



SAFER – Emergency Response Service (ERS)

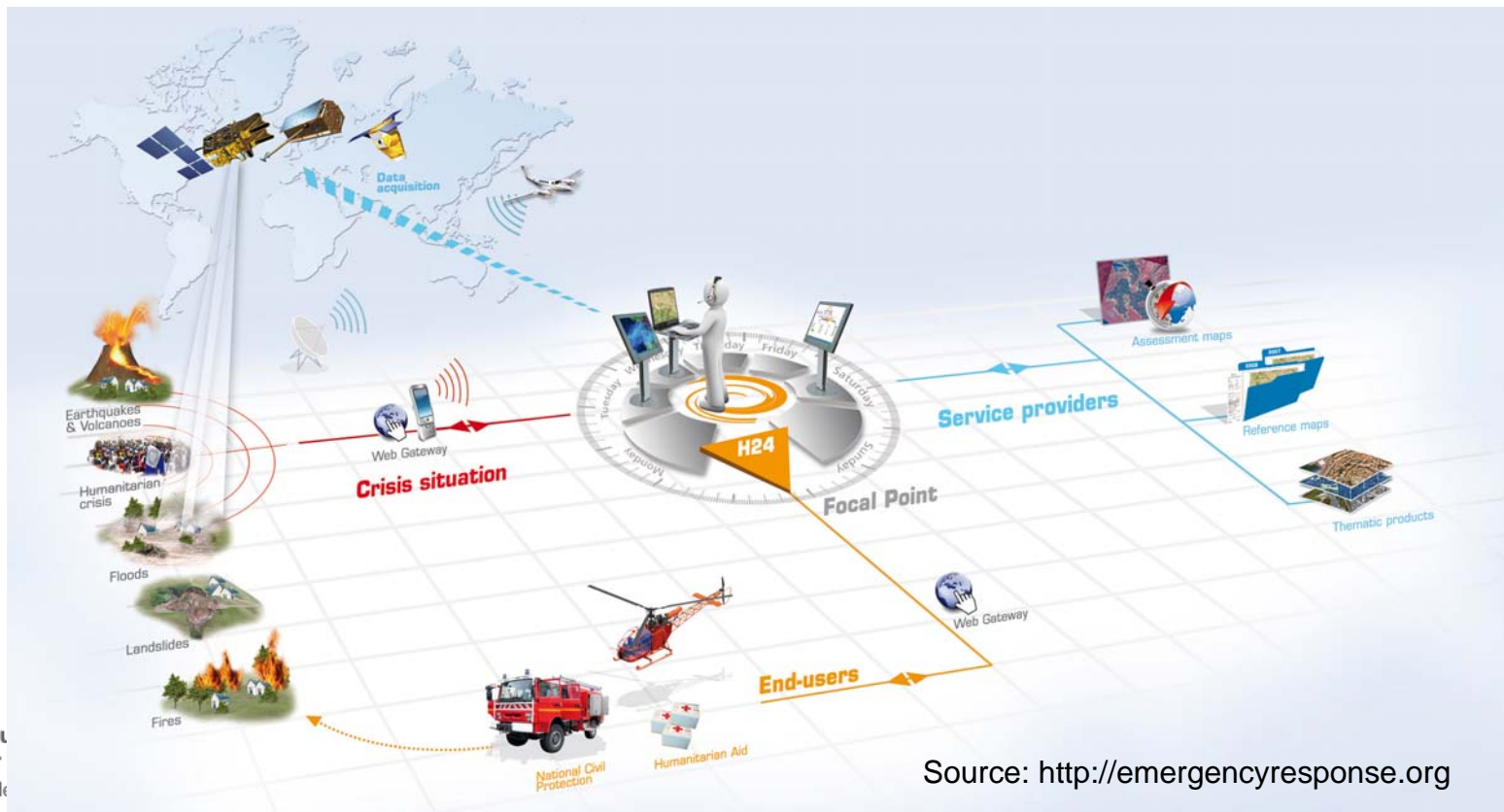
Technological view of EO data access and dissemination

Torsten Heinen

German Remote Sensing Data Center (DLR/DFD)

SAFER High Level Overview

- The project SAFER (2009-2011) aim is to implement and to validate a preoperational version of the GMES Emergency Response Service (ERS)
- The purpose of the ERS is to reinforce the European capacity to respond to emergency situations, such as Meteorological-driven and Geophysical hazards, Man-made disasters and Humanitarian Emergencies

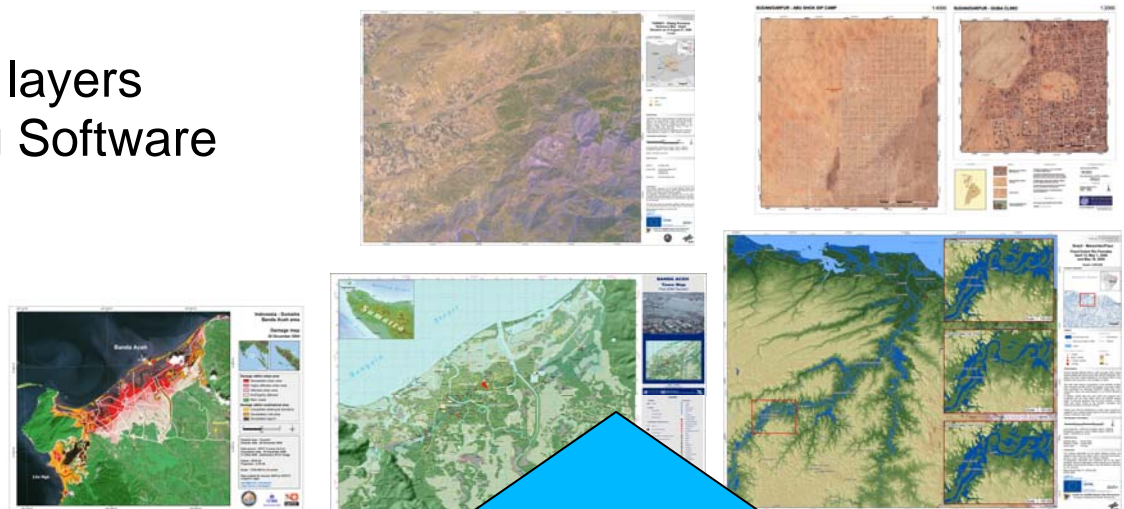




ERS Value Chain – From EO data to Geoproducts

➤ Creation of products and data layers with GIS and Remote Sensing Software

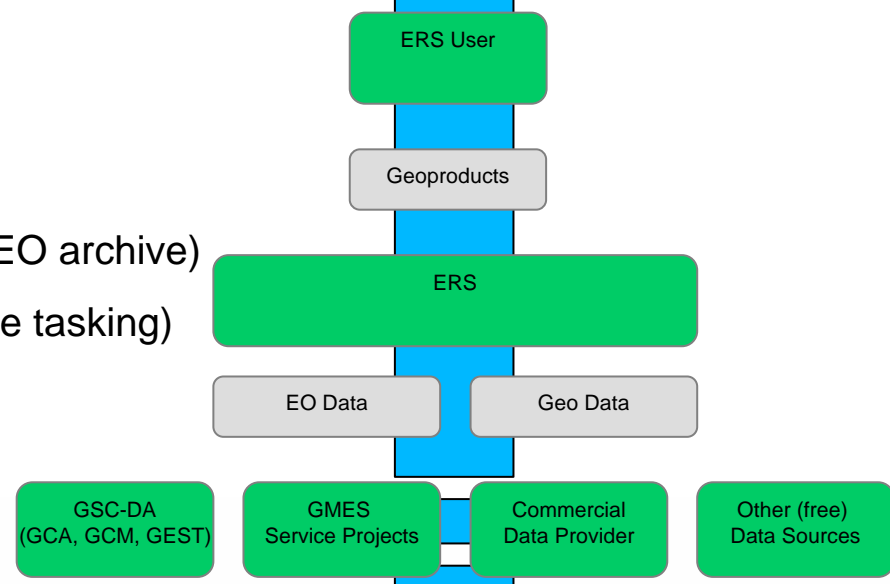
- Geographic Reference
- Pre-Disaster Situation
- Disaster Extent
- Damage Assessment
- Post-Disaster Situation
- Refugee / IDP



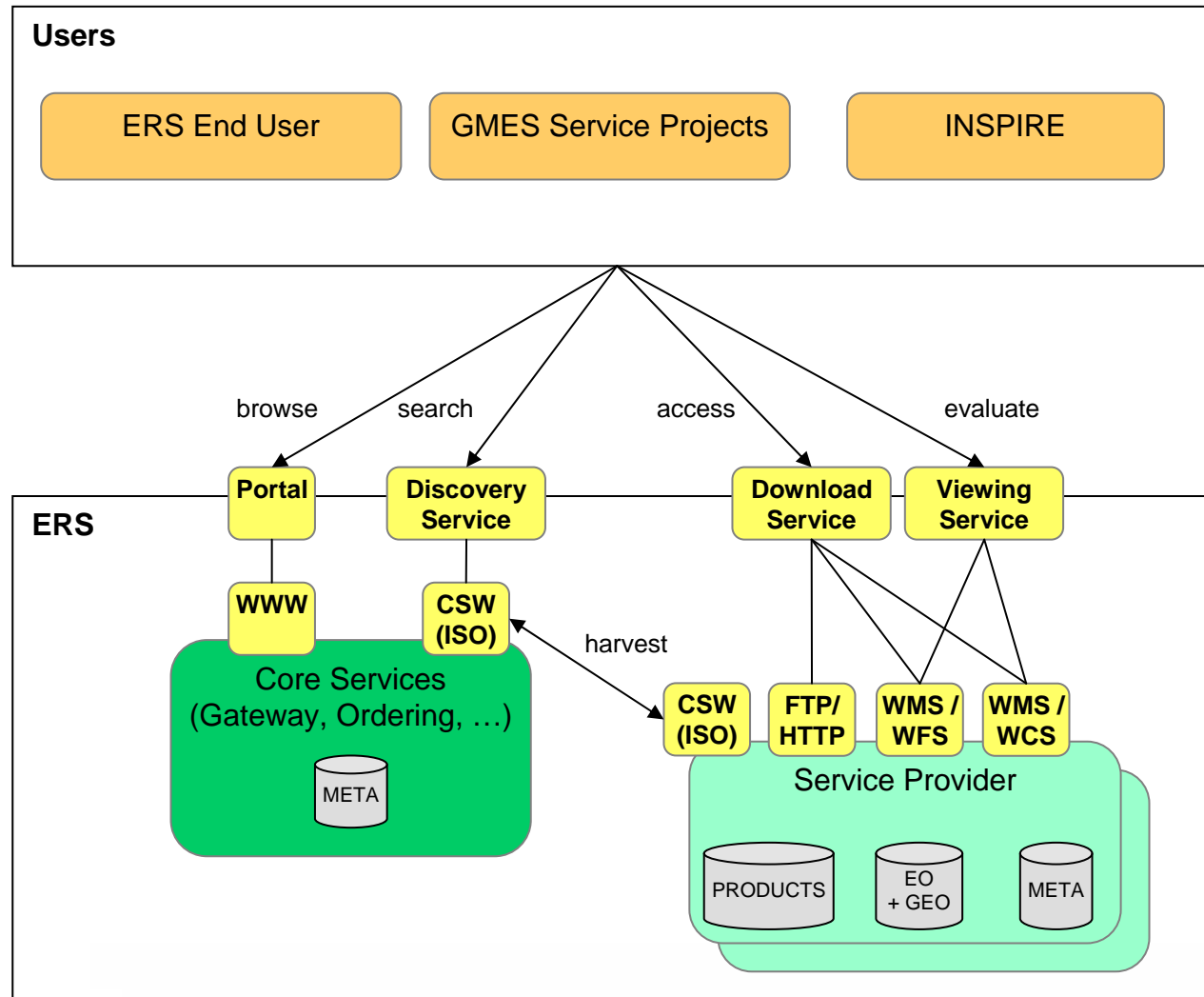
➤ Data used for creating Geoproducts

- Historical / archived EO data (access to EO archive)
- Latest, on-demand EO data (rush-satellite tasking)
- In-situ data (geospatial core datasets)

➤ Multiple Data Sources for EO and Geospatial Core Datasets



ERS Geoproduct Dissemination (Simplified - w/o security)



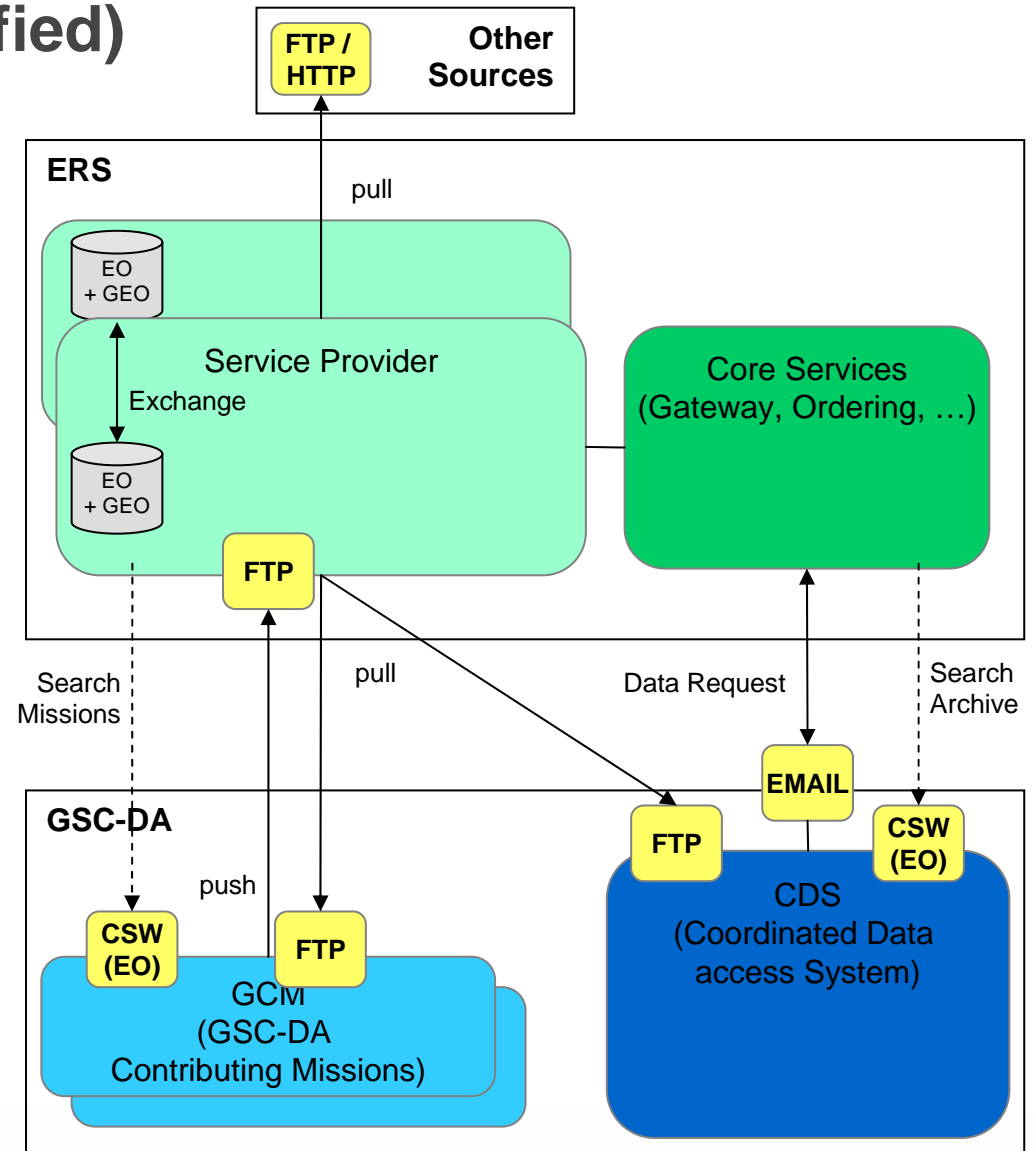
ERS EO Data Access (Simplified)

GSC-DA Operational Scenarios

- SCE-01: Data Streams from Global Systematic Missions
- SCE-02: Regional Monitoring (direct flow)
- SCE-03: Regional Monitoring (via GCA)
- SCE-04: Geographic Area Coverage
- SCE-05: Background Acquisition (without dissemination)
- SCE-06: Rush Satellite Tasking
- SCE-07: Crisis Monitoring
- SCE-08: Rush Retrieval from GCM Archives
- SCE-09: Normal Retrieval from GCM Archives
- SCE-10: Direct retrieval from Archives of GSM
- SCE-11: Consolidated Data Streams from GSM
- SCE-12: Reprocessing of Historical Series for GSM
- SCE-13: Direct retrieval from GSC Coordinated Archive

Dissemination Flow

GCM → GSP GCM & CDS → GSP
 GCA → GSP N/A for ERS





Requirements for EO data access

➤ Functional

- Homogeneous notifications of new and ordered datasets including links to metadata and datasets
- Searchable catalogue with archived and future EO products (already foreseen for GSC-DA)
- Evaluation of EO dataset before downloading (Viewing Service)
 - custom RGB band mapping for multispectral datasets
 - histogram functions
 - reprojection / subsetting / mosaicing
 - auxiliary data overlays (errors, bitmaps/masks, etc.)
- Direct access to value-added datasets from other GSPs
- Download spatial subset or custom channels with support for reprojection (Download Service)
- Download raw EO datasets for archiving with created (map) product (Download Service)
 - „burden of proof“ constraint at some SPs (remote datastore might be offline or data has been removed)

➤ Non-functional

- Timeliness
- Reliability
- Responsiveness
- Platform-Independent tool support and integration (GIS)





Current Shortcomings

- Dissemination of SAFER post-processed EO datasets only on demand, because of resources and higher CPU/Storage requirements at the SPs
- Currently no programatic access (discovery) to content of CDA, just email with Satellite Resource Table, which unfortunately does not specify delivery time (just sensing time)
- Heterogeneous email notifications without metadata and relation to actual event / activation