

## Summary item 2

- **WP9 - Earth Observation Applications (50m)**
  - **DataGrid EO requirement (LF, 15m)**
  - **DataGrid WP9 tasks, WP9 Plan (JL, 15m)**

# Summary

- Objectives
- Tasks
- Planning
- Summary of Activities

# Introduction

- In March we presented our objectives, achievements, issues and actions, and plans for the year
- Activities proceed according to plan. There are no major deviations to report since the 1st March Review
- We have analysed our tasks and objectives and believe we are on target

# EO key objectives (as for Tech Annex)



## ■ In WP 9 description

- ✓ ... bring Grid-aware application concepts into the earth science environment...
- ✓ ...The application specific components ... **will consist of adaptation of existing systems and services and integration** within the DataGRID infrastructure...
- ✓ **Specification of EO requirements**, their development and implementation is the core of the activity.
- ✓ A **complete application** that involves the **use of atmospheric Ozone data** is selected as a specific testbed.
- ✓ **The scalability of the GRID environment** to meet earth science and application user community requirements will be investigated.
- ✓ **EO science covers** a wide range of application requirements that goes from **Parallel computing** (e.g. Meteo modeling) **to distributed processing** (e.g. reprocessing of large volume of data).

# EO WP9 tasks (as for Tech Annex) (1)

- Task 9.1: EO **requirements (D9.1)** - completed
  - **On going work (D9.6)** - delivery planned for June 2002
    - 1) Assess requirements implementation after TB1
    - 2) Extended requirements as results of EO testbed
    - 3) Scale up study implication in requirements
- Task 9.2: EO related **middleware components (D9.2)** - completed
  - Key results: interface with ENEA Grid infrastructure in TB0 and TB1
- Task 9.3: EO **Platform Interface Development (D9.4)** - on going
  - Integration with EO image processing COTS (IDL) completed
  - Procedures for EO user applications on going
  - Implementation of Earth Science portal on going
  - EO Infrastructure integration, interface with AMS archive, EO catalogue systems ... analysed

# EO WP9 tasks (as for Tech Annex) (2)



- **Task 9.4: EO Ozone application (D9.3 and D9.5) – ongoing**

Next delivery planned for Dec 2002. Scenario include 1-5 years Ozone data reprocessing using:

- ENEA Grid and DataGrid environments
- Dedicated ES generic user interfaces based on WEB Mapping Portal
- Collaborative environment for validation of results
- Multi source of data to be integrated in final delivery

- **Task 9.5: Earth Science application scale-up study (D9.6) – close to completion**

Key results:

- Various EO GRID applications being analysed
- Identification of potential technologies to be integrated

# Planning

- Our strategy takes into account several phases towards development of an EO Grid Infrastructure
  - Start from complete absence of a **Grid** infrastructure
  - Analysis, requirements, prototyping
  - Site installation
  - Integration in existing infrastructure
  - Acquire expertise, develop support capability
  - Demonstrate benefits
  - Scale up

# Short Term Planning

Q5, Q6 (PM12-18) January-June

- TB1 Validation
- Development of EO Infrastructure & Architecture
  - Distributed Data Handling
- EO Application Development
- TB1 Site Installation
- Delivery: D9.6 EO Application Scaling Study
- Input to EDG Architecture Group



# Medium Term Planning

Q7, Q8 (PM19-24) July-December

- WP9 sites operations
- Tasks 9.3 & 9.4
- Delivery: D9.3 Demonstration & Report

# Long Term Planning

Q9-Q12 (PM25-36) to December 2003

- Completion of Tasks 9.3, 9.4
- D9.4 EO Application Platform Interface
- D9.5 Demonstration & Report

# ESA Key activities (1)

- Participation to PMB and WP9 team management
- External Interfaces and Promotion
- System aspects (**underestimated effort**)
  - Participation to ATF, PTB, WPM, ...
  - Support to system validation (**not planned**)
  - Testbed site (**not planned**)
- EO Application aspects
  - GOME processing methods based on NN
  - Interface to Legacy systems
    - IDL
    - reference archive, reference catalogue, ...

# ESA Key Activities (2)

- Input to Architecture Group
  - Role of EO Applications: to provide balance and assure a "application neutral" architecture
  - Act through gathering EO requirements and channeling them into the Architecture Design process
  - Responding to ATF questions
  - Assess the EDG Architecture with respect to the desired functionality, provide feedback

# ESA Key Activities (3)

- **Testbed validation**
  - Testing and validation of Testbed1 middleware (1.1, 1.2, 1.3 release)
- **Develop ESA EO Grid Infrastructure**
  - Integration of MUIS EO Product Catalog
  - Integration of ESA AMS system
  - High-speed connection to ENEA HPC network
  - Installation of First ESA DataGrid site
    - using DataGrid installation tools
    - installation of 2 CEs
      - ESRIN cluster using PBS
      - ENEA using LSF/AFS
    - SE 0.5TB RAID on ESRIN cluster connect to AMS
  - **Other sites to follow**

# ESA Key Activities (4)

- **Develop Use Cases for end-to-end GOME processing and validation demonstration across three sites**
  - Holland, France and Italy.
  - Generate complete, validated multi-year dataset of GOME L2 products
  
- **Develop EO Grid Application Interfacing Components**
  - Re-usable components for generic application interfacing
  - Development in line with WP8-9-10 application layer