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**International Doctorate in
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SEMINAR

EXPLORING FUTURE CLIMATE RISK WITH STATISTICAL EMULATORS

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THURSDAY
16 APRIL 2026



TIME
04:00-05:00 pm



LOCATION
Room 138 S.Marta



For info
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Climate emulators are emerging as powerful tools to efficiently explore future climate across a wide range of emission scenarios. The statistical emulator MESMER provides spatially resolved realizations of key climate variables, including extremes, by learning statistical features from climate models. This approach enables the generation of large ensembles of climate realizations at a fraction of the computational cost needed to run full simulations, and for arbitrary global warming trajectories.

By coupling MESMER with risk assessment platforms such as CLIMADA, we can move beyond average impact estimates and systematically assess the full distribution of risks. This includes the evaluation of low-probability, high-impact events as well as the identification of spatial patterns of impacts.

With an application to Europe, we show how climate emulation can enhance our understanding of regional risk under novel emission pathways and support more comprehensive climate risk and adaptation assessments.



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I am a postdoctoral researcher at ETH Zurich, Switzerland, working at the intersection of climate science and risk assessment. I completed my PhD in theoretical physics in Rome in 2023 and have since transitioned into climate research, focusing on climate extremes, statistical emulation, and risk modeling to better quantify impacts and support climate mitigation and adaptation strategies.