

TROPICANA

TROPical Cyclones in ANthropocene: physics, simulations & Attribution

TROPICANA is a one-month program at the Institut Pascal in Paris-Saclay (more information [here](#)). There are between 25 and 40 “full participants” each week who will be in-person in the institute.

Most seminars and talks are open in-person or online to anyone interested.

These are indicated in a **yellow** background below.

Training sessions are also organised within the program, **tailored for ECS but open to anyone**. They will be **in person** and require **registration** (links are provided below).

They are indicated with a **green** background.

A calendar view of this program is available [here](#).

All times are indicated as Paris time.

The “Cathédrale” is the central room of the Institut Pascal.

Throughout the program, participants are welcome to use the various meeting rooms for spontaneous meetings.

Keynotes

- **Monday 3rd June 2pm: Kerry Emanuel:** Overview of Medicanes, polar lows and subtropical storms

<https://zoom.us/j/93089760399?pwd=TnlEejFGTXVJdkRseGppZmtDL3FRdz09>

ID de réunion: 930 8976 0399

Code secret: 045668

- **Tuesday 4th June 10am: Emmanouil Flanouas:** An overview of recent advancements in the dynamics of Mediterranean cyclones and the specific case of medicanes

<https://zoom.us/j/95125299925?pwd=TDBibWhCdUEwQ1F6d21NL1IHNWJFZz09>

ID de réunion: **951 2529 9925**

Code secret: **951156**

- **Monday 10th June 10.30am: Erika Coppola:** On the need for km-scale climate projections to understand change in extreme convective precipitation events. The role of AI-based climate emulators.

<https://zoom.us/j/91228173726?pwd=Wmp6ZVVVcIEzTGloVm5mMmd2YmhQUT09>

ID de réunion: 912 2817 3726

Code secret: 868521

- **Monday 17th June 11am: Zhuo Wang:** Tropical Cyclogenesis: from the mesoscale to planetary scale, from the real atmosphere to the modeling world
- <https://zoom.us/j/91976114574?pwd=Y2J3cWlvcGNNZG1CZnIEYjAxeHZ1UT09>

ID de réunion: 919 7611 4574

Code secret: 768452

- **Monday 24th June 11am: Ning Lin:** Tropical cyclones hazards and risk in a changing climate

<https://zoom.us/j/99746533200?pwd=WXhUUDFpaFYxZDZzNzJzbHBIY2I1QT09>

ID de réunion: 997 4653 3200

Code secret: 850226

Week 1 - Mediterranean Cyclones

Monday 3 June

If you have a poster on Tuesday, you can hang it from this morning.

9:30	Welcome coffee and installation in the offices	
10:30	Opening 15' by Y. Balkanski, director of IPa, housekeeping	Cathédrale / <u>Zoom</u>
12:00	Buffet lunch	Cathédrale
14:00	Kerry Emanuel conference on “ Overview of Medicanes, polar lows and subtropical storms“	IPa Large amphitheatre / <u>Zoom</u> (ID de réunion: 930

15:30	Panel on the upcoming TC season Panel : K. Emanuel, D. Faranda, S. Khodayar, R. Vautard / Chair : S. Camargo	8976 0399, Code secret: 045668)
16:30	Discussion : Objective of the week	Cathédrale

Programme **TROPICANA** 3 -28 juin 2024 université PARIS-SACLAY INSTITUT PASCAL

<https://www.institut-pascal.universite-paris-saclay.fr/>

Lundi 3 Juin 2024

Grand amphithéâtre de l'Institut Pascal

Bat 530: rue André Rivière Orsay 91400

14h00 - 15h00

Kerry Emanuel

PROFESSOR EMERITUS OF ATMOSPHERIC SCIENCE
Lorenz Center MIT



Overview of, Medicanes, polar lows and subtropical storms

A tropical cyclone is defined, somewhat tautologically, as "an intense circular storm that originates over warm tropical oceans and is characterized by low atmospheric pressure, high winds, and heavy rain," to quote from the Encyclopedia Britannica.

Yet under certain circumstances, cyclonic storms that strongly resemble tropical cyclones develop outside the tropics over waters whose temperature is below the canonical 26.5 C threshold used by most forecasters and researchers. Such storms, encompassing those that make up the title of this talk, have most of the distinctive features of tropical cyclones, including eyes, eyewalls, and spiral bands.

I will review what is known, observationally and theoretically, about such storms, and show that in most cases they form under synoptic-scale conditions in which the potential intensity and relative humidity are locally elevated above normal climatology by deep, cold lows aloft that have usually formed by Rossby wave breaking events. In some cases, such as Cyclone Daniel of 2023, the parent cold low can interact with the surface-based cyclone long after the latter has formed. I will argue that the observed structural differences between these storms and normal tropical cyclones can be attributed to the higher magnitude of the Coriolis parameter and the lower dry static stability along moist adiabats at lower temperatures. They appear to be part of the continuum between moist and dry surface flux-driven cyclones described by Cronin and Chavas. E.K.



Lundi 3 Juin 2024

Conférence de Presse:

Grand amphithéâtre de l'Institut Pascal

15h30 - 16h00

Bat 530: rue André Rivière Orsay 91400

Emanuel

Kerry

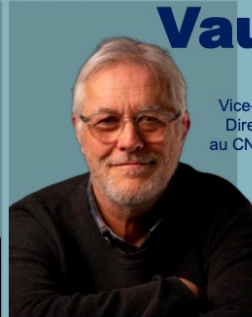
Professeur MIT USA



Vautard

Robert

Vice-Président du GIEC
Directeur de recherche
au CNRS en climatologie



Khodayar

Samira

Directrice du Centro
de Estudios
Ambientales del
Mediterráneo,
Valencia, Espagne



Faranda

Davide

Directeur de Recherche
CNRS en Climatologie à
l'institut Pierre Simon
Laplace, France



Tuesday 4 June

10:00	Keynote talk by <u>Emmanouil Flaounas</u> on “An overview of recent advancements in the dynamics of Mediterranean cyclones and the specific case of medicanes”	IPa small amphitheatre Zoom link (ID de réunion: 951 2529 9925, Code secret: 951156)
11:30	Talk by <u>Stavros Dafis</u> on “TBD”	

12:00	Talk by <u>Romualdo Romero</u> “Estimating Mediane Wind and Rainfall Risk in a Changing Climate using a Regionally-Adapted Statistical-Deterministic Approach”	
Lunch	Canteen	
Afternoon	Collaborative time	
17:30	Poster Session & Happy hour	Cathédrale

Wednesday 5 June

10:00	Talk by <u>Juan Jesus Gonzales Aleman</u> on “Medicanes projections and their problematic numerical identification”	IPa small amphitheatre Zoom link (ID de réunion: 977 9039 9248, Code secret: 547322)
10:30	Talk by <u>Marcello Miglietta</u> on “Medicanes: Bridging the Gap Between Tropical and Extratropical Cyclones in the Mediterranean”	
11:30	Discussion on the definition of medicanes and tropical transition	Cathédrale
Lunch	Canteen	
14:00 - 18:00	Training session on Mediane detection Registration link for training	Room I217

Thursday 6 June

10:00	Talk by <u>Carmen Alvarez Castro</u> on “Predictability of the low pressure systems leading concurrent events in the Iberian Peninsula”	IPa small amphitheatre Zoom link (ID de réunion: 924 2024 9915, Code secret: 820755)
10:30	Talk by <u>Pier-Luigi Vidale</u> on “Process emergence with resolution: beyond TCs”	

11:30	Discussion on EU and International Actions around Mediterranean Cyclones (<u>Samira Khodayar</u>)	Cathédrale
Lunch	Canteen	
Afternoon	Collaborative time	
19:30	Dinner	Gramophone, Orsay

Friday 7 June

Morning	Collaborative time	
Lunch	Canteen	
14:00	Presentation of work done during the week Discussion about the legacy of TROPICANA	Cathédrale / Zoom link ID de réunion: 917 6648 9698, Code secret: 17162

Week-end : 8&9 June

Social suggestions welcome

Week 2 - Mediterranean Cyclones

Monday 10 June

9:30	Welcome coffee, installation in offices	
10:30	Keynote by <u>Erika Coppola</u> on “On the Need for Kilometre Scale Climate Projections to	Small Amphitheatre / Zoom (ID de réunion: 912 2817 3726 Code secret:

	understand change in Extreme Convective Precipitation Events. The role of AI based ClimateEmulators.”	868521)
12:00	Buffet lunch	Cathédrale
14:00	Postdocs short talks: <u>Stella Bourdin</u> : Mediterranean cyclones variability in ERA5 and the IPSL model <u>Alice Portal</u> : Convective environments embedded within Mediterranean cyclones <u>Chen Lu</u> : TBD	Cathédrale / Zoom (ID de réunion: 912 2817 3726 Code secret: 868521)
19:30	Dinner	Gramophone, Orsay

Tuesday 11 June

10:00	Talk by <u>Florian Pantillon</u> on “Modeling Mediterranean cyclones across scales”	Small Amphi / Zoom ID de réunion: 993 7400 8108 Code secret: 572010
10:30	Talk by <u>Marco Reale</u> on “Assessing the interactions between weather systems and marine environment in the Mediterranean region”	
11:30	Discussion on air-sea interactions	Cathédrale
Lunch	Canteen	
Afternoon	Collaborative time	

Wednesday 12 June

10:00	Talk by <u>Davide Faranda</u> on “Challenges in the Attribution of Tropical and Mediterranean Cyclones to Climate change”	Small Amphi / Zoom ID de réunion: 989 4957 9433 Code secret: 690888
10:30	Overview of the XAIDA european project	
Lunch	Canteen	

14:00 - 18:00	Training session on cyclone attribution Registration link for training	Room I217
19:30	ClimarisQ : A serious game to understand climate change	Room TBD / Zoom ID de réunion: 978 7626 7834 Code secret: 261280

Thursday 13 June

10:00	Talk by Jonathan Lin on “TBD”	Small Amphi / Zoom ID de réunion: 940 7479 9820 Code secret: 994119
10:30	Talk by Tommaso Alberti on “Impacts of changing atmospheric circulation patterns on aircraft turbulence over Europe: long-term trends and Medicanes”	
Lunch	Canteen	
17:30	Poster session / Happy Hour	Cathédrale

Friday 14 June

10:00	Mireia Ginesta 's PhD defense on “Detection, Attribution & Projection of Changes in Extratropical and Mediterranean Cyclones”	CEA Saclay, Orme des Merisiers, Amphi Bloch (Convoy will be organized for interested persons) + Zoom
Lunch	Canteen	
14:00	Presentation of work done during the week Discussion about the legacy of TROPICANA	Cathédrale / Zoom ID de réunion: 985 6001 6479 Code secret: 538756

Week 3 - Tropical Cyclones

Keynote:

Monday 17th June 11am: Zhuo Wang

Full program in progress

Week 4 - Tropical Cyclones

Keynote:

Monday 24th June 11am: Ning Lin: Tropical cyclones hazards and risk in a changing climate

In progress