

1B.3 THE EU FUNDED SIMDAT PROJECT: COMPONENTS FOR BUILDING THE WMO INFORMATION SYSTEM

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1. INTRODUCTION

The meteorological SIMDAT activity is funded as part of a larger EU project that is developing generic Grid technology for the solution of complex application problems. Starting from the functional requirements that the WIS has to fulfil, the partners in the meteorological SIMDAT activity (Deutscher Wetterdienst, ECMWF, EUMETSAT, Météo France and the UK Met Office) are developing software that provides distributed access to a collection of data repositories.

2. ARCHITECTURE

The design is based on a series of interconnected nodes, each node being able to act either as a GISC or as a Data Collection and Production Centre (DCPC). From the outset, the ability to logically group several nodes into a virtual GISC (V-GISC) was an important design criterion. Through a portal, each node provides access to data held in one or more data repositories and offers cataloguing services, based on the WMO core profile of the ISO19115 metadata standard. The SIMDAT software aims to be non-intrusive and any already existing data repository (archives, relational databases or simply collections of files) can be integrated.

Each node has its own web portal. The catalogues held at the various nodes are fully synchronised and any data available on any of the nodes can be discovered and retrieved from any of the web portals.

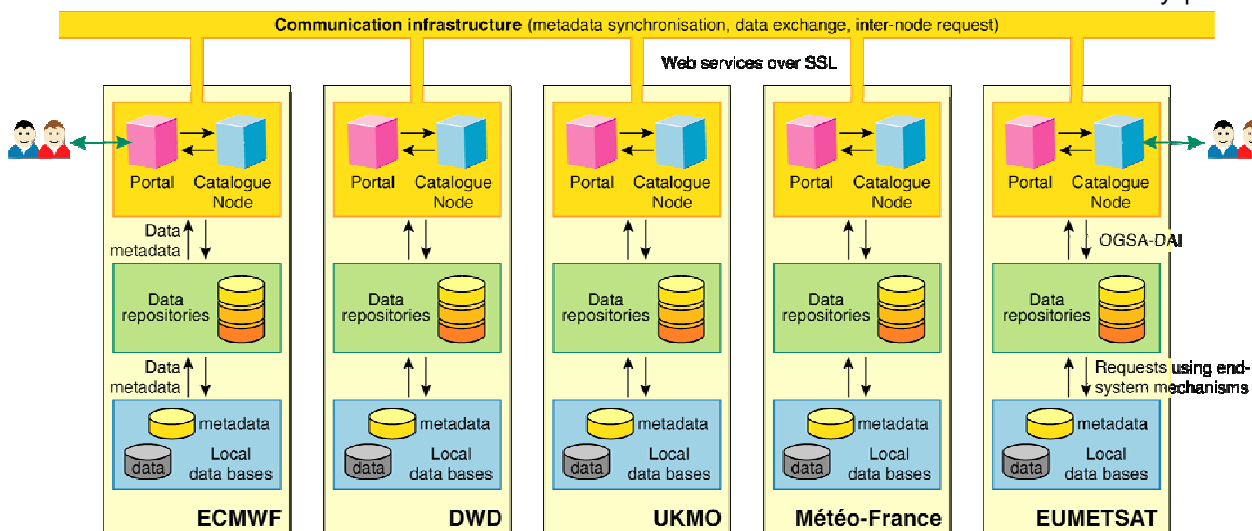
The web portals use the metadata to provide users with search and browsing facilities. Users can search for data by entering a combination of keywords, geographical co-ordinates and ranges of dates. Metadata records are organised in a hierarchical, thematic directory that can be browsed. Users can retrieve data directly from the portal, if the data are held in a node managed by SIMDAT, otherwise users are redirected to the appropriate external data portal.

3. DEMONSTRATION PROTOTYPE

The European part of the demonstration system supports the discovery and retrieval of the following datasets: ERA40 data from ECMWF, climate time series from DWD (Deutscher Wetterdienst), model output from Météo-France, aviation weather reports from the UK Met Office and satellite images from EUMETSAT. In the coming months, ECMWF will offer data from the THORPEX TIGGE database, DWD will offer model outputs and the UK Met Office will offer data on lightning strikes. Finally, DWD and Météo-France will provide an interface to the current GTS, thus offering access to real-time observations.

4. GLOBAL INTEREST

The SIMDAT project is arousing interest beyond the European meteorological community. The National Meteorological Services of Australia, China, Japan and Korea, as well as the National Oceanographic Centre in Obninsk, Russia, have requested evaluation copies of the software. CMA and JMA are actively par-



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ticipating in the project and are already fully integrated into the test grid, both offering forecast products and satellite images. The integration of the other centres is progressing well.

Metadata from NCAR's data portal is also regularly harvested using the Open Archive Initiative (AOI) protocol and can already be discovered through the SIMDAT portal, thus demonstrating the WIS requirement for cataloguing data that is held at DCPCs.

5. FUTURE WORK

The work plan for 2007 and beyond includes adding support for a subscription service to allow users to receive real-time data (push mechanism). A data replication mechanism will be implemented to improve the efficiency and reliability of the exchange of real-time data. Support for different data policies will be added. Monitoring tools will be developed, as well as tools to register and manage users.

6. INTERACTION WITH THE WMO

With reference to the WIS strategy for design and implementation through pilot projects, the SIMDAT project has turned out to be a prime example of the benefits of this approach. The partners working on the project have gained invaluable experience in managing metadata catalogues, providing discovery services, harvesting metadata and synchronising catalogues. This experience has been made available to the wider WMO community through feedback provided to various expert teams, including the Expert Team on WIS GISCs and DCPCs, the Inter-Programme Expert Team on Metadata Implementation and the Expert Team on Communication Techniques and Structures.

The SIMDAT software will be demonstrated in Seoul, Korea, during the Technical Conference on the WMO Information System (6-8 Nov 2006) preceding the CBS.