

# Operational Oceanography

New perspectives in coastal and  
marine waters management

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**ENEA - CLIM**

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# Goals

- **(1) improve the safety and efficiency of marine operations;**
- **(2) more effectively control and mitigate the effects of natural hazards;**
- **(3) improve the capacity to detect and predict the effects of global climate change on coastal ecosystems;**
- **(4) reduce public health risks;**
- **(5) more effectively protect and restore healthy ecosystems; and**
- **(6) restore and sustain living marine resources.**



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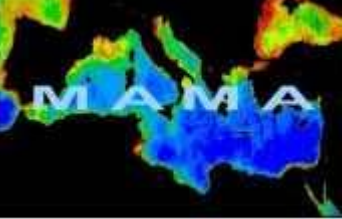


# Regional & integrated systems

**The predictability of coastal marine environment is limited by:**

- **existing limitation of the meteorological forecast**
- **uncertainties of the boundary conditions (influence of the large scale circulation on local dynamics)**
- **the non-linearity of the processes**
- **the string links among sub-systems (physics, chemistry, biology)**





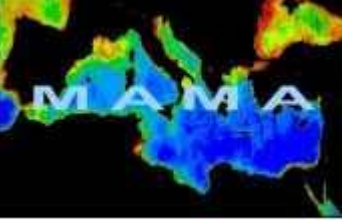
# Experience in the Mediterranean



**Mediterranean Forecasting System ('Pilot Project' and 'Toward Environmental Prediction')**

**ADRICOSM (application of GOOS concepts to Adriatic Coastal Area)**

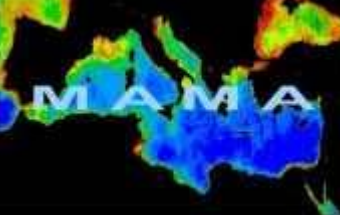




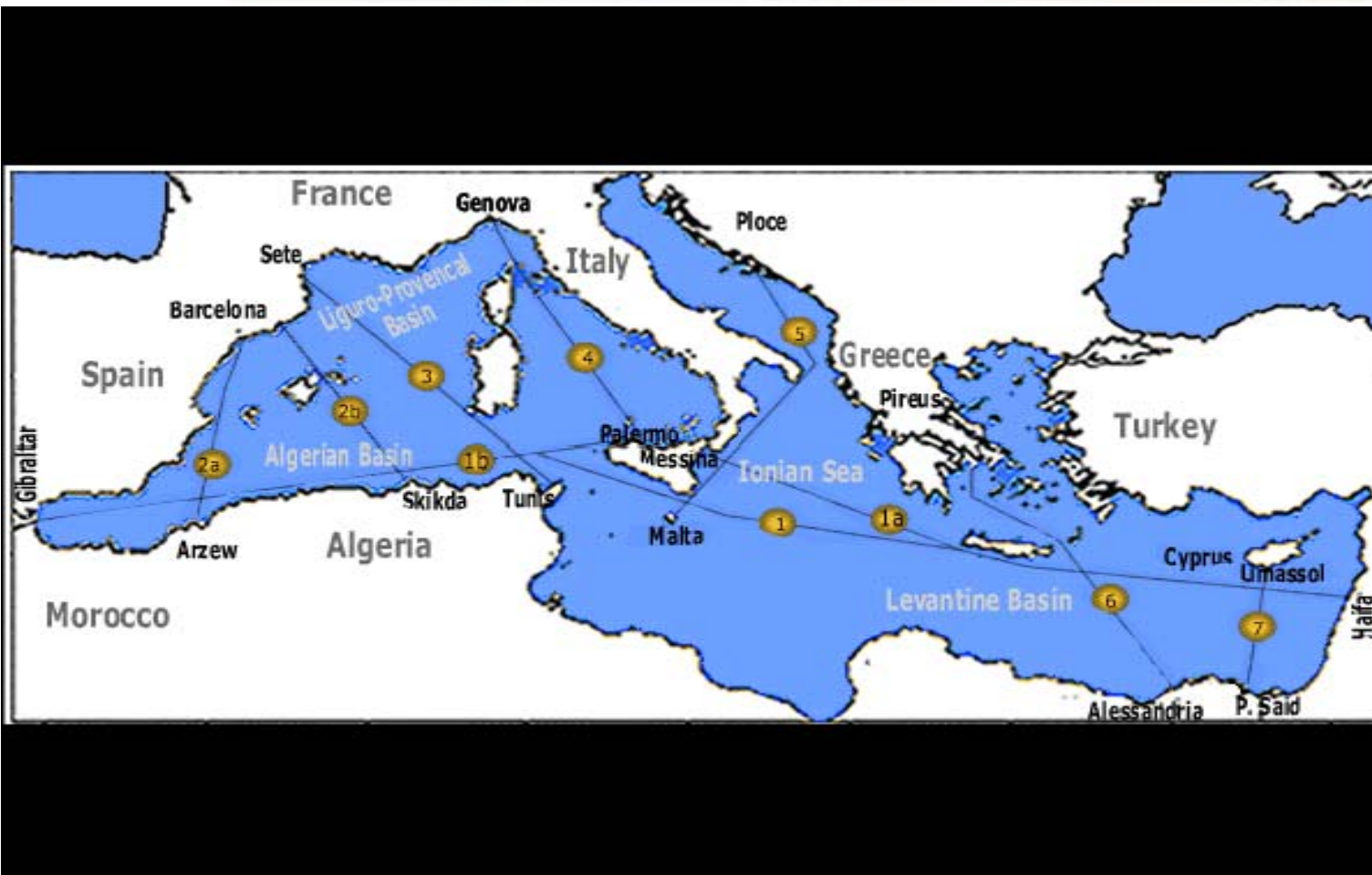
# MFS - Pilot Project: bases

- **Historical data (Medar/MedAtlas)**
- **understanding of the ecosystem functioning (e.g.MATER)**
- **climatologies for the models (MODB, Medar/MedAtlas)**
- **assimilation methods**
- **real time data delivery systems**
- **feasibility studies of ocean forecasts**





# The Ships of Opportunity Programme

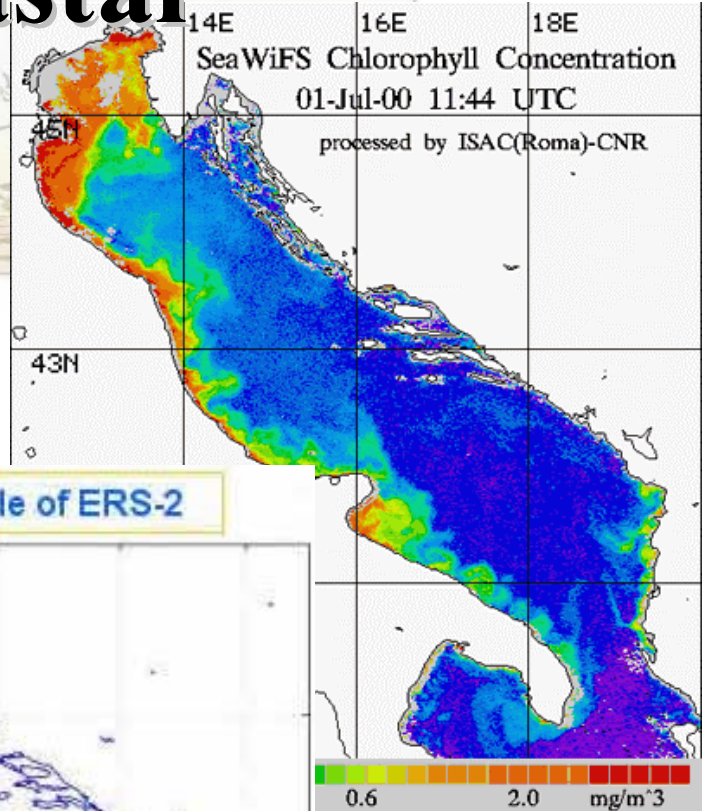
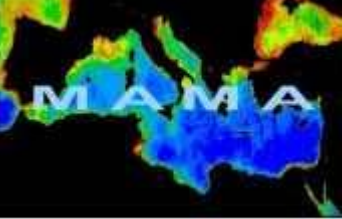




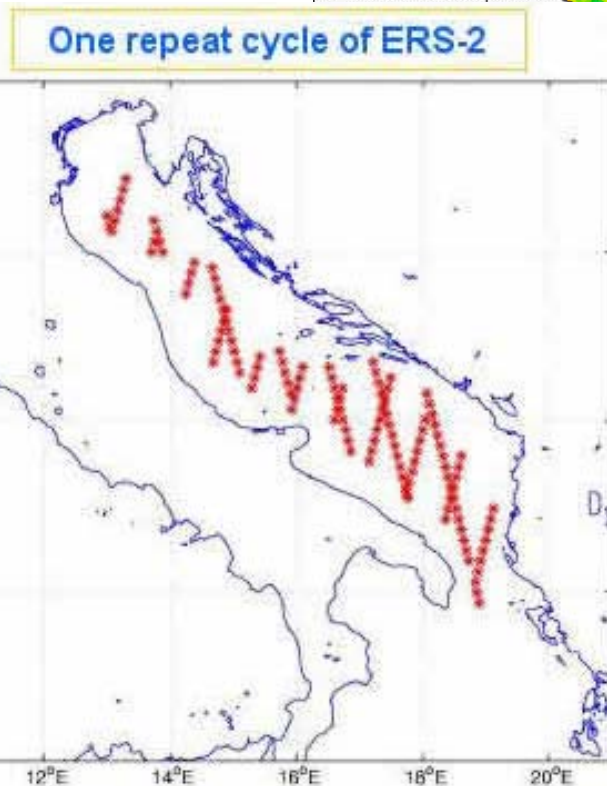
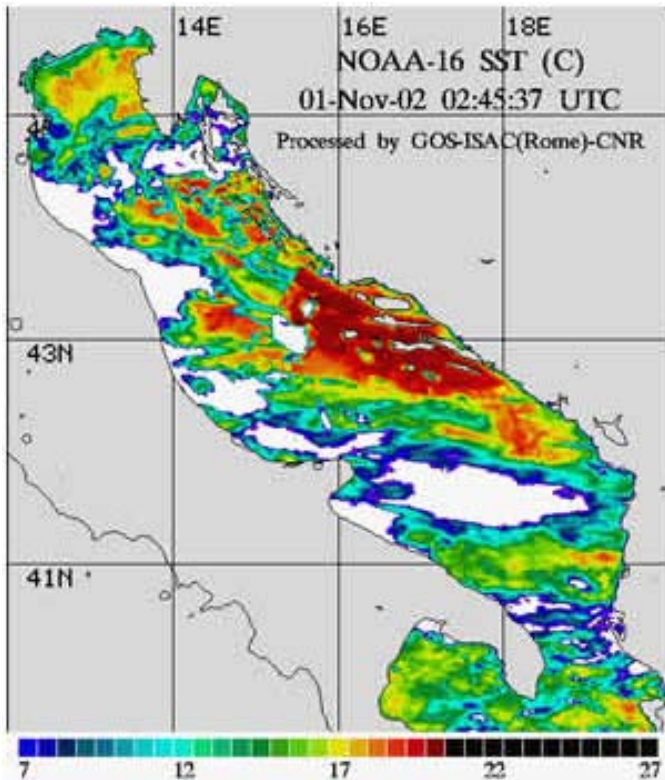


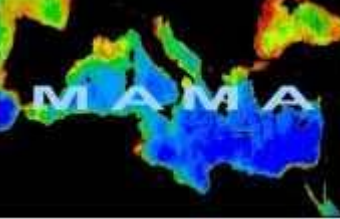


# Regional to coastal

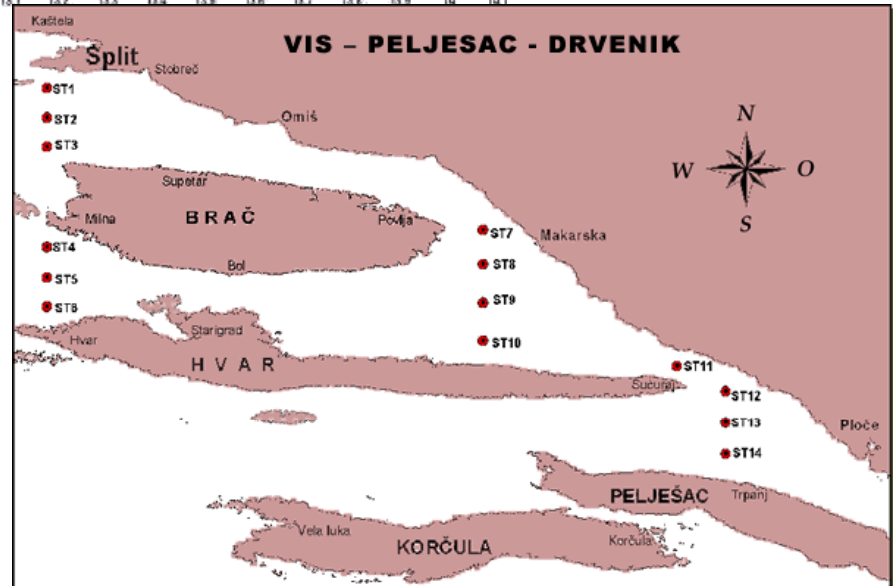
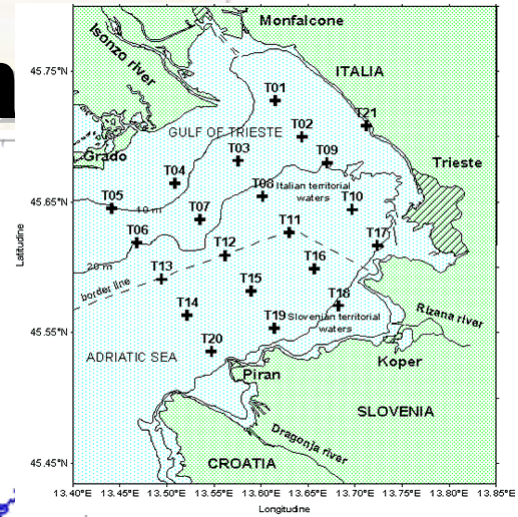
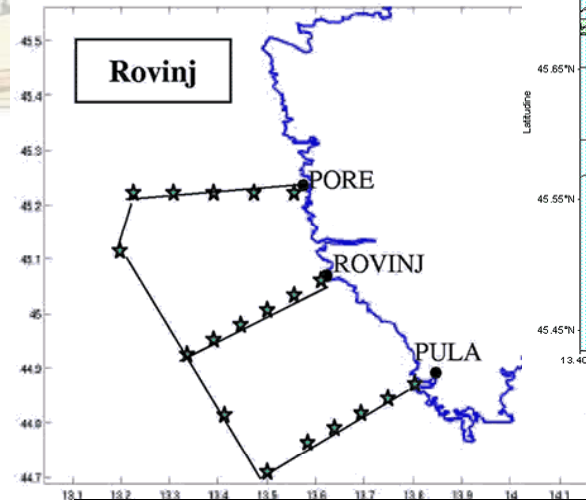
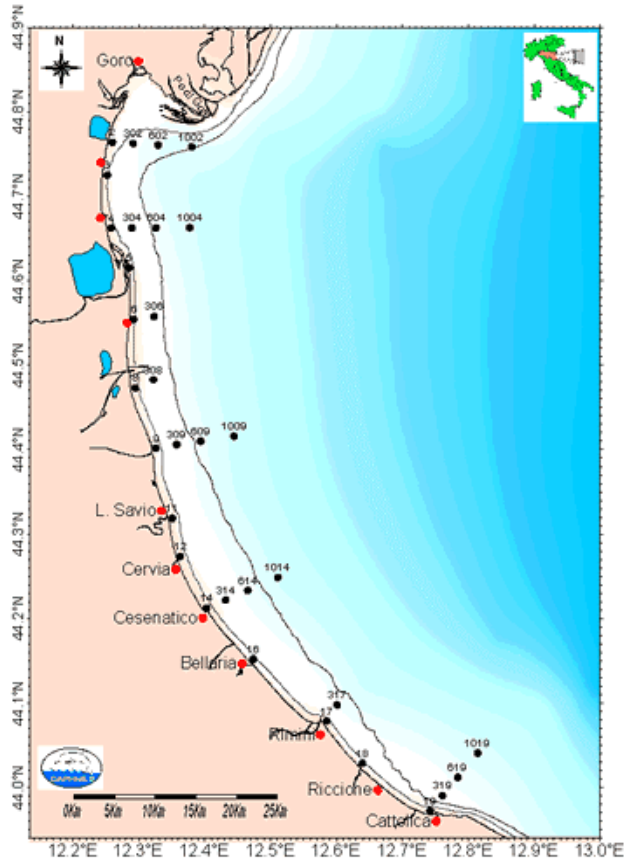


# Observing system





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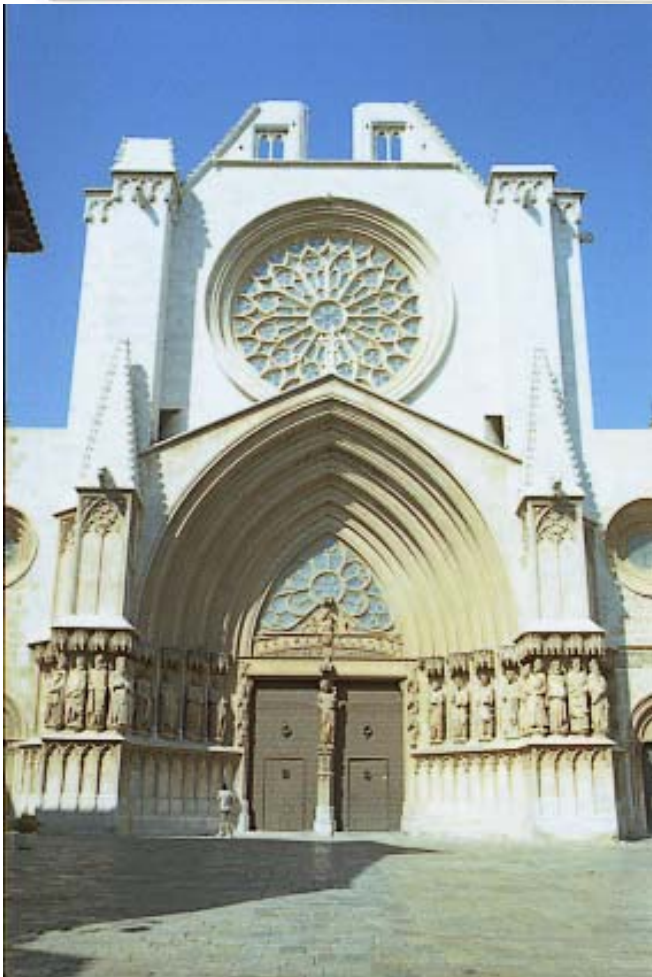
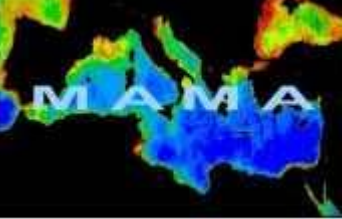




# Information management

- Many data are collected and many models are running
- How disseminate the data, results and information
- What is the most effective model for dissemination (centralised, distributed)



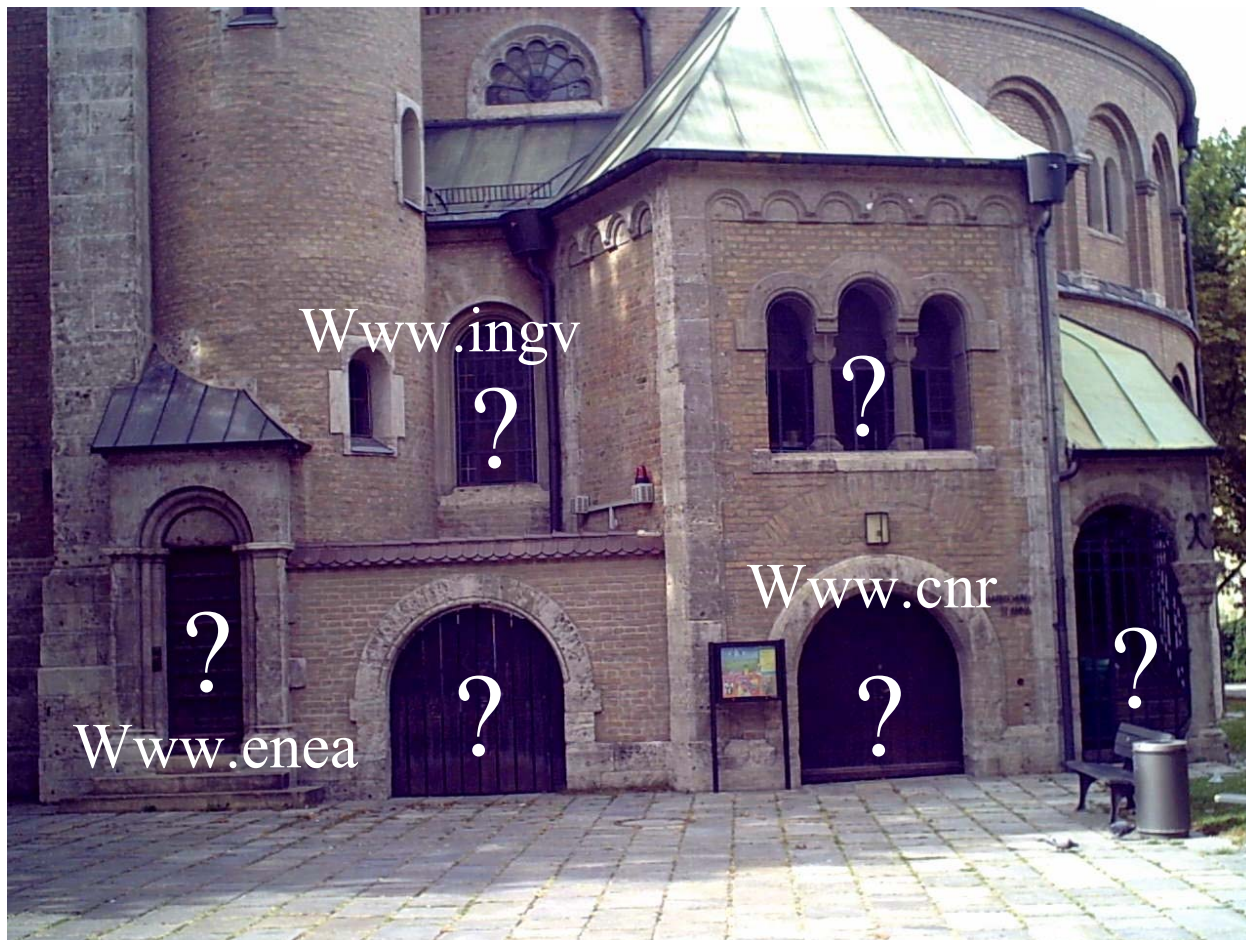


- **Access to data/information through a unique portal**



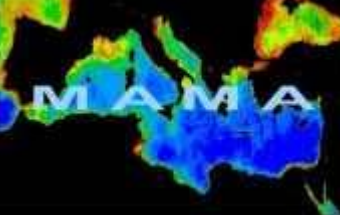


# Centralised systems

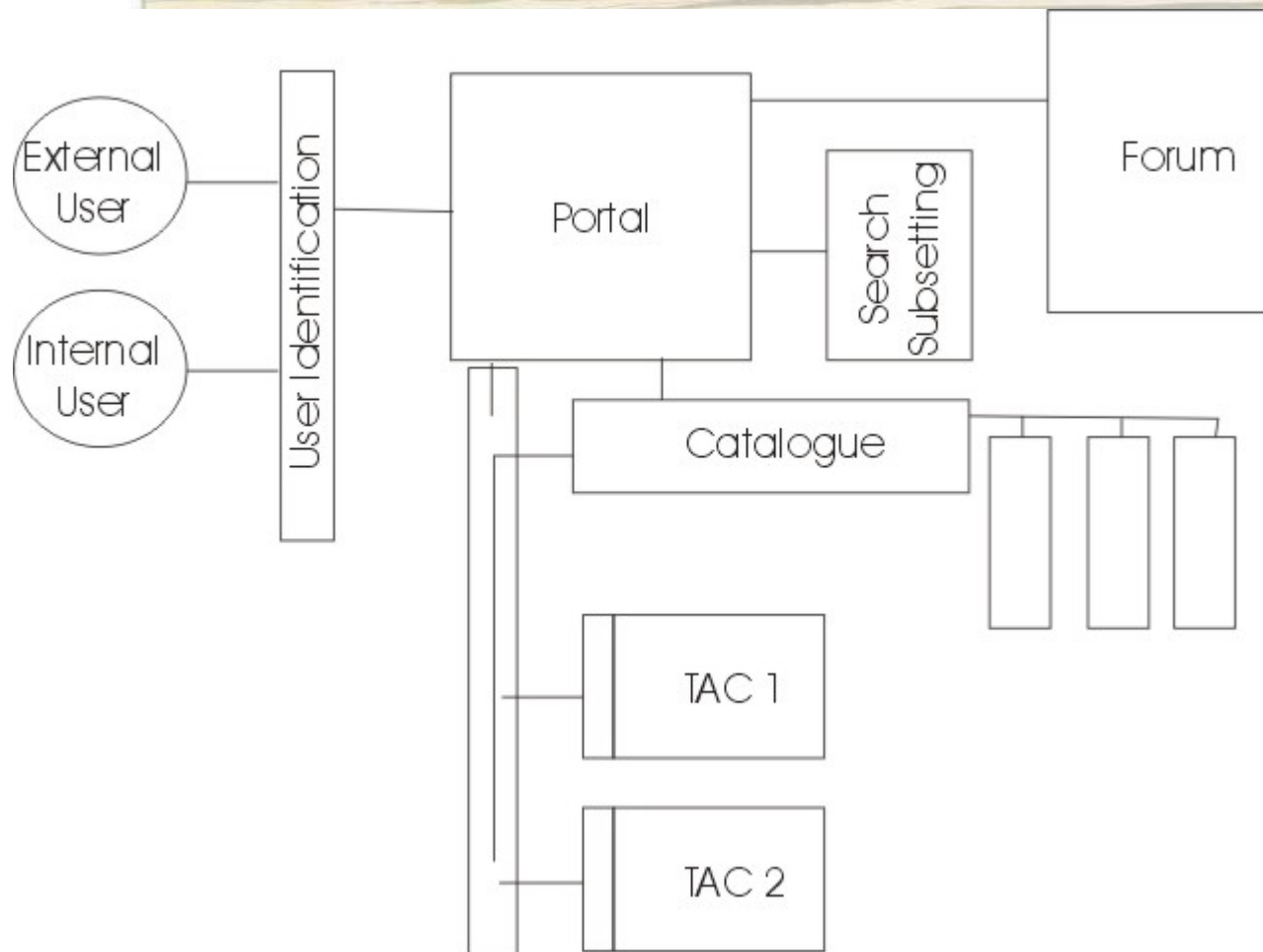


- Search of data is not easy, but the data are dispersed in many sites





# Distributed data system



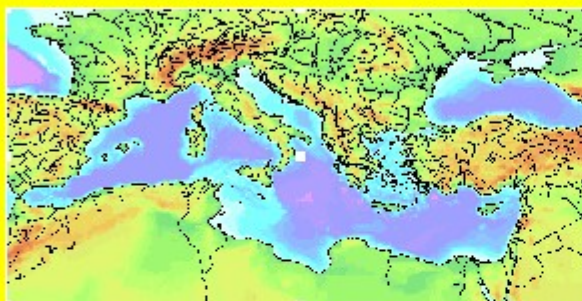
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data access

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