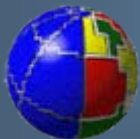
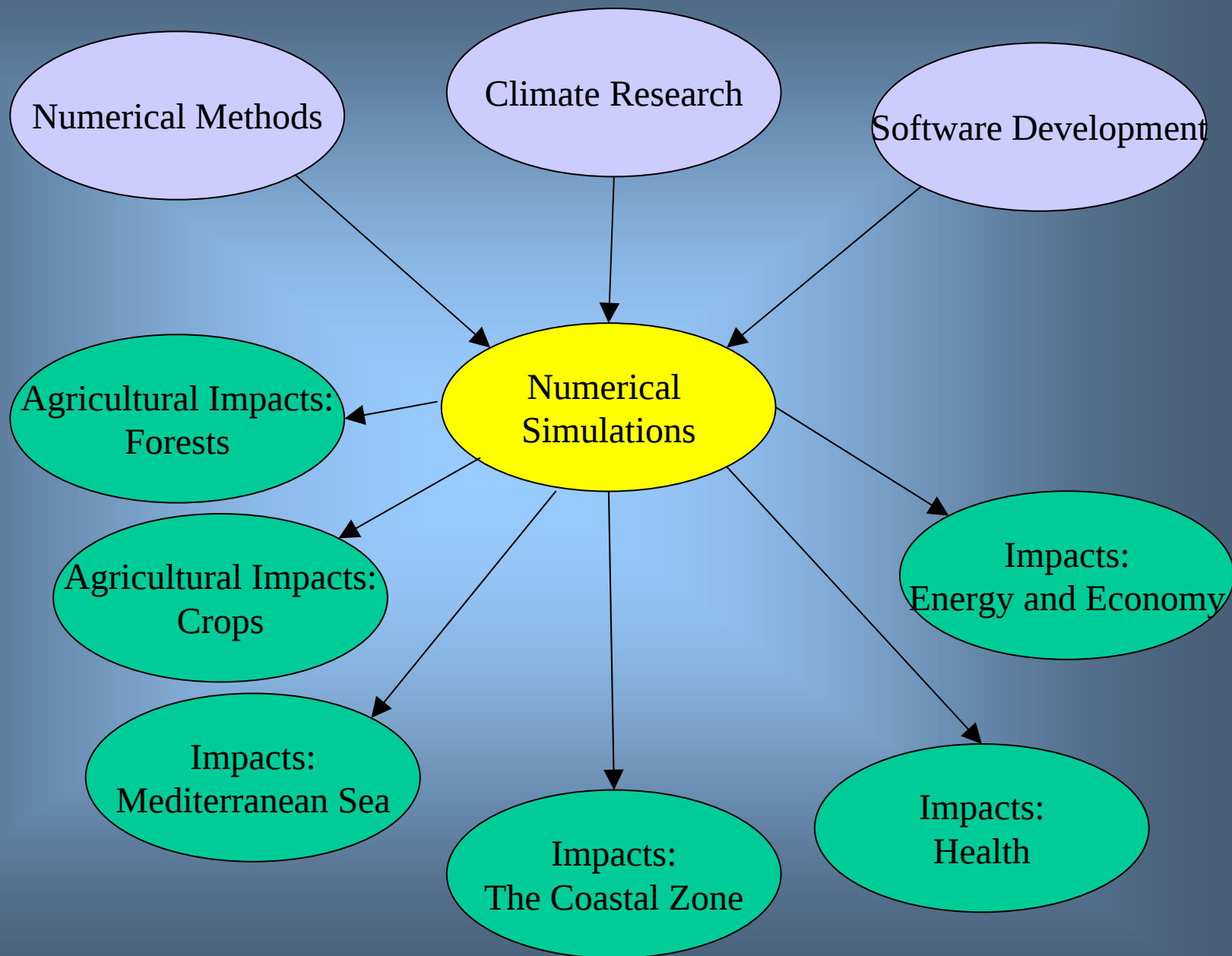


*EuroMediterranean
Center for
Climate Changes*

**Centro
Euromediterraneo
per i
Cambiamenti
Climatici**

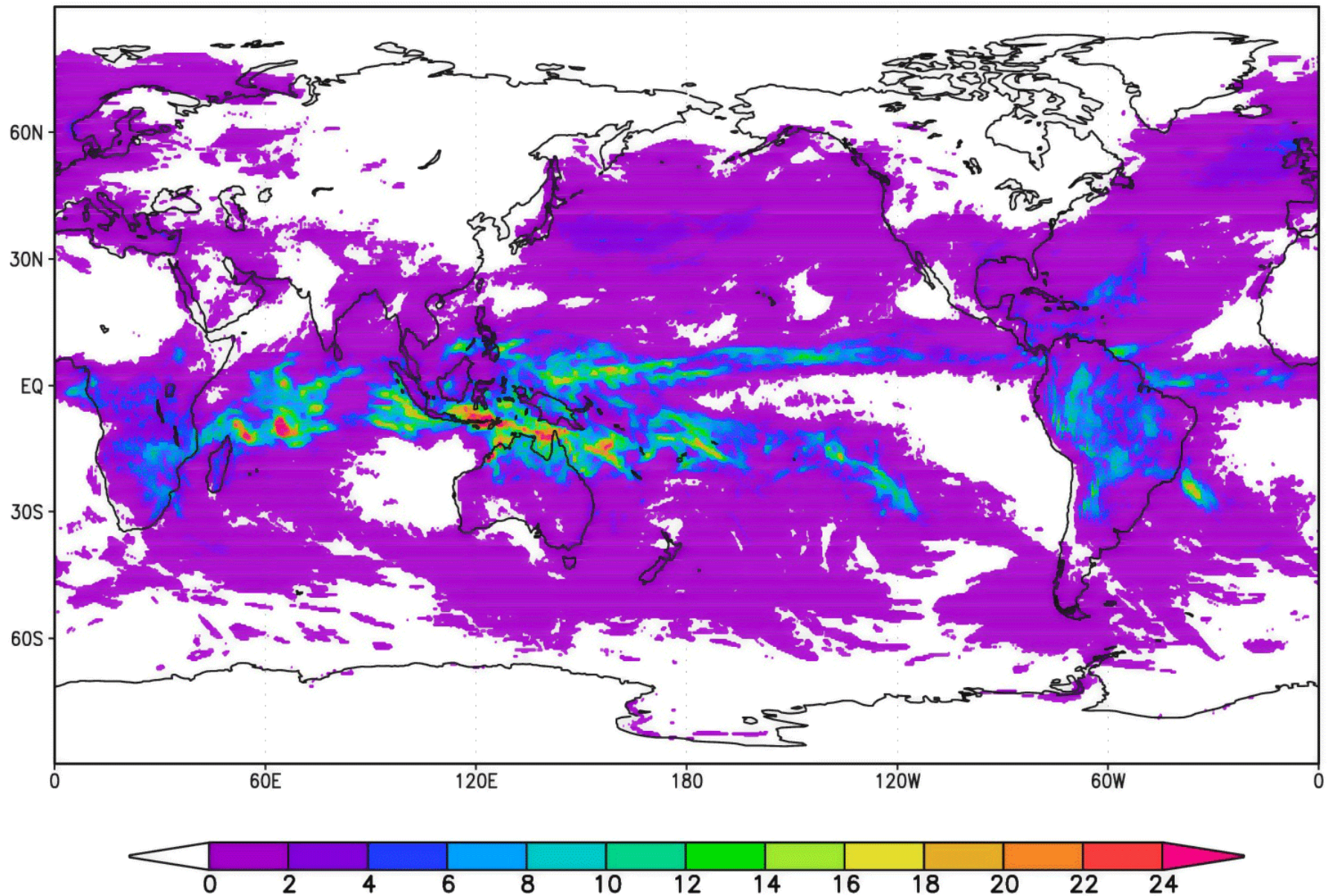


The Concept of the CMCC



Mean JAN Precipitation Global 30km Resolution

Mean Jan convective precipitation (mm/day) T318



IPCC Simulations



Preindustrial Control



Constant Growth and stabilization at $2\times\text{CO}_2$, $4\times\text{CO}_2$



XX century



A1B, A2

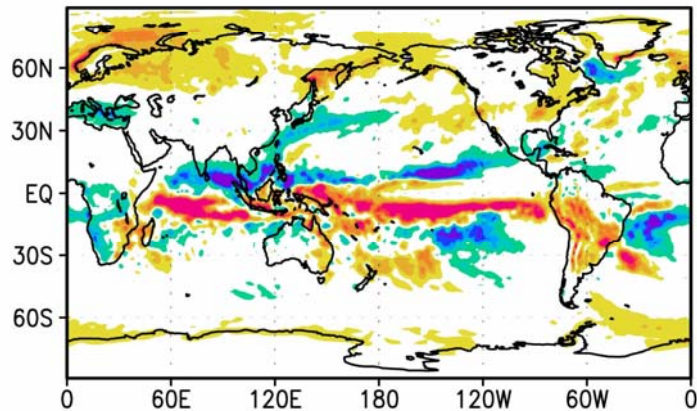
SINTEX T106/2deg/Ice



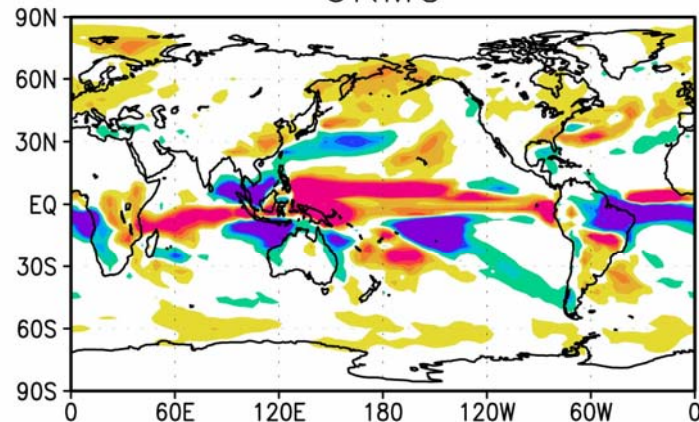
Precipitation Differences JFM

Total Precipitation (2061-2090 minus 1961-1990)

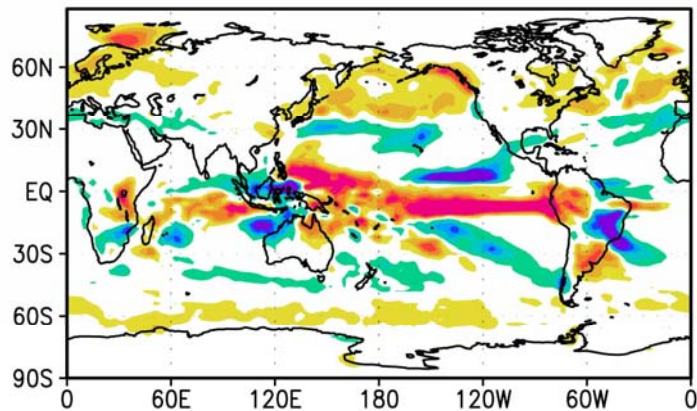
INGV



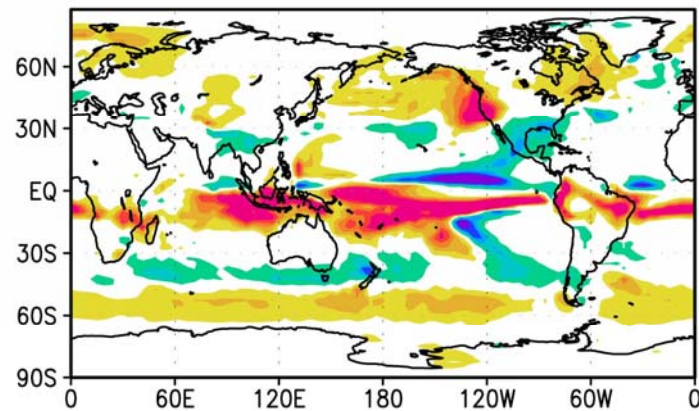
UKMO



GFDL



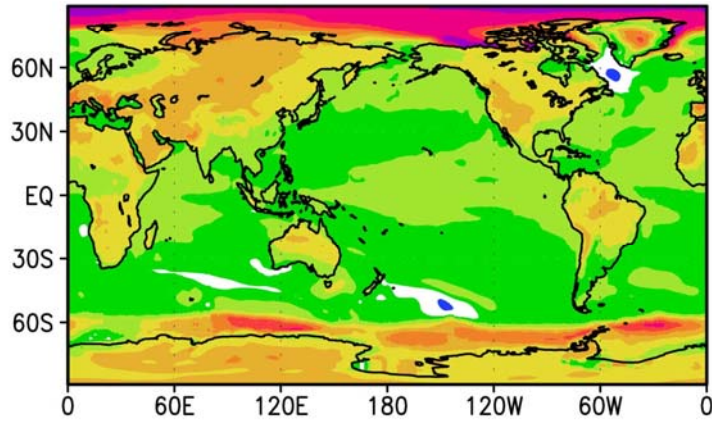
IPSL



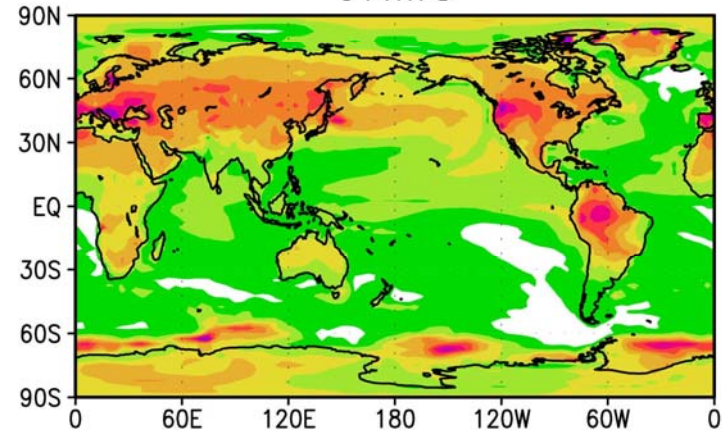
Surface Temperature Differences JAS

(2061-2090 minus 1961-1990)

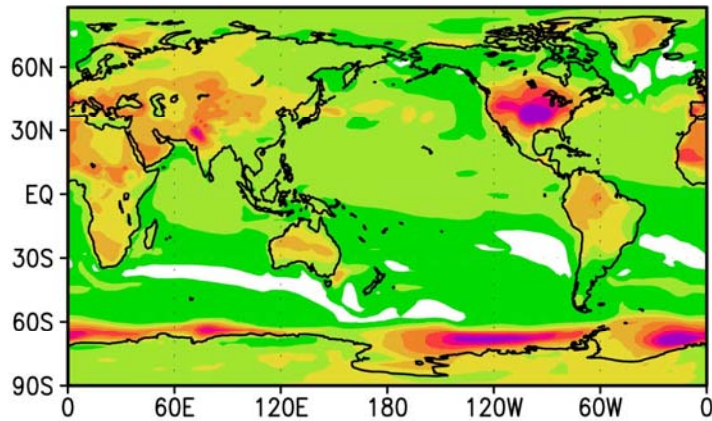
INGV



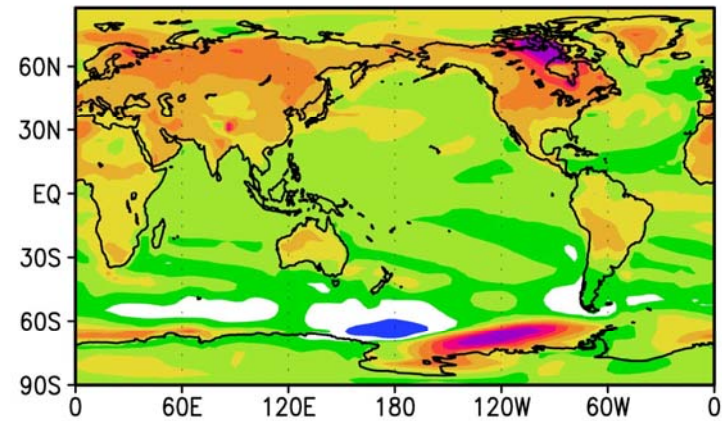
UKMO



GFDL



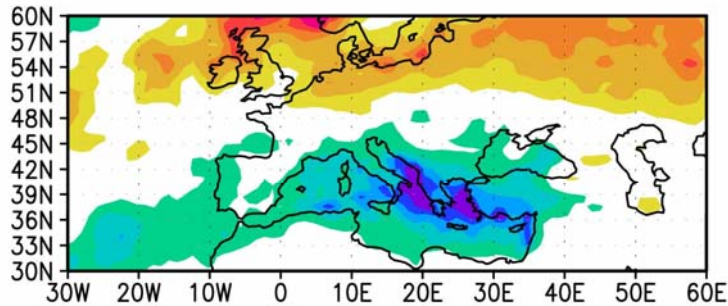
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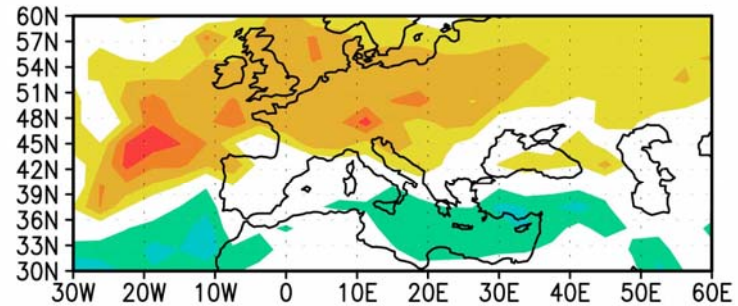
Precipitation Differences JFM

(2061-2090 minus 1961-1990)

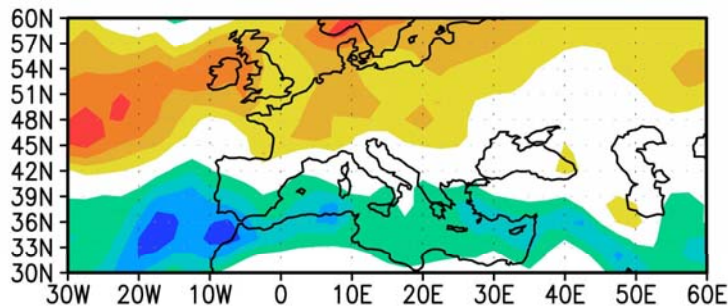
INGV



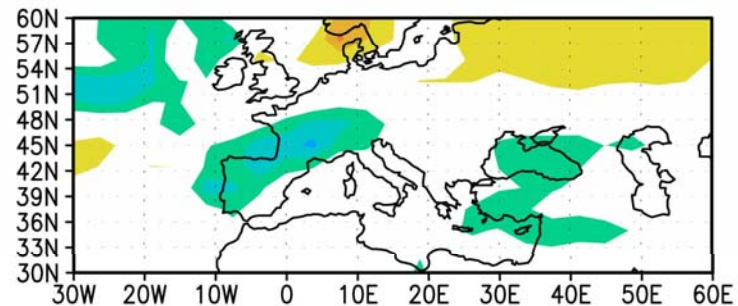
UKMO



GFDL

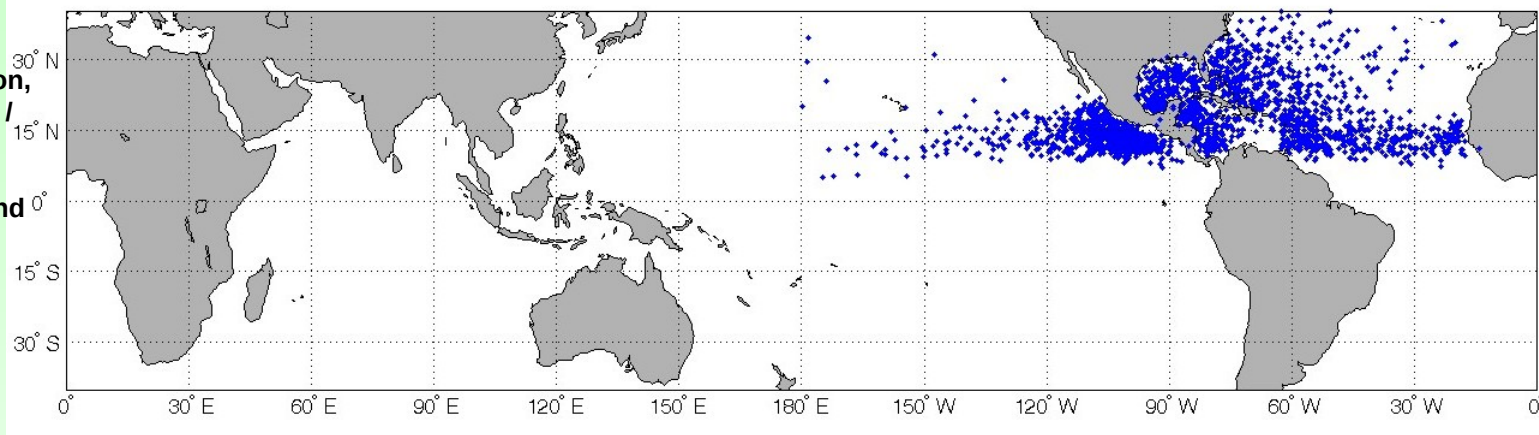


IPSL

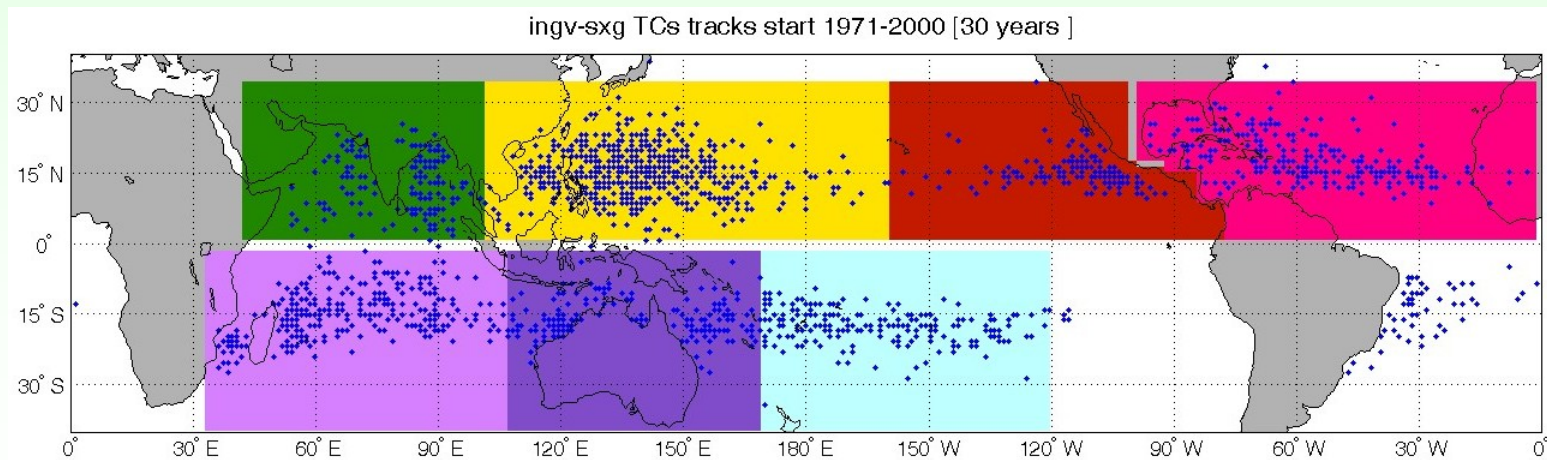


TCs Tracks starting point

National Oceanic and
Atmospheric Administration,
Tropical Prediction Center /
National Hurricane Center
Publication_Date: 200504
Historical North Atlantic and
East-Central North Pacific
Tropical Cyclone Tracks,
1851-2004

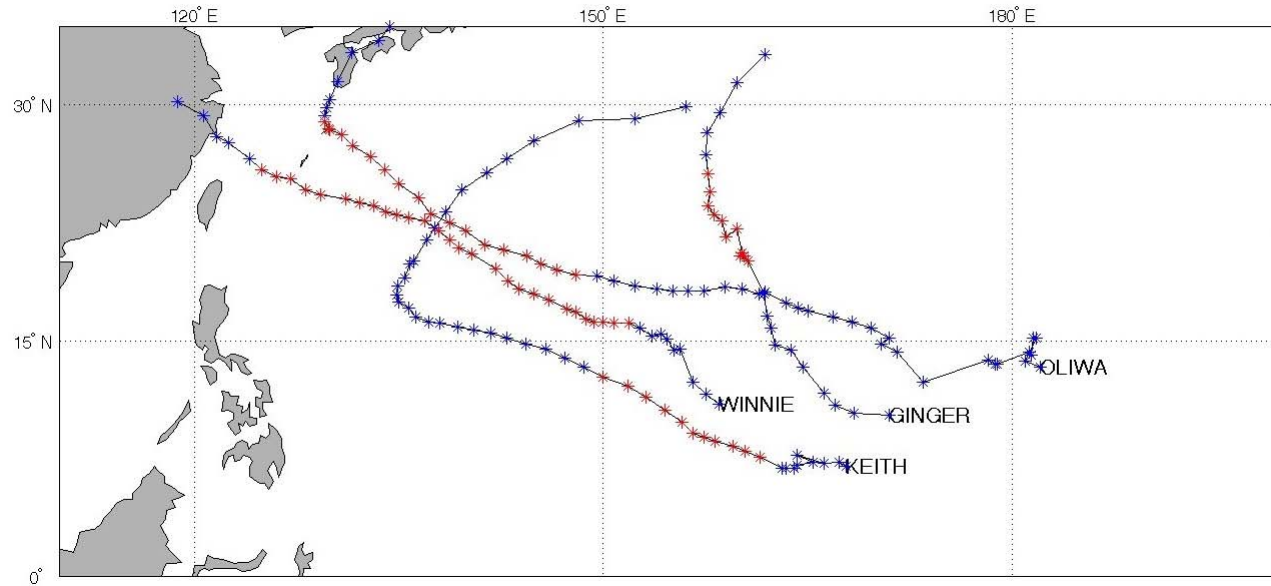


ingv-sxg
IPCC XXsec
Simulation
1971-2000

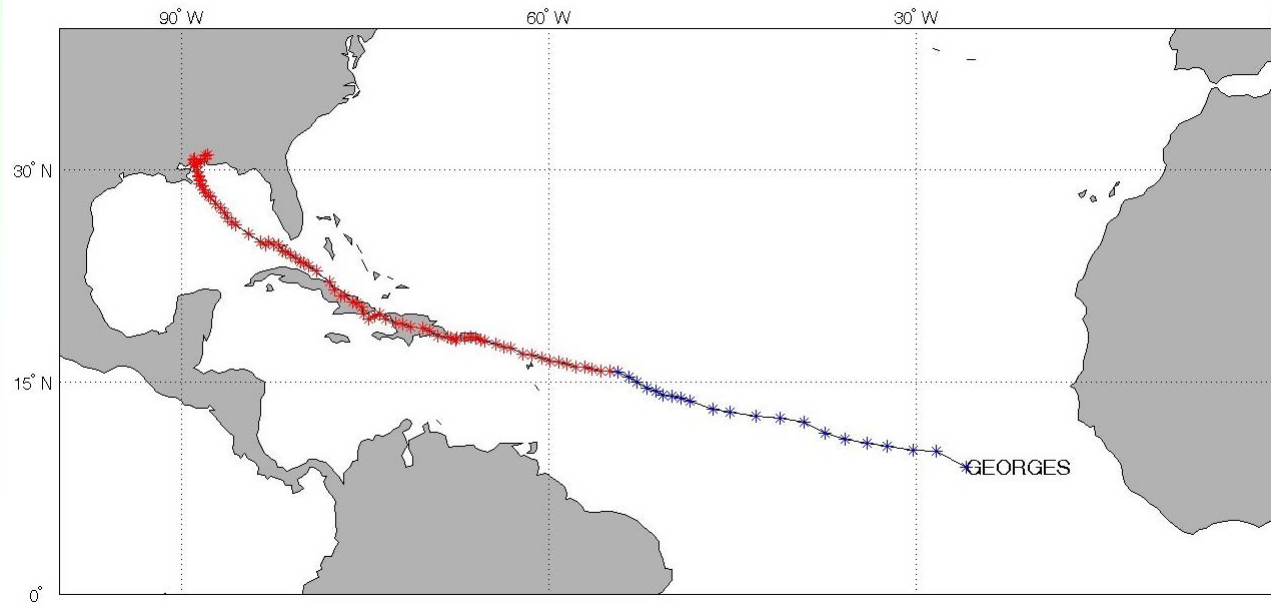


TCs Tracks detection

NW PACIFIC ERA40 1997 TYPHOON-5 detection examples

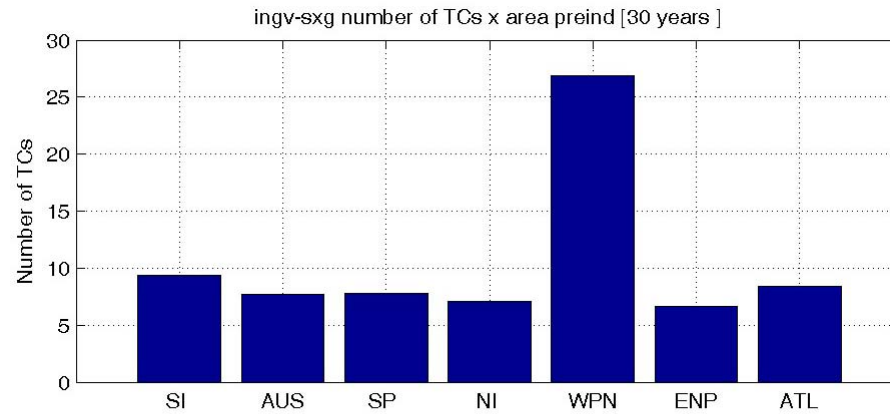


ATLANTIC ERA40 1998 HURRICANE-4 detection examples

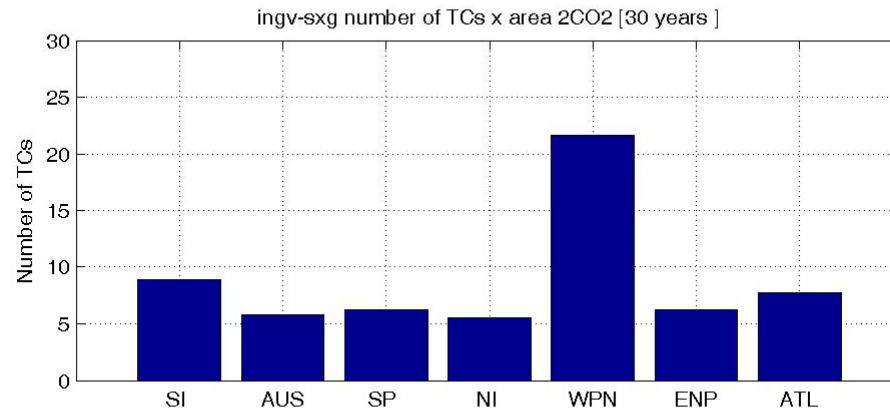


TCs Number in ingv-sxg 1-2-4xCO2 exp.

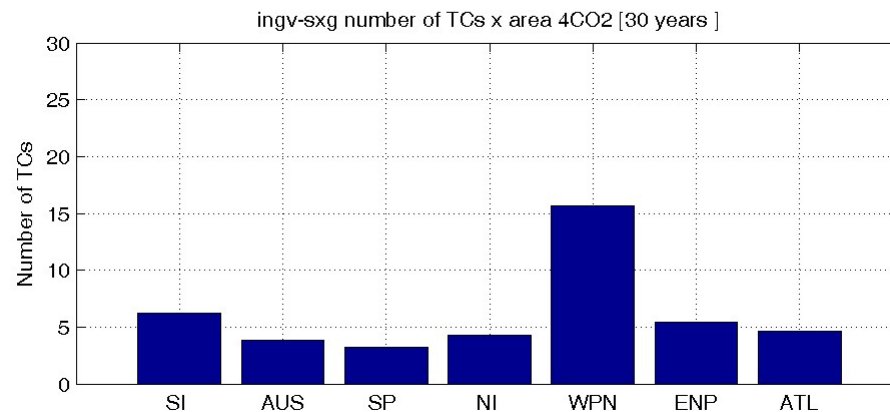
pre-ind
ingv-sxg
[30y]



2xCO2
ingv-sxg
[30y]



4xCO2
ingv-sxg
[30y]



Marmolada, inizio secolo

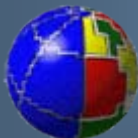


CIRCE

Climate Change and Impact ResearCh: the Mediterranean Environment



Marmolada oggi



CIRCE aims at developing for the first time an assessment of the climate change impacts in the Mediterranean area.

- To predict and to quantify physical impacts of climate change in the Mediterranean area
- To evaluate the consequences of climate change for the society and the economy of the populations located in the Mediterranean area.
- To develop an integrated approach to understand combined effects of climate change.
- To identify adaptation and mitigation strategies in collaboration with regional stakeholders.

Chair: Antonio Navarra and Laurenec Tubiana

Coordination and Communication

Masina Simona (INGV), Tola Elisabetta (ZADIGROMA)

Identification and attribution of present climate trends

Von Storch Hans (GKSS), Xoplaki Elena (UNIBERN)

The Mediterranean Region and the Global Climate System

Li Laurent (CNRS/IPSL), Silvio Gualdi (INGV)

Radiation, clouds, aerosols and climate change

Le Treut Herve (CNRS/IPSL), Lelieveld Jos (MPICH)

Scale Interactions and Feedback processes

Millan Millan (CEAM), Zerefos Christos (NKUA)

Water Cycle

Alpert Pinhas (TAU), Vurro Michele (IRSA-CNR)

Extreme Events

Lionello Piero (UNILE), Garcia Ricardo (UCM)

Impacts of Global Change on Ecosystems and the services they provide

Valentini Riccardo (UNITUSCIA), Hoff Holger (PIK)

Air Quality and Climate

Kallos George (IASA), Levin Zev (TAU)

Human Health

Menne Bettina (WHO-Europe), Bensalah Afif (PASTEUR)

Direct Economic Impacts of Climate Change

Tol Richard (UNI-HAMBURG), Hourcade Jean Charles (CNRS/IPSL)

Economic Valuation of Physical Impacts of Climate Change

Roson Roberto (FEEM), Shechter Moti (UNIHAIFA)

Integrating case studies

Goodess Clare (UEA), Giannakopoulos Christos (NOA)

Relevant Societal Dynamics

Jaeger Carlo (PIK), Iglesias Ana (UPM)

Induced Responses and Policies

Kieken Hubert (IDDRI), Downing Tom (SEI)

- 1 Istituto Nazionale di Geofisica e Vulcanologia INGV
- 2 Consejo Superior de Investigaciones Científicas, Instituto de Ciencias de la Tierra “Jaume Almera” CSIC
- 3 Fundación Centro de Estudios Ambientales del Mediterráneo CEAM
- 4 CLU Ltd CLU
- 5 Danish Meteorological Institute DMI
- 6 University of Crete, Environmental Chemical Processes Laboratory UOC
- 7 Ente per le Nuove Tecnologie, l'Energia e l'Ambiente ENEA
- 8 Fondazione Eni Enrico Mattei FEEM
- 9 Universidad Complutense de Madrid UCM
- 10 Institute for Coastal Research GKSS GKSS
- 11 Water, Environment, Sustainable Solutions WESS
- 12 Institute of Accelerating Systems and Applications IASA
- 13 Consiglio Nazionale delle Ricerche CNR
- 14 Potsdam Institut für Klimafolgenforschung PIK
- 15 Centre de Coopération Internationale en Recherche Agronomique pour le Développement CIRAD
- 16 Centre National de la Recherche Scientifique CNRS
- 17 Universidad Politecnica de Madrid UPM
- 18 World Health Organization, Regional Office for Europe WHO
- 19 Institut du Développement Durable et des Relations Internationales IDDRI
- 20 Natural Environment Research Council NOCS
- 21 Max-Planck-Society for the Advancement of Science MPI
- 22 National Observatory of Athens NOA
- 23 National Institute of Marine Sciences and Technologies INSTM
- 24 University of Haifa UNIHAIFA
- 25 University of Natural Resources and Applied Life Sciences BOKU
- 26 European Commission DG Joint Research Centre JRC
- 27 Parc Cientific de Barcelona LRC-PCB
- 28 ASL RME, Department of Epidemiology ASL Rome
- 29 Meteo-France METEO-FRANCE
- 30 Met Office METOFFICE

CIRCE partners

- 31 Università degli Studi della Tuscia UNITUSCIA
- 32 Stochkolm Environment Institute SEI
- 33 University of Birmingham U Birmingham
- 34 Universidad del Pais Vasco UPV
- 35 Universitat Politècnica de Catalunya UPC
- 36 National and Kapodistrian University of Athens UAT
- 37 Tel-Aviv University TAU
- 38 Univerdidad de Alcala UAH
- 39 Zadigroma srl ZADIGROMA
- 40 University of East Anglia UEA
- 41 Universitat de les Illes Balears UIB
- 42 Instituto de Ciência Aplicada e Tecnologia da Faculdade de Ciências da Universidade de Lisboa ICAT-UL
- 43 Universität Hamburg UNI-HAMBURG
- 44 University of the Aegean UNIAEGEAN
- 45 Centre For Environment and Development For Arab Region and Europe CEDARE
- 46 University of Bern UNIBERN
- 47 Università degli Studi - L'Aquila CETEMPS
- 48 Freie Universität Berlin FU Berlin
- 49 University of Lecce UNILE
- 50 European Climate Forum ECF
- 51 Vrije Univeriteit Amsterdam VU
- 52 The Hebrew University of Jerusalem HUJI
- 53 Università di Santiago di Compostela USC
- 54 Istituto Superiore della Sanità ISS
- 55 Institute Pasteur de Tunis PASTEUR
- 56 Association pour la Recherche sur le Climat et l'Environnement ARCE
- 57 International Center for Agricultural Research in the Dry Areas ICARDA
- 58 Hellenic Center for Marine Research HCMR
- 59 University of Southampton UNI-SOTON

The project will investigate how global and Mediterranean climates interact, how the radiative properties of the atmosphere and the radiative fluxes vary, the interaction between cloudiness and aerosol, the modifications in the water cycle.

The economic and social consequences of climate change shall be evaluated by analyzing direct impacts on **migration**, **tourism** and **energy markets** together with indirect impacts on the **economic system**. CIRCE will moreover investigate the consequences on **agriculture, forests and ecosystems**, **human health** and **air quality**. The variability of **extreme events** in the future scenario and their impacts will be assessed.

The integrated results discussed by the project CIRCE will be presented in the first Regional Assessment of Climate Change in the Mediterranean area.

The CIRCE strategy

