



Università
di Brescia

RESEARCH SEMINAR



Climate change, catastrophes and the Mediterranean basin: outcomes from the RICE-MED model under uncertainty

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15th July 2026
1:30 p.m.

Room B5, Santa Chiara Building
Contrada Santa Chiara, 50 - Brescia

We extend the IAM framework of the RICE-MED model by Castellini et al. [2025], based on RICE-99 of Nordhaus and Boyer [2000] with a spatial focus on the Mediterranean basin at the country level, by introducing uncertainty over a climate-change-driven catastrophe, following Castelnuovo et al. [2003]. Per-period utility is split between a pre- and a post-catastrophe state, weighted by an endogenous survivor probability whose hazard rate accumulates with the level and variation of temperature [Castelnuovo et al., 2003], and by a scaling parameter sizing the welfare loss should the catastrophe occur, the new element in the model's uncertainty box. We explore different welfare-loss specifications to study the effects on the model's regional and country outcomes (i.e. social cost of carbon, temperature increase, GDP, energy and emissions intensity): a uniform loss across regions, a North–South case, and a heterogeneous, income-dependent and time-varying loss.