

Orals CL5.9

The climate of the Mediterranean region: from basic science to impacts

Convener: Piero Lionello

Co-Conveners: Andrea Toreti and Marta Marcos

[Session Details](#) [Posters](#)

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Thursday, 01 May 2014

Room: Y8

Chairperson: Marta Marcos

- 08:30-08:45 [EGU2014-3967](#)
Heavy precipitation events over the Euro-Mediterranean region in a warmer climate: results from CMIP5 models (solicited)
Enrico Scoccimarro, Silvio Gualdi, Alessio Bellucci, Matteo Zampieri, and Antonio Navarra
- 08:45-09:00 [EGU2014-6057](#)
Characteristics of storms that contribute to extreme precipitation events over the Iberian Peninsula
Ricardo Trigo, Alexandre M. Ramos, Paulina Ordoñez, Margarida L.R. Liberato, and Isabel F. Trigo
- 09:00-09:15 [EGU2014-8208](#)
Testing the ability of barotropic models to simulate sea level extremes of meteorological origin in the Mediterranean Sea
Francisco M. Calafat, Euripides Avgoustoglou, Gabriel Jordà, Helena Flocas, and Mikis N. Tsimplis
- 09:15-09:30 [EGU2014-5619](#)
Use of seagrass meadows as an adaptation measure to climate change for reducing port agitation
Agustín Sánchez-Arcilla, Jue Lin, Joan Pau Sierra, Vicenç Gracia, Merce Casas-Prat, and Marc Virgili
- 09:30-09:45 [EGU2014-8334](#)
Present and future bioclimatic conditions of importance to tourism over the Mediterranean
Panagiotis T. Nastos, Christos S. Zerefos, Ioannis N. Kapsomenakis, Kostas Douvis, Dimitra Konsta, and Andreas Matzarakis
- 09:45-10:00 [EGU2014-14779](#)
Climate Change Impacts on Turkish Vegetation
Matthew Forrest, Cenk Dönmez, Ahmet Çilek, Mehmet Akif Erdogan, Carlo Buontempo, and Thomas Hickler

Coffee Break

Chairperson: Andrea Toreti


- 10:30-10:45 [EGU2014-11742](#)
Response of Mediterranean temperate and cold-water corals to ocean acidification (solicited)
Eva Calvo, Juancho Movilla, and Carles Pelejero
- 10:45-11:00 [EGU2014-8970](#)
Future distribution of sea level and wave maxima along the Mediterranean Coast
Piero Lionello, Dario Conte, and Luigi Marzo
- 11:00-11:15 [EGU2014-15630](#)
Decadal climate variability and forced change in the South Europe - Mediterranean Region
Annarita Mariotti, Yutong Pan, Ning Zeng, and Andrea Alessandri
- 11:15-11:30 [EGU2014-11998](#)
Variability and trends of migratory anticyclones affecting the Mediterranean
Maria Hatzaki, Helena A. Flocas, Ian Simmonds, John Kouroutzoglou, Kevin Keay, and Irina Rudeva
- 11:30-11:45 [EGU2014-13848](#)
How much water do we need for irrigation under Climate Change in the Mediterranean?
Marianela Fader, Bondeau Alberte, Cramer Wolfgang, Decock Simon, and Shi Sinan
- 11:45-12:00 [EGU2014-10877](#)
The Etesian wind system - Classification and Climatology
Stella Dafka, Elena Xoplaki, Andrea Toreti, Prodromos Zanis, Fidel González Rouco, and Juerg Luterbacher

Lunch Break


Chairperson: Piero Lionello

- 13:30-13:45 [EGU2014-10030](#) | [Presentation](#)
When are Mediterranean heavy rain events sensitive to atmosphere-ocean coupled processes? A case study in southern France.
Ségolène Berthou, Sylvain Mailler, Philippe Drobinski, Thomas Arsouze, Sophie Bastin, Karine Béranger, and Cindy Lebeaupin-Brossier


- 13:45-14:00




[EGU2014-10087](#)
Potential vorticity anomalies as precursors of extreme precipitation events in the Mediterranean region
Andrea Toreti, Olivia Martius, and Paraskevi Giannakaki
- 14:00-14:15




[EGU2014-2544](#)
Precipitation in the Mediterranean Area related to Weather Regimes of the North Atlantic-European Domain: A Statistical Downscaling Study
Elke Hertig and Jucundus Jacobeit
- 14:15-14:30



[EGU2014-6655](#)
Observed snowfall and river discharge trend and low-frequency variability over Alps
Matteo Zampieri, Enrico Scoccimarro, and Silvio Gualdi
- 14:30-14:45



[EGU2014-13417](#)
Regional projection of climate impact indices over the Mediterranean region
Ana Casanueva, M^a Dolores Frías, Sixto Herrera, Joaquín Bedía, Daniel San Martín, José Manuel Gutiérrez, and Ksenija Zaninovic
- 14:45-15:00



[EGU2014-8995](#)
Recent drying of the Fertile Crescent: natural or externally forced?
Colin Kelley



Regional projection of climate impact indices over the Mediterranean region

Ana Casanueva (1), M^a Dolores Frías (1), Sixto Herrera (1,2), Joaquín Bedia (3), Daniel San Martín (2), José Manuel Gutiérrez (3), and Ksenija Zaninovic (4)

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Climate Impact Indices (CIIs) are being increasingly used in different socioeconomic sectors to transfer information about climate change impacts and risks to stakeholders. CIIs are typically based on different weather variables such as temperature, wind speed, precipitation or humidity and comprise, in a single index, the relevant meteorological information for the particular impact sector (in this study wildfires and tourism). This dependence on several climate variables poses important limitations to the application of statistical downscaling techniques, since physical consistency among variables is required in most cases to obtain reliable local projections. The present study assesses the suitability of the “direct” downscaling approach, in which the downscaling method is directly applied to the CII. In particular, for illustrative purposes, we consider two popular indices used in the wildfire and tourism sectors, the Fire Weather Index (FWI) and the Physiological Equivalent Temperature (PET), respectively. As an example, two case studies are analysed over two representative Mediterranean regions of interest for the EU CLIM-RUN project: continental Spain for the FWI and Croatia for the PET.

Results obtained with this “direct” downscaling approach are similar to those found from the application of the statistical downscaling to the individual meteorological drivers prior to the index calculation (“component” downscaling) thus, a wider range of statistical downscaling methods could be used. As an illustration, future changes in both indices are projected by applying two direct statistical downscaling methods, analogs and linear regression, to the ECHAM5 model. Larger differences were found between the two direct statistical downscaling approaches than between the direct and the component approaches with a single downscaling method.

While these examples focus on particular indices and Mediterranean regions of interest for CLIM-RUN stakeholders, the same study could be extended to other indices and regions.