

## Collaborative Project



# CLIM-RUN

Climate Local Information in the Mediterranean  
region Responding to User Needs



WP 9 – Training and dissemination of final results  
Task 9.2

## E-learning courses: on line distribution of scientific documents produced within CLIM-RUN

Project No. 265192– CLIM-RUN

Start date of project: 1st March 2011

Duration: 36 months

Organization name of lead contractor for this deliverable: ENEA

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## Introduction

Within CLIM-RUN, on the occasion of the Executive Committee and the Governing Board meetings, the following criteria and tools have been identified to disseminate the scientific products created in the project:

1. All the products will be available on line, on the project web site ([www.climrun.eu](http://www.climrun.eu))
2. A quarterly newsletter is diffused on line to the identified readers interested in the project results and in climate services
3. Lectures, public deliverables, publications and articles, presentations and posters, presented in various conferences, information sheets concerning the main results of the case studies, will be made available in the web site, easily downloadable
4. Brochures made at coordinator level and at partners level have been created distributed in print and via web site.

The information contained in the CLIM-RUN official web site will be included in the web portal to be developed within WP1 which will be supported by additional material (brochures, briefing notes, etc.)

### 1. Newsletter

A quarterly newsletter (<http://www.climrun.eu/newsletter>) has been developed within CLIM RUN, with the aim to report and diffuse preliminary information and news about the project. The newsletter is also diffused via mailchimp to a list of contacts identified as interested in the project activities (about 500 contacts), comprising the stakeholders who have participated in the CLIM-RUN workshops of the different case studies of the project (energy, tourism, wild fire, integrated case studies).

An Editorial Committee with the aim of reviewing all the articles has been set up. The Editorial Board is the following:

**Mr Paolo Ruti**

CLIM-RUN Project Coordinator  
Head Climate & Impact Modeling Laboratory  
Energy & Environment Modeling Unit  
ENEA

**Ms Maria Dolores Frías**

Assistant Professor, Matemática Aplicada  
y Ciencias de la Computación  
UNIVERSITY OF CANTABRIA

**Ms Clare Goodess**

Senior Research Associate  
Climatic Research Unit,  
School of Environmental Sciences  
UNIVERSITY OF EAST ANGLIA

**Mr Peter Schmidt**

PIK  
Postdam Institute for  
Climate Impact Research

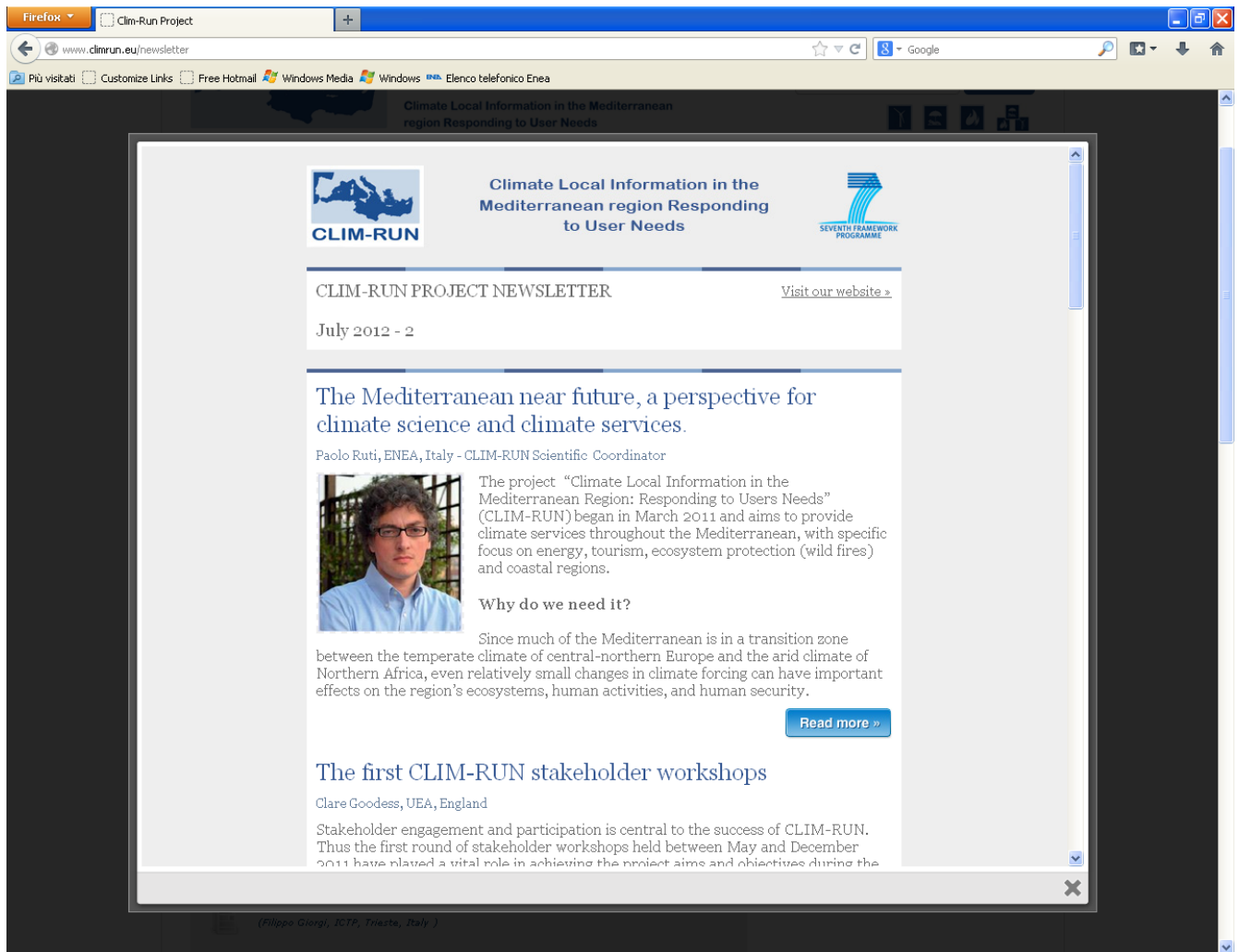
A coordination role is carried out by ENEA, with secretariat functions:

## CONTACTS

**Ms Orietta Casali**  
ENEA, UTMEA-CLIM

**Mr Emanuele Lombardi**  
ENEA, UTMEA-CLIM

The newsletter has a clear format, with a design in line with the official project logo. (see example here under).



## 2. The section “PRODUCTS” of the CLIM-RUN web-site

The creation of the section “Products” in the CLIM-RUN web-site (<http://www.climrun.eu/products>) has been an important step forward for the dissemination of the results achieved within the project. The page is organized as follows:

- Lectures
- Public deliverables
- Publications and articles
- Presentations and posters
- Information sheets

Each documents made available in this section report an abstract, author’s name and organisation. The search function allows the retrieval of information contained in different type of documents, and with different format (pdf, ppt, movie, etc.) on the basis of the information reported on the abstract.

The “products” section home page is here under reported:



The screenshot shows a web browser window displaying the CLIM-RUN website. The browser's address bar shows the URL [www.climrun.eu/products](http://www.climrun.eu/products). The website header includes the CLIM-RUN logo, a search bar, and navigation links: CONTACT US, SITE MAP, and LOGIN. Below the header is a horizontal menu with links: HOME, ABOUT CLIM-RUN, CASE STUDIES, EVENTS, NEWSLETTER, PRODUCTS, and LINKS. The main content area is titled "Products" and features five sections, each with a description and a "Download" link:

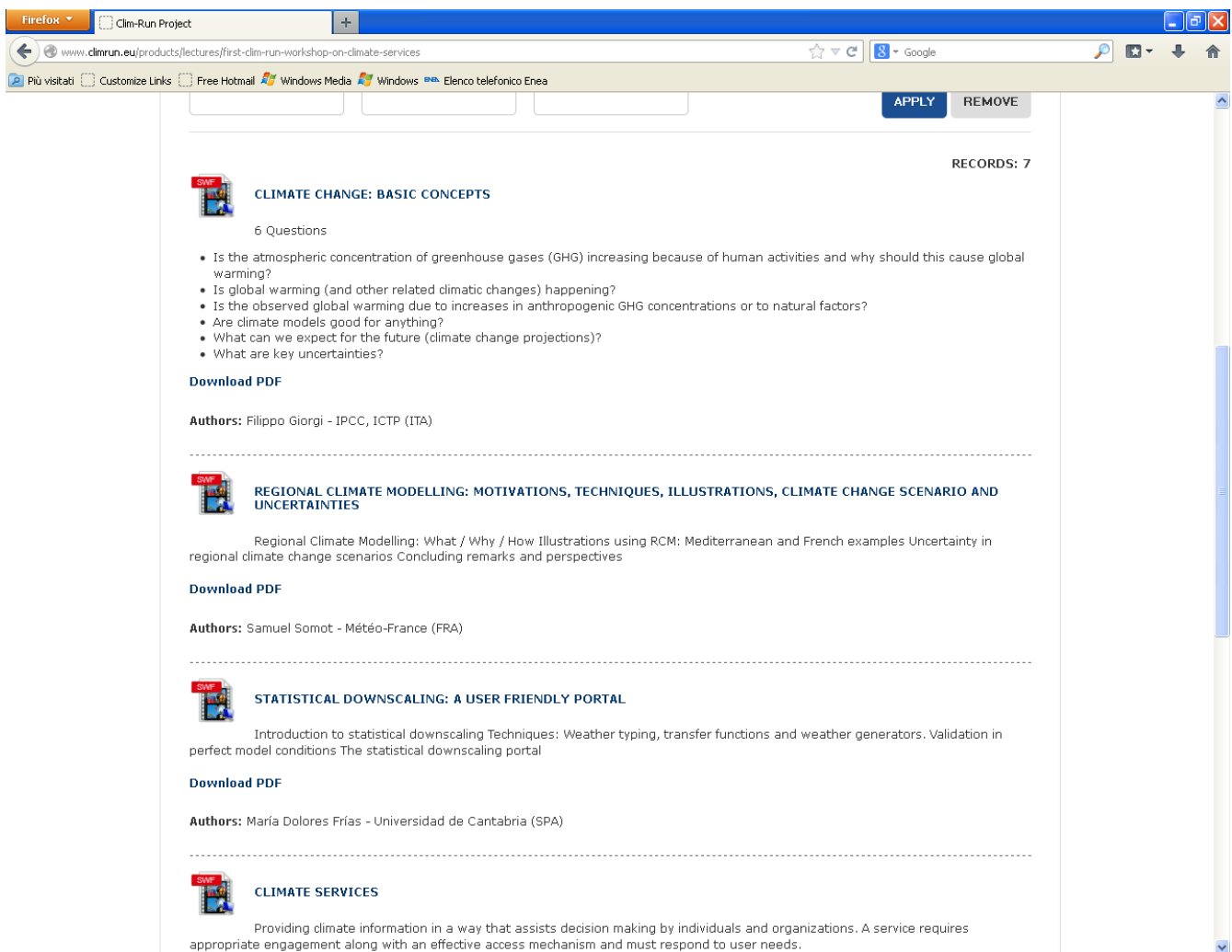
- LECTURES**: This section contains the lectures held on the occasion of the two "summer schools" of CLIM-RUN Project. The first one was organized by ICTP in 2012, in Trieste (Italy). The second one will be held in Autumn 2013. [Download Lectures »](#)
- PUBLIC DELIVERABLES**: This section contains the public deliverables (PU) produced by CLIM-RUN consortium and already approved by the EU revisers. Deliverables meant for other programme participants (PP), that do not have sensible data, already approved by the EU revisers are also included in this section. [Download Deliverables »](#)
- PUBLICATIONS/ARTICLES**: This section contains all the publications produced within CLIMRUN with link to the articles and or pdf version when available. [Download Publications and Articles »](#)
- PRESENTATIONS/POSTERS**: In this section are collected presentations and posters concerning CLIM-RUN project, produced by the Consortium on the occasions of conferences, seminars, workshops, etc. [Download Presentations and Posters »](#)
- INFORMATION SHEETS**: This section contains summaries of the main useful products developed thanks to the case studies activity. Links to the information sheets are also provided in the section "Case Studies", for each specific sectors: Energy, Tourism, Wildfires and Integrated case study. [Download Information Sheets »](#)

At the bottom right of the products section, there is a search bar with the label "SEARCH" and a "SEARCH" button.

## 2.1 Lectures

This section (<http://www.climrun.eu/products/lectures/first-clim-run-workshop-on-climate-services>) contains the lectures held on the occasion of the two “summer schools” of CLIM-RUN Project. The first one was organized by ICTP in 2012, in Trieste (Italy). The second one will be held in December 2013. The complete list of lectures will be available only after this date (D9.3).

The lectures are reported both in pdf and SWF formats. (see example here under).



Firefox - Clim-Run Project  
www.climrun.eu/products/lectures/first-clim-run-workshop-on-climate-services

Più visitati Customize Links Free Hotmail Windows Media Windows ENEC Elenco telefonico Enea

APPLY REMOVE

RECORDS: 7

**CLIMATE CHANGE: BASIC CONCEPTS**  
6 Questions

- Is the atmospheric concentration of greenhouse gases (GHG) increasing because of human activities and why should this cause global warming?
- Is global warming (and other related climatic changes) happening?
- Is the observed global warming due to increases in anthropogenic GHG concentrations or to natural factors?
- Are climate models good for anything?
- What can we expect for the future (climate change projections)?
- What are key uncertainties?

**Download PDF**

**Authors:** Filippo Giorgi - IPCC, ICTP (ITA)

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**REGIONAL CLIMATE MODELLING: MOTIVATIONS, TECHNIQUES, ILLUSTRATIONS, CLIMATE CHANGE SCENARIO AND UNCERTAINTIES**

Regional Climate Modelling: What / Why / How Illustrations using RCM: Mediterranean and French examples Uncertainty in regional climate change scenarios Concluding remarks and perspectives

**Download PDF**

**Authors:** Samuel Somot - Météo-France (FRA)

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**STATISTICAL DOWNSCALING: A USER FRIENDLY PORTAL**

Introduction to statistical downscaling Techniques: Weather typing, transfer functions and weather generators. Validation in perfect model conditions The statistical downscaling portal

**Download PDF**

**Authors:** María Dolores Frías - Universidad de Cantabria (SPA)

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**CLIMATE SERVICES**

Providing climate information in a way that assists decision making by individuals and organizations. A service requires appropriate engagement along with an effective access mechanism and must respond to user needs.

### 2.1.1. List of lectures produced in the first CLIM-RUN school

#### **Climate Change: Basic concepts**

Authors: Filippo Giorgi - IPCC, ICTP (ITA)

- Is the atmospheric concentration of greenhouse gases (GHG) increasing because of human activities and why should this cause global warming?
- Is global warming (and other related climatic changes) happening?
- Is the observed global warming due to increases in anthropogenic GHG concentrations or to natural factors?
- Are climate models good for anything?
- What can we expect for the future (climate change projections)?
- What are key uncertainties?

#### **Regional Climate Modelling: motivations, techniques, illustrations, climate change scenario and uncertainties**

Authors: Samuel Somot - Météo-France (FRA)

Regional Climate Modelling: What / Why / How Illustrations using RCM: Mediterranean and French examples Uncertainty in regional climate change scenarios Concluding remarks and perspectives

#### **Statistical Downscaling: A user friendly portal**

Authors: María Dolores Frías - Universidad de Cantabria (SPA)

Introduction to statistical downscaling Techniques: Weather typing, transfer functions and weather generators. Validation in perfect model conditions The statistical downscaling portal

#### **Climate Services**

Authors: Clare Goodess - UEA (UK)

Providing climate information in a way that assists decision making by individuals and organizations. A service requires appropriate engagement along with an effective access mechanism and must respond to user needs.



### **Using ENSEMBLES to communicate uncertainty**

Authors: Ghislain Dubois - TEC (FRA)

- Uncertainty and climate change
- Case study: adaptation strategy of Provence Region (France)
- Lab: using the ENSEMBLES database

### **Methodologies for developing stakeholder interactions**

Authors: Ghislain Dubois - TEC (FRA)

A general framework for stakeholders interaction A toolbox for stakeholders engagement

### **Communication and climate services**

Authors: Ghislain Dubois - TEC (FRA)

Cite 3 arguments you would use to convince a skeptic that climate change is a reality? To which information source would you direct him to turn his mind? Did you ever communicate some climate data/results to non-climatologists? With which result?

## 2.1.2 List of lectures produced in the second CLIM-RUN School

### **Climate Local Information in the Mediterranean region Responding to User Needs**

Authors: Paolo M Ruti, Hugues Ravenel, Samuel Somot, Manfred Lange, Clare Goodess, Ghislain Dubois, Christos Giannakopoulos, Francisco J. Doblas-Reyes, Antonio Marcomini, Filippo Giorgi and Alessandro Dell'Aquila

A WMO initiative: A Global Framework for Climate Services

### **Climate information between planning and emergency;**

Authors: Sandro Caparelli - Comune di Venezia, sostenibilità urbana

What are the needs for a municipality. We have to consider the scenarios of climate change in planning our cities

### **State of the art. Climate forecasting for energy**

Authors: M. Davis, F. Doblas-Reyes, F. Lienert, N. Gonzales-Riviriego, V. Torralba Fernandez

How can climate variability create risk in wind energy decisions?  
 How can climate forecasting minimise this risk?  
 Climate forecasting of wind speed, a seasonal example  
 Caveats/Further research: What are the limitations and potential for wind energy forecasting?

### **Seasonal to decadal up to climate change predictability (projections)**

Authors: Fred Kucharski Abdus Salam ICTP, Trieste, Italy, Earth System Physics Section

In seasonal and longer time scale predictions (projections) there will be clearly no (atmospheric) predictability of the first kind (Lorenz notation for initial condition dependent predictability). We cannot try to predict details of 'weather' more than a few weeks ahead. This is because the climate system is chaotic (lots of instabilities and nonlinearities, from daily to even decadal time-scales). But we may be able to predict the statistics of climate (e.g. mean, variability...), if there are either slowly varying (and predictable) components, such as El Nino SSTs in case of seasonal predictions or external forcing of the Earth

System (e.g. Carbon Dioxide, Solar forcing, Volcanoes, Aerosols, ....) in case of climate change projections. Lorenz called this predictability of the second kind. This could give a hint then of shifts of the mean climate (or attractors in Lorenz' language) and its statistics.

### **Statistical downscaling model**

Authors: Carlo Cacciamani, Servizio Idro Meteo - Italy

AOGCM: status of the art. Coarse resolution AOGCMs (100-200 Km) simulate atmospheric general circulation features well in general. At the regional scale the models display area-average biases that are highly variable from region-to-region and among models, with sub-continental areaaveraged seasonal temperature biases.

### **Introduction to CRITERIA model**

Authors: Giulia Villani, Agenzia Regionale Prevenzione e Ambiente Emilia Romagna - Italy

Modelling system aimed at the simulation of the agro-ecosystem; Modular system; Different versions for different applications

### **Climate service iCOLT**

Authors: Giulia Villani, Agenzia Regionale Prevenzione e Ambiente Emilia Romagna - Italy

Aim of iCOLT is to provide a probabilistic early assessment of irrigation demand of crops for the Emilia- Romagna regional plain area and also for each of the eight reclamation consortia.

### **Climate Change in Emilia Romagna**

Author: Giulia Villani, Agenzia Regionale Prevenzione e Ambiente Emilia Romagna - Italy

The increase of temperature and the different distribution of precipitation cause an accumulation of climatic anomaly in the soil: the case of summer 2012

### **Climate Change Scenarios in Emilia Romagna**

Author: Giulia Villani, Agenzia Regionale Prevenzione e Ambiente Emilia Romagna - Italy

Local Action Program to cope with drought and desertification

## **Learning from data: data mining approaches for energy and weather/climate applications**

Author: M. de Felice, ENEA - National Agency for New Technologies, Energy, and Sustainable Economic

Building reliable Climate Services is really challenging; Cross-disciplinary. We need to use the latest and most advance research and knowledge. We need to use all available data

## **Climate Service Company session**

Author: Sandro Calmanti, ENEA - Italy

The Climate Service Company session consisted of a role game divided in two modules. Build a Climate Service company. Solve a problem.

## 2.2 Deliverables

This section (<http://www.climrun.eu/product/deliverables>) contains the public deliverables (PU) produced by CLIM-RUN consortium and already approved by the EU revisers. Deliverables meant for other programme participants (PP), which do not have sensible data, already approved by the EU revisers are also included in this section.

## 2.3 Publications and articles

This section <http://www.climrun.eu/products/publications-and-articles> contains all the publications produced within CLIMRUN with link to the articles and or pdf version when available.

Link to movie concerning the project made available in youtube are also provided, as in the case of Climate Forecasting for Renewable Energy: CLIM-RUN FP7 project (<http://www.youtube.com/watch?v=sv9kUqZTUYI&feature=youtu.be>).

## 2.4 Presentations and posters

In this section <http://www.climrun.eu/products/presentations-and-posters> are collected presentations and posters concerning CLIM-RUN project, produced by the Consortium on the occasions of conferences, seminars, workshops, etc.. The documents are on ppt or pdf version.

## 2.5 Information sheets

This section <http://www.climrun.eu/products/information-sheets> contains summaries (information sheets) of the main useful products developed thanks to the case studies activity. Links to the information sheets are also provided in the section “Case Studies” for each specific sectors: Energy, Tourism, Wildfires and Integrated case study. The information sheets are two-page pdf documents with the following sections: Target groups; Relevance to the case-study requirements; The approach; The product; and, Making the product usable. Keywords clearly indicate for which sector and cases studies each product is relevant. The first three information sheets relate to advanced wind resource management both on seasonal forecasting and longer-term timescales.

Many more information sheets are close to completion and will be added to the website shortly. As well as being accessible from the Products section of the web site, they can also be accessed from the Case-studies section. Contact emails are given on each information sheet should you wish to obtain more information or to provide some welcome feedback.

### 2.5.1. List of the information sheets produced in CLIM-RIM

Title	Topics	Case study (area)	Model/data sources	WP2/WP3 institutes	WP2/WP3 contact point
1. Advanced wind resource risk management: wind speed forecasting over seasonal time scales	Wind	Med.	EUROSIP	IC3	F. Lienert
2. Advanced wind resource risk management: wind speed long term scenarios	Wind	Rabat (Morocco)	ENSEMBLES	ENEA	A. Dell'Aquila
3. Advanced wind resource risk management: wind speed long term scenarios	Wind	Med.	ENSEMBLES	ENEA	A. Dell'Aquila
4 Solar radiation long term scenario	Solar			CNRM	S. Somot
5 Advanced wind resource risk management: solar radiation long term scenarios	Solar	Med.	ENSEMBLES	ENEA-CNRM	A. Dell'Aquila
6 Indicators of bathing season in Tunisia	SST	Tunisia	EUROSIP	IC3	F. Lienert
7 Evolution of temperatures in high mountain areas	Mountain climate	Savoie	SCAMPEI	CNRM	C. Dubois
8 Bathing water in mountain lakes	Lake	Savoie	SCAMPEI	CNRM	C. Dubois
9 Decadal prediction for SST near the Tunisia coast	SST	Tunisia	COMBINE	CMCC	A. Bellucci
10 Sea surface temperature in coastal region	SST	Tunisia, Croatia, Cyprus, Adriatic	CIRCE	CNRM	C. Dubois
11 Changes in temperature, precipitation and sea level in 2050	2mT, prec., sea level	Cyprus	ENSEMBLES, CIRCE, Med-CORDEX	ENEA, CNRM	C. Dubois
12 Changes in temperature, precipitation and sea level in 2050	2mT, prec., sea level	Tunisia	ENSEMBLES, CIRCE	ENEA, CNRM	C. Dubois

13 Spring conditions in Savoie	Spring climate conditions	Savoie	SCAMPEI	CNRM	C. Dubois
14 Seasonal predictability of heavy precipitation events using the CMCC-SPS system	Heavy-Rain	Adriatic	CMCC-SPS	CMCC	A. Bellucci
15 Educational software for Fire Weather Index	FWI	Greece	Stations	NOA	C. Giannakopoulos
16 Future fire risk in Greece and its sub-regions	FWI	Greece	ENSEMBLES (Med-CORDEX?)	NOA	C. Giannakopoulos
17 Short-term fire risk forecast for Greece	FWI	Greece	MM5	NOA	C. Giannakopoulos
18 The Tourism Climate Comfort Index (ICT) in Tunisia	ICT	Tunisia	Stations	Grevachot	L. Henia
19 Projections of precipitation climate change for hydro-energy in Croatia	Precipitation	Croatia		DHMZ/UNDP	
20 Tourism comfort index around the Mediterranean region	TCI	Med.			
21 Applications of the UC portal for wild fire and tourism studies	FWI, PET	Greece, Spain, Croatia		UC	M.D. Frias
22 Climate Index for Tourism Coratia (TCI)	Tourism	Croatia		DHMZ	K. Zaninović
23 Local climate change projections and associated uncertainty: The North Adriatic case study	Energy	North Adriatic		ENEA	Calmanti, Dell'Aquila
24 Surface solar radiation daily variability					
25 Evaluation of pluvial risk in urban areas under future climate change scenarios	Integrated				S. Torresan, Sperotto
25 Interactive wind Atlas -	Energy	Croatia		DHMZ	Bajić, K. Horvath, S. Ivatek, Sahdm





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### 3. The Section “Case studies” of CLIM-RUN web site

In this section ([www.climrun.eu/case-studies](http://www.climrun.eu/case-studies)) information concerning the case studies is disseminated. CLIM-RUN case studies have been carefully selected to represent the interactions between different stakeholders and socio – economic contexts. In CLIMRUN the case studies have the fundamental role to provide an application framework to assess the CLIM-RUN climate service protocol. The case studies will address two main economical sectors for the Mediterranean and European economy as a whole: Tourism and Energy.

They are complemented by a focus on wild fires, which represents a risk factor affecting both tourism and power plants. Finally, two integrated case studies will be developed in order to consider several sectors (tourism, energy, water management, risk management, industries, goods) over coastal areas of the Northern Adriatic. The partners where the case studies will take place (Spain, France, Italy, Greece, Cyprus, Tunisia, Morocco) will be in charge of the organization of the workshops in local language. The use of local workshops and the large use of on-line survey will considerably limit their costs.

The material and the space of this section will be used for the realization of the web portal (WP1).

### 4. Movies

#### 4.1. *Les incertitudes dans les scénarios de changement climatique (CNRM)*

A scientific movie developed by CNRM has been produced within CLIM-RUN and diffused through the project web site. The movie is also available at the follow link: <http://vimeo.com/81493354> - passwd: climrun

One of the most complicated issue to be understood by stakeholders using climate services is the concept of future climate change scenario uncertainties. Three main causes of uncertainty have been identified in global and regional climate change scenario: (i) climate natural variability, (ii) climate model related uncertainty and (iii) socioeconomic scenario uncertainty. These uncertainties are more and more understood and quantified by the climate modeling community and communication is now possible and needed. For example, it is now clear that the relative weight of those uncertainties in climate change

projections strongly depends on the temporal horizon considered. It is also clear that origin and response to each of the uncertainties by citizens and stakeholders must be different: the first uncertainty is intrinsic to climate and cannot be reduced, the second one is due to current scientific limitations and may decrease with improved knowledge and the third uncertainty is linked with human being current and long-term decisions. Moreover, understanding and quantifying these uncertainties is of first importance when showing climate change scenario results to stakeholders as their decisions may depend on the proposed range of possible. It is also clear now that, despite remaining uncertainties, climate change is occurring worldwide and that it is going to amplify in the coming decades.

The increasing knowledge in climate change scenario uncertainty, the list of the above key messages and the need to inform stakeholder community lead to design a short (3-5 min), web-based, wide-audience, animated scientific movie within the frame of CLIM-RUN WP9. The movie specifications were leaded by CNRM with advises from other CLIM-RUN and external partners when needed. Climate change uncertainty, Mediterranean tourism sector, vulgarization and originality are the key words. The movie making was subcontracted to a private communication company Vegas Deluxe in Strasbourg. The movie will be available in French and English.

Status in July 2013: the main topics and take-home messages are chosen, the baseline story is written, the graphic universe, the off-voice and the storyboard are drafted. The production phase of the first images is going to start.

Status in January 2013: the English version of the text is ready and the production phase is ending. The movie will be available at the end of the CLIM-RUN project on the CLIM-RUN web portal.

## **4.2 *Movie on Climate Forecasting for Renewable Energy: (IC3)***

A movie on wind and solar energy has been created by IC3 and it is available on the project web site and in you tube (<http://www.youtube.com/watch?v=sv9kUqZTUYI&feature=youtu.be>).

Wind and solar power generation is directly affected by weather, which is known to vary considerably over space and time. When planning and operating these renewable systems, there is therefore a large uncertainty in the amount of power that will be generated over future timescales. is directly affected by weather, which is known to vary considerably over space and time. When planning and operating these renewable systems, there is therefore a large uncertainty in the amount of power that will be generated over future timescales.

This is particularly true at climate timescales, defined here as the "behaviour" of weather over relatively long periods of time: wind speed or solar power generation is rarely the same from one month or season within a given year, to the same month or season the following year. Likewise, there can be a considerable variation in power generation from one full year or decade to the next. The uncertainty of power variability over time is known as climate risk.

Probabilistic climate forecasts aim to provide robust information of future wind and solar resource variability, including extremes, over climate timescales, to minimise the uncertainty of future renewable power generation. By understanding the expected changes in these resources and the impact on wind and solar power generation, improved, proactive and anticipatory adaptation decisions can be made to manage climate-related risks within renewable power planning and operation strategies.

## 5. The project brochure

In addition to the on line dissemination activity, ENEA has produced an official brochure of the project to present the project activities during conferences, seminars, workshops, etc.

The brochure has been produced in five hundred copies and made available to all the WP leaders.

Other brochures have been done at partners level, such as CMCC (Integrated Case Study), GREVACHOT (Tourism, Tunisia).