

# ICTP-CLIVAR Summer School on Marine Heatwaves: Global Phenomena with Regional Impacts



**24 - 29 July 2023**  
**An ICTP Hybrid Meeting**  
**Trieste, Italy**

Further information:

<http://indico.ictp.it/event/10191/>  
[smr3857@ictp.it](mailto:smr3857@ictp.it)

Marine Heatwaves are extreme climatic events that impact all ocean basins and can persist from weeks to months and spread over hundreds to thousands of kilometers. They have devastating impacts on marine habitats and ecosystems and influence regional weather systems and extreme weather events.

Climate change is clearly responsible for increasing the frequency of the widespread occurrence of MHWs, but open questions remain about the internal variability that drives these extreme events above the slowly evolving background warming. The Summer School aims to enhance the understanding of the mechanisms, predictability and impacts of MHWs, as well as to provide hands-on experience and tools to train the next generation of scientists, and enhance the capacity of early career scientists, especially from under-resourced countries to detect and predict MHWs.

The school will include lectures on the current state of knowledge on the topic of MHWs and practical sessions with the development of student projects. Analysis tools for the detection and diagnosis of extreme events in observations and climate model output will be made available to the students prior to the school, so that they can be readily applied to small research projects during their time in Trieste.

## Topics:

- Technical aspects: Methodologies used to estimate extremes,
- Drivers of marine heatwaves: Atmospheric and oceanic mechanisms
- Impacts of marine heatwaves: Cyclones, ecosystems, societal costs
- Future projections, attribution and forecast: trends vs internal dynamics

## How to apply:

Online application:  
<http://indico.ictp.it/event/10191/>

Female scientists are encouraged to apply.

## Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

## Directors:

A. CAPOTONDI, NOAA, USA  
J. HERMES, South African Environmental Observation Network, South Africa  
R. M. KOLL, Indian Institute of Tropical Meteorology, India  
J. LI, ICPO, China  
C. MARTINEZ VILLALOBOS, UAI, Chile  
S. MCGREGOR, Monash University, Australia  
R. RODRIGUES, Federal University of Santa Catarina, Brazil  
J. SANTOS, ICPO, China  
S. SINGH, Indian Institute of Tropical Meteorology, India  
J. SPRINTALL, Scripps Institution of Oceanography, USA

## Local Organiser:

R. FARNETI, ICTP, Italy

## Speakers:

D. AMAYA, NOAA Physical Sciences Laboratory, USA  
A. CAPOTONDI, NOAA, USA  
C. DESER, NCAR, USA  
T. FROELICHER, Bern University, Switzerland  
N. HOLBROOK, University of Tasmania, Australia  
R. M. KOLL, Indian Institute of Tropical Meteorology, India  
N. LOVENDUSKY, University of Colorado, USA  
S. MASINA, CMCC, Italy  
R. RODRIGUES, Federal University of Santa Catarina, Brazil  
A. SCHAEFFER, University of New South Wales, Australia  
R. W. SCHLEGEL, Sorbonne Universite, France  
K. E. SMITH, The Marine Biological Association, UK

## Deadline:

**1 April 2023**



The Abdus Salam  
International Centre  
for Theoretical Physics  
[www.ictp.it](http://www.ictp.it)  
Trieste, Italy

