



LIFE08 ENV/IT/436

PROJECT ACT

ADAPTING TO CLIMATE CHANGE IN TIME

Carried out and planned activities on baseline climate scenario for the ACT project

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Rome July 2010

ISPRA Institute for Environmental Protection and Research



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Istituto Superiore per la Protezione
e la Ricerca Ambientale

ISPRA – Climate and Applied Meteorology Unit

ACTIVITIES

- Climate data collection, statistics and indicators calculation, dissemination and regular update (SCIA system)
- Time series homogenisation, climate trends estimate through statistical models
- Reporting of national climate status and trends
- Climate data spatialization
- Downscaling of climate scenarios through empirical-statistical models



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Meteorological networks and data providers in Italy

(WMO standards)

SYNOPTIC (GTS dissemination)

- Air Force Weather Service from '50s – '60s ~ 90 stations
- ENAV Comp. for Air Navigation Services from '80s ~ 40 stations

National Agrometeorological (Min. of Agriculture)

- Automatic agromet. stations hourly from 1991 ~ 40 stations
- Agromet. observatories daily from 1860 ~ 30 stations

REGIONAL

- Reg. meteorological services hourly from '90s a few tenths/region
- Hydrological/Civil Prot. netw. Dail/hou from '50s a few tenths/region
- Reg. agrometeorological serv. hourly form '90s a few tenths/region



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Role and objective of ISPRA: Present and trend **CLIMATE INDICATORS**

- ➔ Development of the **SCIA** system, in collaboration with several data owners:
- **No raw data** centralization;
 - **ten-daily, monthly and yearly quality-checked statistical data** of climate variables (temperature, precipitation, wind, relative humidity, cloud cover, etc.) calculation and database upload via a common, standardized procedure
 - Yearly update

All climate statistical indicators, normals and anomalies are available through the SCIA web site



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SCIA - Windows Internet Explorer

http://www.scia.sinanet.apat.it/

File Modifica Visualizza Preferiti Strumenti ?

Links La Repubblica FINECO Yahoo! - Finanza INTRANET APAT Libero - Mail Google SAT24.com Previsioni meteo IL METEO.IT SCIA - Login page Lazio.net Il mio eBay Laziosiamoni

FINECO Libero Mail SCIA

SINANet

Rete del Sistema Informativo Nazionale Ambientale

Home ::

SCIA

- Cos'è SCIA
- Help
- Stazioni
- Serie temporali
- Frequenze
- Mappe

Valori normali:

- Tabelle
- Mappe

Anomalie:

- Mappe
- Trend

AREA RISERVATA

- Documentazione
- Link utili
- Stato del mare
- Contatti

Gli indicatori del clima in Italia nel 2008

Avvertenze

Italy United Kingdom

SCIA

Sistema nazionale per la raccolta, l'elaborazione e la diffusione di dati Climatologici di Interesse Ambientale

Con la collaborazione e i dati meteoroclimatici di:

- AM Servizio Meteorologico dell' Aeronautica Militare
- CRA-CMA (ex UCEA) Un. di Ricerca per la Clim. e la Met. applicate all'Agricoltura
- ARPA Emilia Romagna
- ARPA Friuli Venezia Giulia
- ARPA Valle d'Aosta
- ARPA Piemonte
- ARPA Veneto
- ARPA Lombardia
- ARPA Liguria
- ARPA Toscana
- ARPA Sardegna
- ARPA Basilicata
- ARPA Calabria
- SIAS Servizio Informativo Agrometeorologico Siciliano
- ASSAM Centro Operativo Agrometeo Regione Marche

Internet 100%

start Posta in arrivo - Micro... SCIA - Windows Inter... presentazioni Microsoft PowerPoint ... 10:12

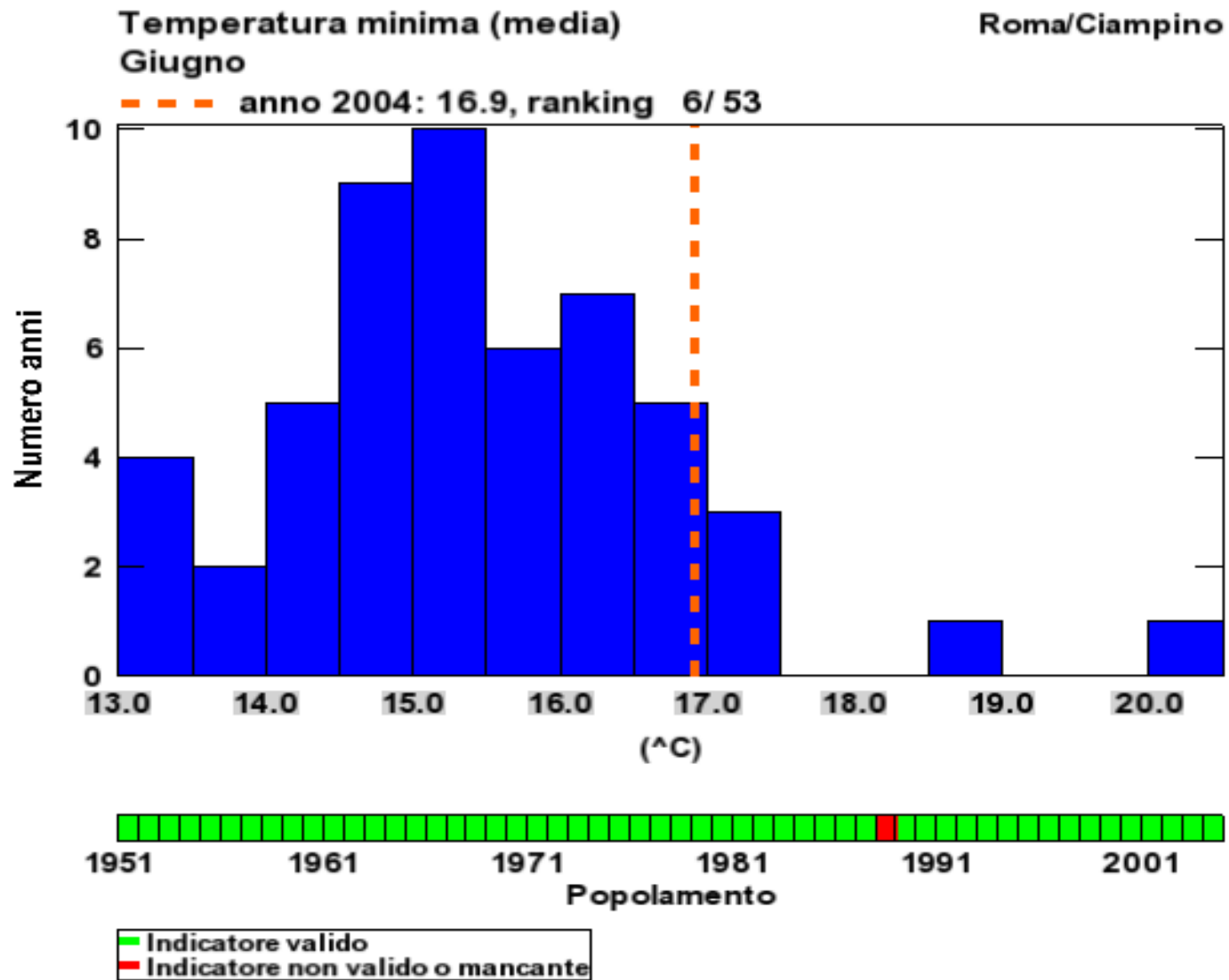
www.scia.sinanet.apat.it



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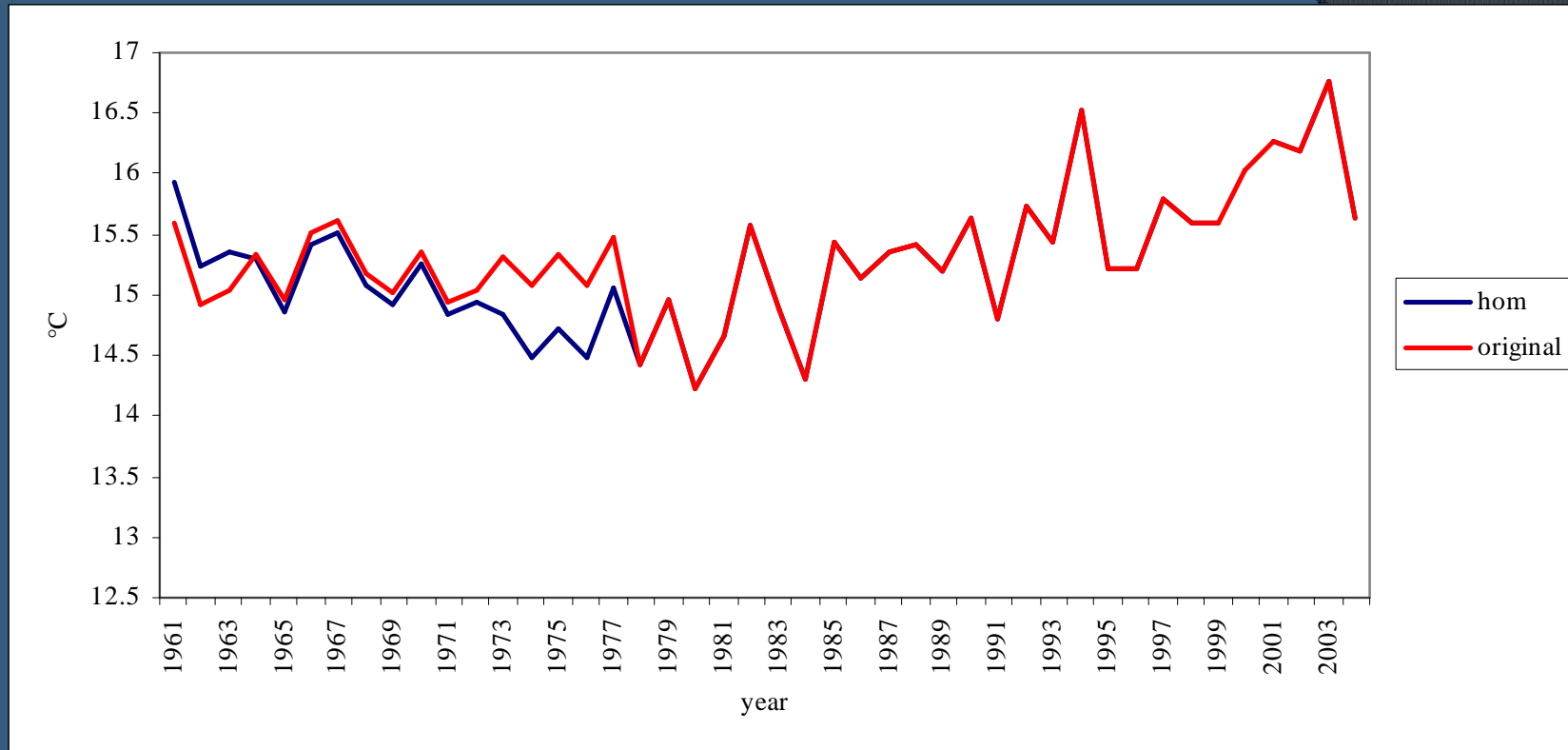
Climate indicators available through SCIA: example



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Times series homogenisation



Example: Roma Ciampino

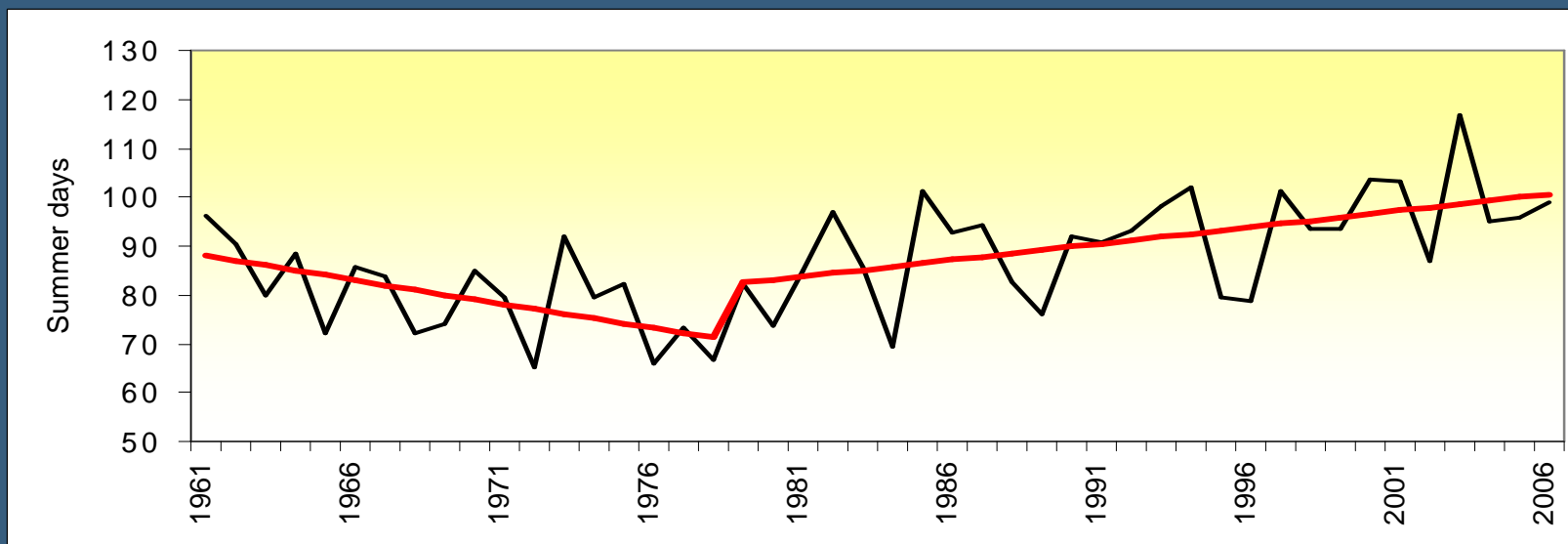
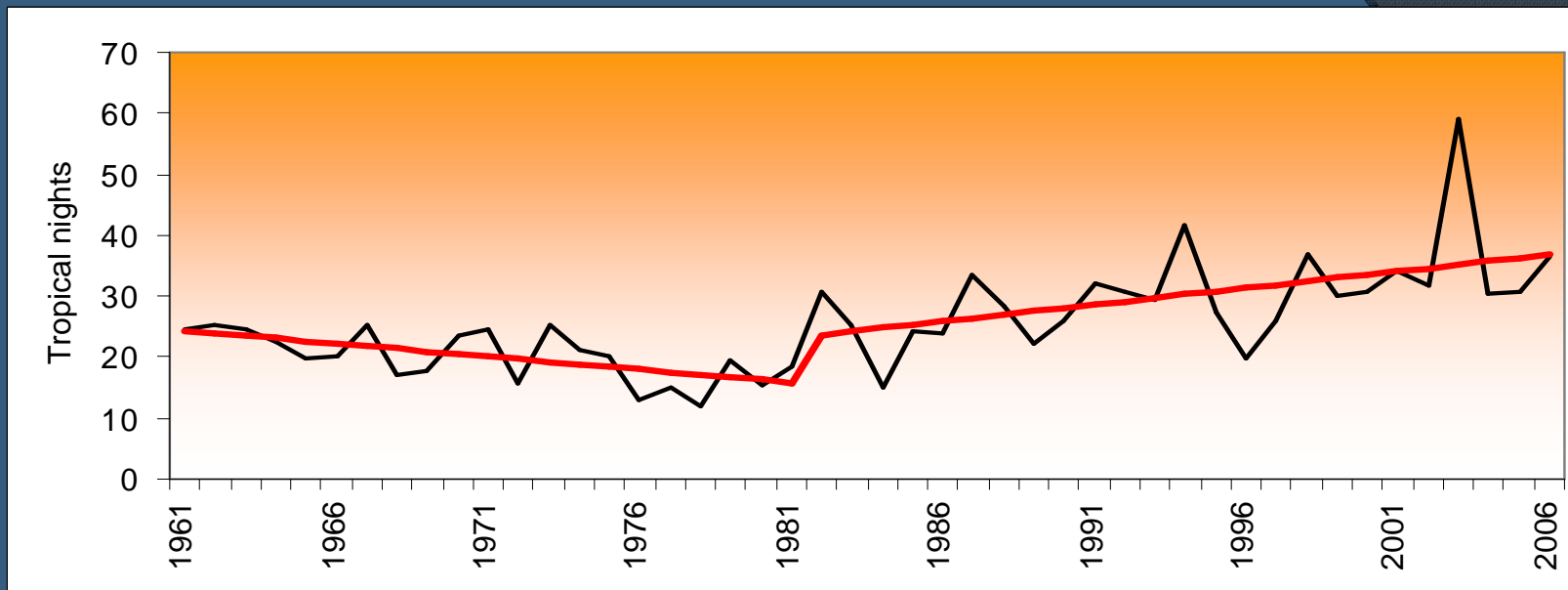
3 discontinuities found: february 1964, march 1973, august 1977



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Trends recognition and estimate through statistical models

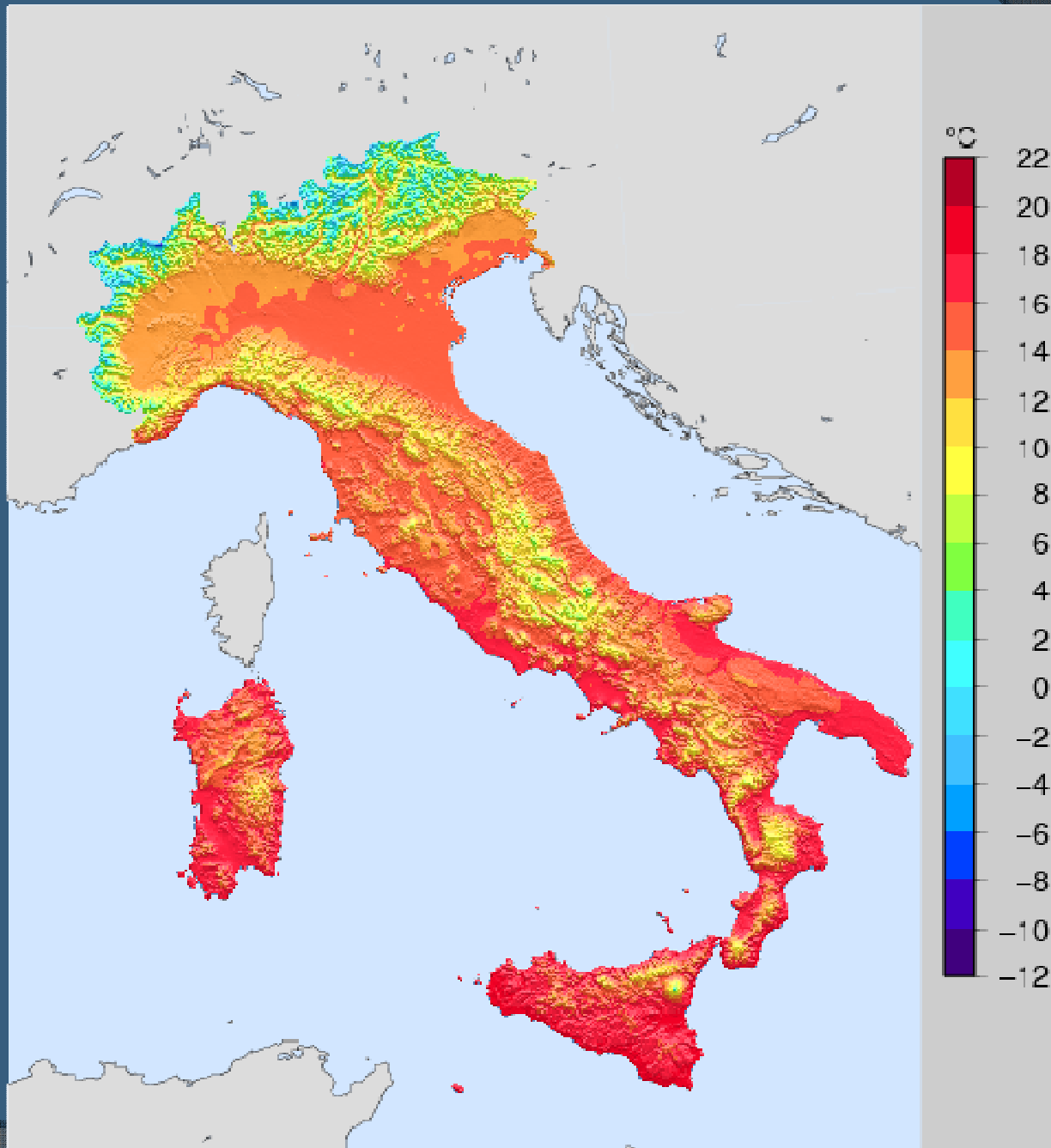


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**Climate
Data
Spatialisation**

**Mean
Temperature
2008**



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APAT

Agenzia per la protezione dell'ambiente
e per i servizi tecnici

in collaborazione con
**Agenzie Regionali
per la Protezione dell'Ambiente**

Gli indicatori del
CLIMA in Italia
nel 2005

Anno I



XX / 2006

STATO DELL'AMBIENTE

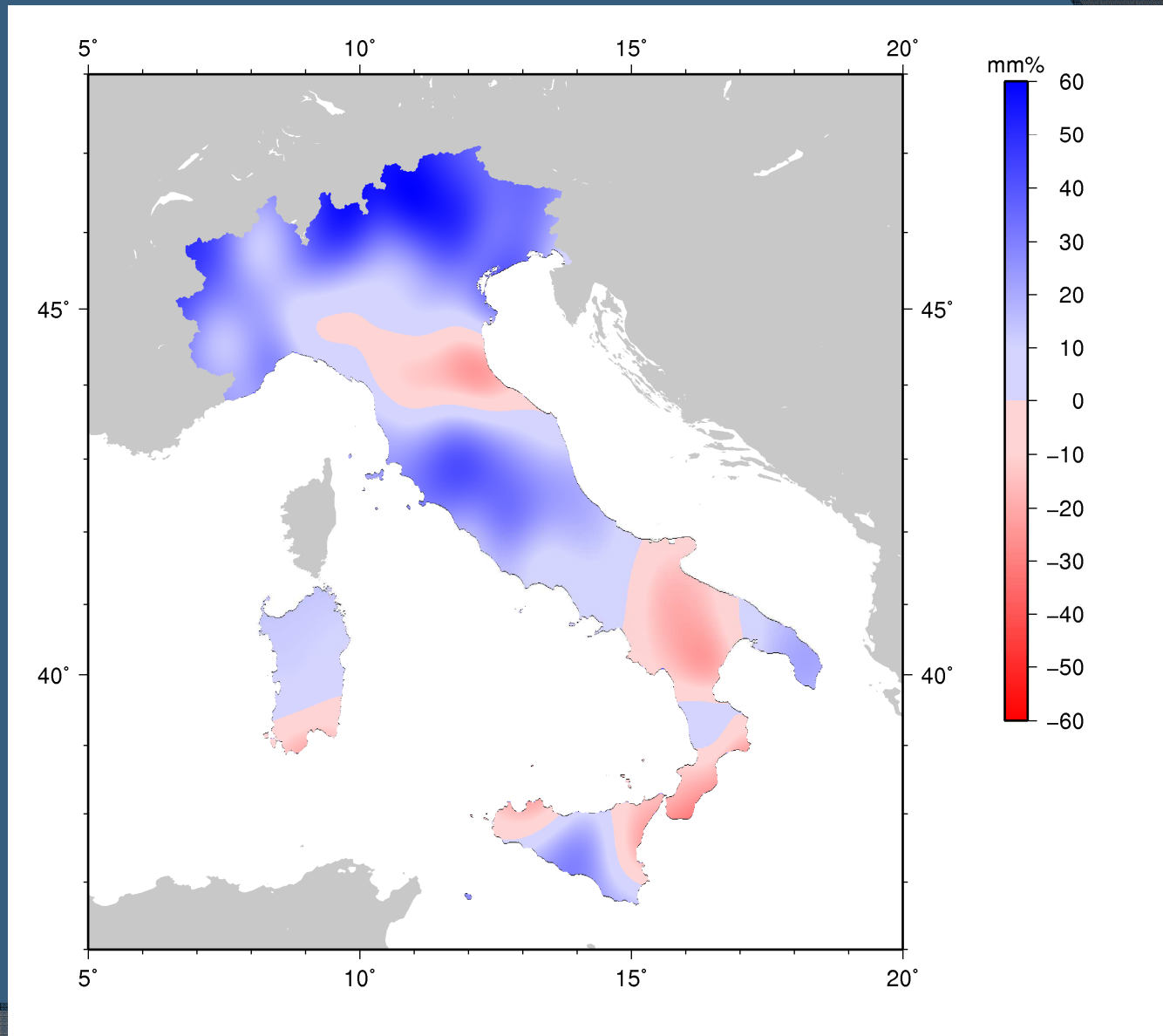
**Annual reporting
on climate
over Italy**



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Climate indicators example: Precipitation anomaly 2008



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Recent papers published on international climate journals

Desiato F., Lena F. e Toreti A., 2007, **SCIA: a system for a better knowledge of the Italian climate**. Bollettino di Geofisica Teorica ed Applicata, Vol. 48, n. 3 351-358.

Toreti A. and Desiato F., 2007a, **Temperature trend over Italy from 1961 to 2004**, Theoretical Applied Climatology, DOI 10.1007/s00704-006-0289-6.

Toreti A. and Desiato F., 2007b, **Changes in temperature extremes over Italy in the last 44 years**, International Journal of Climatology, DOI 10.1002/joc.1576

Toreti A., Desiato F., Fioravanti G. and Perconti W., 2009a, **Seasonal temperatures over Italy and their relationship with low-frequency atmospheric circulation patterns**. Climatic Change, doi 10.1007/s10584-009-9640-0.

Toreti A., Desiato F., Fioravanti G. and Perconti W., 2009b. **Annual and seasonal precipitation over Italy from 1961 to 2006**. International Journal of Climatology, doi 10.1002/joc.1840.

Fioravanti G., Desiato F., Fraschetti P., Perconti W., **Mean temperature maps over Italy with regression kriging**, 2010 submitted to International Journal of Geographical Information Science



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Baseline climate scenario for ACT (Ancona, Bullas, Patras)

Recent past and current Climate trends

(time series analysis,
trends estimate through
statistical models)

Climate projections

(Global and Regional
Climate models,
Empirical-statistical downscaling)

Impact and vulnerability
assessments

Adaptation plans

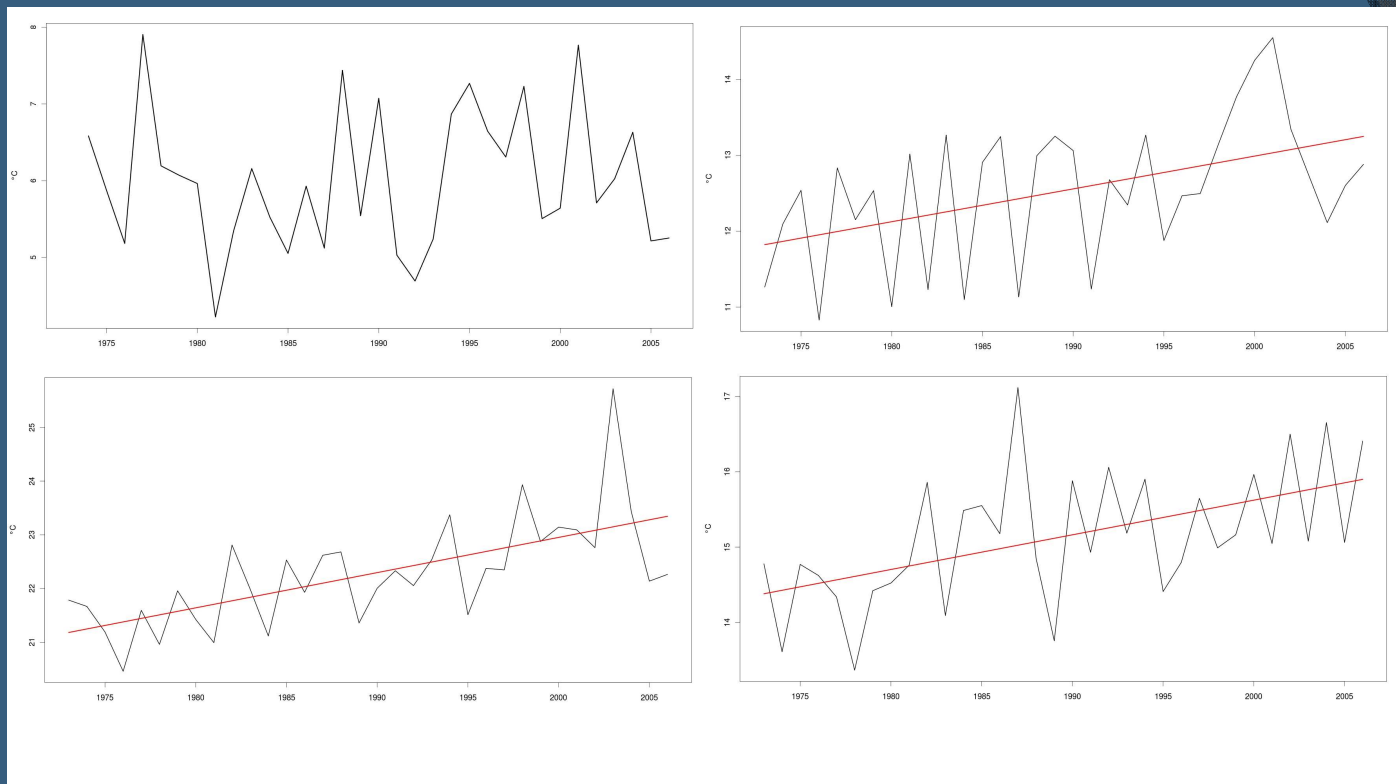


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Recent past and current climate trends (time series analysis, trends estimate through statistical models)

ANCONA



Time series analysis and current climate trends
estimates

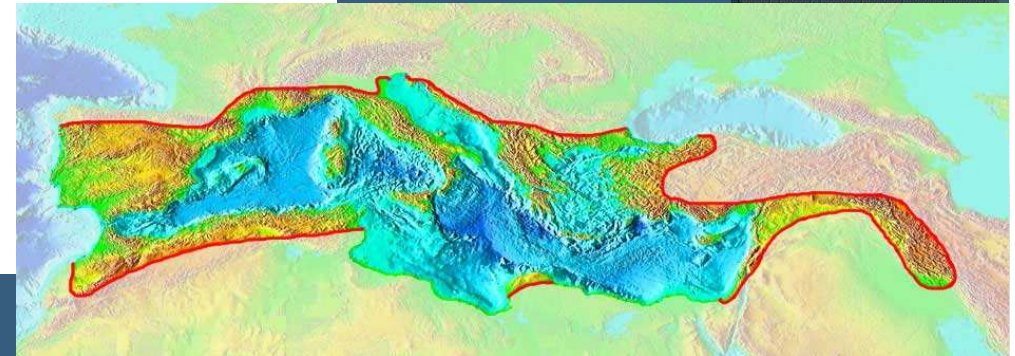
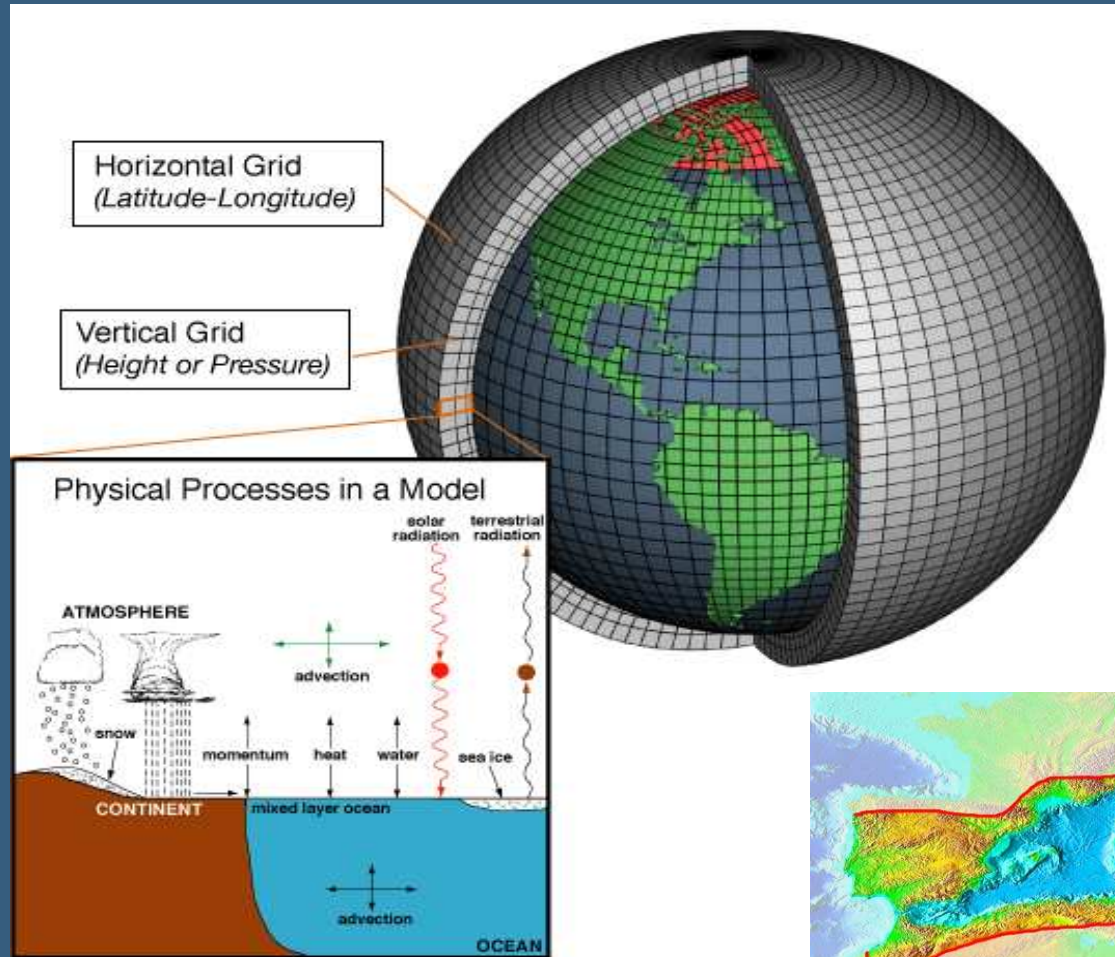
Guido Fioravanti



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Climate projections



Global and regional climate models scenarios for the Mediterranean area

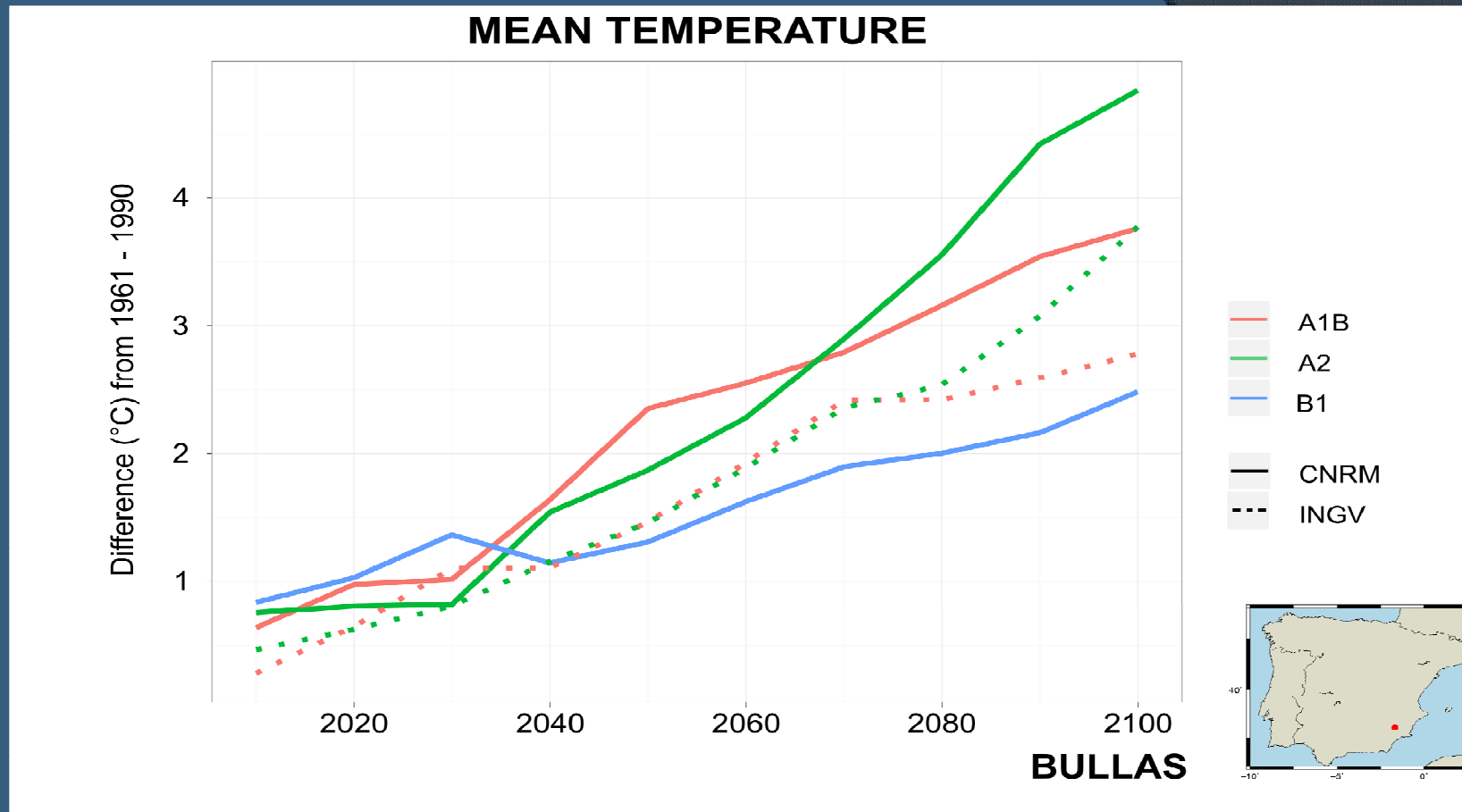
Andrea Toreti



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Climate projections



Projections of climate models on ACT target areas

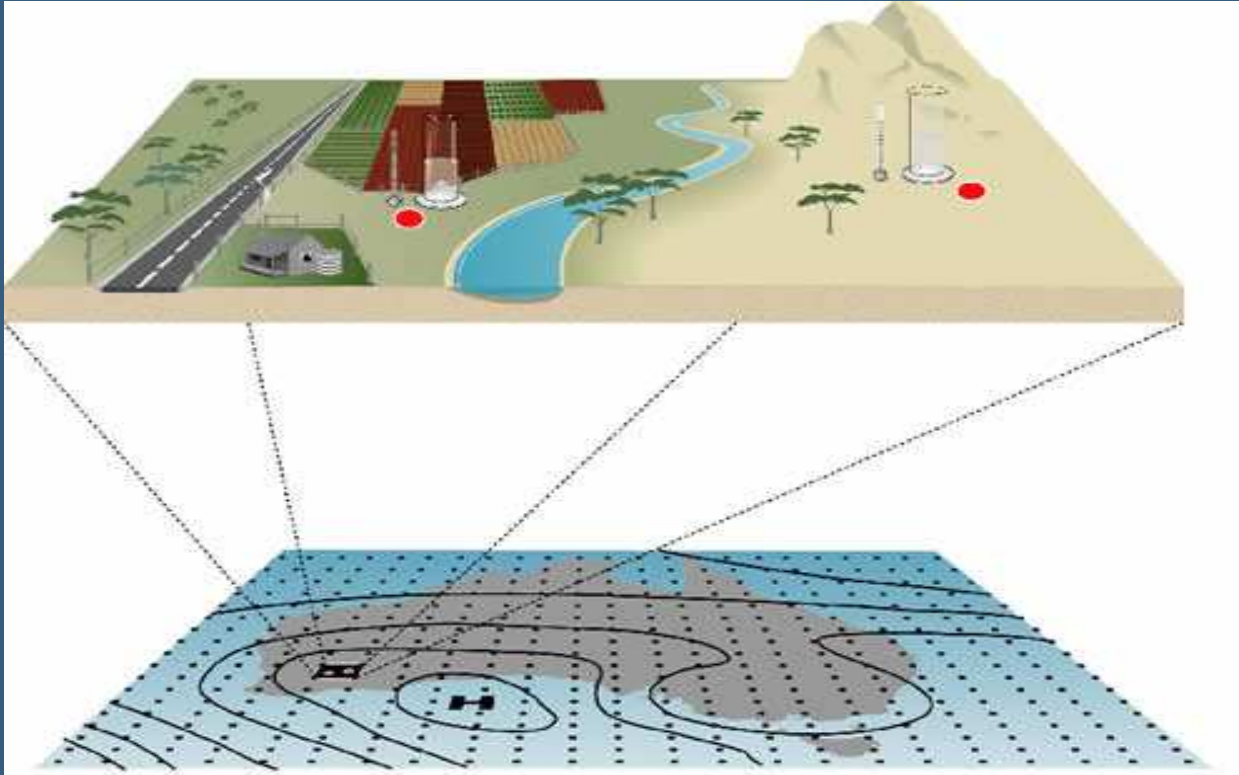
Walter Perconti and Piero Frascchetti



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Empirical-statistical downscaling



Downscaling through empirical-statistical modelling:
methodologies and planned activities

Andrea Toreti



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