EOMonDis

**Earth Observation Services
for Monitoring Dynamic
Forest Disturbances**

Technical Design Document

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No.	Name	Short Name	Country
1	GAF AG	GAF	Germany
2	Système d'Information à Référence Spatiale SAS	SIRS	France
3	JOANNEUM Research Forschungsgesellschaft mbH	JR	Austria
4	Université Paul Sabatier Toulouse III	UPS	France
5	Telespazio France SAS	TPZF	France

Executive Summary

The following Technical Design Report provides comprehensive descriptions of the products and the service specifications of the EOMonDis (Earth Observation services for Monitoring dynamic forest Disturbances) portfolio. The main objective of this report is to present the technical specifications of the services and products, which are required for product generation and service provision, and this includes the quality systems and standards used. The production processes are specified in a structured manner in order to support and enable standardisation, automation, enhancement and growth. Thus all descriptions of the production process or service chains are based on the four main components:

- Input data sources (Earth Observation/In-Situ/Models/Others),
- Pre-processing,
- Thematic processing
- Analytical or modelling component, which is finally required for the output production.

The EOMonDis products and services specifications are defined based on the urgent demands and requirements of the end users and the International Climate policies such as REDD+ and Zero Deforestation.

The service consists of a number of products, which are combined under three main service agglomerations, a) Status Information Service, b) Fast Response Information Service, and c) Change Information Service.

The EOMonDis services are detailed below and include the provision and mapping of the following products/services:

- Status Information Service
    - Forest Cover
    - Forest Ecosystems Strata
    - State of Forest Degradation
    - Land Use
    - Forest Above-Ground Biomass
    - High Carbon Stock (HCS) Segments

- Fast Response Information Service
    - Forest Disturbances

- Change Information Service
    - Deforestation
    - Degradation Change
    - Land Use Change
    - Above-Ground Biomass Change

Besides the provision of map products, which are customised to meet specific user requirements, a Service Platform will be implemented to provide online functionalities to ingest, search, visualize, order and deliver forestry products based on Earth Observation (EO) data. At the same time, the Service Platform provides fundamental Web Mapping Services (WMS). The entire service portfolio will be steadily adapted and further developed to comply with the expressed stakeholder requirements.

The constituent products, production processes and services are subject to continuous review and improvement based on user feedback and inclusion of technical innovations that may reduce production costs, increase delivery speed and/or enhance possible use of services in addressing complex forest monitoring issues. One of the main inputs for improved service provision and evolution of services is the inclusion of R&D in the development of the EOMonDis Service Portfolio. The objectives of the Service Evolution activities are to identify, test, transfer and integrate mature results of R&D from research partners and wider R&D domains into the Service Portfolio, and, thus improving operational efficiencies and evolution of the Service Portfolio to better meet the policies and the end users requirements. All proposed methods are tested on study sites and evaluated in terms of their operational efficiency. Mature methods with positive test results are included in the Service Portfolio as procedures and released to the EOMonDis Consortium.

The issue of standards is addressed in this document and is considered central to the efficiency and sustainability of EOMonDis services. Product specifications integrate an on-going process of standardisation for the nomenclature of land use and land cover - for example, including forest, other wooded land and forest attributes. Quality assurance of EOMonDis products is based on internal quality assurance (within the Service Network) and an external, independent validation. Internal quality checking and reporting systems have been designed to conform to Infrastructure for Spatial Information in Europe (INSPIRE) standards describing data quality as part of the developed INSPIRE-compliant metadata profile. These procedures guarantee traceable service production standards and generate standardised quantitative output, which can be used for further assessment. Independent validation supervises the overall quality of service production and verifies accuracy and user needs of EOMonDis service products.

This current report will be subject of further continuous upgrading based on the evolving service needs and improved processing methods.