



*North Atlantic Treaty Organisation*

**Seasonal to Interannual Climate Variability:  
its Prediction and Impact on Society**

**Gallipoli (Italy), 23 May - 3 June 2005**

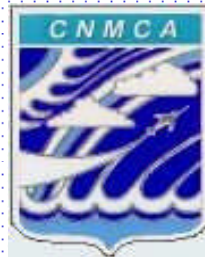


**Roberto Sorani**  
**Director of the Italian Meteorological Service**



## Ufficio Generale per la Meteorologia

**C.N.M.C.A.**



**Re.S.M.A.**



**1° C.M.R.**



**C.A.A.M.**



**U.M.A.**

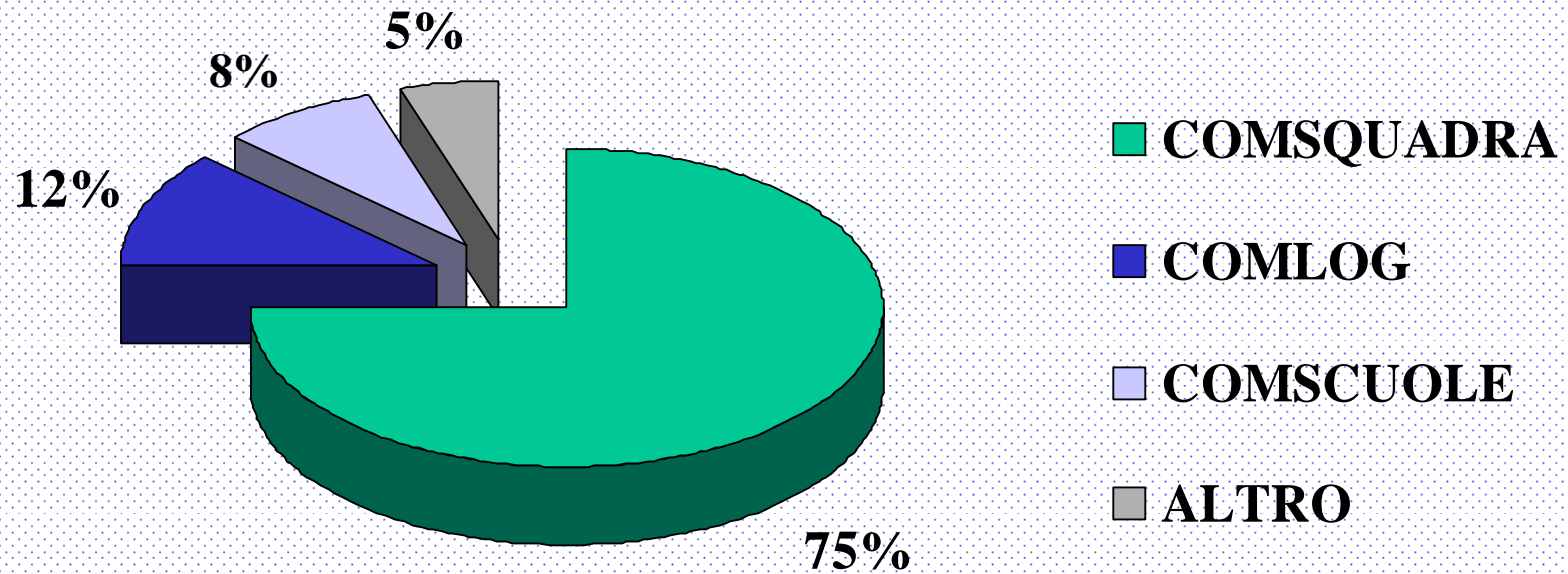
**Staz. Automat.**

**Teleposti**

**Stazioni isolate**

**C.R.I.I. (?)**

## UGM STAFF

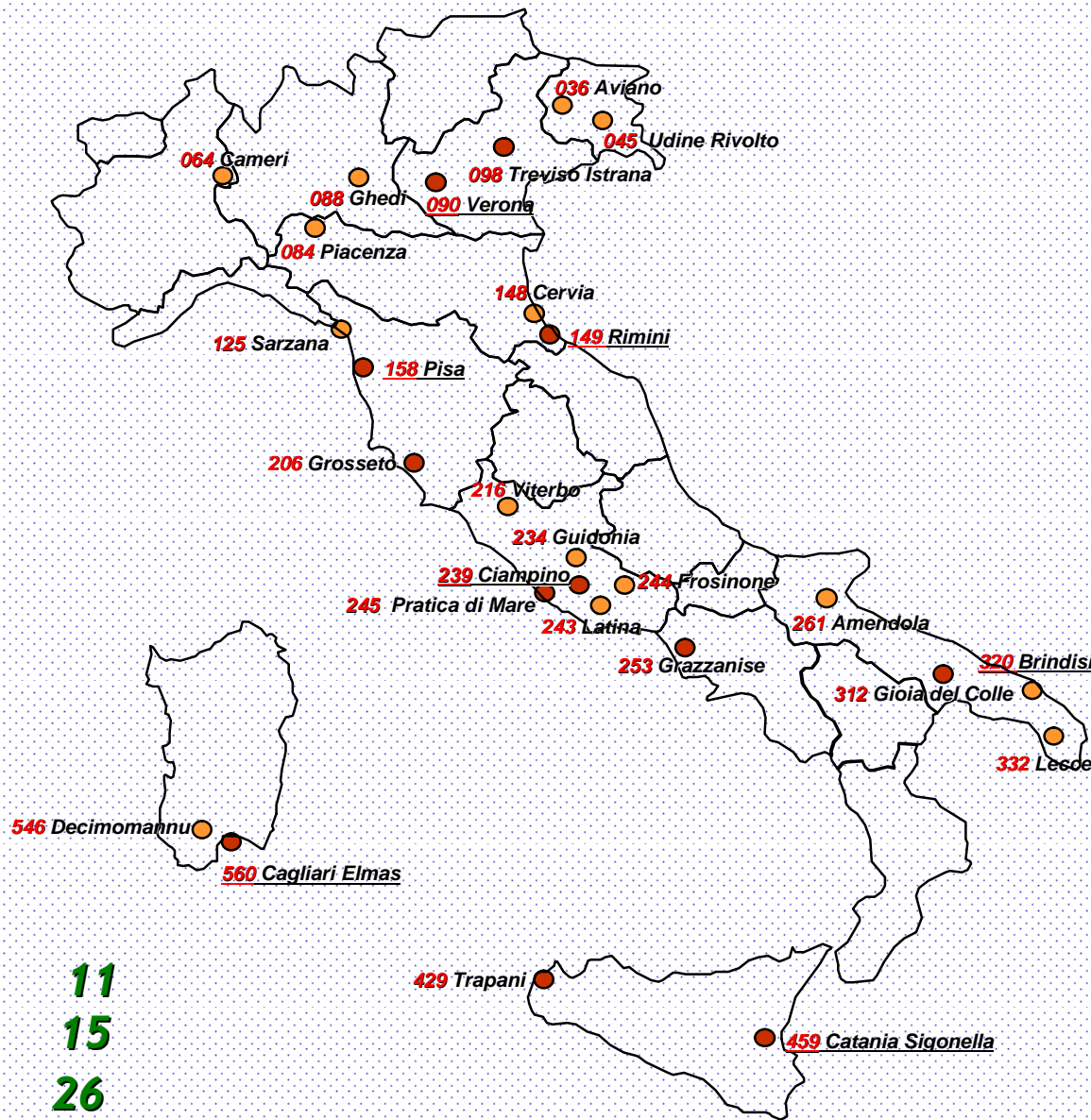


<i>Uff.li</i>	215
<i>Sott.li</i>	713
<i>P.Civ.</i>	66

## Overview on the observing network

- Manned observatories
- Automatic stations
- Special observing network
- Remote sensing (radars – satellites)

# Meteo Observatories in the Airports (26)



● **UMA h 24 / d 7**                      **11**

○ **UMA con orario ridotto**            **15**

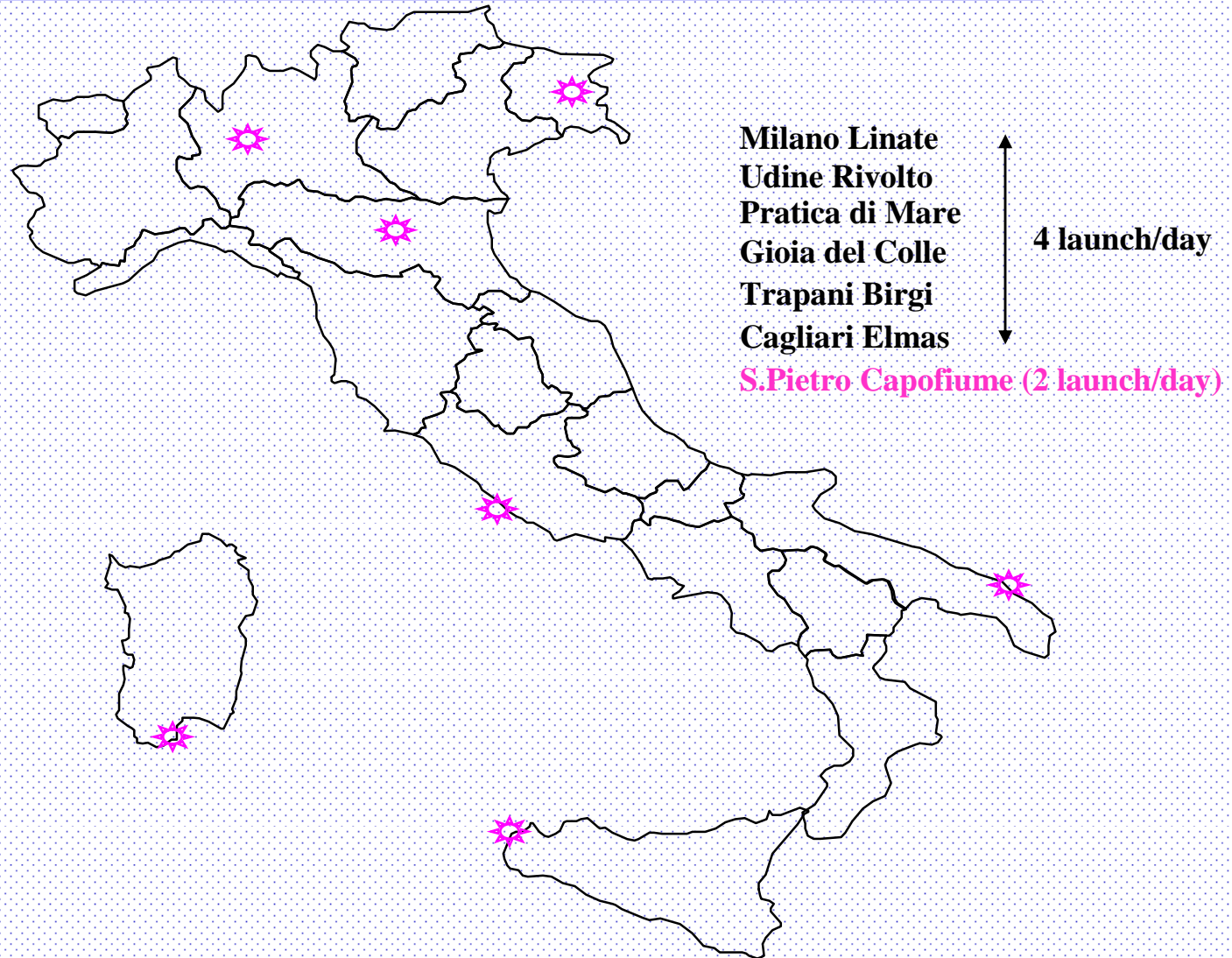
**TOTALE**                                      **26**

**Aeroporti aperti al traffico aereo civile**    **7 (sottolineati)**

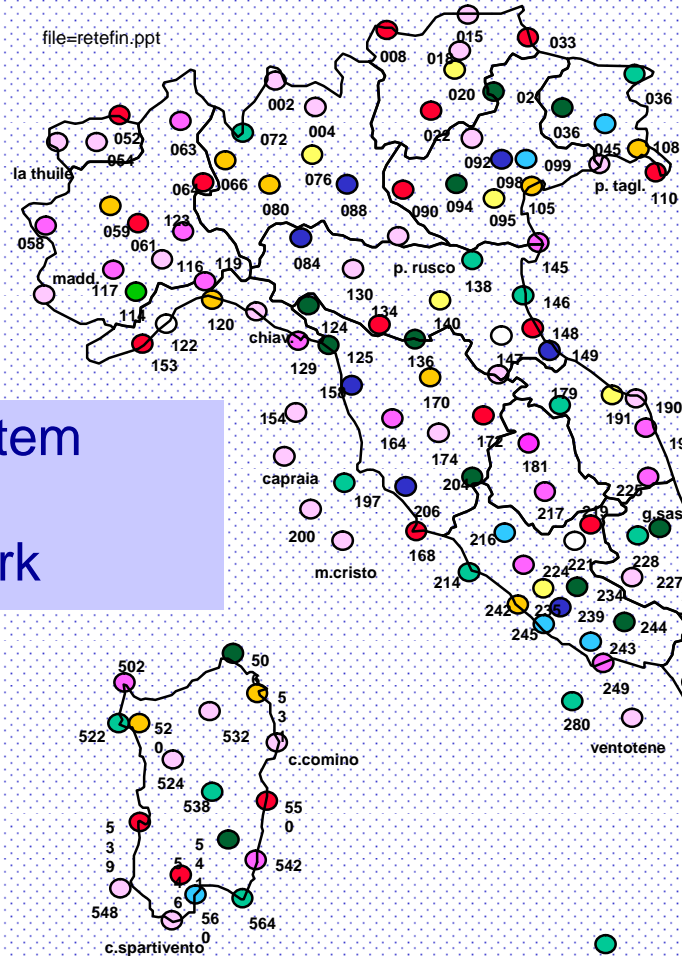
# 1. Observation system: automatic weather station (DCP)



# Upper air sounding network



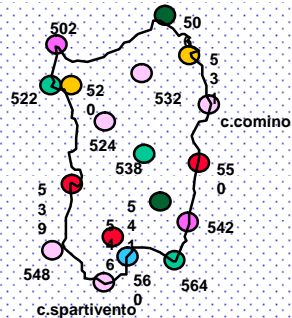
file=retefin.ppt



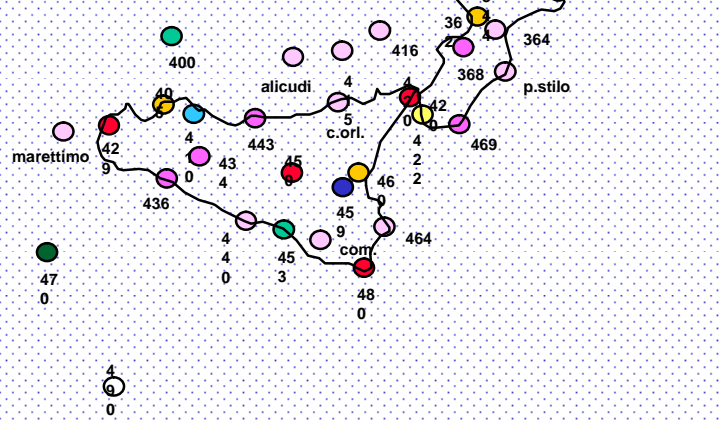
**Rete osservativa synop AM ed ENAV, a conclusione del programma DCP (1<sup>a</sup> e 2<sup>a</sup> fase).**

<b>consistenza stazioni:</b>	
<b>AM di base</b>	<b>30</b>
<b>AM secondarie manuali</b>	<b>19</b>
<b>AM secondarie DCP s.a.</b>	<b>35</b>
<b>AM secondarie DCP a.</b>	<b>68</b>
<b>ENAV</b>	<b>30</b>
<b>Totale</b>	<b>182</b>

**1. Observing system**  
**The Full Network**



- Rete base
- Rete secondaria H24
- Rete secondaria HX
- Rete DCP semiautomatica 1<sup>a</sup> fase
- Rete DCP semiautomatica 2<sup>a</sup> fase
- Rete DCP automatica 1<sup>a</sup> fase
- Rete DCP automatica 2<sup>a</sup> fase
- Rete ENAV H24
- Rete ENAV HX
- Rete ENAV NO Synop

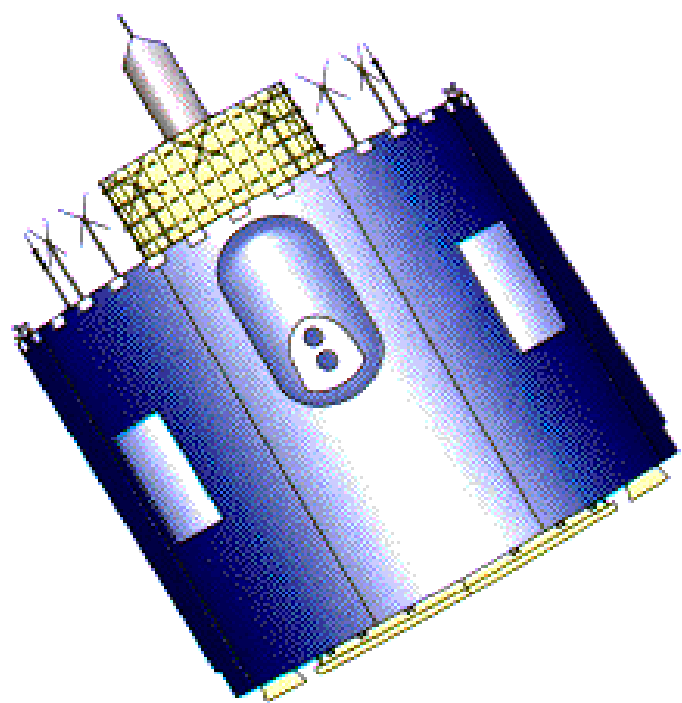


4  
0





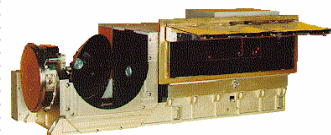
## METEOSAT SECOND GENERATION (MSG)



- **Spinning Enhanced Vis & IR Imager**
- **12 channels**
- **Image each 15 minutes**
- **3 km horizontal resolution**
- **Hi-Res channel at 1 km**



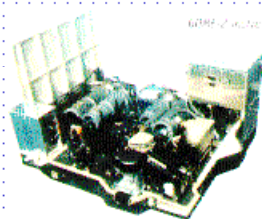
# Metop: Satellite and Instruments



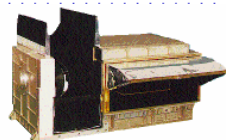
AVHRR-3



GRAS



GOME-2

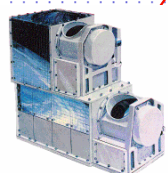


HIRS-4  
Metop 1/2 only

IASI



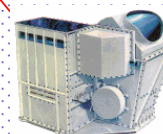
AMSU-A1



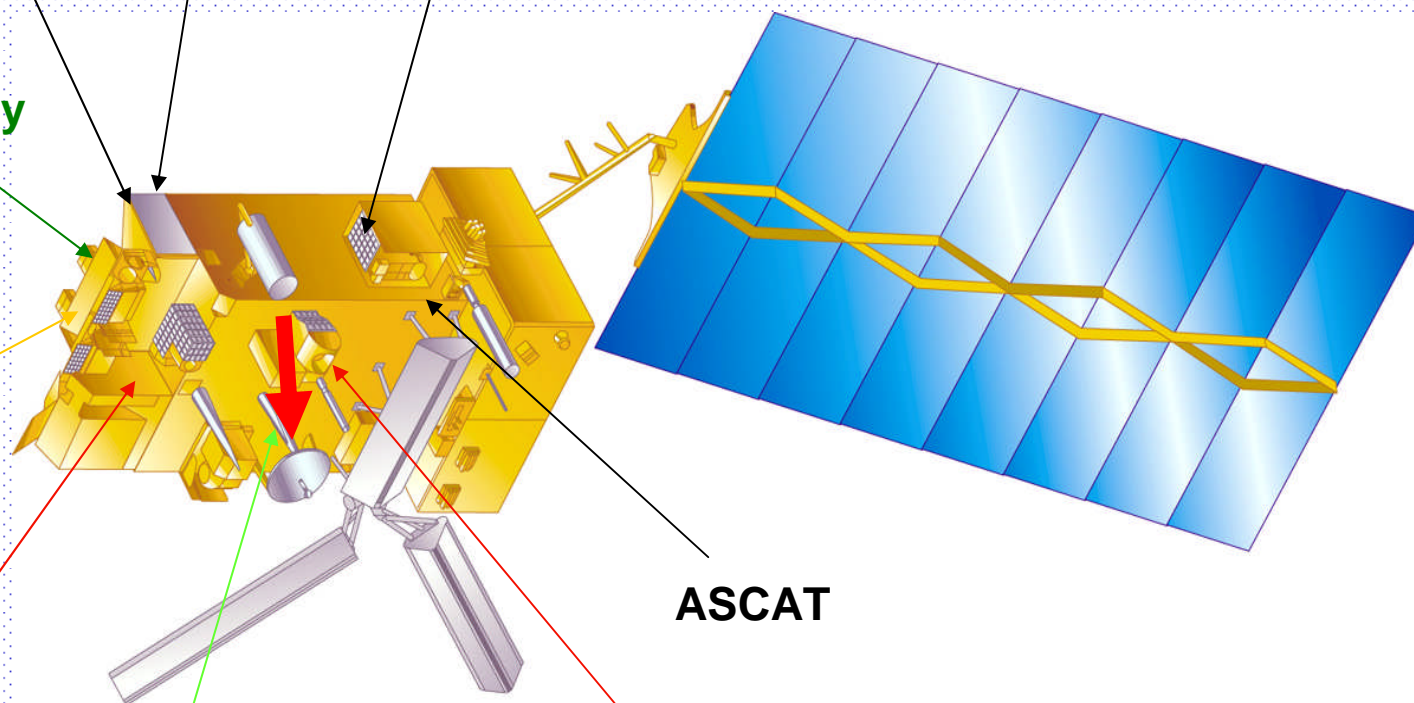
MHS



AMSU-A2



ASCAT

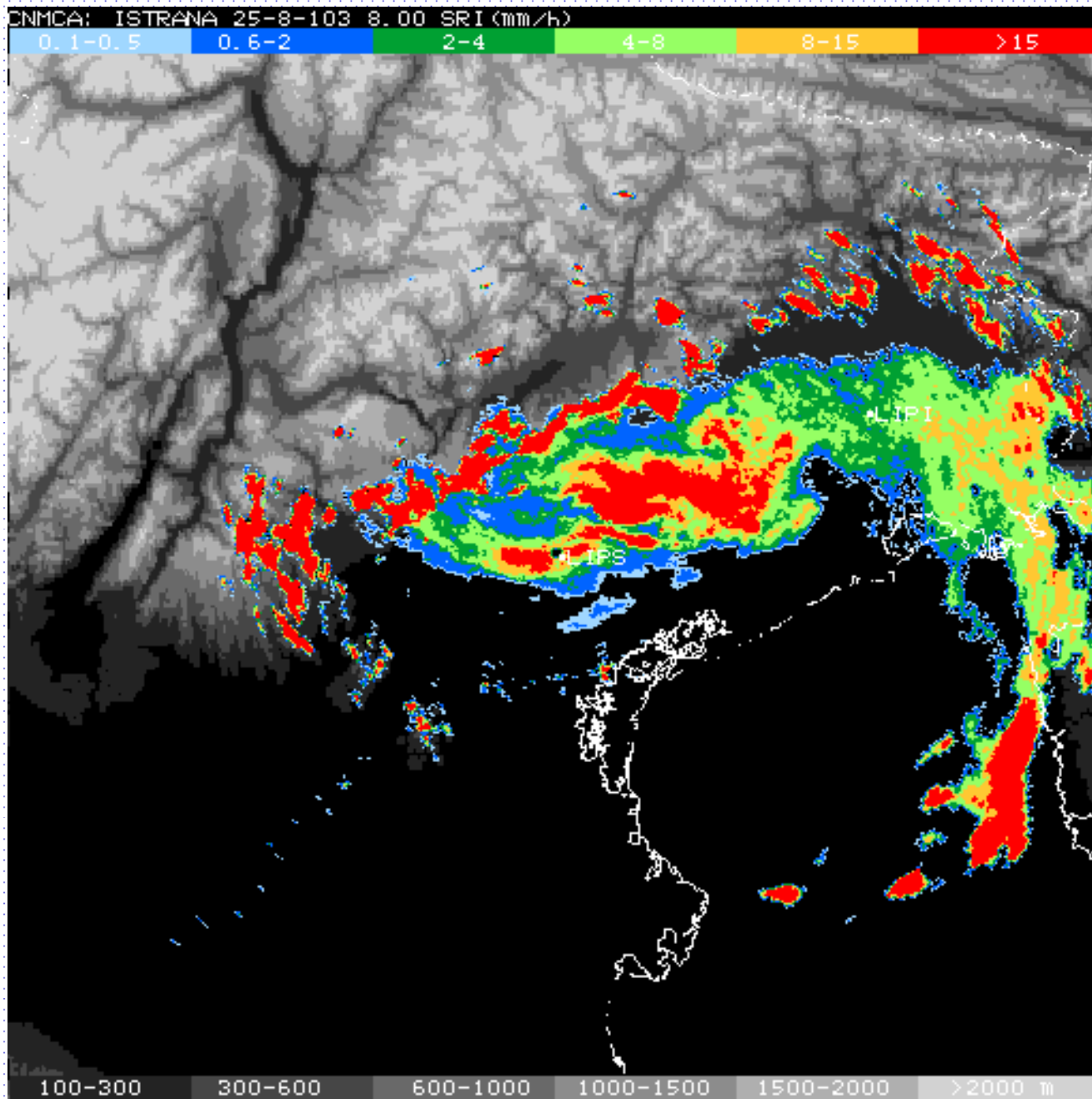


# Lightning Network

★ Sistema di accentramento ed Elaborazione rete

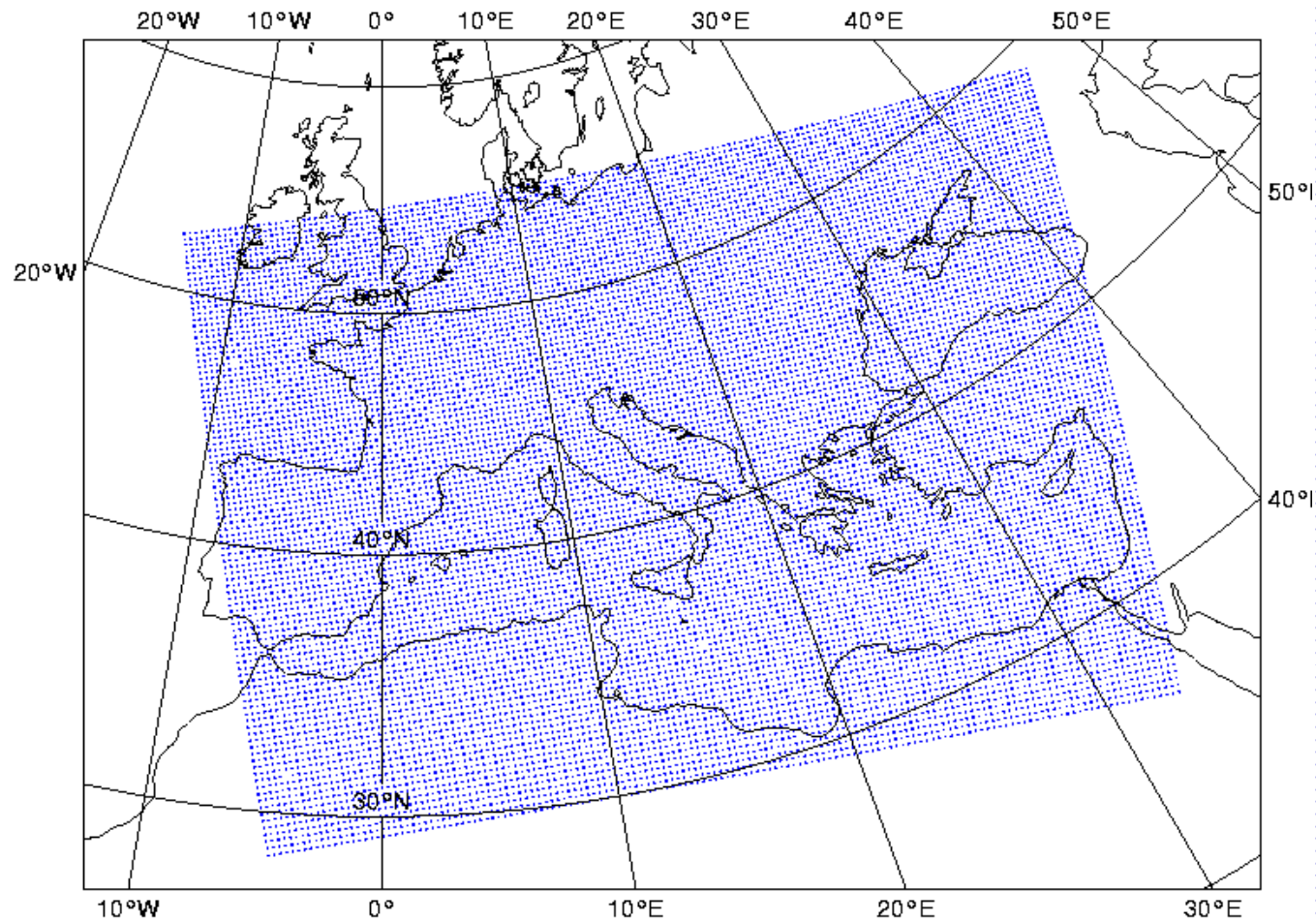
⚡ Sensori rete IMPACT





# HRM - configurazione operativa

## DOMINIO MODELLO HRM - CNMCA -

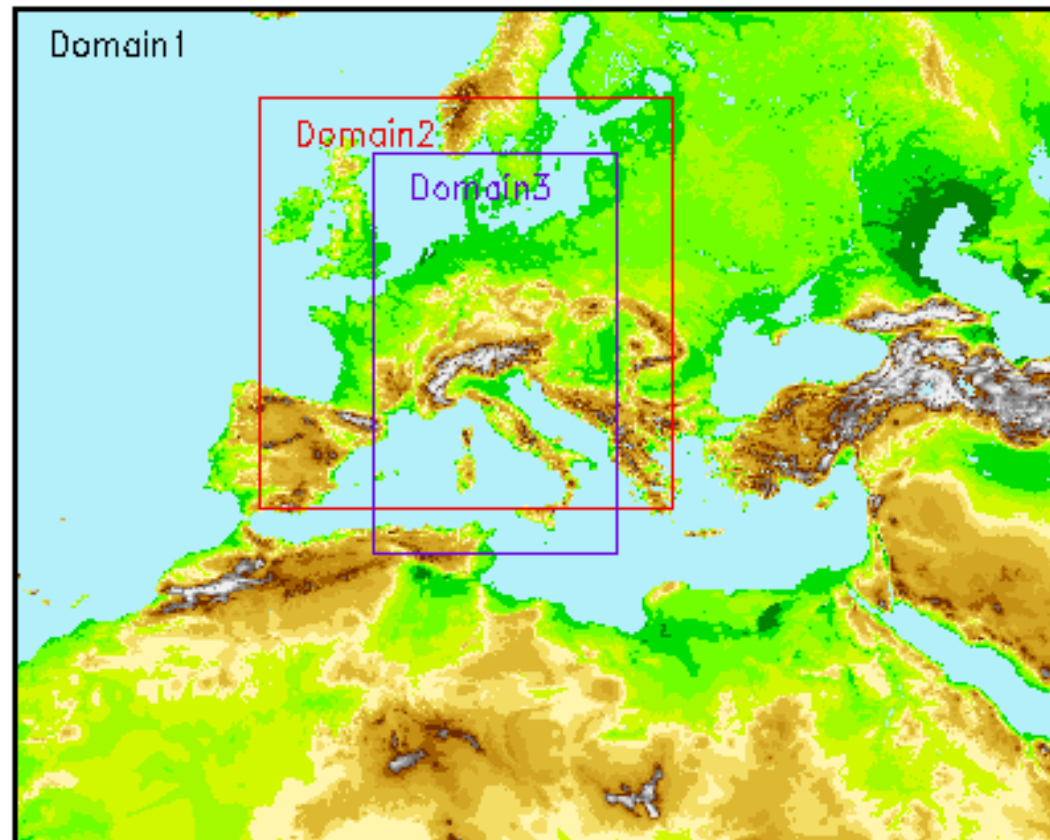


# COSMO CONSORTIUM for L.A.M.

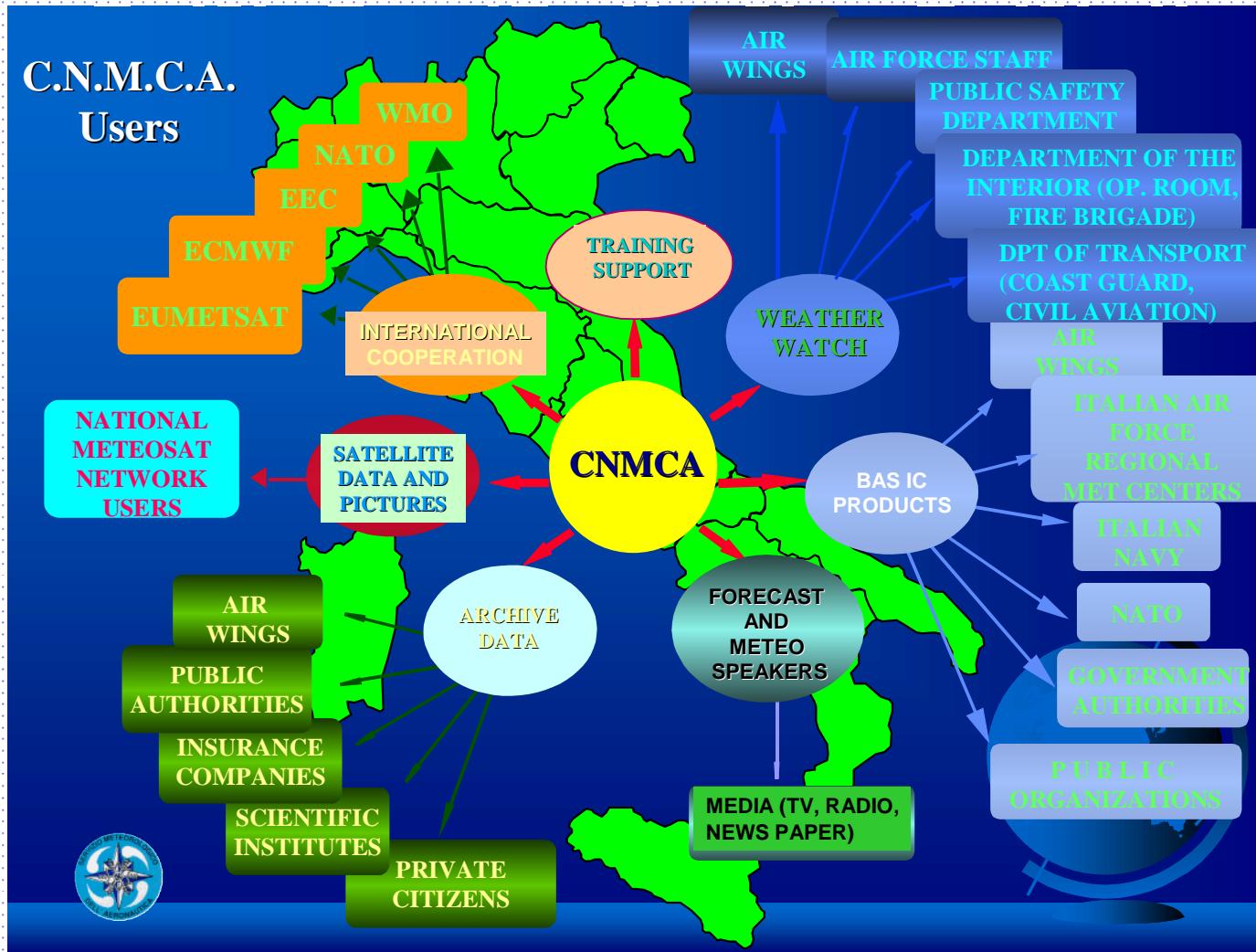
*Dominio 1 a 28 km, 21 km, 14 km e 7 km di risoluzione.*

*Dominio 2 a 7 km resolution.*

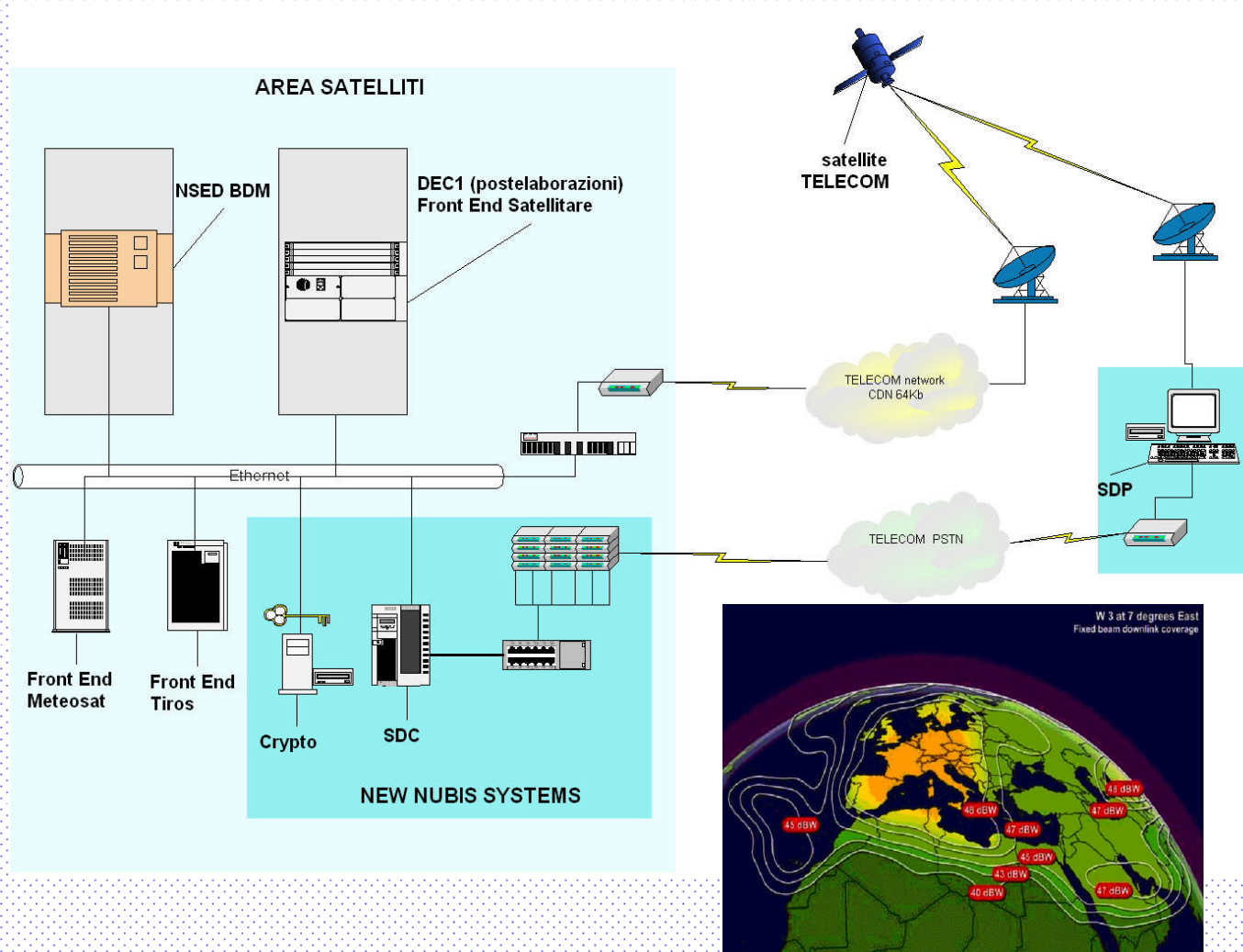
*Domain 3 a 2.8 km di risoluzione.*



# NATIONAL USERS



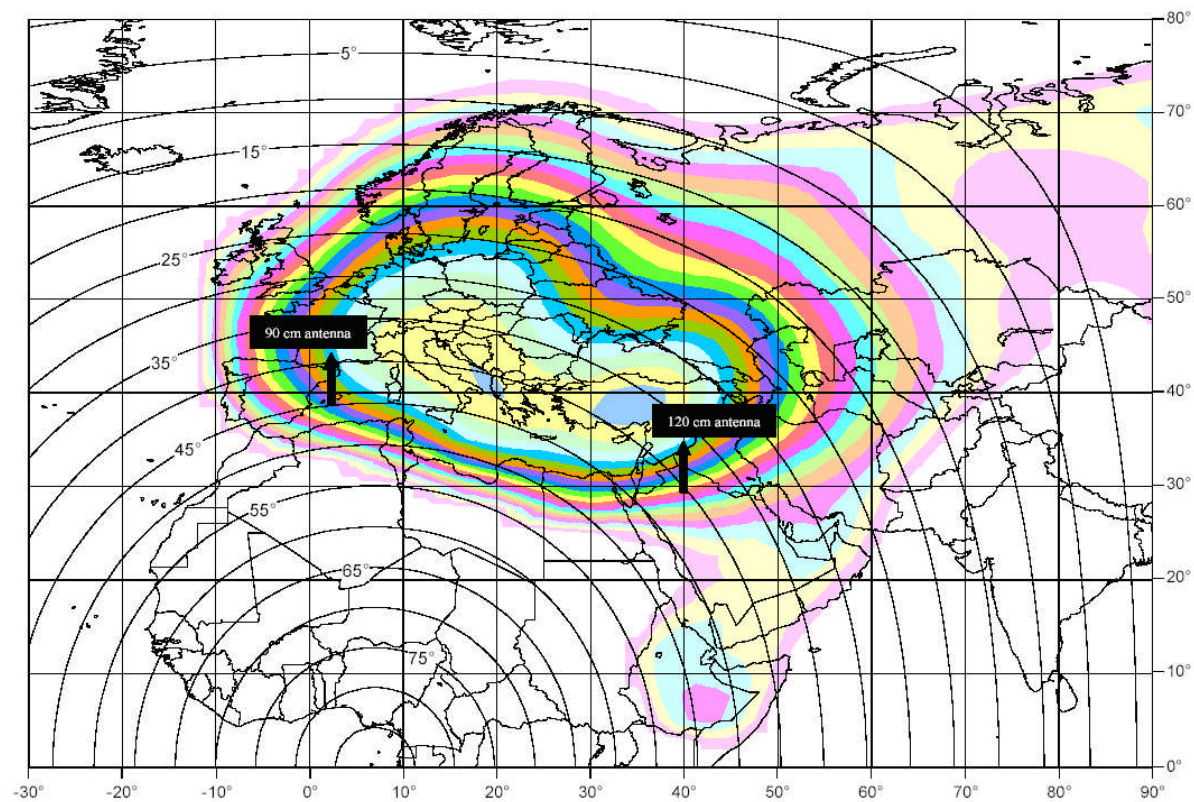
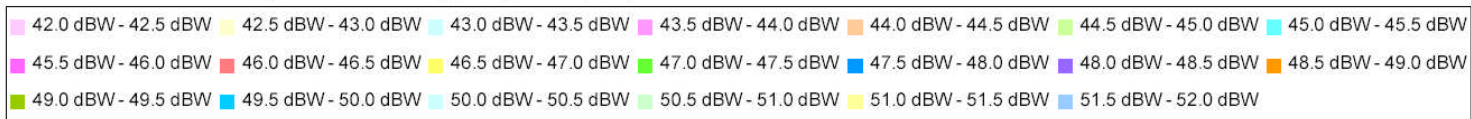
# La diffusione dati/prodotti in Broadcasting (Nubis/Prometeosat)





## NUBIS sistema di diffusione satellitare dati meteo del Servizio Meteorologico AM Bacino di ricezione - anno 2004

23/4/2004 - W3A 7°E - Europe B Downlink D5 (pointing error = 0.05°)



# Distribution via Intranet (Prometeo)

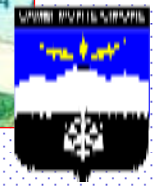
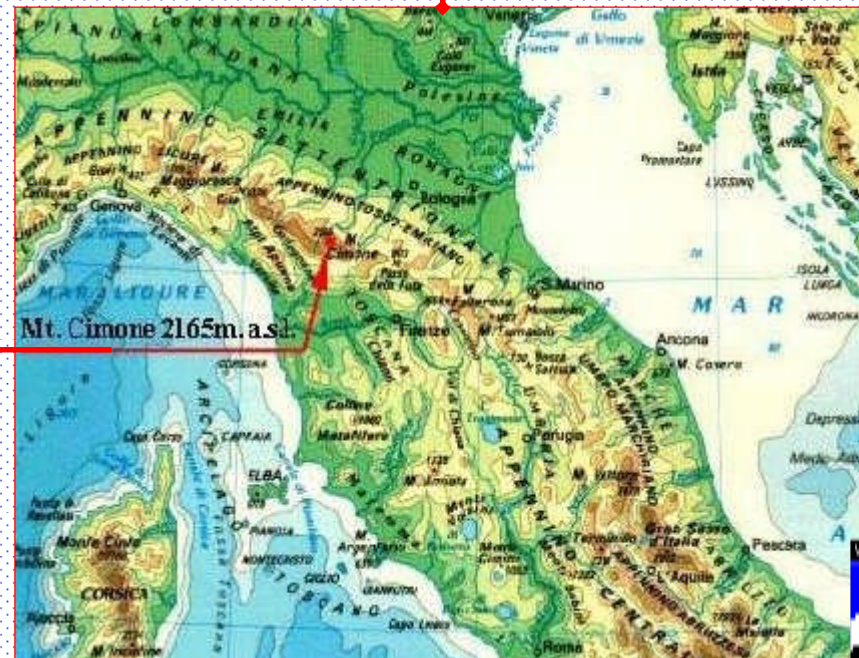
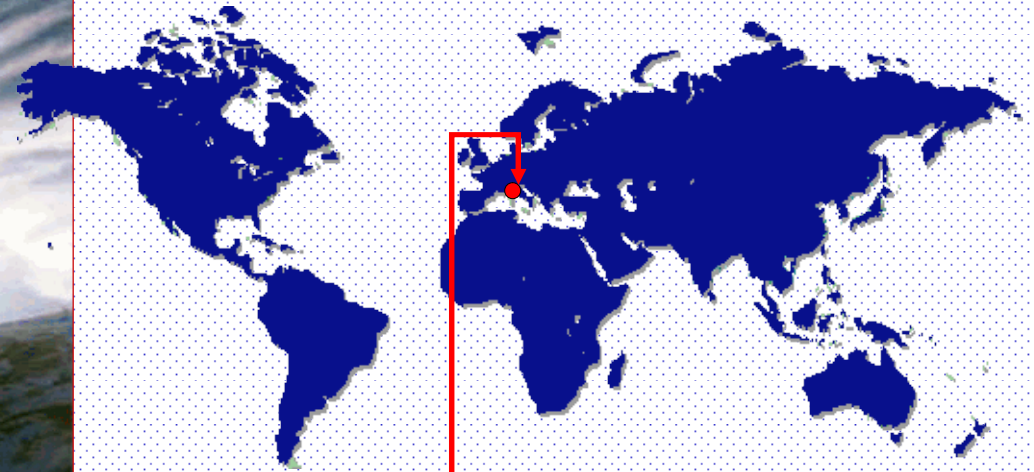
The screenshot shows a Microsoft Internet Explorer browser window displaying the Prometeo intranet. The address bar shows the URL <http://prometeo.meteoam.it/index.php>. The browser's menu bar includes File, Modifica, Visualizza, Preferiti, and Strumenti. The address bar also contains navigation buttons for Indietro, Avanti, and home, along with a search bar and a 'Vai' button. The main content area features a navigation menu at the top with links: Home, Viewer, Decodificati, Cartello, Rotte, UCOM, URET, Ricerca, and Admin Prod. The date '29 Agosto 2003' is displayed in the top right corner. Below the navigation menu, a status bar indicates 'Utente Autorizzato << >> da 10.17.44.10'. A message states 'Sei collegato dal pc con indirizzo IP: 10.17.44.10'. The main interface contains several icons for navigation: ViewerProdotti, Decodificati, Cartello, Rotte, UCOM, Query (ex URET), and Ricerca. There are also links for 'Controllo Previsioni', 'Logout', and 'Previsioni stagionali'. At the bottom of the main content area, it says 'There are currently, 1 guest(s) and 6 member(s) that are online.' and 'You are logged as **capaldo**.' The footer of the page features a large blue 'Prometeo' logo. The Windows taskbar at the bottom shows the Start button, several open applications including PhotoImpressi..., Rete e connesio..., and Meteo Stage - Mi..., along with system tray icons and the time '9.24'.



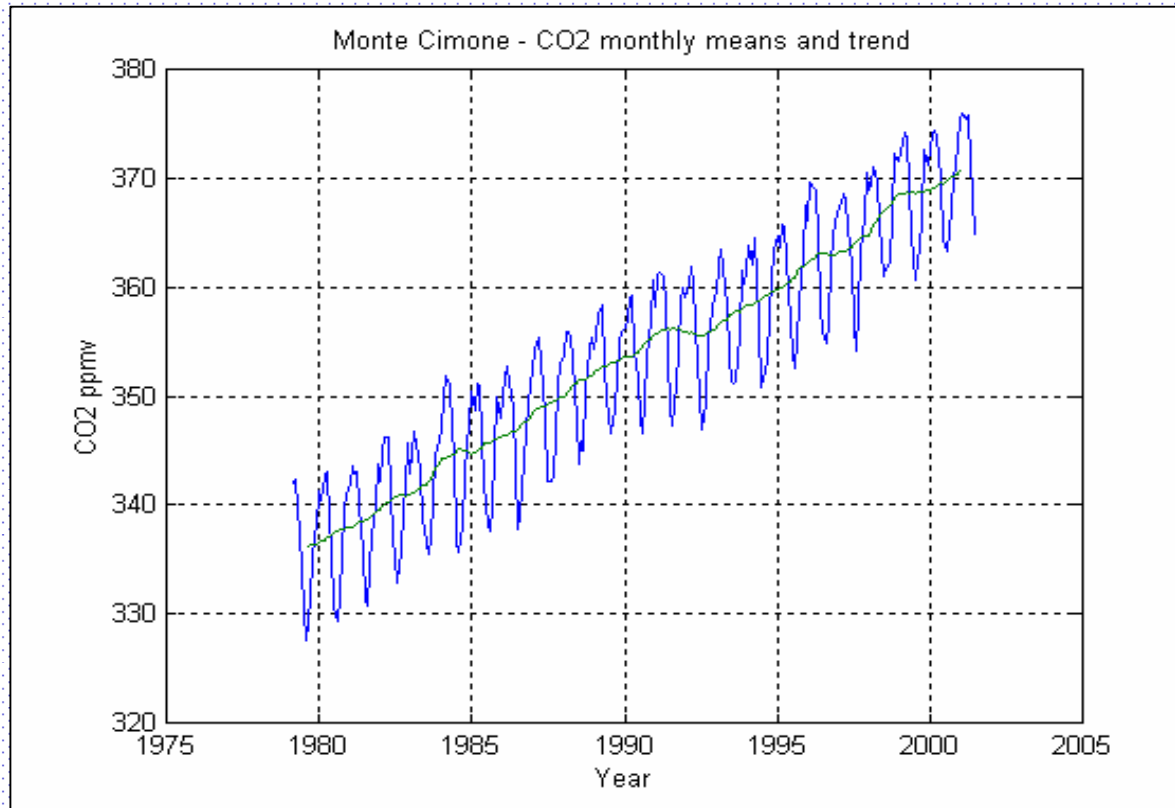




# MONITORING CLIMATE SITE LOCATION

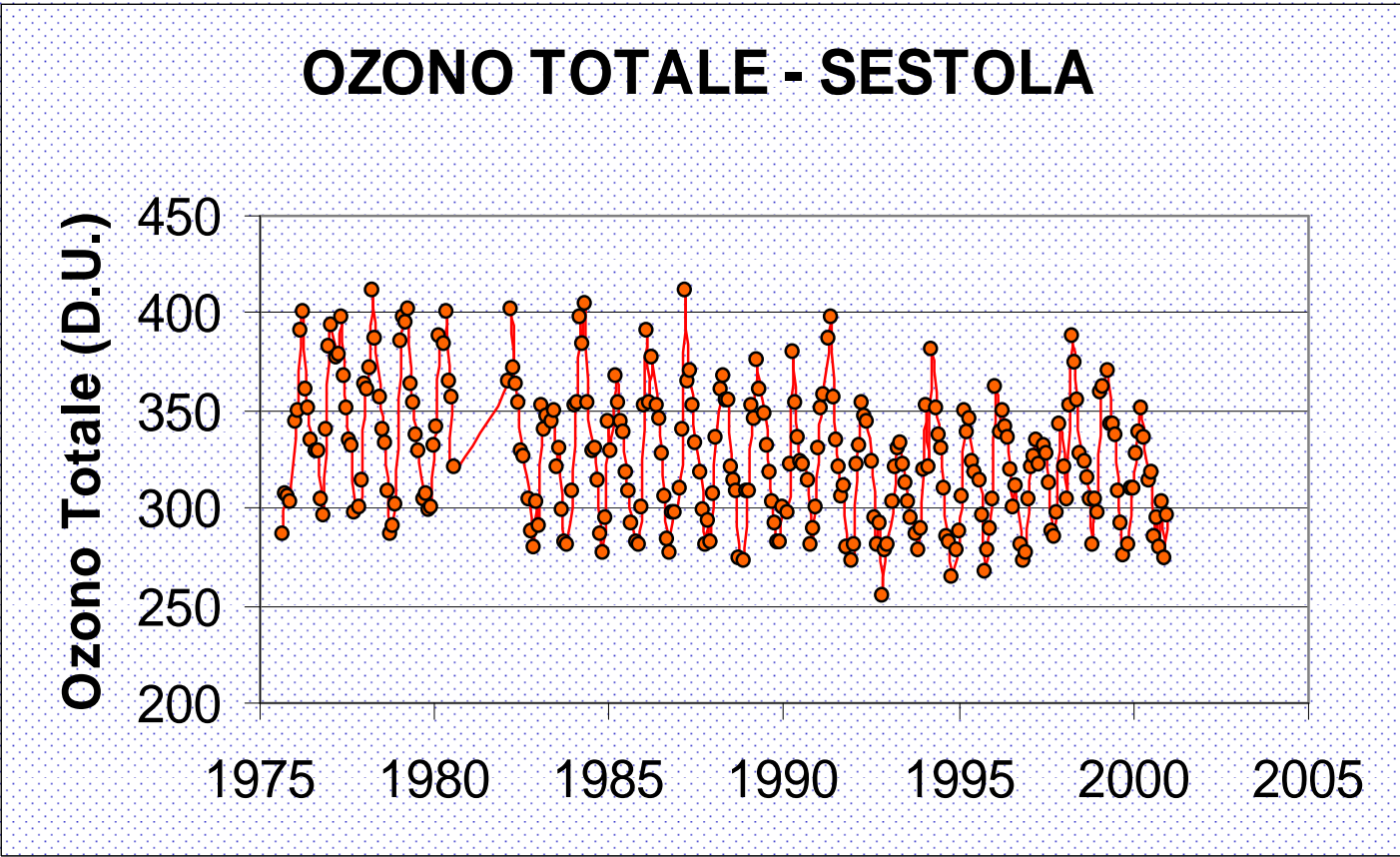


# CO2 TREND

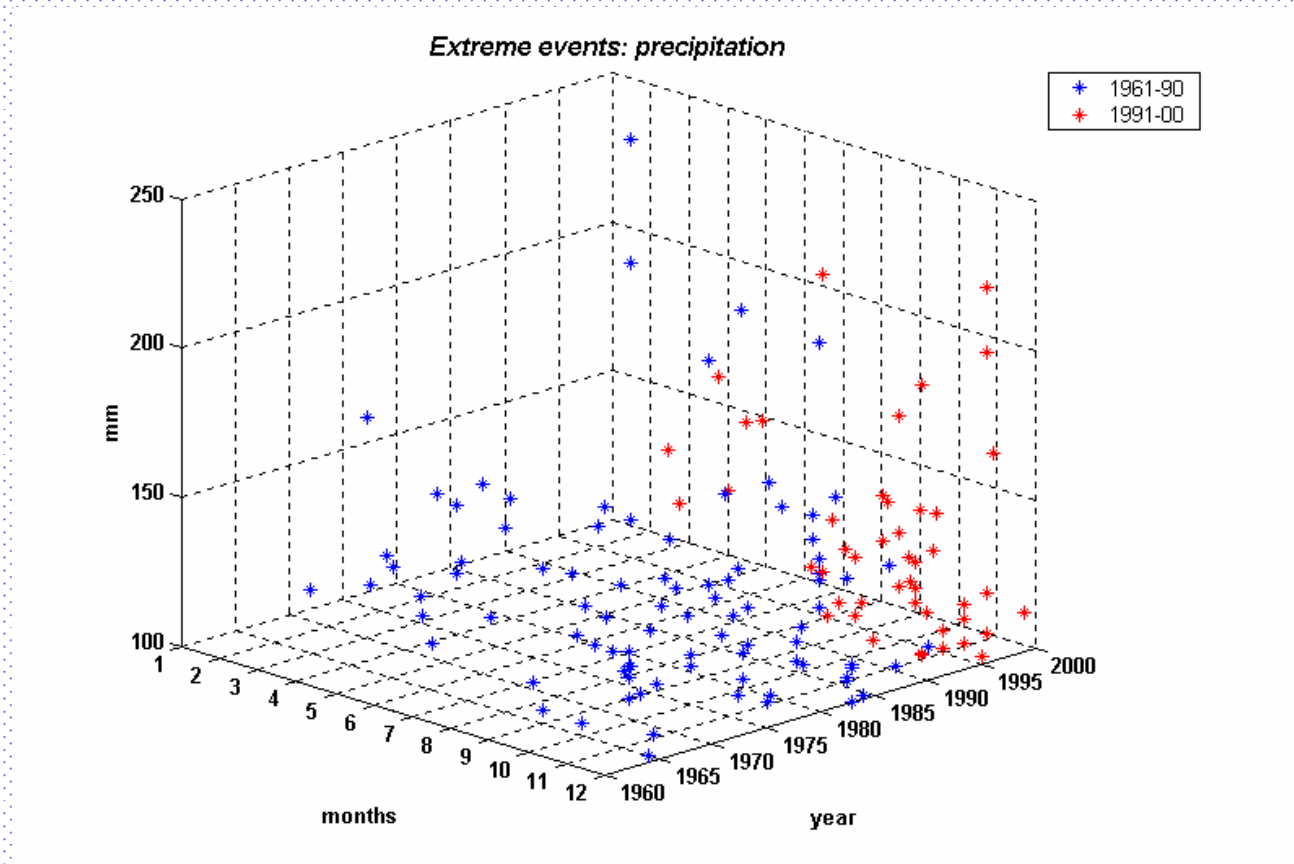


- MISURE IN CONTINUO DAL 1979.
- E' LA SERIE STORICA PIU' LUNGA D'EUROPA.
- LA CO<sub>2</sub> AUMENTA AD UN RITMO DI CIRCA 1.5 ppmv/ANNO.

# O<sub>3</sub> MONITORING

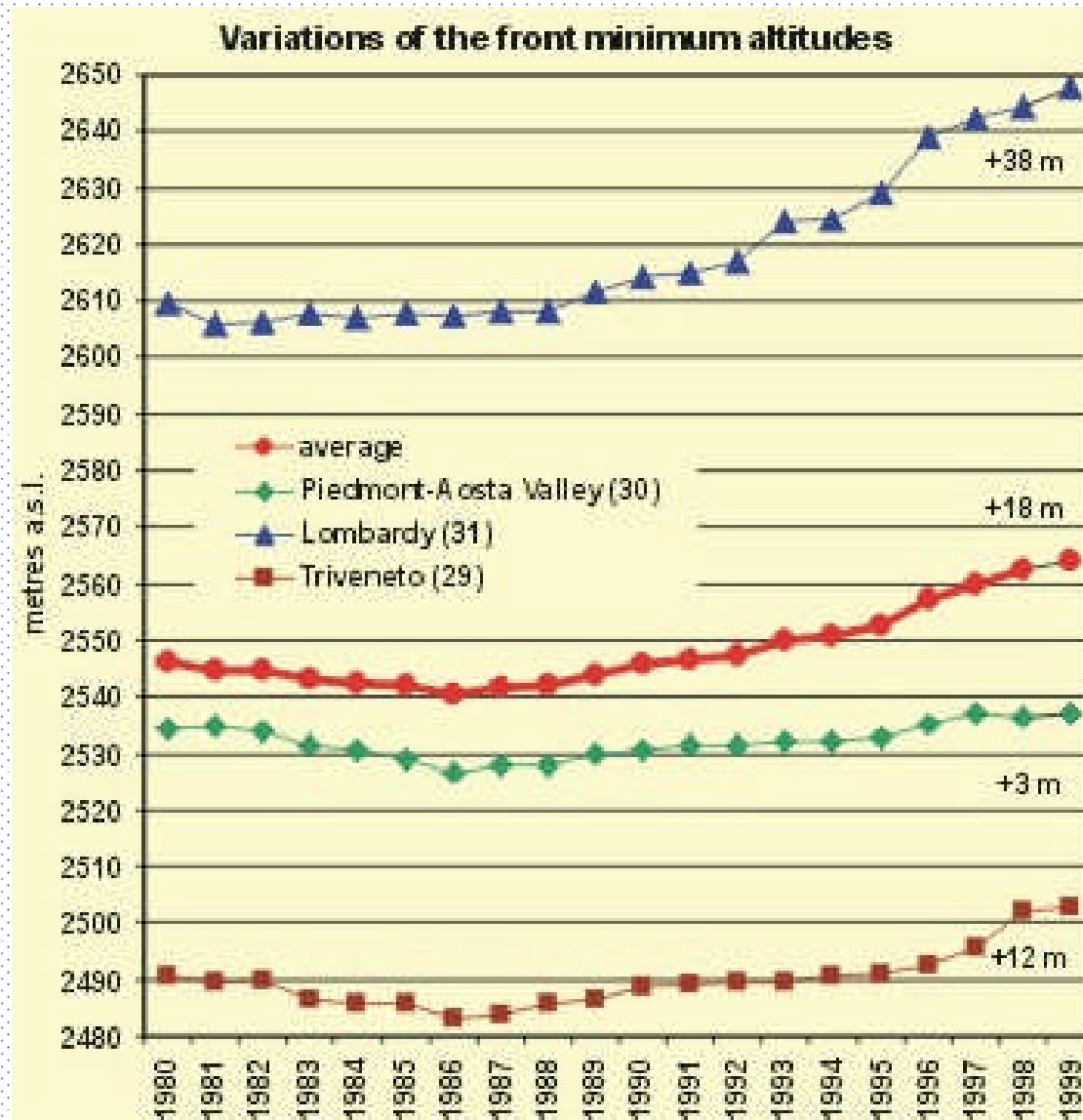


# Heavy Precipitations (anche nevose)

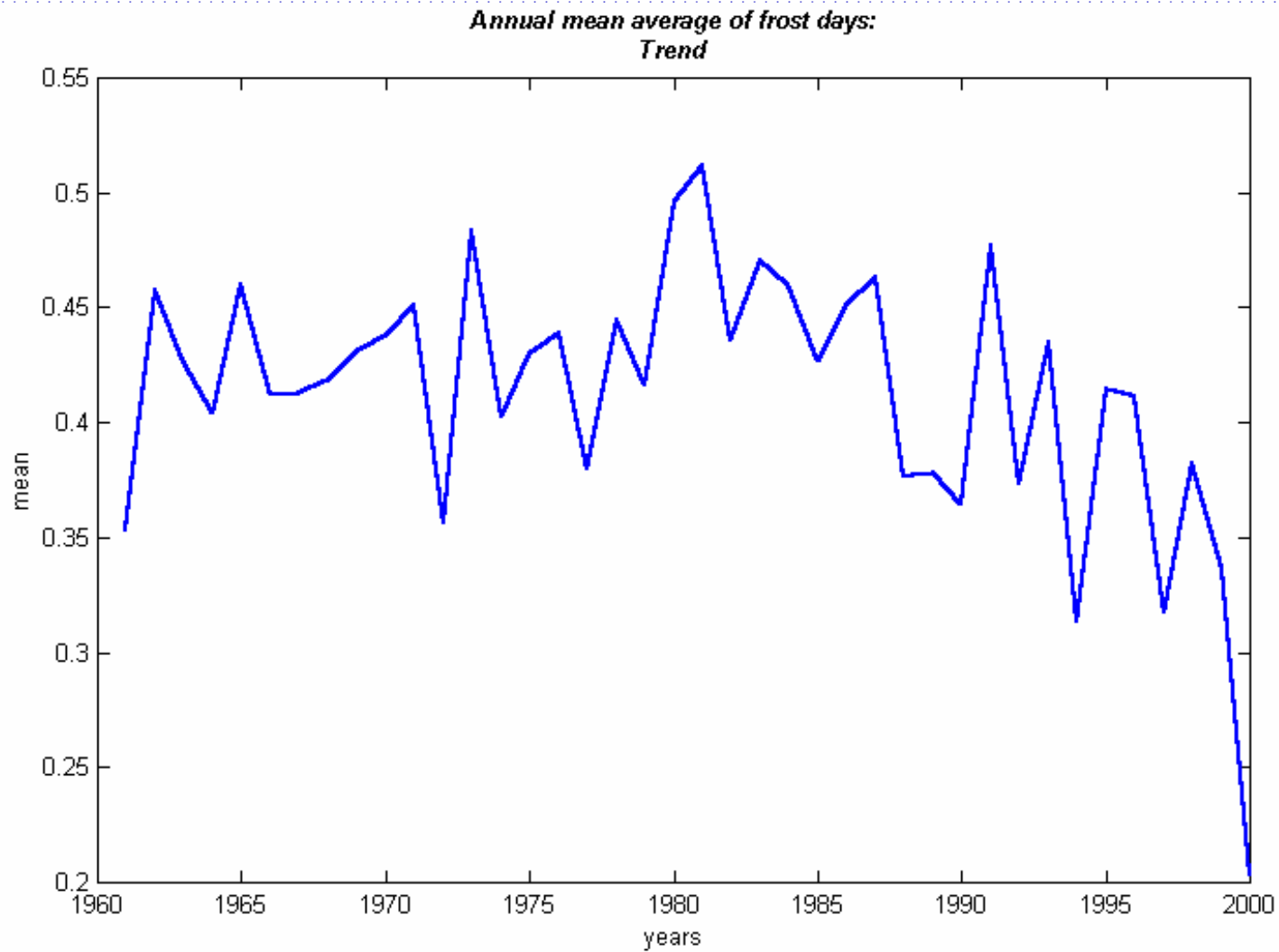




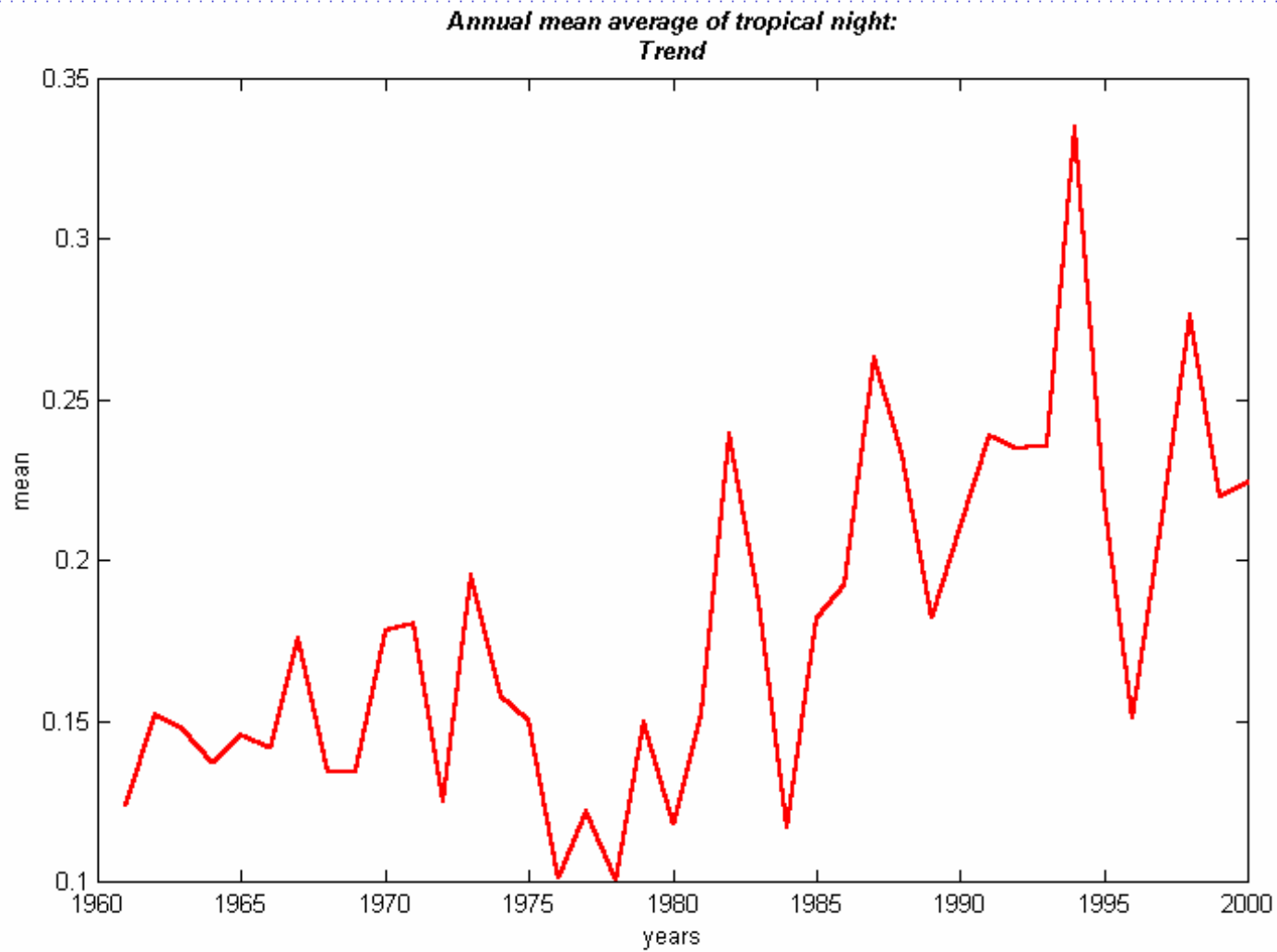
## Variation in minimum glaciers altitudes



## “Frost days”: annual trend (IT)



## “Tropical night”: annual trend (IT)



## SEASONAL FORECASTS AT CNMCA

Only recently Long-Range Forecasts (LRF) has been handled as a routinely activity.

Until a built-in LRF system is full operational, the ECMWF Seasonal Forecasts products are monthly delivered in the internal network together with a short comment about the behavior of some selected weather element, namely:

- Surface pressure

- 2m temperature

- Cumulative precipitations.

## **END-USERS in ITALY**

### **Agriculture**

**Evaluation of production and cost influence**

**Products which have to be privileged**

### **Building**

**Evaluation (in hours/man) of the average number of days/season lost for “very rainy season”;**

### **Tourism (in summer and winter)**

**Evaluation of possible lost for “adverse season”**

### **Production for food**

**Evaluation of request for typically seasonal products (ice-cream, drink)**

**Products preservation**

### **Energetic Requirements**

**Evaluation of electrical energy surplus in summer for air-conditioner;**

**Evaluation of electrical energy and methane for winter heating**

### **Weather derivatives**

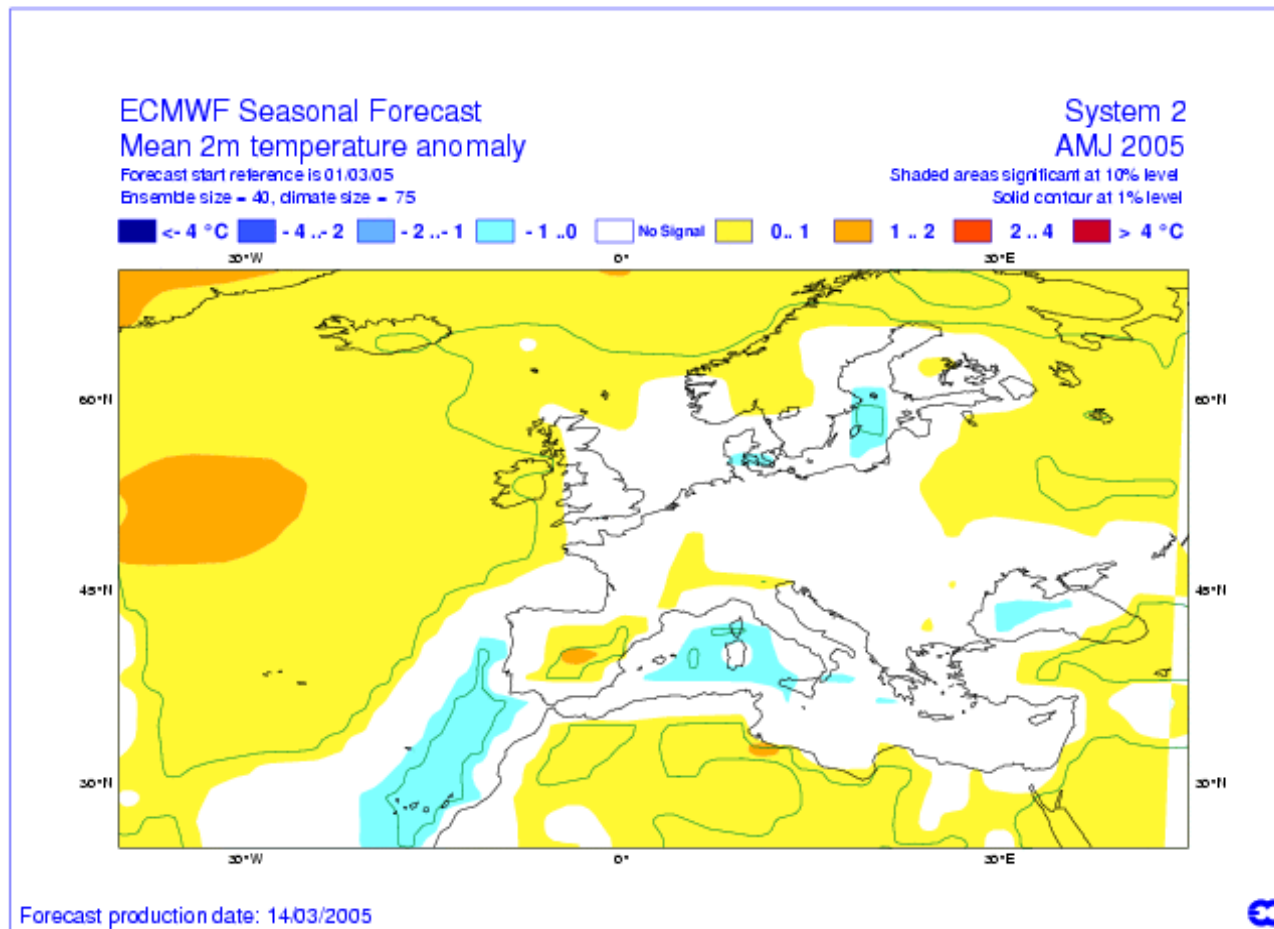
## **DEVELOPMENTS**

**Analysis of Seasonal Forecasts elaborated by other Met. Centers**

**Design a first format for operative communication of Reports to End-Users**

**Advertise CNMCA products and establish a contact with potential End-Users**

# ECMWF Seasonal Forecast page on Prometeo IMS Intranet Website



## Brief Description

- Weak signal of negative anomaly over Sardinia, its surrounding sea and northern part of Sicily.
- Weak positive anomaly over Alps.

## The Headquarters



## The National Operational Centre



Main Activities & Tasks