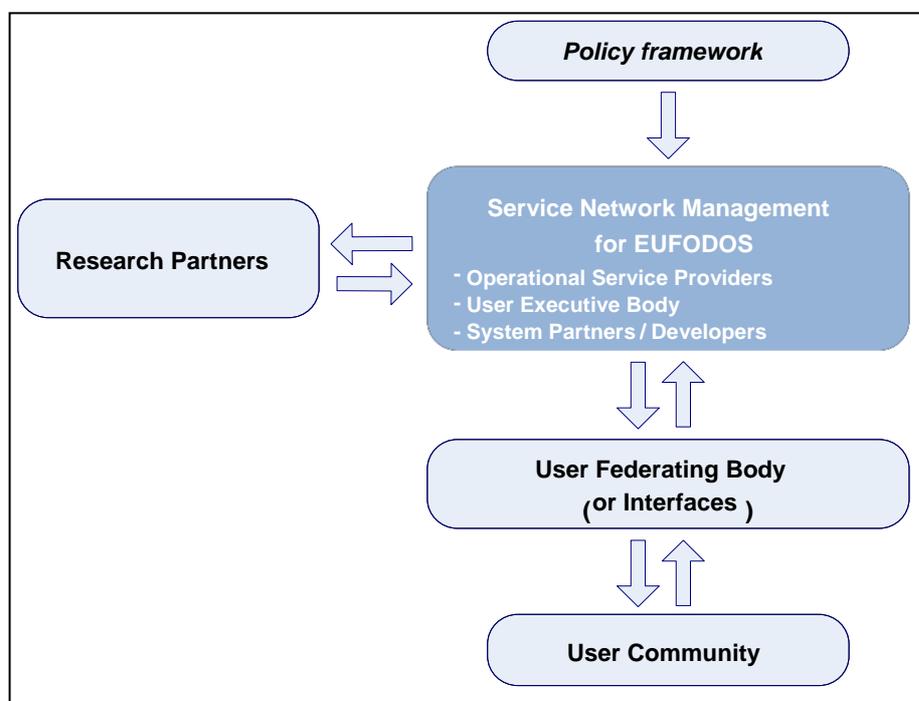


Figure 1: EUFODOS Service Network Structure

The main task of the SN is to co-ordinate and manage the establishment and maintenance (operationally) of the organisational and technical infrastructure necessary for a geographically distributed network of GMES Service providers who can operate on a collective basis in a sustainable and long-term basis. The roles and responsibilities of the various groups of the SN are summarised in Table 1.

Table 1: Roles and Responsibilities of Service Network Members

Key Player	Main task/role in SN
Core and new users represent the user community and will on the longer term include users in the non-EU countries as well as users from developing country (e.g. GMES Africa Action Plan)	Define the user requirements for the SN; provide feedback to the SN and SP's via the User Executive Body
User Executive Body which is comprised of legally mandated representatives from priority user organisations will have the ability to formally review and provide feedback to the SNMA	Assist in designing viable and sustainable service portfolio's; member of SN which assists in defining the control mechanisms and configurations such as the Service Portfolio and any aspects of the service delivery process thereby influencing the future evolution of EUFODOS services by maintaining its responsiveness to user requirements.
Operational Service Providers (SP) are the companies and/or organisations that have the capacity to deliver services on the EUFODOS	Represent the service capacities and assist with definition of operational systems. The inner constellation of service providers (existing and new) will form the Operational Service Providers (SP) which will implement various partnership instruments and oversee relationships with other projects. Is a key component of the SN and assists

Key Player	Main task/role in SN
	in defining operational SP systems and mechanisms.
Research Group/Partners is comprised of organisations that are involved in the application of EO methodologies for the development of policies.	Key component of the SN; have to advise Strategy Group and the User Executive Committee and SP. Should ensure technical transfers on-going R&D projects that are of specific relevance for the services being delivered and validated by the SN.

As a key group in the SN and its functionality is the UEB, the next Section will further elaborate on its roles and planned activities for Phase 1.

2.2 UEB for EUFODOS

2.2.1 UEB Organisation and Structure

At the EUFODOS kick-off meeting in January 2011 a User Executive Body (UEB) was composed in order to involve the users more in the activities of the EUFODOS project.

The UEB chairperson Herwig Schüssler and the UEB secretary Stefanie Linser were both coming from dedicated EUFODOS user organisations. The chairperson and secretary promote the EUFODOS to the user community in an ambassadorial role. They also lead and chair the teleconferences and the meetings of the UEB. The UEB secretary is also responsible for executing some of the key activities required. She also liaises with other user bodies such as the User Platform for Geoland2 and regularly publishes the UEB Newsletter. The UEB is dependent on the voluntary participation of the user community and is comprised of a representative number of EUFODOS users who are actively involved with the project.

2.2.2 Role of the UEB

The tasks of the UEB comprise i.e. to contribute to service network reviews and relevant reports, to identify and collate user needs and priorities for the service portfolio evolution, to discuss, review and endorse relevant templates like i.e. User Requirements Assessment and User Utility Assessment, as well as strategic documents like i.e. Data Access Policy, Annual Reports and Work Plans, to contribute information on the user activities as well as any new developments in EUFODOS to the UEB Newsletter, to coordinate with the service providers and by representing the user community, contribute to the promotion for EUFODOS.

Exchange of information will be ensured by regular meetings, teleconferences and the publication of newsletters which are distributed to the users, service providers and to other interested stakeholders.

2.3 Partnership Management Issues

This Section will highlight some pertinent factors which should govern the management of the SN that are not necessarily dealt with in the Management Plan. Within the EUFODOS Project the governance issues related to FP7 Projects are described in the project Consortium Agreements (CAs). Thus according to these rules, each FP7 Project will have a Management Board or General Assembly (see Figure 2) that is comprised of representatives of each group or Partner organisation in the consortium. "The Management Board is the main decision-making body of the Consortium. The Coordinator is the legal entity acting as the intermediary between the Parties and the European Commission" (EUFODOS, CA, 2010).

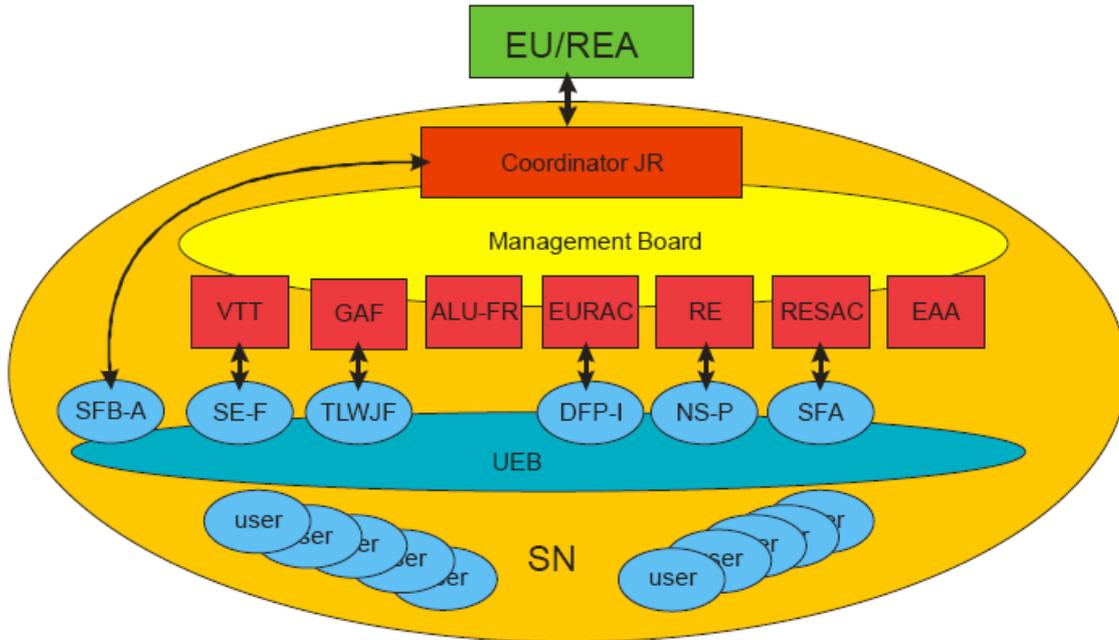


Figure 2: Organisation of the EUFODOS Project

2.3.1 Reporting

In the overall framework of the EUFODOS project the Project Co-ordinator has the responsibility of project co-ordination within the SN, thus the administrative and technical reporting procedure in terms of project communication and directives run between the European Commission's Research Executive Agency (REA) and the Project Co-ordinator. The Task Managers and Work Package (WP) Managers report ultimately also to the Project Co-ordinator. The UEB and the users in EUFODOS have project obligations which are reflected in the Service Level Agreement (SLA) and the WPs; their main interactions are with the SPs and the Project Co-ordinator.

2.3.2 Decision Making

The main steps in decision making recommended for the EUFODOS SN include the following:

- Understanding the problem clearly
- Analysing the various options and risk factors involved
- The creation of many possible options/resolutions
- Weighing the pros and cons of each course of action and deciding on the most optimal one

In order to follow these four main steps, a successful approach to decision making within the SN is the application of a consultative process between the Project Co-ordinator and the various partners as well as with the REA on the various points.

A key contribution to effective project management is the decision making process and the modes of communication that are also important to this process.

2.3.3 Conflict Resolution and Settlement of Disagreement

The different types of conflict resolution which can be categorised as dispute settlement, conflict resolution and conflict management require different types of mechanisms for resolution. Dispute settlements for example are considered to be disagreements that involve negotiable interests which can be resolved with mutually satisfactory agreements between the parties involved. Within the governance rules existing for FP7 projects specific mechanisms are provided to facilitate the process of settling disputes.

Should the need arise there can be discussions for the resolution of specific disagreements and it is the responsibility of the Project Co-ordinator to arrange bi-lateral meetings for this type of conflict resolution;

additionally the Management Board can be called to facilitate and resolve disagreements that affect the Consortium activities as a whole. See EUFODOS CA for further details.

2.4 Procedures for Collaborating with associated Projects

A main effort within the EUFODOS SN is the need to co-ordinate similar activities between the various GMES Land related programmes to not only avoid duplication but to develop synergies between these various efforts that have a common user community, similar user-segments (targeting similar policies), and similar services/products that cover specific geographic areas. This issue was already identified during the project preparation time and thus a Work Package dedicated to Co-ordination with GMES Core and Existing Systems (in-situ, EO) was drafted. This WP for example will aim to develop formalised institutional links between the EUFODOS SN and Geoland2 Consortium, as well as become involved in the GMES Land Stakeholder platforms in order to develop links to the other GMES land related programmes. The SN will approach collaboration with associated projects as follows:

- Attendance at relevant workshops and conferences
- Meetings with related projects to discuss common issues – from management to technical aspects.
- Design mechanisms for collaboration/co-operation in a consultative fashion with the related projects, such as Memorandum of Understandings (MoU's)/Agreements (MoA's), action items for co-ordination etc, communication via teleconferences.
- Use the different Service Network mechanisms such as the User Executive Bodies (UEB's) to avoid user-confusion and develop co-ordinated user requirements.

Projects that have been identified for development synergies include SAFER, FUTMON, Geoland2 etc.

2.5 Project Periodic Reporting and Review Process

At the end of each Phase in EUFODOS, a Project Periodic Report will be produced within 60 days of the end of each reporting period (including the last reporting period). These reports have the same overall objective of Annual Reports and the related review process. The Periodic Reports comprises:

- a) An overview, including a publishable summary of the progress of work towards the objectives of the project, including achievements and attainment of any milestones and deliverables. These reports will include the differences between work expected to be carried out and that actually carried out.
- b) An explanation of the use of the resources.

These reports should be considered both as a summary of all project activities within a given reporting periods as well as a planning document for the next reporting period.

In addition Quarterly Reports (on a three-monthly basis) will be included in the Reporting Cycle.

2.6 Dissemination

An important mechanism related to User Federation of the EUFODOS SN and assessing new markets for the services is the dissemination activities planned in the project. In this context EUFODOS has a dedicated Task 4 and related Work Packages which focus on the UEB activities, the development and implementation of a Web Portal and provision of user training/awareness raising. The main activities related to the dissemination and exploitation of the results includes the use of the following mechanisms:

- The dissemination of products/services and project information, reports on the project Website and Web-Portal

- The User Platform which will be managed by the user from EAA-Austria; this includes the organisation of related activities such as the UEB, the user workshops and the consideration of GNU results as well as the GMES Land User Platform and other user groups.
- The deliverables, reports and publications of the project (especially those that are related to the GMES Core Products) can be provided as public domain information which will facilitate and ensure the dissemination of project results to a wider audience
- User training packages and related training which will ensure user-uptake and dissemination of results
- User federation to include roll out of services to new users
- Publications, peer-reviewed papers, attendance and presentations at Conferences/workshops which will ensure dissemination of results to a wider audience

3. Partnership Service

The main service of the SN is to provide an effective management system which will ensure the delivery of services and products as required by the clients and partners. This is further elaborated in this Section in terms of the commitment to end users as well as the potential for members to enter and exit the SN.

3.1 Partnership Commitment to End Users

The EUFODOS SNs commitment to end users is to provide timeous, quality products and services to support policy implementation in the areas of forest/land and environmental management. In order also to reach a sustainable service provision that goes beyond the project life-span, the expansion of service provision must be realized through a significant growth in the numbers of users and beneficiaries in Europe and/or globally.

3.2 Entry of New Members/Exit of Current Members

The evolution of the EUFODOS SN such that new partners can join is currently governed by regulations within the FP7 programmes reflected in the EUFODOS CA, as follows:

- “Entry of a new Party to the Consortium and approval of the settlement on the conditions of the accession of such a new Party
- Withdrawal of a Party from the Consortium and the approval of the settlement on the conditions of the withdrawal” (EUFODOS CA, 2010)

In terms of entry of new members to the SN, whether they are new users and/or SPs a step-wise procedure is recommended to be followed:

- Expression of interest phase;
- Consultation phase; and the
- Service delivery phase

Within the current structure of the EUFODOS project the budget constraints prevent entry of new members unless supplementary financial resources are sourced for such expansion of the SN and services. The sourcing of additional funds, new users and SPs is however an important requirement for the sustainability of the programme.

4. Production Procedures

This chapter will deal with the main aspects of the production process for services and products of the GSE FM and the SN. From experiences gained in GSE FM the various services provided to users irrespective of the theme or policy sector being addressed have various standard components or activities that have to be fulfilled in order for a service to be delivered. Thus the Service Chain is the series of activities or components that require completion in order for a service or product to be delivered. These service chains are in effect, the end-to-end production lines for products derived from a diversity of input data sources (EO and in-situ), processing methodologies and the associated hardware platforms and software tools (both proprietary and open source) and communication/data transfer networks; processing algorithms and models; the related standards outlined in the service specifications; as well as the documented procedures, which support production, quality and validation including final product delivery to the client.

Thus attention will be paid to the operation procedures for the service chains, procedures for troubleshooting, the quality control and aspects related to the clients such as the principles of pricing, customer care and Intellectual Property Rights (IPR). It should also be noted that the Quality Plan (D120.1) of the EUFODOS project provides a more detailed account of the various standards that are adopted for the various steps of the production process (which includes the Quality Control Sheets).

4.1 Production Chain operation Procedures (Ordering, Tracking, Handling)

In the current EUFODOS consortium there are a number of service chains that target the key user segments and these are the fundamental mechanisms for service and product delivery. The various steps or operation procedures involved in service delivery are as follow:

- Data collection – EO, in-situ and ancillary data
- Pre-Processing of the data
- Thematic processing of data
- Analysis and modelling
- Dissemination of results or service/product delivery

The overall aim of the EUFODOS SN is to attempt to co-ordinate the operation procedures for these steps such that there is a comprehensive system for ordering, handling and tracking the processes. The first step towards this aim is to co-ordinate and harmonise the data procurement plans of the various service providers for the various service chains. The ordering of data remains the responsibility of the individual service providers, but improved and co-ordinated data access agreements (for example with Geoland2, ESA respective GMES Data Warehouse, Futmon, etc...) have also facilitated the move towards co-ordinating the access to EO data for the production process.

Whilst the other main components of the service chains – that is the pre-processing, the thematic processing, the methodologies and results – in terms of handling and tracking are and will be the responsibility of the service providers, the Coordinator (Joanneum Research) still has the overall responsibility on following the handling and tracking of the various steps in order to meet the milestones for service delivery and ultimately provide a quality checked product to the client. The SN has supported the development of the GSE FM standards which are described in the Quality Plan as related to the service production which provides the guidelines for co-ordinating and harmonising the operation procedures for the service chains.

4.2 Troubleshooting Procedures

The main procedures that SP's can use for troubleshooting is the communication of the problem (either technical or administrative) to the Coordinator (as well as the user, if necessary) and discussion on a consultative basis to resolve the problem. In this case it should be noted that one of the best mechanisms for the troubleshooting communication with the Coordinator (as well as the user) would be to set up a meeting in which the relevant partners are invited to discuss a common resolution. This worked effectively and has been adopted as a strategy in the former GSE FM project (Stages 1 and 2, REDD Extension).

4.3 Quality Control Procedures

The EUFODOS Quality Plan (D120.1) outlines the overall objectives of the Quality Control or Quality Assurance programme planned for EUFODOS and will be revised / updated when necessary (see also Quality Control Sheets for Data and Products in chapters 5.1 and 5.2 of the EUFODOS Quality Plan).

5. Strategy for Managing Intellectual Property Rights (IPR)

The European Commission's Framework Programme 7 (EC FP7) has specific procedures that guide the Intellectual Property Rights (IPR) for the different types of research and development projects for the period 2007-2013. IPR issues related to Foreground, Background, Ownership, Access Rights, and Dissemination and how to manage them are provided in the following two documents:

- The Guide to IP Rules for FP7 Projects, Version 3
- The Grant Agreement-Annexe 2-General Conditions, Version 6 (2011)

Additionally an obligatory requirement of all FP7 Consortium Agreements is the inclusion of a Section dealing with the specifics of the project-related IPR. The EUFODOS Consortium Agreement (CA) provides some general guidelines following the major points in the Grant Agreement-Annexe 2 - see Section 8-10, pages 15-24. During the project Kick-Off meeting in January 2011, several important factors were raised by Consortium partners in terms of access to Background, which require addressing. Additionally issues that were not dealt with in sufficient detail in the CA and/or require further emphasis will be presented in this Section of the report. This Section will thus constitute the EUFODOS IPR Strategy and it will in conjunction with the FP7 Guideline documents and the CA, give a comprehensive approach to managing IPR in the EUFODOS project. This IPR Strategy will be reviewed and amended/updated for Phase 2 to accommodate any new developments that occur in Phase 1. The next Section will summarise the main definitions of IPR terms used in the FP7 projects as well as the key themes that have to be dealt with in more detail or that require a strategy on how to manage them.

5.1 Definition of IPR Terms

The Guide to IP Rules for FP7 Projects uses the term "Foreground" to mean "the results, including information, materials and knowledge, generated in a given project, whether or not they can be protected. It includes intellectual property rights (IPRs such as rights resulting from copyright protection, related rights, design rights, patent rights, plant variety rights, rights of creators of topographies of semiconductor products), similar forms of protections and unprotected know-how (e.g. confidential material). Thus, foreground includes the "tangible" (e.g. prototypes, source code and processed earth observation images) and "intangible" (IP) results of a project (FP7 IP Rules, Version 3).

"Background" on the other hand, "is information and knowledge (including inventions, databases, etc.) held by the participants prior to their accession to the Grant Agreement, as well as any intellectual property rights which are needed for carrying out the project or for using foreground" (FP7 IP Rules, Version 3).

Related to both these items are the themes on Ownership, Access and Dissemination, which all impact project implementation.

5.2 Identification of Critical Issues and Recommended Strategies for Management

After reviewing in detail the Guide to IP Rules for FP7 Projects (Version 3), the main issues noted that the EUFODOS Project should further elaborate on in terms of project strategy are:

- The need for Protection of Foreground
- Guidelines for dissemination (including publications) of Foreground

An important issue that requires further clarification and emphasis is the "Access Rights to Background". For each of these issues, the specific guidelines from the IP Rules (Version 3) and when applicable from the EUFODOS CA, will be extracted in order to highlight what aspects require addressing. The IP Rules often provide recommended strategies how to deal with a specific issue and this will also be documented. Finally, in each Section the recommended strategy that the EUFODOS project should follow will then be presented. This will form the basis for the EUFODOS Project IPR Strategy which the Consortium should review and understand.

5.3 Protection of Foreground

Whilst the EUFODOS CA has a Section on "Foreground" it does not specifically address the "Protection of Foreground", which in the IP Rules is a mandatory subject matter. The IP Rules state that "where foreground is capable of industrial or commercial application (even if it requires further research and development, and/or private investment), it should be protected in an adequate and effective manner in conformity with the relevant legal provisions, having due regard to the legitimate interests of all participants, particularly the commercial interests of the other participants. Participants should, individually and preferably collectively, reflect on the best strategy to protect in view of the use of the foreground both in further research and in the development of commercial products, processes or services." (FP7 IP Rules, Version 3).

"Apart from a lack of industrial or commercial applicability (e.g. certain fundamental research results), there are also situations where journal publication or other means of putting foreground in the public domain constitute appropriate alternatives, taking into account the specificity of the project, the nature of the results concerned and the legitimate interests of the participants. For example, the free and open source software (F/OSS) approach is perfectly valid in certain cases, but evidently it is preferable that all participants in the project are informed of this strategy before the project starts in order to avoid possible conflicts." (FP7 IP Rules, Version 3).

Recommended Strategy in the IP Rules: The IP Rules state: "Although a participant does not have to formally consult the other participants before deciding to protect or not to protect a specific piece of foreground it owns, they should preferably be informed, so that they be in a position to express (and substantiate) possible legitimate interests. They should also preferably be informed after protective measures have been taken. These issues may be covered in detail within the Consortium Agreement or through specific separate arrangements" (FP7 IP Rules, Version 3).

Recommended Strategy for EUFODOS: Protection of all the 'foreground' material is applicable to all results/information of EUFODOS as the material can be used in industrial or commercial applications by competitors in the same field. Thus the "Foreground" material produced in EUFODOS will have an IPR protection that belong to the EUFODOS consortium and require certain restrictions on their dissemination/utility due to the competitive nature of the operational service provision business in Europe

and globally. Main methods for controlling and protecting such proprietary information, software, documents etc. are already being implemented by several of the consortium partners within their own agencies; these methods include Copyrighting and Patenting.

During the proposal preparation phase an attempt was made to distinguish different levels of dissemination categories for the various deliverables from the project. In order to manage these various types of information and the different levels of confidentiality, an effort to categorise the proprietary nature of the information was adopted based on the EU FP7 system of defining levels of restriction of use. Thus the categories are as follows:

- PU = Public
- PP = Restricted to other programme participants (including the Commission Services).
- RE = Restricted to a group specified by the consortium (including the Commission Services).
- CO = Confidential, only for members of the consortium (including the Commission Services)

(Annex 3, Guide for Applicants, Space Theme, CP, FP7-SPACE-2010-1, 2009)

As most of the deliverables are either “RE” or “CO” this provides an effective protection of the “Foreground”. However it is recommended that the users are consulted in terms of the deliverable “Maps, Databases for each Service, size of area/test sites to be mapped” which has been deemed “PU”, but may have restrictions from the user side in terms of publishing certain data for the demonstration sites that have to be considered. This should be done on a case-by-case basis and is incumbent on the Service Provider and EUFODOS Co-ordinator to ensure that consultation is undertaken with the user before the deliverable is submitted to the Commission.

5.4 Dissemination (including Publication) of Foreground

The aspect of “Dissemination” is dealt with in adequate details in Section 8.3 of the EUFODOS CA. For example the CA recommends a different time-frame from the IP Rules for Consortium partners to provide prior notice for a dissemination/Publication activity; as the CA has been signed by all partners it is assumed that the 30 days notice period stated in the CA has been accepted. Important to note is Section 8.3.3 “Co-operation Obligations” in the CA, which stipulates, “The Parties undertake to co-operate to allow timely submission, examination, publication and defence of any dissertation or thesis for a degree which includes their Foreground or Background. However, confidentiality and publication clauses have to be respected.” This clause encourages the partners to consult and co-operate in terms of publishing material in a timely manner.

Additional points to be noted are presented in this Section. The IP Rules (Version 3) note that, “Any data which is to remain secret should be clearly labelled as confidential and appropriate measures should then be taken by the other participants and the Commission to maintain confidentiality, even after the end of the project. Note that “any other period thereafter” in Article II.9 refers to any other period (shorter or longer than five years) after the completion of the project” (FP7 IP Rules, Version 3).

For all publications, the IP Rules state, “In order to facilitate their identification by the public and the Commission, dissemination materials (e.g. publications, websites, etc.) concerning results from FP7 projects need to contain the following specific sentence, included in the Grant Agreement (Article 45 RfP – Article II.30.4 of GA):

The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 262786” (FP7 IP Rules, Version 3)

Recommended Strategy for EUFODOS: It is recommended that the EUFODOS Consortium Partners identify and project data and/or material that should be considered “confidential” and/or restricted for publication purposes. This information should be communicated to the Project Co-ordinator by month 6 of Phase 1, such that the CA can be amended in terms of “Protection of Foreground” if needed and/or a sub-Agreement is drafted.

In terms of publications, it is recommended that the Project Co-ordinator is consulted prior to any dissemination and/or potential publication activities planned by the consortium partners; the Co-ordinator will then have to review the material for publication and consult with the relevant partners in order to provide the

affirmation needed for publishing. This will have to be done on a case by case basis and undertaken in the shortest time-frame possible when needed and at least 30 days before the publication is due. In case that there is no due date (e.g. peer reviewed journals), the Project Co-Coordinator has to be consulted within 10 days after providing the material that is proposed for publication.

If no response is given by the Co-ordinator within 10 days, it is assumed that agreement to the publication is given.”

5.5 Access Rights – General Principles

The issue of access rights to “Background” came into effect at the inception of the project, as several partners requested documents from the GSE FM Project. These documents are in fact noted as INPUTS in the WPs and therefore Consortium beneficiaries require them as reference material for the EUFODOS project. The “Access Rights” to “Background” as well as General Principles is adequately dealt with in the EUFODOS CA in Section 9; however it would appear that many partners are un-familiar with the rules and concepts. For clarification this Section will elaborate the rules on “Access Rights.” The IP Rules define, “Access Rights” as follows: “Access rights means licences and user rights to foreground or background owned by another participant in the project”. The Grant Agreement’s provisions relating to access rights to foreground and background constitute "minimal" provisions that, unless otherwise indicated, cannot be set aside or restricted. Assessing whether or not access rights are needed must take place on a case-by-case basis, with all due care and in good faith.

More broadly, as further explained below, the participants may also define accurately which background is needed. They may even exclude specific background from the obligation to grant access.

The granting of access rights may be refused by the owner of the foreground or background concerned, if it considers that such access rights are not needed by the other participant requesting them.

Participants can freely define in any manner (for example in a positive or negative way) what is needed for the project (i.e. background available for access by each other). The participants can define what is background in a written agreement (e.g. the consortium agreement). In other words, they can define what is considered to be "needed" in respect of the obligation to grant access rights” (FP7 IP Rules, Version 3).

“Access rights for implementing the project:

Access rights to background for implementing the project will be granted on a royalty-free basis, unless otherwise agreed by all participants before acceding to (or signing in case of the coordinator) the Grant Agreement (Article 49.2 RfP – Article II.33.2 of GA).

Access rights to foreground for implementing the project (i.e. not for use – see below) must be granted on a royalty-free basis (Article 49.1 RfP – Article II.33.1 of GA)” (FP7 IP Rules, Version 3).

It should be noted that the EUFODOS CA documents exhaustively the Specific Access Rights to Software in Section 9.8 of the CA; this is an important and relevant aspect due to the fact that a main component of the R&D activities and production in EUFODOS is based on development of algorithms.

Recommended Strategy in the IP Rules: The IP Rules on how to request access rights “The access rights foreseen in the Grant Agreement are not automatically granted. They must be requested in writing, which is important from an IPR management point of view. The granting of access rights may be made conditional on the acceptance of specific conditions aimed at ensuring that these rights will be used only for the intended purpose and that appropriate confidentiality obligations are in place. If such specific conditions are attached it is preferable that these are set out in writing as well” (FP7 IP Rules, Version 3).

Recommended Strategy for EUFODOS: The EUFODOS CA has a Section (Section 9.1-9.4) related to “Access Rights” which follow the IP Rules as reiterated in this Section. Section 9.1.3 of the EUFODOS CA mentions that all “Background” not listed in Attachment 1 of the CA shall be explicitly excluded from Access Rights. It is further recommended in this IPR Strategy for EUFODOS, that Access Rights for Background that are not specifically dealt with in the CA can be managed with specific sub-Agreements between the relevant Consortium partners. The granting of “Access Rights” to “Background” as noted in the IP Rules should be done in writing between the partners affected; if the access rights to specific types of background are widely required in the consortium a specific sub-Agreement can be drafted for the Consortium.

6. INSPIRE relevant harmonisation processes

The INSPIRE (INfrastucture for SPatial InfoRmation in Europe) directive (The Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007) came into force on 15 May 2007 with the aim to create a European Union spatial data infrastructure to enable the sharing of environmental spatial information among public sector organisations, better facilitate public access to spatial information across Europe and assist policy-making across boundaries. Full implementation is required by the year 2019.

INSPIRE is based on a number of common principles (Internet – About Inspire: <http://inspire.jrc.ec.europa.eu/index.cfm/pageid/48>).

- Data should be collected only once and kept where it can be maintained most effectively.
- The combination of seamless spatial information from different sources across Europe and sharing with many users and applications should be possible.
- The possibility to share information collected at one level/scale with all levels/scales should be given.
- Geographic information needed for good governance at all levels should be readily and transparently available.
- It should be possible to easy find what geographic information is available, how it can be used to meet a particular need, and under which conditions it can be acquired and used.

Within INSPRE the European Commission (EC) is responsible to establish Implementing Rules (IR) for specific topics such as:

- Metadata
- Network services
- Data specifications
- Data and service sharing
- Monitoring and Reporting

A process has been implemented to ensure extensive Stakeholder participation under the three lead services Directorate General (DG) Environment, Eurostat and the Joint Research Center (JRC). Stakeholders can register as a Spatial Data Interest Community (SDIC) representing producers, transformers and users of spatial data or as a Legally Mandated Organisation (LMO).

The former GSE Forest Monitoring Project has become a registered SDIC (<http://inspire.jrc.ec.europa.eu/index.cfm/pageid/42/list/7/id/4896>) in 2004 (during stage 1). The INSPIRE data themes Land Cover, Land Use and Orthoimagery were identified as the most important data themes for GSE FM. Through the registered GSE FM SDIC, the EUFODOS consortium will get information updates especially about the status of the INSPIRE data themes Land Cover, Land Use and Ortho-imagery.

Beside the INSPIRE data themes, it will be important to also follow the developments of the INSPIRE Implementing Rules (IR) such as Metadata and Network Services (e.g. Discovery, View and Download).

6.1 Status and (relevant) news of the INSPIRE process

This section will summarize the status of the most relevant INSPIRE processes (Metadata, Network Services, INSPIRE Data Themes) which are important for the harmonisation process within the planned EUFODOS Forest Downstream Services.

6.1.1 *Metadata*

Legislation

- The Legislative document about the INSPIRE Metadata Regulation has been finalised by 03.12.2008. (COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata)
- A Corrigendum to the INSPIRE Metadata Regulation has been published by 15.01.2010

Technical Guidance Documents

- Version 1.2 of the guidelines to implement the Metadata regulation (16.06.2010) using EN ISO 19115 and ISO 19119 was published on the INSPIRE website on 17.06.2010¹.
- INSPIRE metadata editor accessible through <http://www.inspire-geoportal.eu/EUOSME/>

6.1.2 *Network Services*

Legislation

- The Regulation on INSPIRE Network Services (Discovery and View Services) has been published on 20.10.2009
- An Amendment to the Regulation on INSPIRE Network Services including Download and Transformation Services has been published on 10.12.2010

Technical Guidance Documents

- Version 3.0 of the Technical Guidance to implement INSPIRE Discovery Services was published on the INSPIRE website on 30.03.2011²
- Version 3.0 of the Technical Guidance to implement INSPIRE View Services was published on the INSPIRE website on 30.03.2011³
- Version 2.0 of the Draft Technical Guidance for INSPIRE Download Services was published on the INSPIRE website on 25.09.2009⁴.

6.1.3 *INSPIRE Data Themes*

Technical Guidance Document and Road Map – Land Cover (Annex II, Theme 2)

- Draft Version 1.2 of the Guidelines for INSPIRE Data Specification on Land Cover was circulated internally (INSPIRE technical working group) on 18.01.2011.

¹ http://inspire.jrc.ec.europa.eu/documents/Metadata/INSPIRE_MD_IR_and_ISO_v1_2_20100616.pdf

² http://inspire.jrc.ec.europa.eu/documents/Network_Services/TechnicalGuidance_DiscoveryServices_v3.0.pdf

³ http://inspire.jrc.ec.europa.eu/documents/Network_Services/TechnicalGuidance_ViewServices_v3.0.pdf

⁴ [http://inspire.jrc.ec.europa.eu/documents/Network_Services/INSPIRE%20Draft%20Technical%20Guidance%20Download%20\(Versions%202.0\).pdf](http://inspire.jrc.ec.europa.eu/documents/Network_Services/INSPIRE%20Draft%20Technical%20Guidance%20Download%20(Versions%202.0).pdf)

- Tentative deadline for Draft Version 1.9 is 30 April 2011.
- Tentative deadline for Draft Version 2.8 is end of December 2011.
- Tentative deadline for Version 3.0 is May 2012.

Technical Guidance Document and Road Map – Orthoimagery (Annex II, Theme 3)

- Still open (has to be clarified in a later stage of the EUFODOS project).

Technical Guidance Document and Road Map – Land Use (Annex III, Theme 4)

- Draft Version 1.2 of the Guidelines for INSPIRE Data Specification on Land Cover was circulated internally (INSPIRE technical working group) on 18.01.2011.
- Tentative deadline for Draft Version 1.9 is 30 April 2011.
- Tentative deadline for Draft Version 2.8 is end of December 2011.
- Tentative deadline for Version 3.0 is May 2012.

6.2 Recommendation of appropriate measures / elements for (full) compliance with INSPIRE requirements

Following the INSPIRE principle of decentralised data responsibility and maintenance, it will be general practice in EUFODOS that all data are hosted locally by the data originators (i.e. Service Providers, Researcher Organisations) and provided as Web Map Services (WMS) or Web Feature Services (WFS) to a central EUFODOS Spatial Data Infrastructure (SDI). This SDI will allow external users to search, browse, view and download all available EUFODOS products on a central web portal. It will be accessible via: <http://www.eufodos.info/> (the specific URL for the EUFODOS catalogue and data portal will be specified in a later stage of the project).

Taking into account that the INSPIRE process especially related to the data themes Land Cover, Land Use and Ortho-imagery, is still under development, EUFODOS can build on the already available General INSPIRE Metadata Standards in phase 1 and focus in phase 2 on the implementation/harmonization process of the new revised specific guidelines related to the different INSPIRE data themes (mentioned above).

The Technical aspects relevant for EUFODOS to be compliant (as best as possible) with requirements from INSPIRE will be described in more detail in the Technical Note on Service Network INSPIRE implementation in WP 320 (due date end of June 2011).

The following section will describe the Normative References related to Metadata, Network Services and Data Themes (if available) based on the available Guideline documents.

6.2.1 **Metadata Guidelines (v1.2) respective “Normative References”**

Since June 2010 the Standard Metadata Guidelines have been published based on the Legislative document about the INSPIRE Metadata Regulation finalised by 03.12.2008.

Normative References (see also page 6 of the INSPIRE Metadata Implementing Rules)

- ISO 19115 designates these two normative references:
 - EN ISO 19115:2005, Geographic information - Metadata1
 - ISO 19115/Cor.1:2006, Geographic information – Metadata, Technical Corrigendum 1
- ISO 19119 designates these two normative references:
 - ISO 19119:2005, Geographic information - Services

- ISO 19119:2005/Amd 1:2008, Extensions of the service metadata model
- ISO 19108 designates:
 - EN ISO 19108:2005, Geographic information – Temporal Schema2
- ISO 639-2, Codes for the representation of names of languages - Part 2: Alpha-3 codeda control
- ISO 8601, Data elements and interchange formats - Information interchange – Representation of dates and times
- ISO/TS 19139:2007, Geographic information - Metadata – XML Schema Implementation
- CSW2 AP ISO, OpenGIS Catalogue Services Specification 2.0.2 - ISO Metadata Application Profile, Version 1.0.0, OGC 07-045, 2007
- ISO 10646-1, Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane

6.2.2 **Network Services (Discovery Services)**

Since June 2010 the Technical Guidance Document to implement INSPIRE Discovery services has been published based on the Legislative document about the INSPIRE Network Service Regulation from 19.10.2009.

Normative References (see also page 5 of the Technical Guidance Document to implement INSPIRE Discovery services)

- INSPIRE, INS NS Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services
- INSPIRE, INS MD Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (Text with EEA relevance). See also Corrigendum to INSPIRE Metadata Regulation
- INSPIRE, INS MD IMPL, INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, v1.1 (2009-02-18).
- INSPIRE, INS ARC, Network Services Architecture Version 3.0 (30-09-2008)
- ISO 15836: 2003, Information and documentation- The Dublin Core metadata element set
- ISO 19115: 2003, Geographic information – Metadata
- ISO 19115/Cor.1:2006, Geographic information – Metadata, Technical Corrigendum 1
- ISO 19119:2005, Geographic information – Services
- ISO 19119:2005 PDAM 1, Geographic information – Services
- ISO/TS 19139:2006, Geographic information - Metadata - Implementation specification
- OGC 07-006, OGC CSW, OGC™ Catalogue Services Specification, version 2.0.2 (Corrigendum Release 2).
- OGC 07-045, CSW ISO AP, OGC™ Catalogue Services Specification 2.0.2 - ISO Metadata Application Profile for CSW 2.0, version 1.0.0 (2007).
- OGC 05-008, OGC OWS, OGC Web Services Common Specification, version 1.0 (May 2005)

6.2.3 **Network Services (View Services)**

On 30 March 2011 the Technical Guidance Document to implement INSPIRE View services has been published based on the Legislative document about the INSPIRE Network Service Regulation from 19.10.2009.

Normative References (see also page 10 of the Technical Guidance Document to implement INSPIRE View services)

- INSPIRE, Implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
- INSPIRE, INS MD Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (Text with EEA relevance). See also Corrigendum to INSPIRE Metadata Regulation
- INSPIRE, INS NS, Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services
- INSPIRE, INS DS, Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
- INSPIRE, INS MDTG, INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, v1.1 (2009-02-18)
- INSPIRE, INS GCM, INSPIRE Generic Conceptual Model (D2.5_v3.2).
- INSPIRE, INS DSTG, Technical Guidance for the implementation of INSPIRE Discovery Services
- ISO 19115: 2003: Geographic Information – Metadata
- ISO 19119: 2005, Geographic information – Services
- ISO 19119: 2005 PDAM 1, Geographic information – Services
- ISO 19128: 2005, Geographic information — Web map server interface
- ISO/IEC 2382-1: 1993, Information technology – Vocabulary – Part 1: Fundamental terms
- OGC 05-077r4, OGC SEIS, OGC™ Symbology Encoding Implementation Specification, version 1.1.0 (Release 4)
- OGC 05-078r4, OGC SLD, OGC™ Styled Layer Descriptor profile of the Web Map Service Implementation Specification, version 1.1.0 (Release 4) and its corrigendum1 for OGC Implementation Specification SLD 1.1.0 (07-123r1)
- OGC 07-045, CSW ISO AP, OGC™ Catalogue Services Specification 2.0.2 - ISO Metadata Application Profile for CSW 2.0, version 1.0.0 (2007).
- OGC 07-057r7 – OGC Web Map Tile Service (WMTS) 1.0.0
- OGC 06-121r3 – OGC Web Services Common Specification (OWS) 1.1.0
- IETF RFC 4646 - Tags for Identifying Languages

6.2.4 **Network Services (Download Services)**

On 25 September 2009 the Draft Technical Guidance Document (2.0) to implement INSPIRE Download services has been published based on the Legislative documents about the INSPIRE Network Service Regulation from 19.10.2009 and the respective amending Regulation regarding Download and Transformation Services from 23.11.2010.

Normative References (see also page 6 of the Draft Technical Guidance Document to implement INSPIRE Download services)

- IETF RFC 2616 Hypertext Transfer Protocol -- HTTP/1.1
- IETF RFC 2818 HTTP Over TLS
- ISO/DIS 19142 Geographic information - Web feature service or, more precisely: 211N2632 Text of ISO 19142 for DIS, Geographic information - Web feature service 2
- ISO/DIS 19143 Geographic information - Filter encoding or, more precisely: 211N2633 Text of ISO 19143 for DIS, Geographic information - Filter encoding 3
- ISO 19136:2007 Geographic information -- Geography Markup Language (GML)
- ISO 19119:2005, Geographic information – Services
- ISO 19119:2005 PDAM 1, Geographic information – Services

- ISO 19123:2005 Geographic information -- Schema for coverage geometry and functions
- OGC 06-121r3 OGC OWS OpenGIS Web Service Common Implementation Specification 1.1.0
- INSPIRE, INS ARC, Network Services Architecture Version 3.0

The following documents are candidate normative references if the functionality of the web coverage service is required for a given theme.

- OGC 07-067r5 OGC WCS OpenGIS Web Coverage Service (WCS) Implementation Standard 1.1.2
- OGC 07-066r5 Corrigendum 2 for the OGC Standard Web Coverage Service 1.1 (1.1.2)

7. ANNEX

7.1 Abbreviations & Acronyms

ALU-FR	Albert-Ludwigs-University, Freiburg
CA	Consortium Agreement
CO	Confidential, only for members of the consortium (including the Commission Services)
CP	Collaborative Project
CSW	Catalogue Service for the Web
DFP-I	Department of Forest Planning – Autonomous Province of Bolzano, Italy
DG	Directorate General
DIS	German Industry Norm
EAA	Environmental Agency Austria
EC	European Commission
EEA	European Environmental Agency
EO	Earth Observation
ESA	European Space imaging
EU	European Union
EUFODOS	European Forest Downstream Service
FDS	Forest Downstream Service
FP7	Framework Programme 7
FUTMON	Further Development and Implementation of an EU-level Forest Monitoring System
GA	Grant Agreement
GIS	Geographic Information System
GMES	Global Monitoring for Environment and Security
GML	Geography Markup Language
GNU	GMES Network of Users
GSE FM	GMES Service Element Forest Monitoring
HTTP	Hypertext Transfer Protocol
INSPIRE	Infrastructure for Spatial Information in Europe
IP	Intellectual Property
IPR	Intellectual Property Rights
IR	Implementing Rules
ISO	International Organization for Standardization
JR	Joanneum Research
JRC	Joint Research Centre

LMO	Legally Mandated Organisation
MoU	Memorandum of Understanding
MoA	Memorandum of Agreement
OGC	Open Geospatial Consortium
OWS	OGC Web Services Common Specification
PP	Restricted to other programme participants (including the Commission Services)
PU	Public
R&D	Research and Development
RE	Rapid Eye
RE	Restricted to a group specified by the consortium (including the Commission Services)
REA	Research Executive Agency
ReSAC	Remote Sensing Application Centre
SAFER	GMES Emergency Response Service
SDI	Spatial Data Infrastructure
SDIC	Spatial Data Interest Community
SEIS (INSPIRE)	Symbology Encoding Implementation Specification
SFB-A	Styrian Forestry Board
SLA	Service Level Agreement
SN	Service Network
SNMA	Service Network Management
SP	Service Provider
TLS	Transport Layer Security
TLWJF	Thuringian State Institute for Forest, Game and Fishery
UEB	User Executive Body
VTT	Technical Research Centre of Finland
WCS	Web Coverage Service
WFS	Web Feature Service
WMS	Web Map Service
WMTS	Web Map Tile Service
WP	Work Package
XML	Extensible Markup Language