COST 19109 MEDYCLONE
un network europeo per lo studio dei cicloni Mediterranei

Silvio Davolio - CNR ISAC (Bologna)

COST is supported by the EU Framework Programme Horizon 2020

CA19109 MEDCYCLONE: "European network for Mediterranean cyclones in weather and climate"

- MoU and parties→ https://www.cost.eu/actions/CA19109
- Coordination:
  - Chair: Dr Emmanouil FLAOUNAS (HCMR, Greece)
  - Vice-chair: Dr Silvio DAVOLIO (CNR ISAC, Italy)
  - WG1 leader: Florian PANTILLON (Lab. d'Aerologie, France)
  - WG2 leader: Dr Shira RAVEH-RUBIN (Weizmann Institute, Israel)
  - WG3 leader: Dr Jonilda KUSHTA (Cyprus Institute, Cyprus)
  - Communication: Prof Margarida L. R. LIBERATO (Un. of Trás-os-Montes e Alto Douro, Portugal)
  - STSM coordinator: Dr Maria HATZAKI (Un. of Athens, Greece)
- Management Committee: 49 members from 28 countries
- Four year project 2020-2024
- Kick Off Meeting in October 2020
- Expected funding ~130,000 EUR per year

RESEARCH COORDINATION OBJECTIVES

- Delineate the role of atmospheric processes and determine the relationship between these processes and the performance of the models in weather and climate prediction.
- Establish priorities for model development, develop common protocols for assessing the quality of Mediterranean cyclone simulations.
- Foster sharing and application of common protocols and diagnostic tools, even those developed for other cyclonic systems (tropical and subtropical cyclones, polar lows) to Mediterranean cyclones.
- Increase public awareness and improve stakeholders' understanding of cyclone-related high-impact weather and of relevant uncertainties regarding prediction on weather and climate time-scales.

CAPACITY BUILDING OBJECTIVES

- Engage researchers and professionals, train early career academic researchers, weather/climate prediction professionals and stakeholders on the new scientific advancements in the field of Mediterranean cyclones, as well as on the new evaluation tools and prediction methods that are outcomes of this Action.
- Promote exchange of scientific and modelling expertise between weather and climate prediction and research centres located around the Mediterranean and in other European countries. Special focus will begiven on improving high-impact weather prediction.
- Promote collaboration between researchers, prediction centres and stakeholders to co-design products and services tailored to their needs.

WG1
Process-based understanding of Mediterranean cyclones at weather time scales

- Increase forecast skill
- Guidelines to improve NWP
- High impact weather prediction

WG2
Process-based understanding of Mediterranean cyclones at climate time scales

- Better understand cyclone processes
- Common protocols and assessment tools for climate simulations
- Cyclone-related risks / Climate change

WG3
Environmental and socio-economic impacts of Mediterranean cyclones

- Set new research priorities
- New impact-oriented products for stakeholders
- New aspects of cyclone impacts

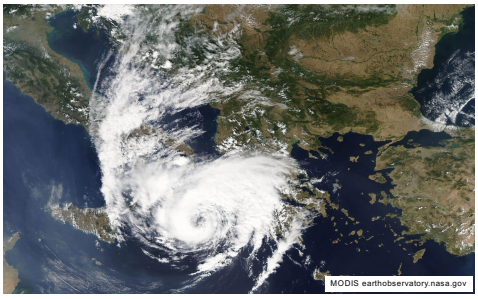
Coordination of research:
- Research initiatives
- Brainstorming

Operational implementation:
- Development of new tools
- Encourage use of new tools

Dissemination and public engagement:
- Scientific articles
- Newsletters, Press releases, website, ...

COST Actions:

- COST provides networking opportunities
- Coordinated by a Management Committee
- **Participation to WG activity is open to everyone**
- Stakeholders participation is important!
- COST does not fund research, funds collaboration activities.
- Eligible activities for funding
  1) Workshops/meetings
  2) Dissemination activities (articles, communication material, website…)
  3) Training schools
  4) Short term scientific missions STSM
  5) ITC Conference grant

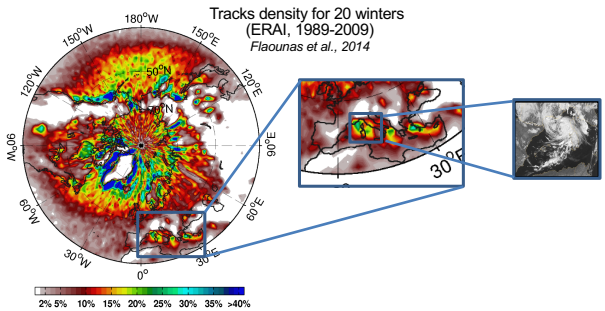


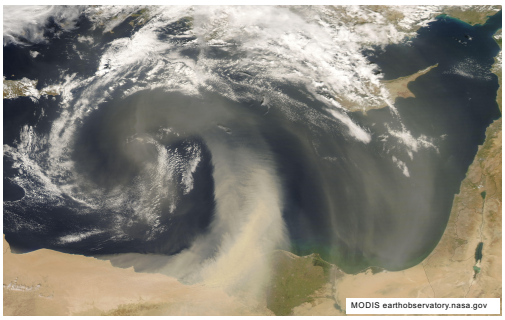
WG1 ongoing activities

- Dynamics and operational forecasts of Mediterranean cyclones (DynForMed): Diagnostic shared tools will be applied to provided model outputs, in particular tracking but also dynamical or impact diagnostics, starting from a specific case study (medicane Ianos). This is a first step towards an operational forecast comparison.
  Willing to join? –> philipp.zschenderlein@env.ethz.ch
- List of case studies of Mediterranean cyclones looking for collaborations
  →https://docs.google.com/document/d/1waFWWuvvEW7pmxUdsskgNd8_23wE_ZfdRCsClsPgZEs/edit?pli=1
- WG1 & WG2 join activity: Use an ensemble of cyclone tracking methods to develop a multi-tracking-methods approach to (i) produce a reliable dataset of cyclone tracks in ERA5; (ii) perform an automatic, daily diagnosis of cyclone tracks in forecast outputs; (iii) evaluate climate models performance
  Willing to join? –> em.flaounas@hcmr.gr

WG2 ongoing activities

- Med cyclones classification initiative (MedCyClass): examine the processes that govern the cyclones, and try to classify cyclones using this dimension to obtain climatologies of each class.
  Willing to join? –> shira.raveh-rubin@weizmann.ac.il
- Mediterranean cyclones in convection-permitting climate simulations, in present-day simulations and future RCP85 scenario.(i) Collect 10 or more-year CP simulations; (ii) select a few tracking algorithms; (iii) identify types of cyclones more affected by convection both in terms of processes and impacts.
  Willing to join? –> segolene.berthou@metoffice.gov.uk
- Medicane definition: try to converge towards a shared definition, able to bring together the numerical and satellite approach, the meteorological and the climatological perspective in a single and complete vision.
  Willing to join? –> m.miglietta@isac.cnr.it





WG3 ongoing activities

- Strengthening our understanding of the numerous and complex impacts of Mediterranean cyclones on environmental and human life aspects.
- Know each-other better and the expertise we bring in this action. Up to now: dust transport (connection with InDust COST Action); high-impact weather events; climate change impacts on migration, adaptation and resilience.

SUBSCRIBE TO WG activities: https://bit.ly/3jmfH1i

Contacts: Silvio Davolio – CNR ISAC - S.Davolio@isac.cnr.it