



CLIM-RUN



Short Overview

Paolo M Ruti – ENEA

WP leaders

N Rousset (PlanBleu)

S Somot (MeteoF)

M Lange (Cyprus)

C Goodess (CRU)

FD Reyes (IC3)

G Dubois (TEC)

S Torresan (CMCC)

C Giannakopoulos (NOA)

F Giorgi (ICTP)

EU Officer Claus Bruning

Introduction: main goals

- Design and implementation of a **protocol** for optimizing the **two-way information transfer** (bottom-up /up-bottom) between climate experts and stakeholders
- Advancement of the **science underpinning** the production of detailed **climate information** at regional to local scales tailored for **stakeholder needs**
- Test of the protocol via its application to a number of real world **case studies** in the **Mediterranean area** (mainly on Energy & Tourism and Natural hazards)



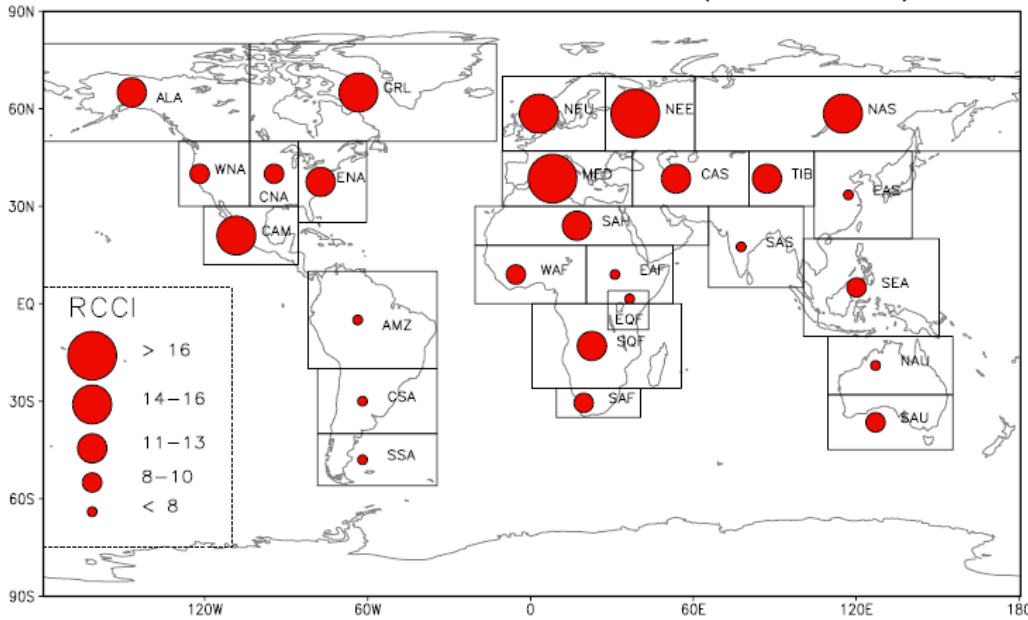
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Introduction: why the Mediterranean

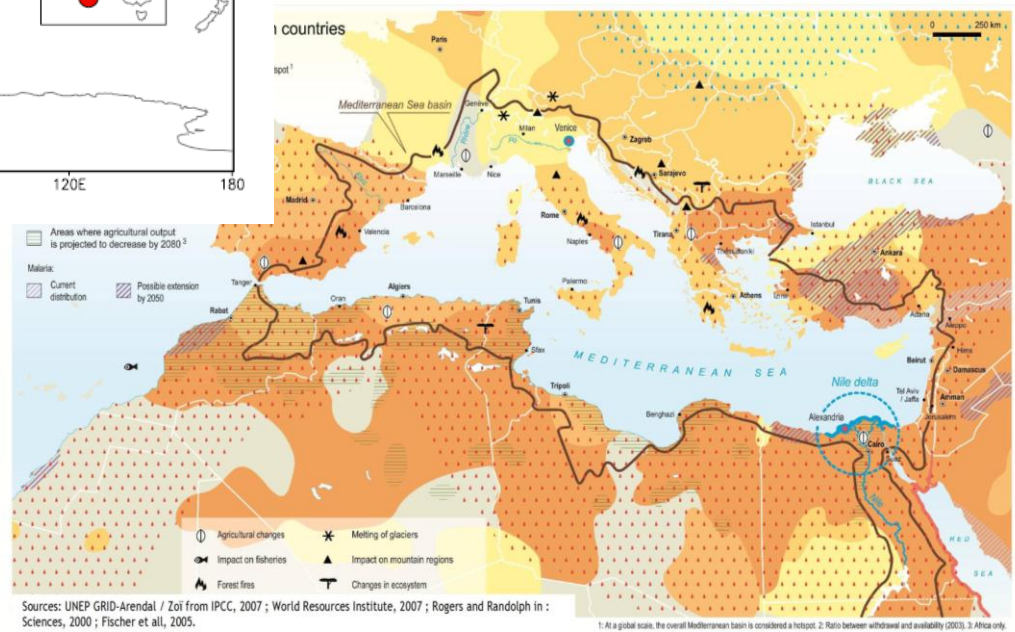


RCCI, 20 Models, Three Scenarios (A1B, A2, B1)



Giorgi, GRL 2006

Hot Spot



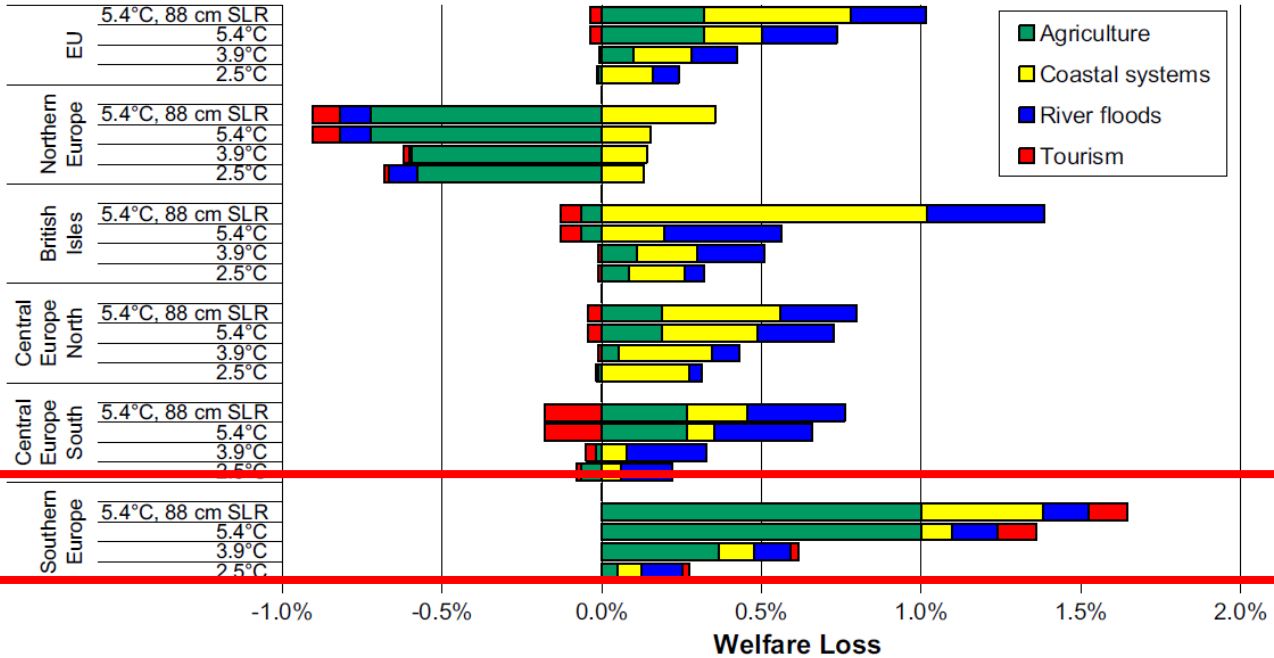
Sources: UNEP GRID-Arendal / Zoi from IPCC, 2007 ; World Resources Institute, 2007 ; Rogers and Randolph in: Sciences, 2000 ; Fischer et al., 2005.

1: At a global scale, the overall Mediterranean basin is considered a hotspot. 2: Ratio between withdrawal and availability (2003). 3: Africa only.

Introduction: why the Mediterranean



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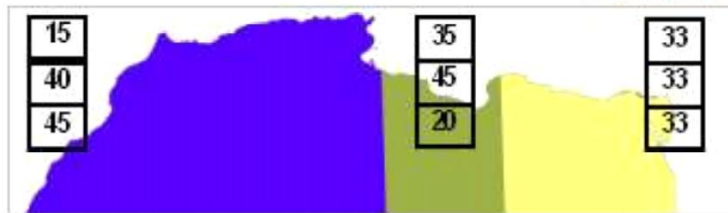


RCOF – North Africa ex GFCS perspective

Source: Ciscar et al., 2011: Physical and economic consequences of climate change in Europe, *PNAS*.

ENERGY (desertec)
TOURISM

PRESA-NORD FMA 2012

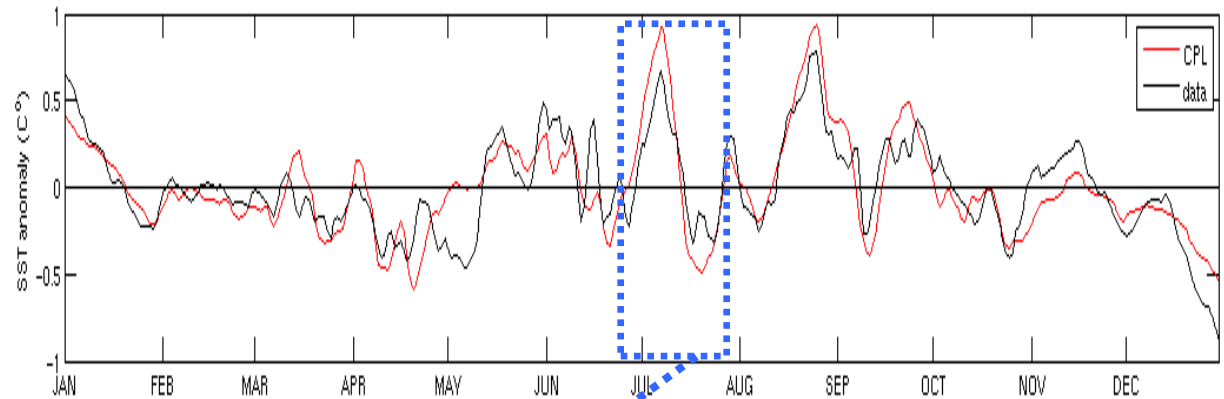


Introduction: Availability of modeling tools

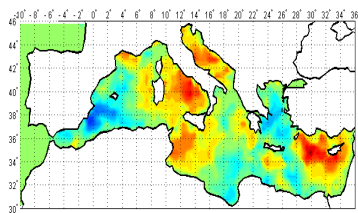
Med Coupled System
MED-CORDEX



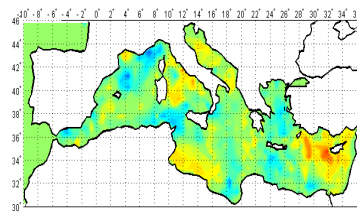
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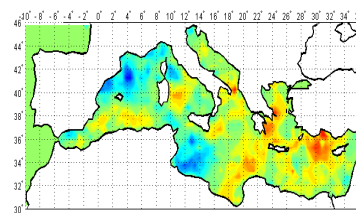
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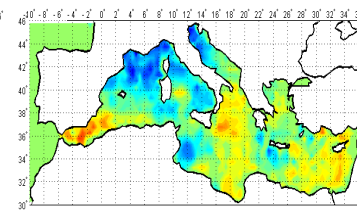
9 July



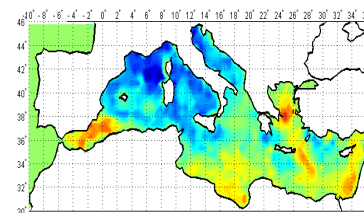
11 July



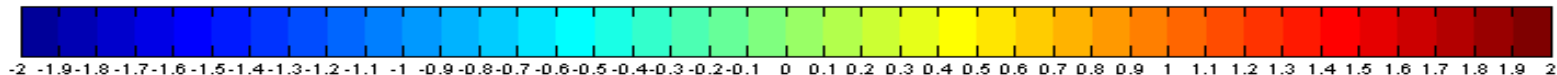
13 July



15 July



17 July



Partners



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ENEA(Italy) EEWRC(Cyprus) CNRM(France) ICTP(Italy)
IC3(Spain) NOA(Greece) CMCC(Italy) TEC(France)
PlanBleu(France) PIK(Germany) UEA(UK) GREVACHOT(Tunisia)
JRC (Spain) DHMZ (Croatia) USMD(US) UC(Spain)



Coordination & Management: - *Italian National Agency for New Technologies, Energy and Sustainable Economic Development.*



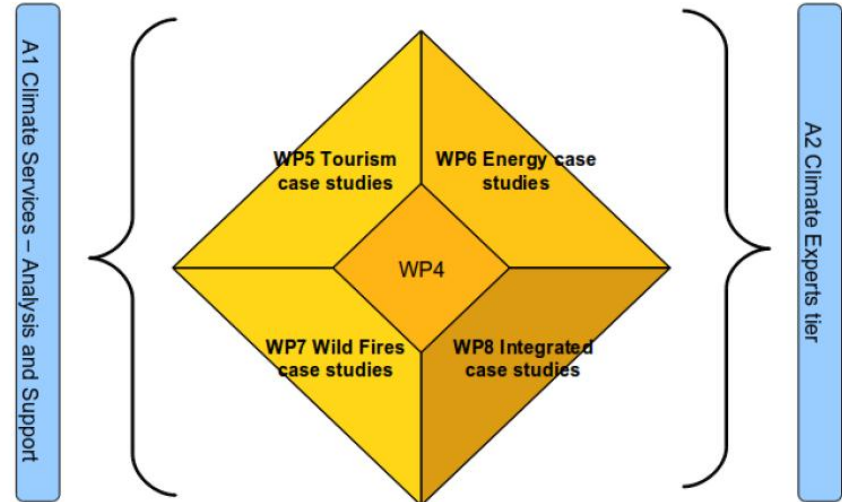
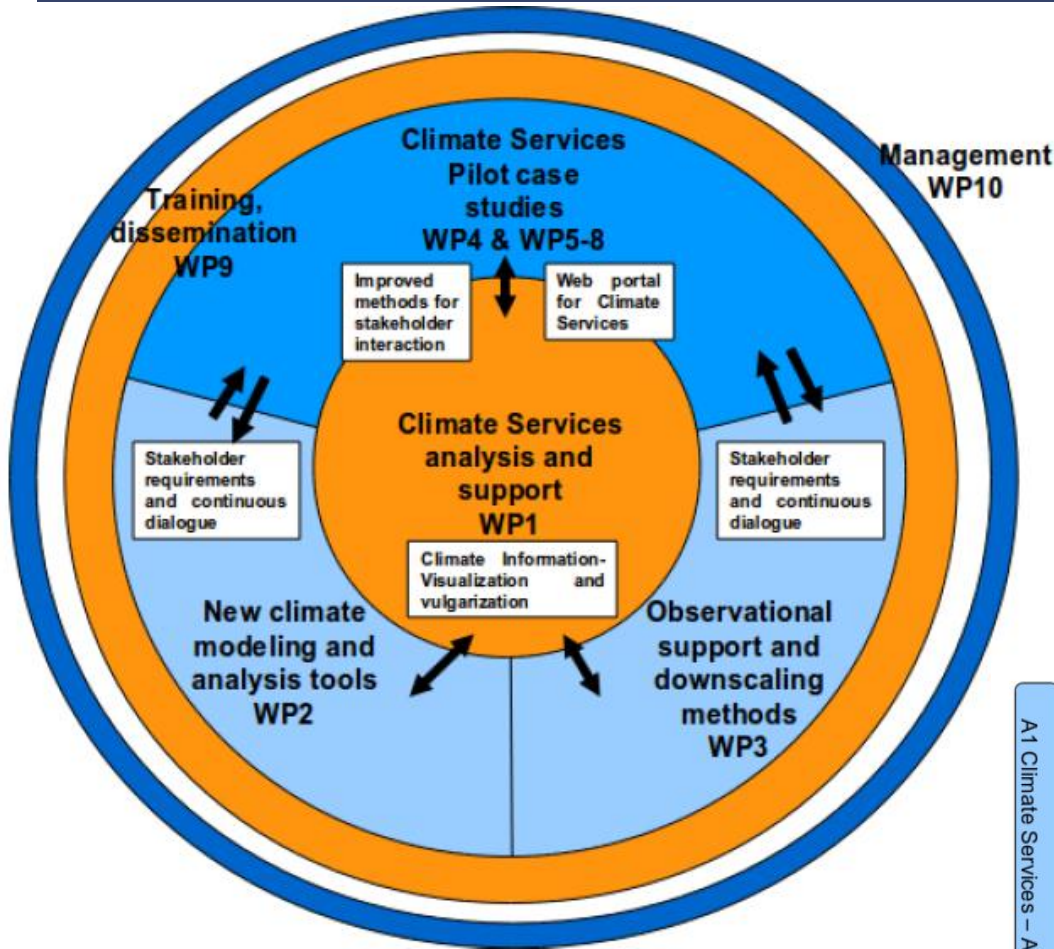
UTMEA-CLIM Energy & Environment Modeling Unit

Climate & Impact Modeling Laboratory. Contact paolo.ruti@enea.it

Structure



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WP Overview



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Main questions

- **How to identify user needs? (WP4,5-8)**
- **How to initiate & maintain/develop stakeholder involvement? (WP4,5-8)**
- How to prepare modeling tools & observed data and products? (WP2-3)
- How to develop a Climate User Interface prototype? (WP1)
- How to develop a more generic protocol? (WP1)
- How to develop Climate Services training? (WP9)

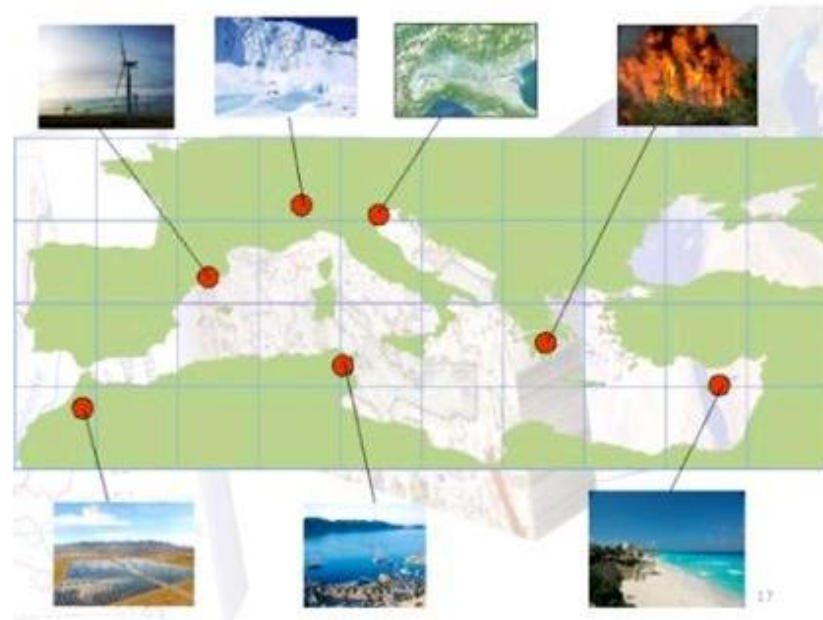
Structure



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CLIM-RUN CASE STUDIES:



CASE STUDIES

- **Tourism:** Tunisia, Savoie (France), Cyprus
- **Energy:** East and South Spain, Morocco, Cyprus
- **Coastal Zone Integrated Case Studies:** North Adriatic Sea
- **Wild Fires:** Greece

Case Studies Workshops



Stage setting

The 'who' and the 'what'

- Who are the climate services stakeholders?
 - Why is climate variability and change relevant to you?
 - How do climate issues fit within your decision making mechanisms and your perception of risk?
- What do you need/want from climate services?
 - Specific data
 - Analysis tools
 - Guidance and training
 - Other things.....



First Workshops

Collaborative Project

Climate Local Information in the Mediterranean region Responding to User Needs

WPT – Energy Case Studies
Task 7.1 Organization of periodic meetings and surveys

Case Study: Morocco
CLIMRUN Workshop, Casablanca

Project No. 265192-CLIM-RUN

7th Framework Programme
Underpinning work to enable provision of local scale climate information (annual to decadal timescales)

Mapping the issues

Perception and data needs questionnaires

Risk perception and current use



Weather and climate variability and change: risk perception and current use of weather/climate information

1a. On a scale of 1 to 10, would you describe your organisation as extremely risk tolerant (1) or extremely risk adverse (10)?

1b. What is the usual Return on Capital time horizon in a broader context?

1c. What is the annual cost for operations?

1d. Do you cover specific risks with

2. What are the environmental priorities (please tick all that apply):

- Coastal/river flooding
- Drought

Questionnaire CLIMRUN

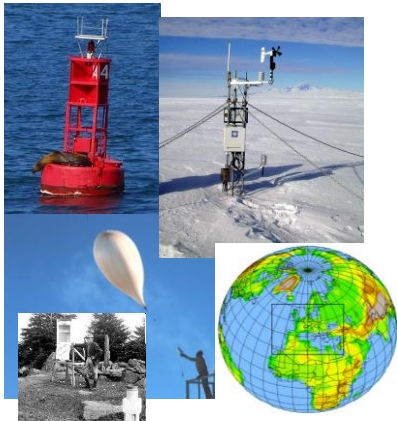
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7. Decisioni riguardo al clima e/o altre decisioni paragonabili sono prese nell'ambito di:

	Sì	No
Usi e pratiche informali	<input type="checkbox"/>	<input type="checkbox"/>
Usi e pratiche formali	<input type="checkbox"/>	<input type="checkbox"/>
Sistema legale formale	<input type="checkbox"/>	<input type="checkbox"/>
Quadro di riferimento tecnico formale	<input type="checkbox"/>	<input type="checkbox"/>

Iterative consultation and collaboration

Interaction with climate community



Tailored climate information

Generalization: protocol for 2-way information transfer



WP Overview



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4 case studies, SET and CET

■ Stakeholder expert team

- Tunisia : Lead GREVACHOT, Tourism expert J. Chapoutot
- Savoie: Lead TEC, Tourism Expert : R. Bérard, Adeline Cauchy
- Cyprus: Lead EEWRC, No tourism expert
- Croatia : Lead DHMZ, No tourism expert

■ Climate expert team

- Tunisia : Paolo Ruti and Latifa Henia
- Savoie: Clotilde Dubois
- Cyprus: EEWRC or others ?
- Croatia : DHMZ or others ?

Data demands...



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Ex: Tunisia

Actors	expectations	Variables	Temporal Horizons	Resolutions	
				Spatial	Temporal
Service providers	Be informed on binding phenomena	-Extreme temperature -Wind (force and direction) -sandstorms -Rain -Tempests -air humidity	30 to 50 years And synoptic	Regional and local	Month Season week (average, extreme) and Daily forecast
- Experts - Planners - private investors	Tourist climate knowledge of Tunisia	Tourist-climate comfort index	30 years	Regional and local	Month and Season
- tour operators - Hosts	Seasonal forecasts	- Sea water temperature - Air temperature	To be defined	Regions and sub-regions	Month and season
Seaside tour operators	Jellyfish invasion	- sea water temperature	5 to 10 years	local	Month and season



... or « product » demand ?



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Ex : Savoie

Product 1 – “HIGH MOUNTAIN AREAS”: Studying the changing temperatures in high mountain areas and their consequences on the conditions required for different activities (mountain climbing, hiking on glaciers, etc.)

Increasing temperatures are a strong indicator of climate change for the Savoie tourism industry. Consequently, many actors already underlined the importance of having access to projections differentiating between mid- and high-mountain areas.

A product developed specifically for high-mountain areas would allow actors to better plan for the risks threatening some tourism activities, such as mountain climbing, glacier trails and hiking. These risks (including falling blocks of ice and seracs), which have already been observed, could threaten traditional itineraries, increasing the level of difficulty of some trails. By better understanding future conditions, actors could adapt activities accordingly.

The actors interested in this kind of product include outdoor activity operators and professionals, regional authorities and NGOs.

- Ready to use
- Finalised indicators, with adequate layout (ex : maps)
- Adequate commentary
- Due to the low level of climate expertise in the tourism sector



Translation of the stakeholders needs (Savoie example)



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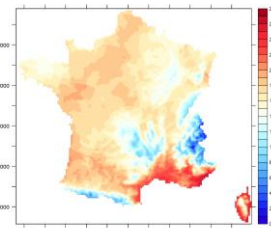
	EXPECTATION	RELATED VARIABLE	Time HORIZON	Spatial / Time RESOLUTION	
A	Particularly hot or cold summers	Temperature	-40/50 years	xxx	Time: seasonal averages (extremes + average for comparison)
D	History-frequency of extreme weather events (summer)	Drought (1) Heat wave (2) Heavy rainfall (3) Storms (4)			

Variables	Geography	Frequency	Spatial	Temporal	Statistic
Temperature Precipitation Sunshine Snow cover	Northern Alp	Yearly season		-40/50 years	Mean trends

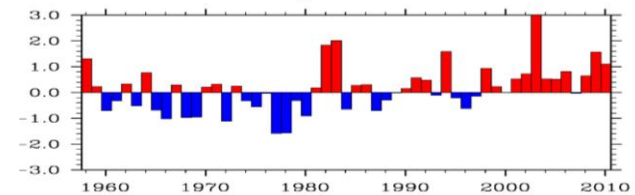
Categories

- 0: Not possible
- 1: Already available
- 2: Easy to provide
- 3: Able to provide but with a lot of work

Data	Dataset to be used	By/WP	Categories	Follow-up
Temperature	Météo France		1	
Precipitation	Météo France		1	
Sunshine	Météo		1/2	
Snow cover	France/Safran		2	
	Météo			
	France/Safran			



Summer Temperature in Savoie



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Energy

PAST WORKSHOPS

15 June 2011, Zagreb, Croatia

Renewable Energy and Climate, stakeholder workshop

Contact person: *Robert Pasicko*

Institute: *Croatian Meteorological and Hydrological Service*

7-9th June 2011, Milan, Italy

Renewable Energy World, exhibition and conference

Contact person: *Melanie Davis*

Institute: *Climate Forecasting Unit, IC3*

27 May 2011, Barcelona, Spain

Renewable Energy and Climate stakeholder workshop

Contact person: *Melanie Davis*

Institute: *Climate Forecasting Unit, IC3*

11-13th May 2011, Madrid, Spain

Genera renewable energy exhibition and conference

Contact person: *Melanie Davis*

Institute: *Climate Forecasting Unit, IC3*

4-5th May 2011, Casablanca, Morocco

Renewable Energy and Climate stakeholder workshop and MENASOL solar conference

Contact person: *Sandro Calmanti*

Institutes:

Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)

Potsdam Institute for Climate Impact Research (PIK)

Environment and development in the Mediterranean (PLAN BLEU)

Documents: [Presentation_Casablanca.pdf](#) [Report_Casablanca.pdf](#)

Variable (highest priority first)

Wind speed (m/s)

Precipitation

Wind speed extremes, frequency and duration (above 35m/s and below 3m/s)

Spatial Scale

Med-wide (offshore to 70km, and onshore) then national (Spain, Croatia, Morocco, Cyprus)

National (Croatia)

Med-wide (offshore to 70km, and onshore) then national (Spain, Croatia, Morocco, Cyprus)

Temporal Scale/Interval

1 year (IC3)
30 years (rest of WP2/3)

1 year (IC3)
50 years (rest of WP2/3)

1 year (IC3)
30 years (rest of WP2/3)



WP Overview

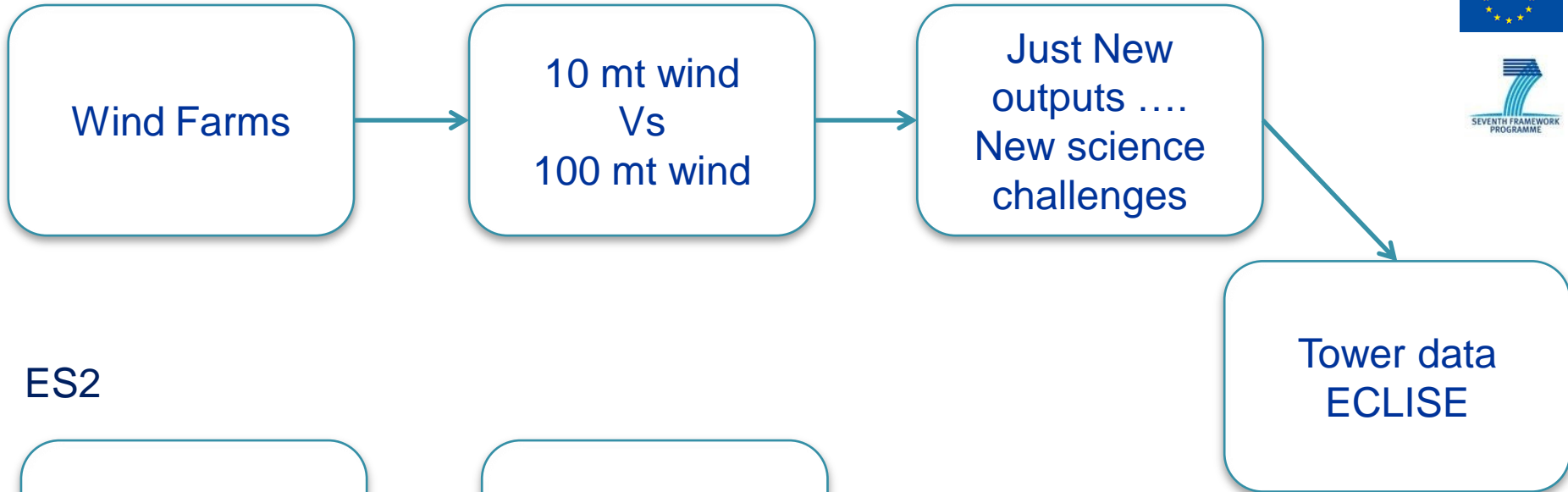


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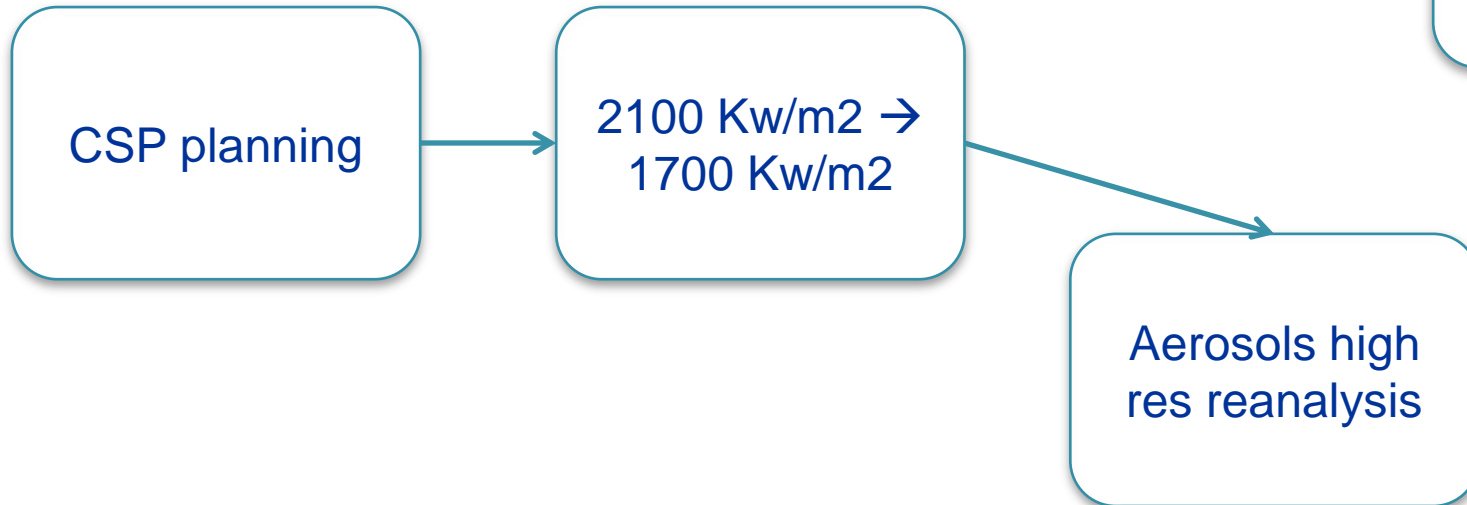


Energy

ES1



ES2



How to meet stakeholder's needs



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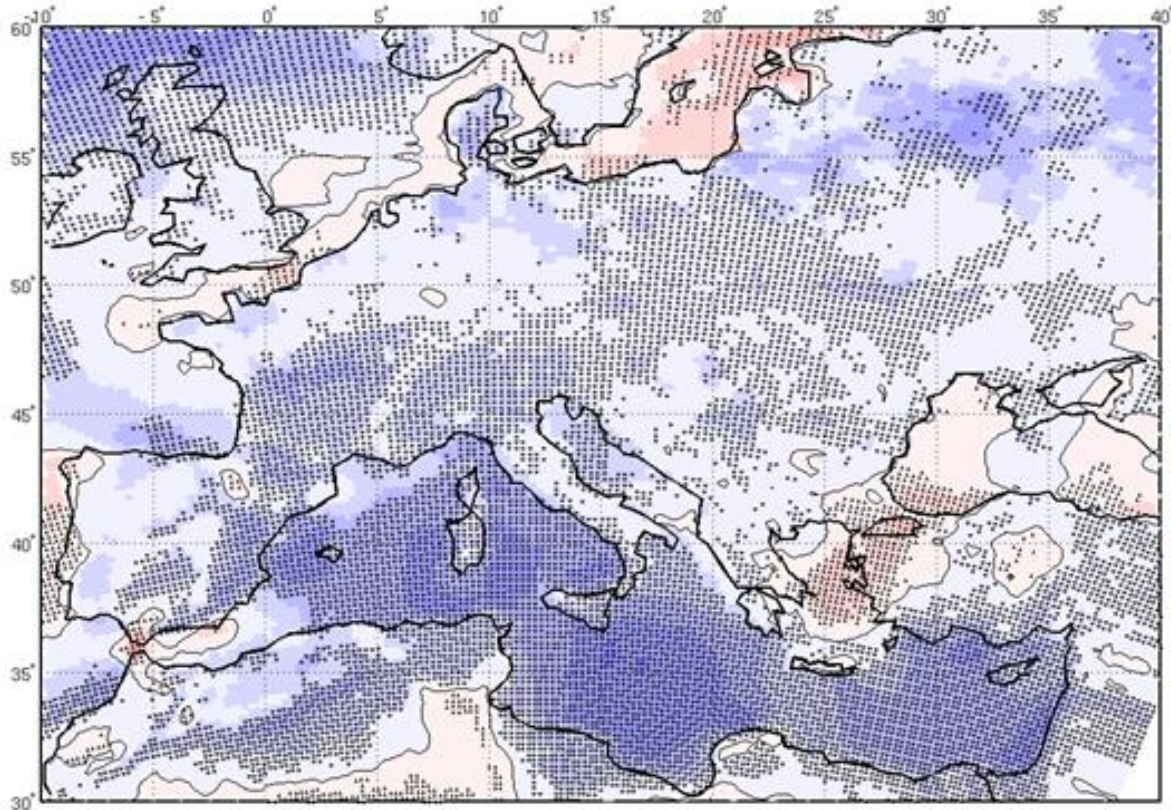


- 'Translation' process – Climate Expert Team (CET)
- Categorising needs (observations/simulations):
 - 0 not possible to provide; 1 already available;
 - 2 easy to provide; 3 able to provide, but with a lot of work
- Production of first examples of products and outputs
- Definition of new modelling tools required
- Iterative discussion with stakeholders (through SET)

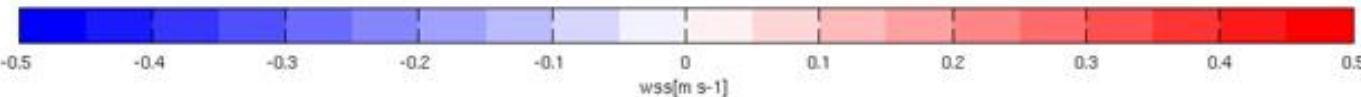
How to meet stakeholder's needs



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Mean change in wind speed [m s^{-1}] at 10 m height projected by 16 RCMs (~ 50 km resolution) for 2040-2050 with respect to 1990-2000. Hatched areas represent areas where more than 66% of the model agree in the sign of change.



Training - Dissemination

2012- 2013 ECLISE – CLIMRUN EGU Session on Climate Services
International Round Table at EGU 2012

CLIMATE TO SERVICES -
SERVICES TO CLIMATE

EGU 2012
Vienna, 22-27 April
visit the **NEW** session
Climate services:
underpinning science
CL 5.13



The Abdus Salam
International Centre for Theoretical Physics

First CLIM-RUN Workshop on Climate Services

15 – 19 October 2012

The Abdus Salam International Centre for Theoretical Physics (ICTP) is organizing the "First CLIM-RUN Workshop on Climate Services", to be held from 15-19 October 2012 in Trieste, Italy.

This workshop will focus on the development of, and training for, a new research expertise that would lie at the interface between climate science and stakeholder application within the Climate Services framework.

The workshop will run in three parts, the first covering fundamental climate and predictability issues and the last covering the specific stake-holder oriented application issues. The central section will focus on a variety of 'cross-over' themes essential for the delivery of climate services. Extensive hand-on laboratory sessions will be organized to support the theoretical lectures.

Topics:

Introduction to climate information (observation, models, reanalysis etc).

Correct interpretation of –climate forecasts/projections and associated uncertainties.

Stakeholders dynamics; methodologies for developing stakeholder interactions.



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ORGANIZERS

Paolo Ruti
(ENEA, Italy)

Filippo Giorgi
(ICTP, Italy)

Few Remarks for ICGS2

- 1 CLIMRUN is a good benchmark for GFCS
- 2 Climate services will trigger new scientific challenges
- 3 Training is an important issue for developing reliable climate services



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