

RESEARCH DEPARTMENT  
MEMORANDUM



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To: F. Levy, M. Leroy, P. Conti, J.-C. Calvet, M. Dell'Acqua, B. Raoult, M. Williams, J.-M. Pechinot, M. Tinz, D. Schiessl

Copy: P. Breger, P. Bougeault

From: J.W. Kaiser, A. Hollingsworth

Date: 14 July 2006

Subject: **Minutes HALO Meeting, Toulouse, 11-12 July 2006** File:

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We would like to thank Fabrice Levy and EADS Astrium for hosting the meeting at their very convenient premises in Toulouse and for organising the evening out in the 'centre ville'.

All presentations of the meeting can be accessed at  
<[http://www.ecmwf.int/research/EU\\_projects/HALO/docs\\_internal](http://www.ecmwf.int/research/EU_projects/HALO/docs_internal)>.

### Minutes 11 July

The first day was dedicated to the infrastructure-related presentations. Short discussions during the presentations addressed, amongst others, the following issues:

The SANY project is an application of the technological developments of ORCHESTRA project. So, it would make sense to compare SANY to the WIN project developments. The SANY project will start in September 2006. The status of the developments in WIN and ORCHESTRA is not clear to the participants of this meeting.

Mike Williams clarifies that two of the channels of EUMETCast are integrated into the GTS. The other channels are used for broadcasting of additional data. The latter include GEONETCast transmissions. These are foreseen as the communication channel of the GEOSS. Three ways of transmitting data to the uplink station of EUMETCast are operational: GTS/RMDCN, EUMOpsVPN, and the internet.

EUMETSAT is interested in collaboration with EU projects that want to use EUMETCast. It would be possible to transmit a HALO demonstration product in the spare capacity of EUMETCast without charging. The spare capacity allows for transmission of (not too big files) within about 30 minutes.

Answers to the questions by Astrium/Alcatel to Mike Williams:

- The satellite broadcast can be extended with terrestrial networks. But it makes more sense to regard the satellite broadcast as an extension of the terrestrial networks.
- GEONETCast manages user access to the data in accordance with the data providers wishes.
- The GEONETCast transponder has a maximal data rate of 40 Mbit/s. 30-35 Mbit/s are achieved in real operations. Hiring additional transponders is possible but expensive.
- GEONETCast guarantees the timeliness of the data transfer. Delivery of the highest priority products, Meteosat satellite observations, is guaranteed within 5 minutes after the observation.
- The GTS is normally used for the data transfer to the uplink station. This solution is stable.
- The question whether a broadcast service is suitable for the communication between a small number of core service centres is just a question of the financial trade-off between this service and others.

GEOLAND expects to acquire 50 GB of MERIS data per day. This is the only data transfer with a possibly critical volume. The availability of MERIS data in NRT is not clear to the participants of this meeting.

WMO contributes to four of the nine societal benefit areas of GEO, i.e. weather, climate, water, and environment. It plans to use GEONETCast as communication channel for this GEO contribution within the WIS. Other information systems will also use GEONETCast for their contributions to the other societal benefit areas of GEO.

WIS makes the data catalogues visible without restrictions. The provider's data policy is enforced during subsequent data access.

## **Minutes 12 July**

The ocean community is developing an information system called SEADATANET, which might be analogue to WIS. JCOMM is the forum of the ocean community for contributing to and benefiting from the WIS.

MERSEA is developing a project-internal information system, which is similar to WIS. Therefore, the development of an interface of MERSEA to SIMDAT may be possible with little effort. M. Leroy and J.-C. Calvet agree that WIS/SIMDAT meets the GEOLAND requirements as far as they can judge. MERSEA and GEOLAND would each need 5-10 additional nodes in WIS for full functionality.

SIMDAT will implement a technical solution for enforcing any data policy by the end of 2006. WMO anticipates that the WIS will be available in Europe and the larger part of the world in 2008.

All participants agree that it would be beneficial if the EU would act as NC or V-GISC in the WIS and thus provide a single entry point to the WIS for the European GMES service centres.

R. Baudouin stresses that the main effort in using SIMDAT will be to describe the data products. M. Tinz and D. Schiessl would welcome a "use case" to illustrate what would be involved in use of SIMDAT for a typical application.

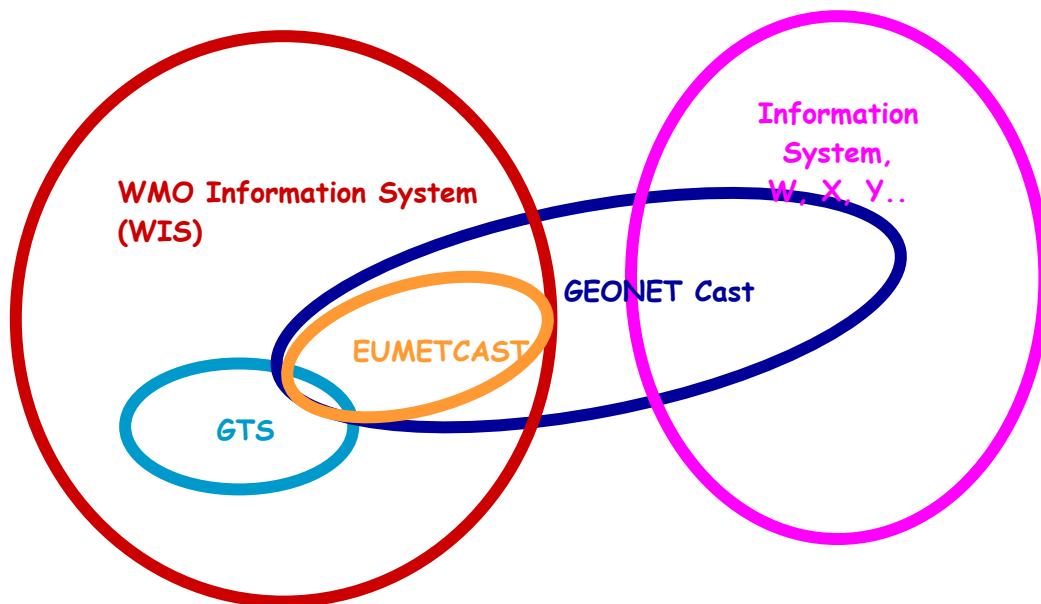
A possible future Global Fire Assimilation System (GFAS) can be seen as a downstream service of GEOLAND because would use its fire-related products, i.e. burnt area and active fires. Vice versa, GEOLAND can be seen as downstream service of the GFAS because GEOLAND would use its advanced fire-related products, e.g. burnt biomass and globally consistent fire activity. Therefore, it would be most appropriate to consider to be core services.

GEOLAND identifies a gap in vegetation observations after the lifetime of the Envisat-MERIS and SPOT-VGT instruments.

All meeting participants agree on the following conclusions.

## **Conclusions**

During the 2<sup>nd</sup> HALO Workshop in December 2005, Astrium and Alcatel had presented assessments of two infrastructure candidate solutions for the GMES backbone, i.e. GTS and EUMETCast. In the mean time, the development of the WMO Information System (WIS) and its implementation in the EU-funded SIMDAT project has accelerated considerably. A graphical representation of the relationship between WIS, GTS, EUMETCast, and others is given in Figure 1 below. Since the WIS/SIMDAT shows a potential to encompass both GTS and EUMETCast, it is included in the list of candidate solutions that are assessed in HALO.



**Figure 1: Interoperability of WIS (> GTS + EUMETCast+ GEONETCast)**

### Potential for Future Developments of GMES and WMO Information Systems

- HALO recommends optimisations for the interactions between the GMES atmosphere, land, and ocean monitoring systems, which are mainly the global modelling and data assimilation activities.
- The EU-funded SIMDAT/MET software will be used by WMO partners to implement Europe-wide WIS capabilities
- The EU-funded SIMDAT/MET software can also be used by GMES partners to implement WIS-like capabilities for GMES
- Substantial benefits for all users could be achieved thru direct collaboration between GMES & WMO on a shared system
- WMO welcomes collaborations with communities such as GMES to share / develop WIS capabilities
- A joint effort by GMES partners and European WIS partners would accelerate the implementation of a joint Europe-wide GMES/WIS information system.
- Such extensions will require
  - Negotiation of certification with WMO system
  - New software (adapters) to provide access to own data repositories
  - Implementation of metadata standards to describe data and data policy
  - Implementation of virtual organisation to address security issues – authentication, authorisation, data policy...
  - Implementation of physical infrastructure to connect to GISC
  - Et cetera.....

### Candidate Solutions

The following candidate solutions will be assessed in HALO:

1. GTS (VPN & IGDDS<sup>1</sup> & RMDCN)

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<sup>1</sup> Integrated Global Data Dissemination Service for access to satellite observation data

2. EUMETCast
3. GEANT/HiSEEN
4. WIS (VPN & IGDDS & components of GEONETCast)

The following criteria will be used for the assessment:

- political characteristics
  - Ease of access for European institutions?
  - Global reach?
  - Low cost?
  - Easy implementation of data policies?
  - Flexibility to serve new customers?
- technical characteristics
  - Capacity/throughput?
  - Reliability?
  - Adaptability to new requirements /upgradability?
  - Accepted technical standards, globally and within Europe?
- Efficiency
  - Efficiency for HALO/GMES data flows
  - Efficiency for core product exchange?
  - Efficiency for satellite data acquisition?
  - Efficiency for in-situ data acquisition?
- Is the service suitable for operational use?
- Can satellite broadcast be extended with terrestrial networks?
- Does the service provide dissemination only?
- Does the service manage data exchange, user access..?
- Maximal data rate?
- Does the service ensure secure access to data..?
- What are the commitments on delivery time?
- Is the data transfer to the uplink station an issue?
- Suitability for a small number of core services?
- What are the access restrictions?
- What are restrictions on data representation (format)?

## Schedule to Completion of HALO Deliverables

### *Candidate Solutions*

<b>DEADLINE</b>	<b>TASK</b>	<b>ACTION</b>
11-12 Jul 2006	Agree the main principles of the report (done at this meeting)	all
15 Sep 2006	Summary from WMO point of view on how WIS meets the HALO/GMES requirements	D. Schiessl
15 Oct 2006	Candidate Solution Document assessing the usefulness of GTS / EUMETCast / GEANT / WIS for MERSEA /GEOLAND /GEMS	F. Levy, J.-M. Pechinot
15 Nov 2006	Revised Candidate Solution Document assessing the usefulness of GTS / EUMETCast / GEANT / WIS for MERSEA /GEOLAND /GEMS	F. Levy, J.-M. Pechinot
4-5 Dec 2006 (Workshop@ECMWF)	Agree overall recommendations + report	all
15-30 Jan 2007	Final Technical Report	all

### *Final Scientific Report*

<b>DEADLINE</b>	<b>TASK</b>	<b>ACTION</b>
15 Oct 2006	1 <sup>st</sup> Draft of Final Scientific Report, Land-Atmosphere Issues: <ul style="list-style-type: none"> <li>• Fire</li> </ul>	J. Kaiser
15 Oct 2006	1 <sup>st</sup> Draft of Final Scientific Report, Land-Atmosphere Issues: <ul style="list-style-type: none"> <li>• Carbon Cycle</li> <li>• Validation of Surface Fluxes</li> <li>• Off-line Products</li> </ul>	M. Leroy, M. Tinz
15 Oct 2006	1 <sup>st</sup> Draft of Final Scientific Report, Ocean-Atmosphere Issues: <ul style="list-style-type: none"> <li>• Forecast Forcing Fields</li> <li>• Fluxes</li> <li>• Carbon Cycle</li> <li>• Seasonal Forecasting</li> </ul>	Y. Desaubies

### **Additional Actions**

1. P. Breger to clarify status of INSPIRE.
2. J. Kaiser to clarify NRT availability of MERIS data.

## Appendix A: Participants

1. Jean-Christophe Calvet, Meteo-France
2. Matteo Dell'Acqua, Meteo-France (only 11 July)
3. Patricia Conti, Astrium (only 11 July)
4. Anthony Hollingsworth, ECMWF (only 12 July)
5. Johannes Kaiser, ECMWF
6. Marc Leroy, MEDIAS-France
7. Fabrice Levy, Astrium
8. Jean-Marc Pechinot, Alcatel
9. Baudouin Raoult, ECMWF
10. Dieter Schiessl, WMO
11. Marek Tinz, Infoterra
12. Mike Williams, EUMETSAT (only 11 July)

## Appendix B: Agenda

<b>HALO Progress Meeting Toulouse 11-12 July 2003</b>		
<b>Day 1</b>	<b>chair: Yves Desaubies</b>	
13.00	Welcome	Levy (Astrium)
13.15	Overview of the Guidelines and Requirements for the Candidate Solutions	Kaiser (ECMWF)
13.45	Overview on Candidate Solutions	Levy (Astrium), Pechinot (Alcatel)
14.45	Break	
15.15	WMO Information System	Schiessl (WMO)
15.45	The SIMDAT project	Dell'Acqua (Meteo-France), Raoult (ECMWF)
16.15	SIMDAT Demonstration	Raoult (ECMWF)
16.45	Preview IP Infrastructure	P. Conti (Astrium)
17.00	General discussion on the candidate solutions for the transition to operations of the GMES services	All
18.00	End for day 1	
20.00	dinner	
<b>Day 2</b>	<b>chair: Anthony Hollingsworth</b>	
09.00	Concluding discussion on the Candidate solutions	All
10.15	Break	
10.30	GEMS Status	Hollingsworth (ECMWF)

11.00	MERSEA Status	Desaubies (IFREMER)
11.30	GEOLAND Status	Tinz (Infoterra) / Leroy (Medias-France)
12.00	Break	
13.00	Fire and Emission study	Kaiser (ECMWF)
13.30	General discussion on the scientific interfaces and science priorities for the first years of operations of the GMES services	All
15.00	Close	