



The Digital Observatory for Protected Areas (DOPA)

Global Monitoring and Forecasting on an Open Source Framework

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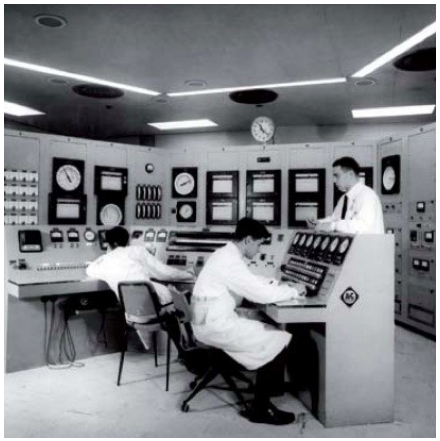
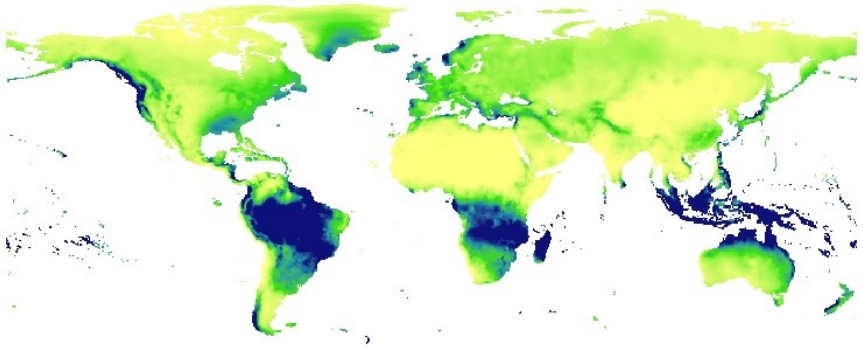
JRC
EUROPEAN COMMISSION



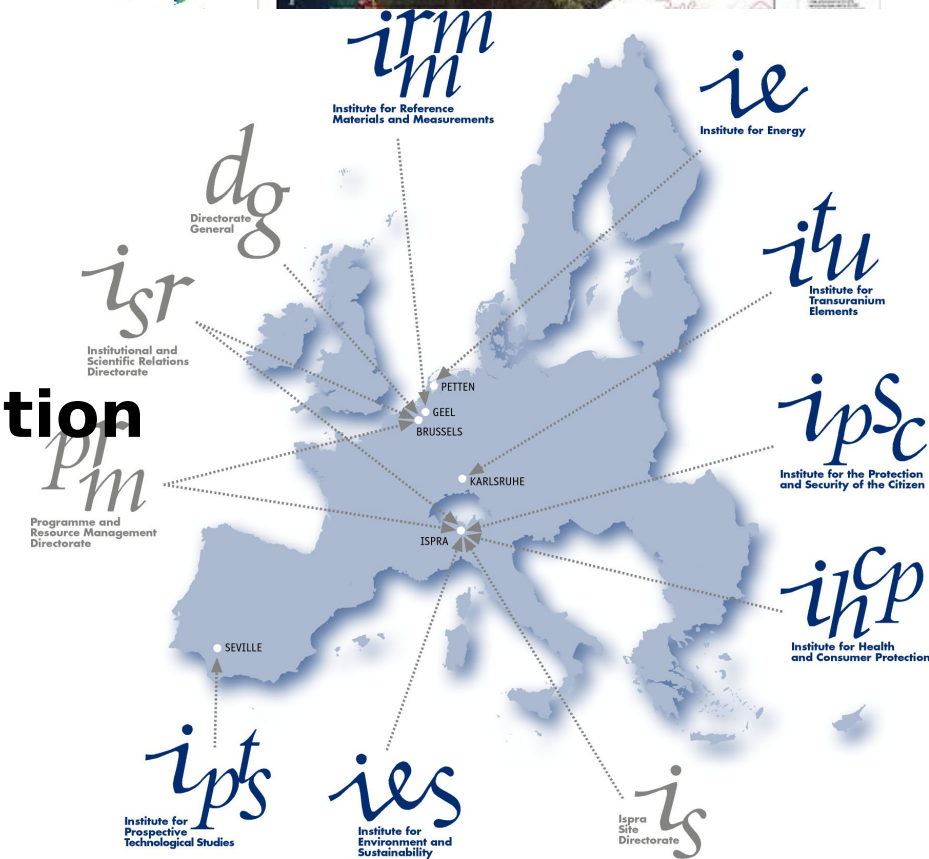


A Multi-Disciplinary, Distributed Research Centre

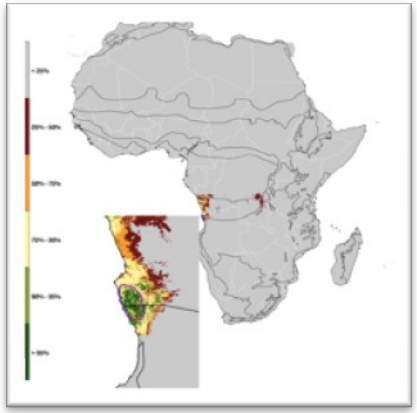


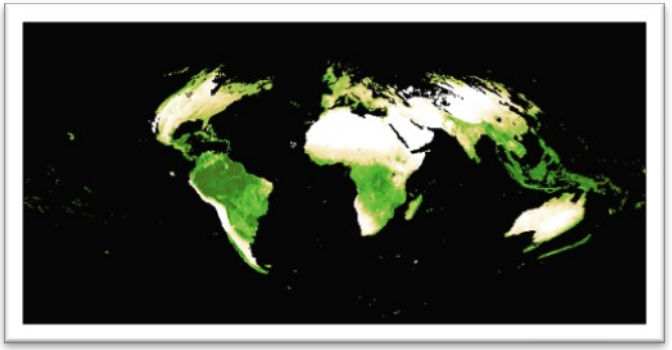


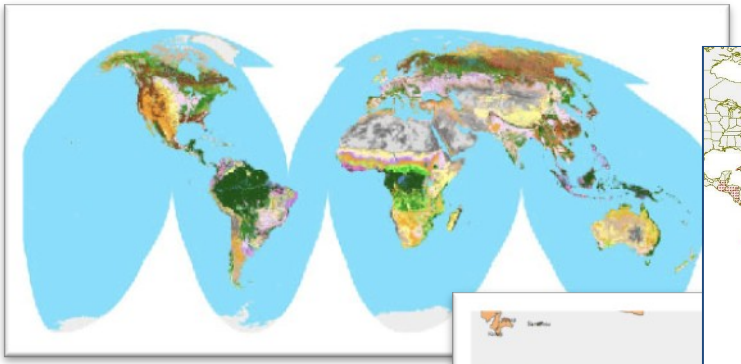
From nuclear science to vegetation mapping

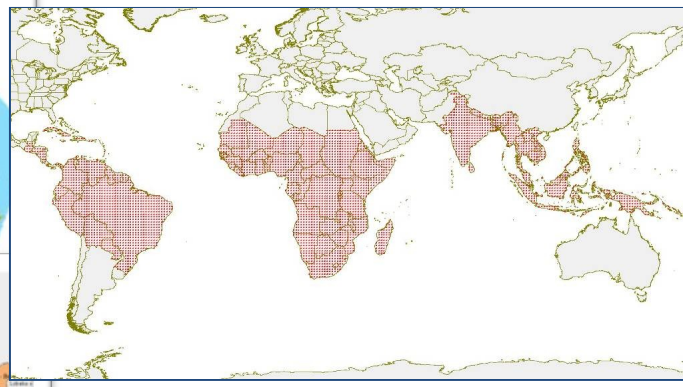


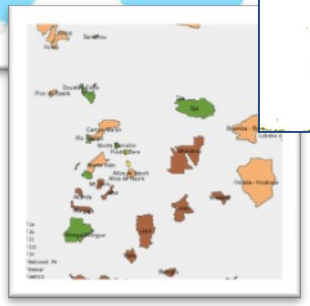
Geospatial – a common theme











A long-standing tradition in GIS & Remote Sensing

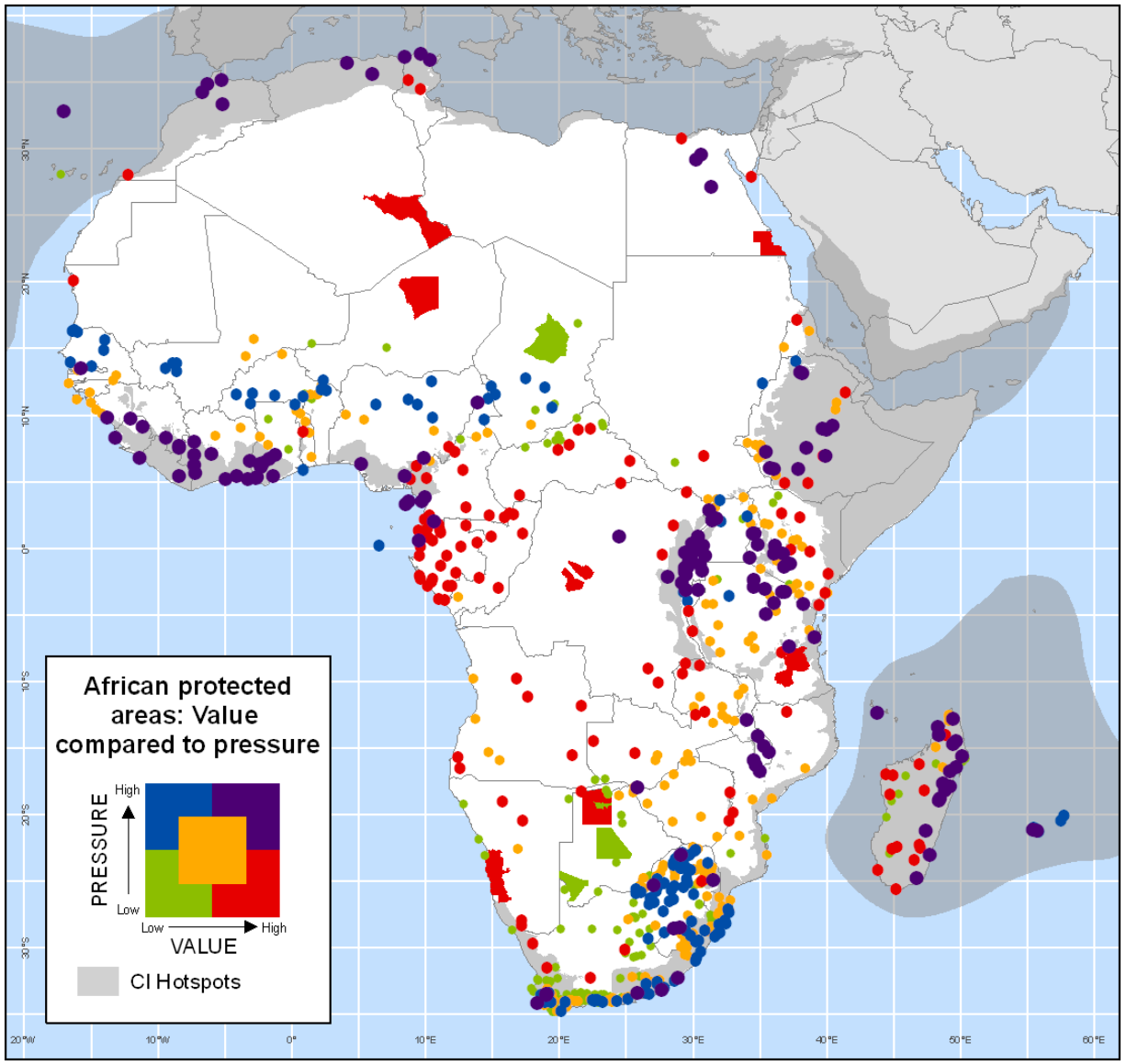
The Global Environment Monitoring Unit

- **Protection and Conservation of European Seas**
- **Systematic Observations of Land and Ocean**
- **Global Forest Resource Monitoring**
- **Monitoring Natural Resources for Development**




A Typical Policy Question

low to define funding priorities for Protected Areas?



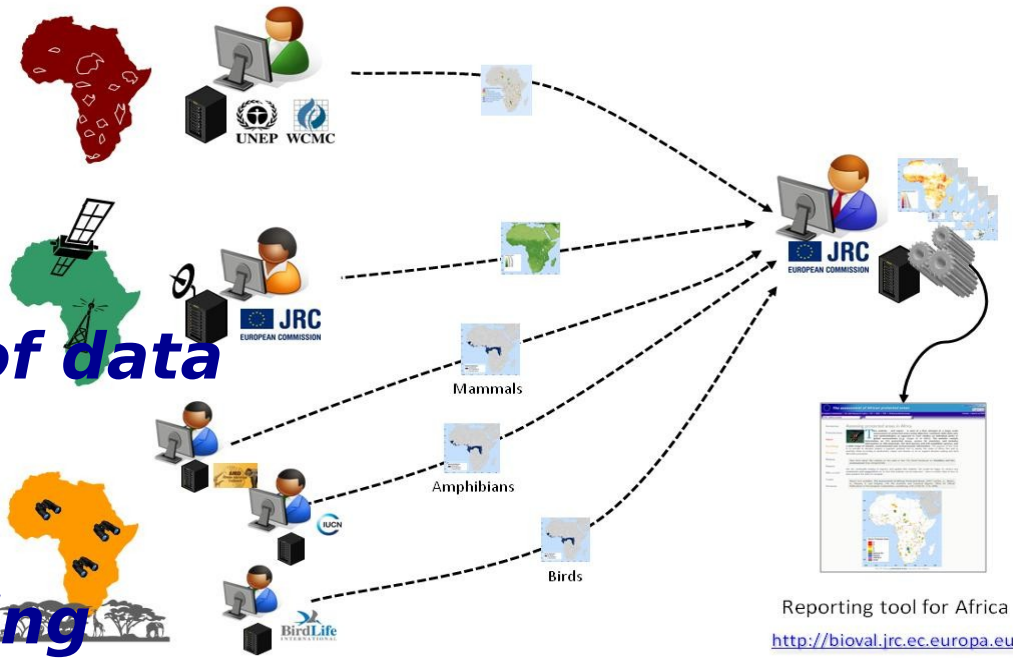




APAAT – A First Step…

Africa Protected Areas Assessment Tool

- ***Geographically restricted***
- ***No automated exchange of data***
- ***Black box***
- ***Static***
- ***No monitoring & forecasting***



Reporting tool for Africa

http://bioval.jrc.ec.europa.eu/PA/



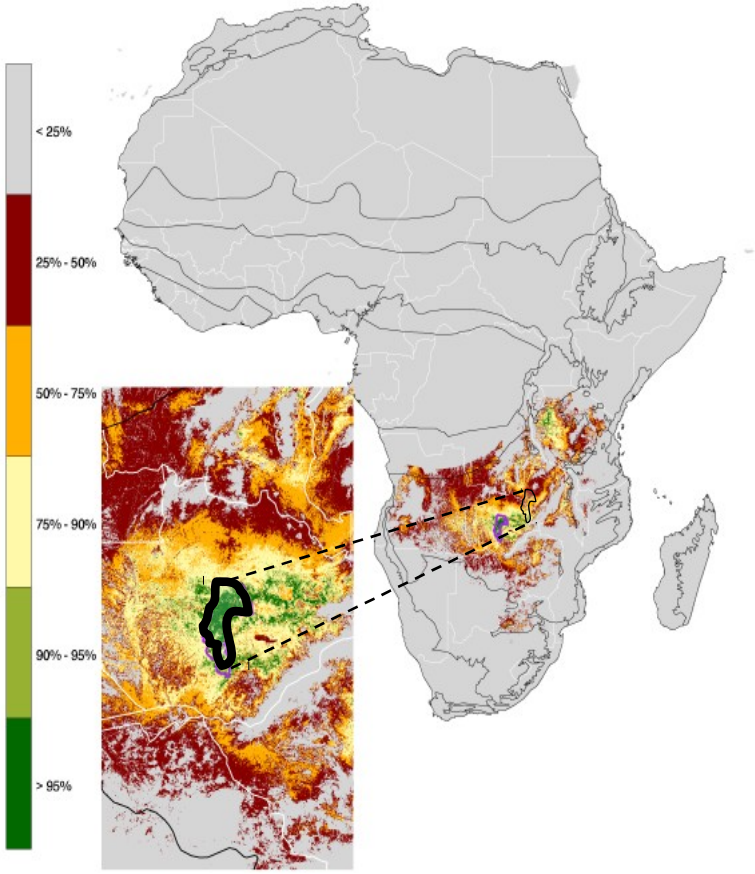


A relatively simple habitat model

The JRC approach: Habitats irReplaceability Index (HRI)

- % tree cover
- % herbaceous cover
- % barren cover
- Elevation in metres
- Slope in degrees
- Aridity index
- % water body presence
- Normalized Difference Vegetation Index (NDVI)
- Normalized Difference Water Index (NDWI)

Mahalanobis distances



Current default list of input raster maps

Map of probabilities to find a habitat similar to the one found in a given (protected) area





The Digital Observatory for Protected Areas - DOPA

will be a shared, open, operational system providing Methods and Tools to Assess, Monitor, and Forecast Biodiversity in Areas of Ecological Interest at the Global Scale

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DOPA

is a collaboration with

RSPB

GBIF

UNEP WCMC

BirdLife INTERNATIONAL

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DOPA

is supported by two research projects of the European Commission (DG RTD & DG INFSO)

EuroGEOSS
A EUROPEAN APPROACH TO GEOSS

uncertweb

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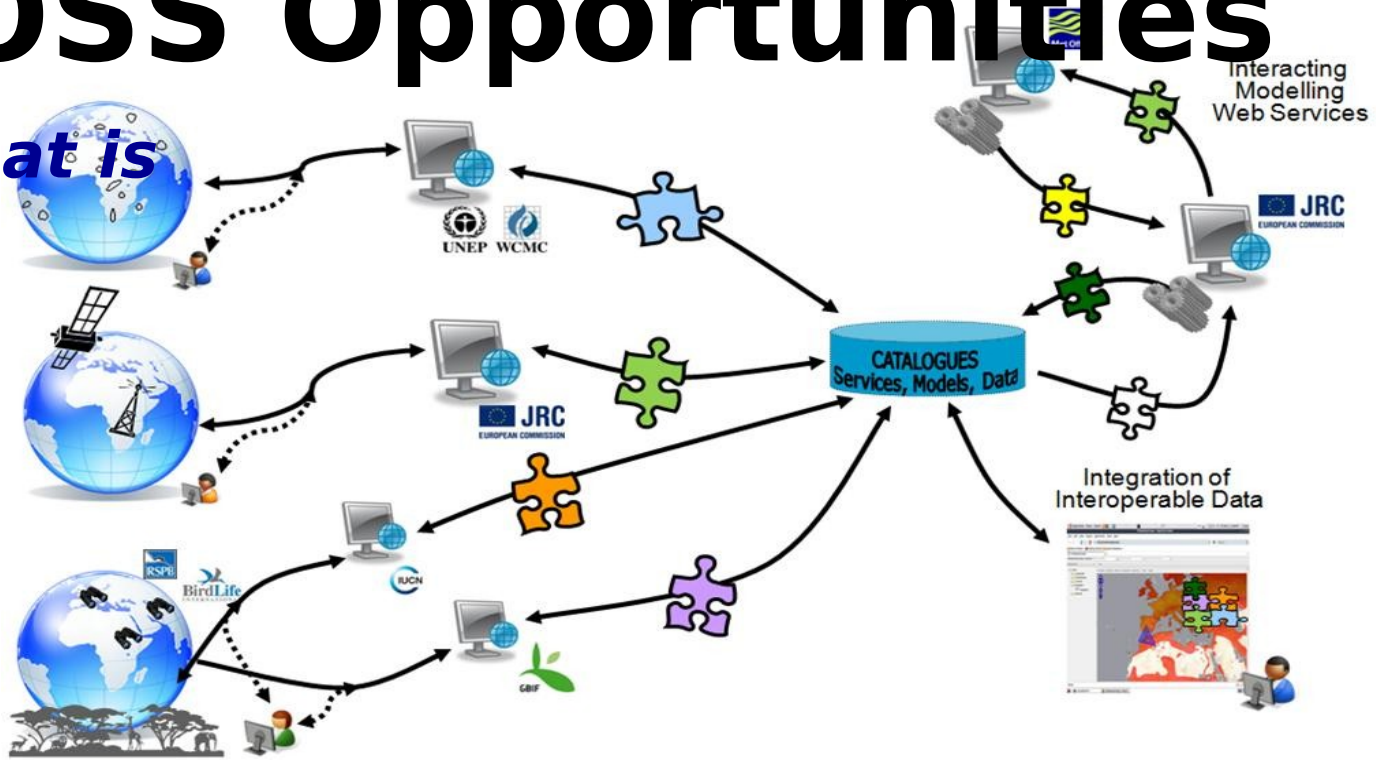
EuroGEOSS Opportunities

An architecture that is

- ***Global***
- ***Interoperable***
- ***Open***
- ***Dynamic***
- ***Interactive***











The Building Blocks

Data

Models

Catalogues and Search

Data Services – W*S

Processing Services – the Model Web

Advanced Workflow Modelling

Natural Language Discovery & Query





Architecture components

Metadata catalogue

OpenLayers

Mapping services

PyWPS

Database management

GDAL/OGR/PROJ4J Libraries

Statistical analysis

EC/JRC Corporate Information Systems

Challenges

Gaps in the existing "initial operating capacity"

- *Basic data, metadata, catalogues, services, infrastructure, tools, skills*

Scalability

- *Timely processing of massive datasets*

Complexity

- *Workflows, orchestration, ontologies*
- *Multi-discipline*

Uncertainty

- *Parallel project UncertWeb*

To do list…….

Catalogue existing data held by JRC that can be used by DOPA

GeoNetwork “under the hood”

PostGIS mastery
DBA, optimisation, replication

Direct interoperability e.g. PostGIS-ArcGIS

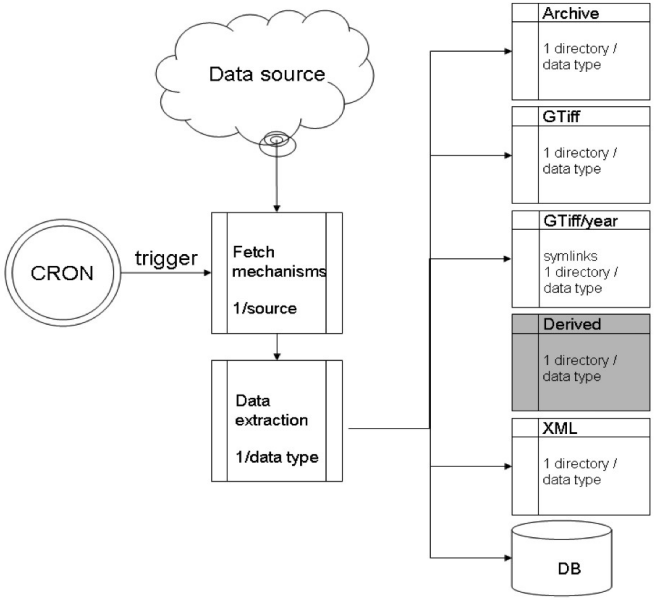
WPS performance

Recruitment….?

The e-Station

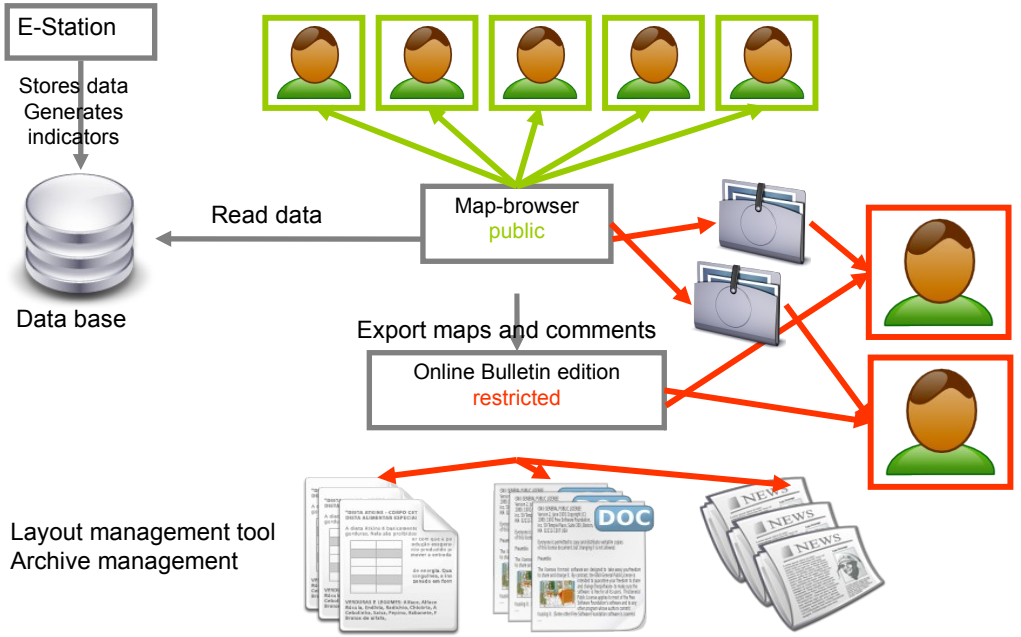
EUMETCAST

Processing Station



EMMA and „Reporter“

„Environment Monitoring and Mapping for Africa“







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