

# CGD SEMINAR



**DATE:** Tuesday 29 October, 2019

**TIME:** 11 am – 12 pm

**LOCATION:** NCAR, 1850 Table Mesa Drive  
Mesa Lab, Main Seminar Room

**TITLE:** Recent changes in European temperature variability revisited

**SPEAKER:** Laurent Terray, CECI, CNRS/Erfacs,  
Toulouse, France

## ABSTRACT:

Changes in occurrence and intensity of midlatitude extreme weather has been an important topic in recent years. In particular, Europe has experienced many extreme temperature events in the past two decades. While a lot of attention has been given to the attribution of specific extreme temperature events, much less has been done regarding the attribution of multi-decadal changes in European temperature variability and extremes. For instance, uncertainty remains with regard to the precise quantification of external and internal driver influence on temperature variability long-term changes. Based on two observational datasets and all- and single-forcing CESM1 large ensembles, we present and discuss attribution results regarding changes in European temperature variability and extremes during the 1950-to-2017 period. We find that significant changes in temperature variability have only occurred in summer months (July and August) and October. While anthropogenic forcing can explain a large fraction (>50%) of summer changes, internal variability is the dominant driver in October. We also discuss the separate influence of greenhouse gases and aerosols on summer temperature variability changes. We then assess the role of two mechanisms that have been suggested in the literature as being key mechanisms for changes in summer temperature variability: 1. Land-atmosphere interaction and soil moisture availability 2. Changes in circulation including increased atmospheric flow waviness related to Arctic sea-ice loss. Finally, we briefly discuss climate model adequacy-for-purpose and whether the recent European temperature variability changes are indicative of long-term 21<sup>st</sup> century changes.

**Live webcast:** <http://ucarconnect.ucar.edu/live>

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