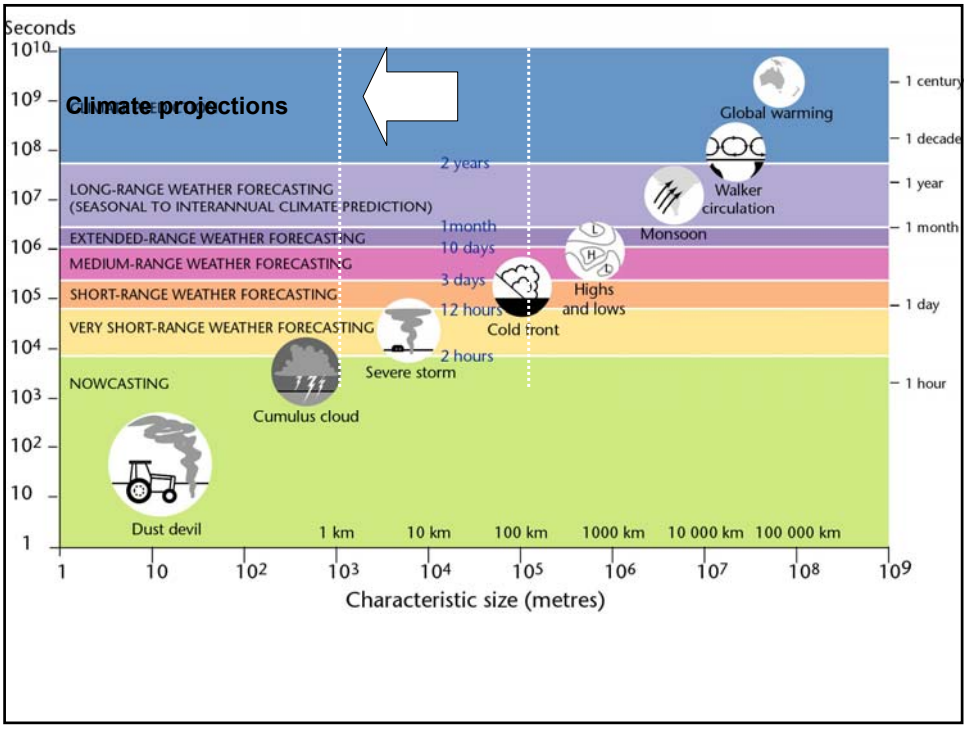
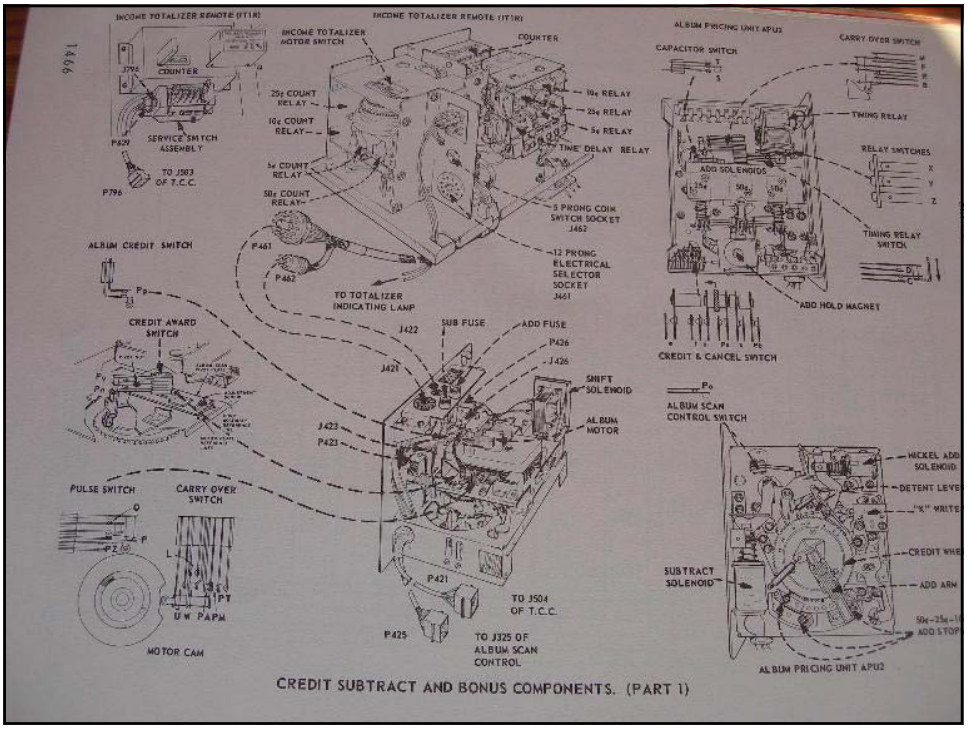
EUROGRID

European Climate Support Network (ECSN)

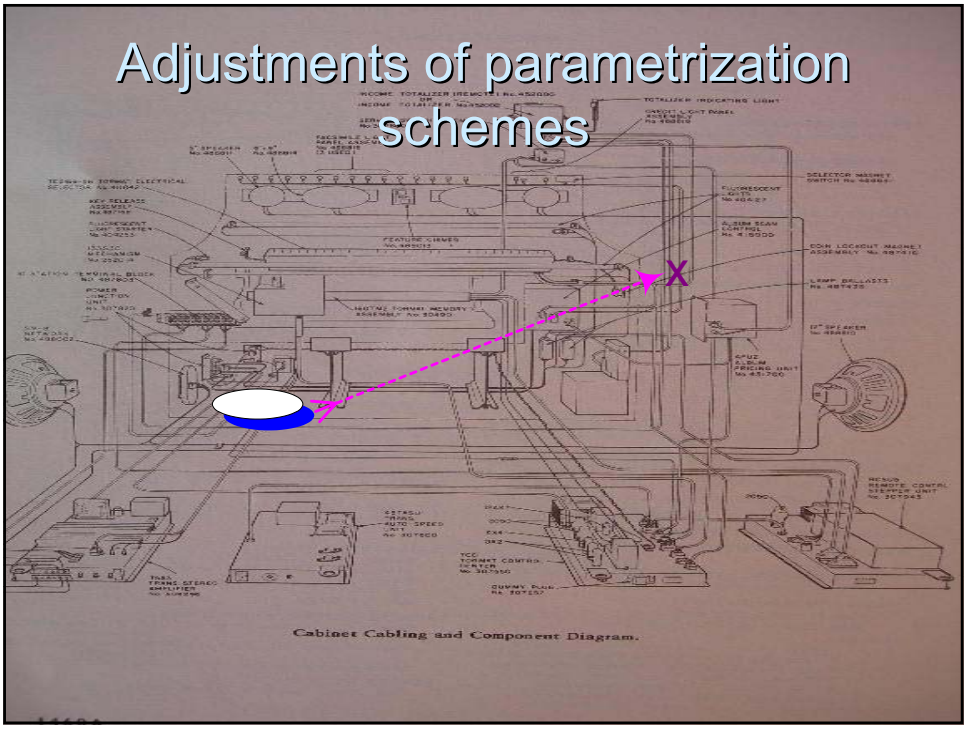
Bengt Dahlström

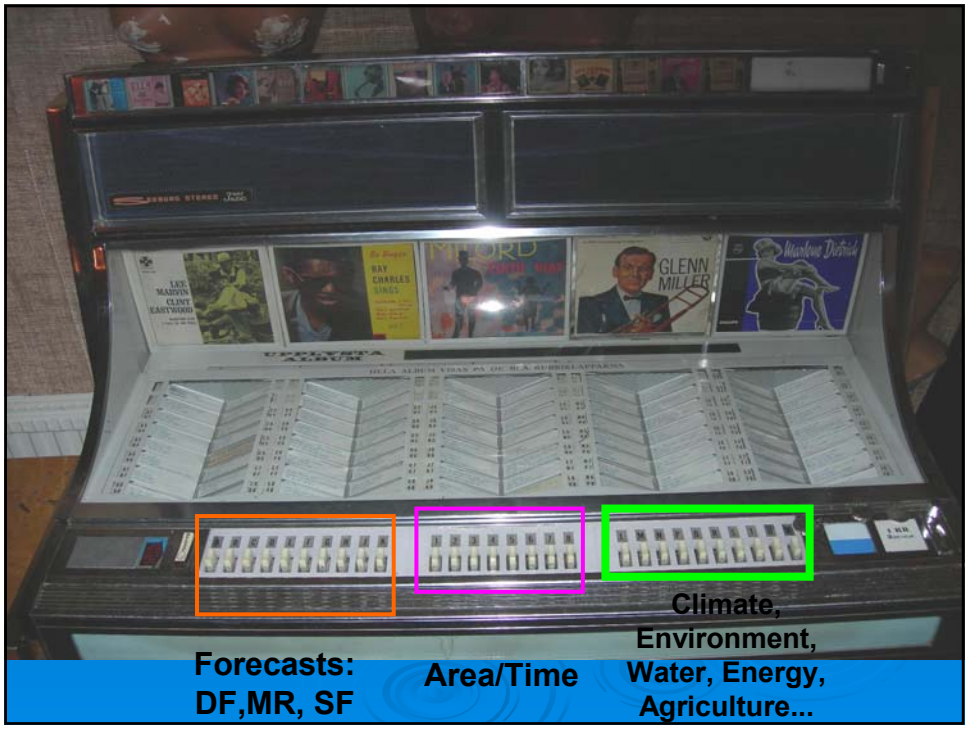
SMHI

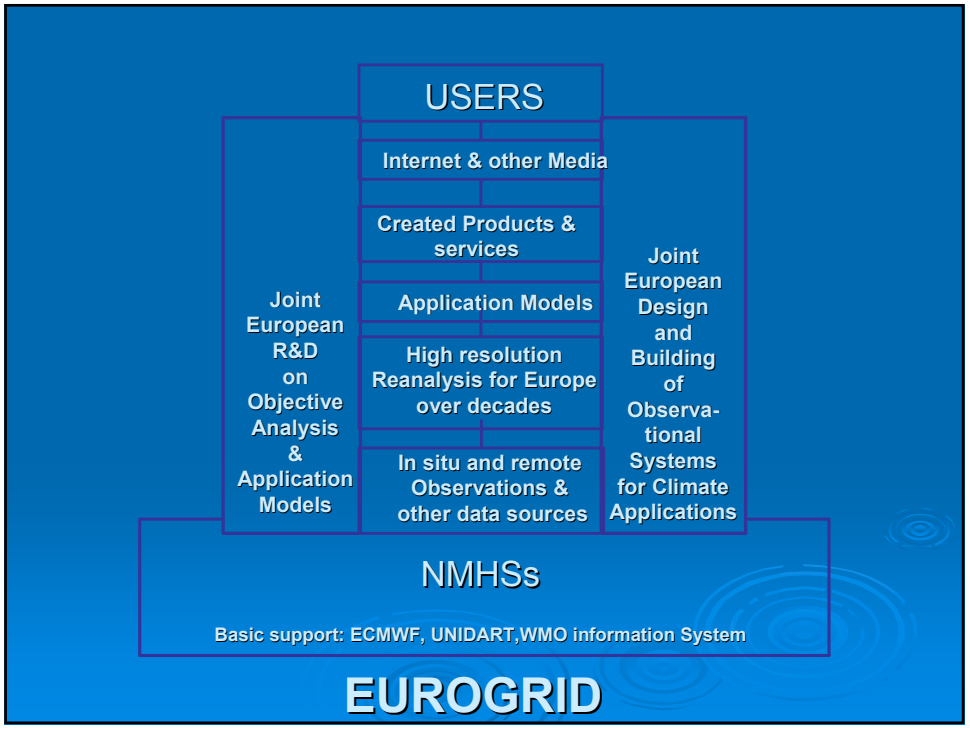




Adjustments of parametrization schemes



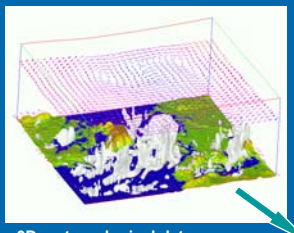

GLENN MILLER
Forecasts:
DF,MR, SF
Area/Time
Climate,
Environment,
Water, Energy,
Agriculture...


USERS
Internet & other Media
Created Products & services
Application Models
High resolution Reanalysis for Europe over decades
In situ and remote Observations & other data sources
Joint European R&D on Objective Analysis & Application Models
Joint European Design and Building of Observa-tional Systems for Climate Applications
NMHSs
Basic support: ECMWF, UNIDART,WMO information System
EUROGRID

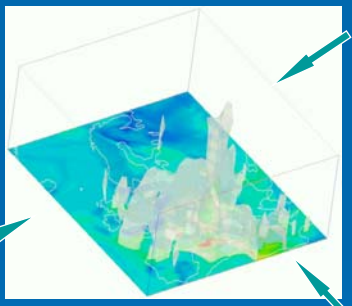
EUROGRID…

- Regular production of high-resolution climate monitoring products such as maps and statistics.
- Regular update of detailed spatial information on climate fluctuations in Europe on a scale from monthly to decadal basis.
- Estimation of hydrological conditions in Europe, such as drought conditions and simulation of river runoff from all European rivers.
- Generation of information of natural energy conditions related to wind, water and solar energy
- Monitoring of chemical and other environmental conditions over Europe such as the washing out by precipitation of chemical – including potential nuclear – constituents.
- Monitoring of agricultural and forestry conditions by using biological models, such as bio mass models.
- Platform for regional Earth System Models

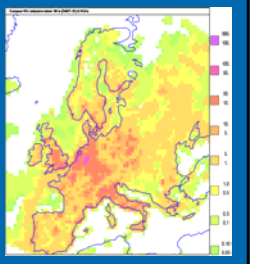
MATCH model system – basic structure



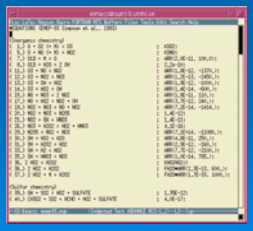
3D meteorological data, HIRLAM och MESAN



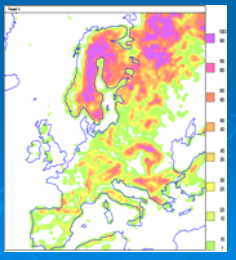
MATCH 3D transport/atmosphere chemistry model



Emission data



Chemical mechanisms

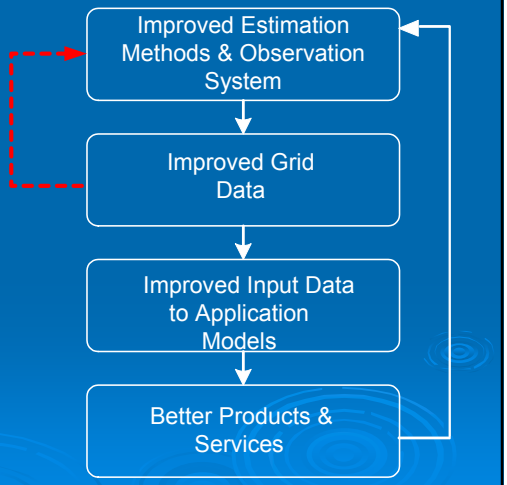


Soil characteristics

SMHI

EUROGRID…

- Potential for improved design and building of European observational systems for climate & environmental applications



Geophysical and Environmental data in Europe:

- **Data policy restrictions (access rights…)**
- Lack of co-ordination (national borders…)
- Lack of standards
- Lack of data
- …
- …

Conclusion for Europe:

Data infrastructure in bad shape

INSPIRE

…..

(16). Member states should therefore make available, as a minimum and free of charge, the services for discovering and viewíng spatial data sets.

EUROGRID

Standard high resolution grid system with generator of products & services for the whole of Europe with regular updating.

Showcase EUROGRID

The following objectives are identified:

1) Development of a demonstration package for visualisation of the potential of a full-scale EUROGRID.

2) Collection of experiences related to:

   a. Data policy and related legal aspects
   b. Potential effects on individual participating NMHSs
   c. Quality of estimated data, products and services

Showcase EUROGRID …

Objectives…

3) Development of a plan for an experiment with objective validation and rating of present estimation methods.

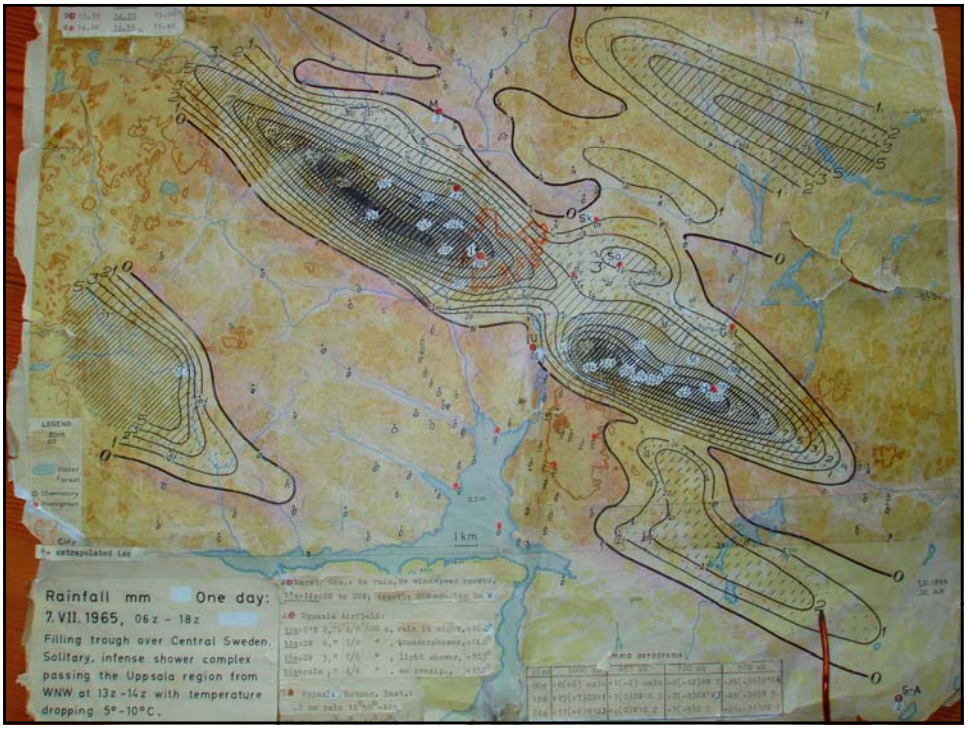
4) Identification of the best way to proceed with the next step related to high resolution gridded climatological data.

Showcase: Issues

- **Data & products**
  - What benefits can be gained from usage of high-resolution gridded climate data and connected products with a spatial coverage from about 10 km resolution up to European continental scale?
  - Should access to this information be restricted for some users? Is it possible for each NMHS to open its climatological data bank fully for the realisation of EUROGRID without disadvantages? If problems arise: how should the access to climate data best be regulated?

Issues…

- **Effects of co-operation between NMHSs**
  - Strengthening joint European R&D efforts regarding objective analysis for climate applications & for application models.
  - It should be clarified whether ECMWF could be responsible for the high-resolution European 'regular' reanalysis


Rainfall mm
One day:
7. VII. 1965, 06z - 18z
Filling trough over Central Sweden. Solitary, intense shower complex passing the Uppsala region from WNW at 13z-14z with temperature dropping 5°-10°C.
1 km
LEGEND
S-A

Issues…

- **Effects of co-operation between NMHSs**
  - Improved objective analysis methods for estimation that preserves the structure of variability and extreme values of the climatological fields.
  - The accuracy of EUROGRID in various parts of Europe is an incitement to cross-border discussions on how to improve the European observational system.

Showcase Issues…

- By realising EUROGRID, do we see any possibility of a more shared work distribution regarding operational production of climatological products & services?

Showcase: Deliverables

I. The first European high quality resolution gridded data set for 1999. Additonal years during 1990-2005 will also be delivered with grid data, but with lower quality.

II. A demonstration package with documentation, where climatological products and other material are created.

III. A plan for an objective validation and rating of present estimation methods.

IV. A report containing views and experiences from the Showcase together with an outline of how to proceed.

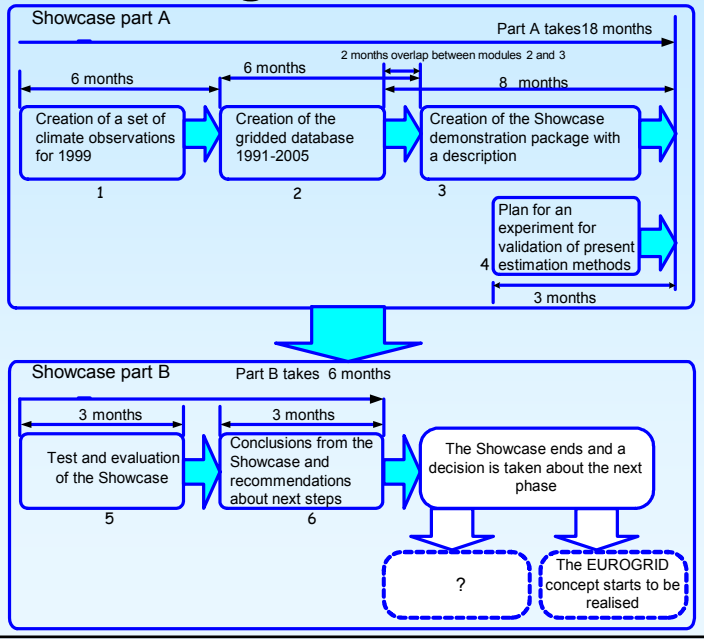
Project Showcase tasks

Module no	Outline of Tasks	Respon-sibility
1	Creation of a European database with observations for 1999 a) Design of data formats for the exchange of the stocks of national climatological data for 1999. b) Collection of the respective national data set c) Quality checking of the data d) Preparation and delivery of the joint European observational data set for grid estimation (next module).	
2	Creation of gridded data for 1991-2005 covering Europe with emphasis on the year 1999. Resolution: ~0.1º /daily values. a) Data preparation: observations, physiographic data, preliminary fields b)Model preparation c) Grid estimation for the European area for the total time period with daily temperature and precipitation data. d) Delivery of the gridded data for product generation and demonstration package.	

Project Showcase tasks…

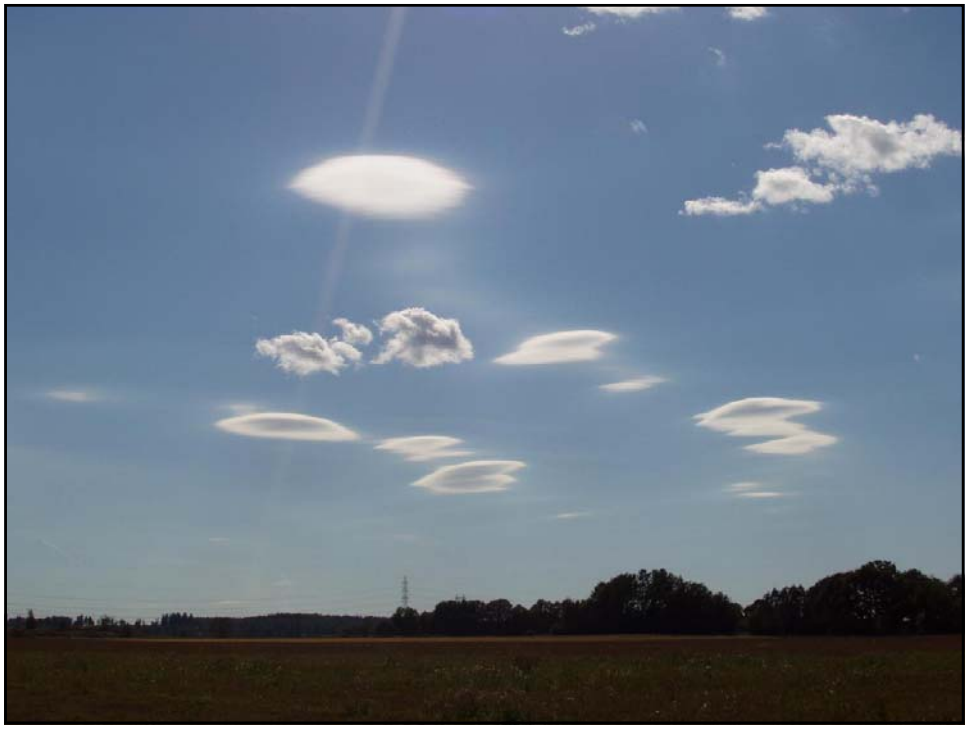
Module no	Outline of Tasks	Responsibility
3	Creation of the Showcase package, with some material accessible through the web. a) Generation of climate monitoring standard products such as monthly and yearly data and maps of the temperature and precipitation. Example products for: ◦ Europe ◦ Individual countries ◦ Selected regions/local areas b) Optional products. Products generated by application models such as output related to hydrology, natural energy sources, atmospheric chemistry... Deliverables: A showcase package in GIS environment and with some material also available for NMHSs on the web.	
4	Development of a plan for an experiment for objective validation of present grid estimation methods for climate applications.	
5	Participating members are invited to test and comment on the Project results	PM
6	Co-ordination and formulation of a final report on the Showcase with recommendations for the next steps.	PM

Organisation



Showcase
– climate data for 1999

- Austria
- Denmark
- Finland
- Germany
- Hungary
- Ireland
- Italy
- Netherlands
- Norway
- Portugal
- Spain
- Sweden
- Switzerland
- United Kingdom



Cost Breakdown for the Showcase EUROGRID

Unit EURO*1000

Module No	Description of work	Cost	Allocation
1	European high quality database for 1999	80	
2	European database of gridded data.	80	
3	Creation of the Showcase Demonstration package.	120	
4	Plan for objective validation of grid methods	50	
5	Test and evaluation of the Showcase package.	-	
6	Leading and synthesis	110	
-	Arrangement of two Project meetings	5	
-	Travel costs for the Project manger	10	
	Miscellaneous costs	25	
	Total Project cost Annual cost	480 240	

Summary:

Showcase EUROGRID

is aimed for visualization and preparation of:

a system for efficient generation of products and services by operation of application models with European coverage with high resolution gridded data as input

EUROGRID …

- High resolution grid information
  - Reanalysis covering decades (1958-present time)
  - Connection also to a near real-time system
- Use of application models with grid information as input variables:
  - Climatology
  - Hydrology
  - Other areas
- Dissemination/communication
  - Improved web based system(s) for dissemination
  - UNIDART for exchange of national data
  - Other information/data transfer solutions
- Access to the EUROGRID system – first outline:
  - For EUROGRID participating NMHSs this information will be free of charge for core and non-commercial applications.
  - For commercial applications the ECOMET principles will be valid.