

**HELPING TO ACHIEVE OPERATIONAL GMES**

The aim of the HALO project was to support three service lines for Global Monitoring for Environment and Security - ocean, land and atmosphere monitoring - in their transition from research to operational status.

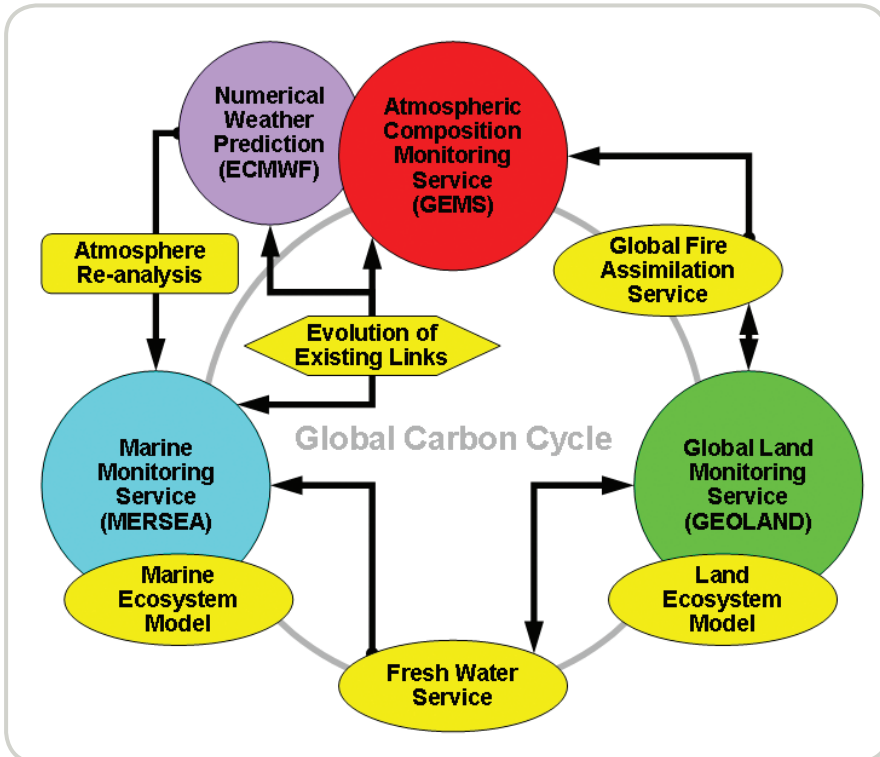
Effective coordination and management of the transition of the three systems poses technical, scientific and management challenges. The technical challenges concern identification of the nature, volume and transport mechanisms of the data exchanges needed between the core services. The scientific challenges concern identification of the likely path of service evolution for the interacting parts of the individual services/projects, together with identification of emerging needs for modelling/assimilation capabilities, and emerging needs for observations.

The objective of the HALO was to optimise the efficiency of the interactions of the global ocean, land, and atmosphere monitoring systems by formulating agreed recommendations to the projects and to the GMES Steering group.

**MAIN RECOMMENDATIONS**

HALO provided an efficient and manageable forum for discussions and coordination among three integrated projects: MERSEA, GEOLAND and GEMS. Their coordinators and industrial experts from HALO identified key issues for the interaction and joint transition to the operational status. They agreed on the following recommendations:

- As implied by the INSPIRE directive, the provision of an Information System based on Internet technology should be addressed.
- A global fire assimilation capability should be established to supply the atmosphere and land monitoring services with adequate products describing the biomass burning emissions into the atmosphere and the associated changes in carbon stock and land cover.
- The scientific development of ecosystem models that include the carbon cycle explicitly should be encouraged in the marine and land monitoring services.
- A fresh water monitoring capability should be established to provide the ocean and land monitoring services with adequate products describing, amongst others, soil moisture, river runoff, and fertiliser transport.
- A new atmosphere re-analysis should be facilitated in support of the ocean re-analysis that will be produced by the marine fast track service.
- The marine and atmosphere monitoring systems should be encouraged to maintain close scientific and operational contacts with existing numerical weather prediction services so as to coordinate and further develop the multitude of interfaces already implemented between the pre-operational and operational schemes.



HALO scientific recommendations (yellow boxes) for improved interactions between the GMES global monitoring services: Grey lines represent interactions in the global carbon cycle. Black arrows represent further key interactions.

# HALO

Harmonised coordination of Atmosphere,  
Land, and Ocean integrated projects of the  
GMES backbone



## LIST OF PARTNERS

- European Centre for Medium-Range Weather Forecasts (ECMWF), International Organisation
- Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER), France
- Infoterra GmbH, Germany
- Medias-France, France
- Meteo France, France
- Thales Alenia Space, France
- Astrium, France

## COORDINATOR

### European Centre for Medium-Range Weather Forecasts (ECMWF)

Research Department  
Shinfield Park  
RG2 9AX Reading  
United Kingdom

[http://www.ecmwf.int/research/EU\\_projects/HALO](http://www.ecmwf.int/research/EU_projects/HALO)

## CONTACT

### Adrian Simmons

Tel: +44 118 949 9700

Fax: +44 118 986 9450

E-mail: [adrian.simmons@ecmwf.int](mailto:adrian.simmons@ecmwf.int)

## PROJECT INFORMATION

HALO: Harmonised coordination of Atmosphere, Land,  
and Ocean integrated projects of the GMES backbone

Specific Support Action

Contract no: SSA3-CT-2003-502869

Starting date: 01/02/2004

Duration: 36 months

EU contribution: € 900.000

Estimated total cost: € 1.039.800

