Climate Change and Impact Research: The Mediterranean Environment

Sixth Framework Program
Priority 1.1.6.3 - Global Change and Ecosystem

Coordinators: Antonio Navarra (INGV) and Laurence Tubiana (IDDRI)

CIRCE aims at developing an assessment of the climate change impacts in the Mediterranean area

OBJECTIVES

- 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

RL 0- Coordination and Communication

RL 5: WATER CYCLE

"Quantify the past variations and future projections in the water cycle in the Mediterranean Environment under global climate changes system."

OBJECTIVE

The understanding the synoptic (physical) nature of the relations between the "secondary" factors, teleconnection regimes and the variations in the monthly mean precipitation over the region.

- **Task 5.2.1 Investigation of the role of the jet stream and air-moisture transport over Europe and climate change trends on the orographically induced precipitation**
- **Task 5.2.2 Analysis of the effects of global circulation on weather patterns typical for orographically induced precipitation over the Eastern Mediterranean region, as well as evaluation of precipitation trends in the climate models**

WP 5.2
Variation in the ***Precipitation component*** of water cycle

WP 5.1
Analysis of changes in ***Atmospheric*** water budget

OBJECTIVE

The analysis of inter-annual variations in the atmospheric water budget and coupling to hydrological components

- **Task 5.1.1 Analysis of changes in the Atmospheric Moisture Budget**
- **Task 5.1.2 Large-scale interactions between atmospheric moisture and water availability – coupling of atmospheric and hydrological RCMs**

WP 5.3
Variation in the ***Terrestrial component*** of water cycle

WP 5.4
Changes in ***Mediterranean Sea*** water cycle and implication for water mass characteristics

OBJECTIVE

On regional and local impacts of climate change and possible variations (and projections) in the water balance regimes, floods, groundwater, and lakes. Models for basin scale and regional scale analysis and simulation are being developed and applied.

- **Task 5.3.1 Impact of climate change on soil moisture and river run-off**
- **Task 5.3.2 Role of climate-soil-vegetation interactions in the dynamics of soil moisture variability**
- **Task 5.3.3 Synoptic-hydrologic evaluation of Mediterranean to dryland floods under climate change**
- **Task 5.3.4 Impact of climate change on ground water recharge and storage**
- **Task 5.3.5 Effects of climate and hydrological changes on the thermal structure and water storage in sub-alpine lakes and temperature related production/respiration variations**
- **Task 5.3.6 Analysis and detection of water stress sensitive areas in the Mediterranean Basin under future climate change**

OBJECTIVE

To document changes in the Mediterranean Sea water cycle under the various climate change scenarios and investigate the effects on water mass characteristics

- **Task 5.4.1 Diagnosing Mediterranean water cycle changes and implications for water mass characteristics**
- **Task 5.4.2: River discharge into the Mediterranean Sea and estimation of the associated nutrient load**

Participants: **TAU** -Tel Aviv University; **IRSA-CNR** – Istituto di Ricerca sulle Acque del Consiglio Nazionale delle Ricerche; **Met office** UK; **HUJI** - Hebrew University of Jerusalem; **BGU** - Ben-Gurion University of Negev; **PCB- LRC** - Parc Cientific de Barcelona; **ENEA** - Ente per le Nuove Tecnologie, l'Energia e l'Ambiente; **OGS** – Istituto Nazionale di Ocenografia e Geofisica Sperimentale