



Università
di Genova

Department of Civil, Chemical
and Environmental Engineering

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INTERNATIONAL ADVANCED
SCHOOL

THUNDERSTORM OUTFLOWS AND THEIR IMPACT ON STRUCTURES

GENOVA, ITALY
MARCH 9-13, 2020



THE THUNDERR PROJECT

The safety and sustainability of built environment with regard to natural actions are primary goals of engineering. Wind is the most destructive natural phenomenon. Evaluating its actions is therefore crucial for society and its economy.

Wind climatology is often dominated by cyclones and thunderstorms. The properties of cyclones are known since the 1920s. Their actions on construction are well established since the 1960s and engineering still uses these models. Thunderstorms are complex and devastating phenomena that result in actions often more intense than cyclonic ones. Despite this awareness, there is not yet a model of thunderstorm winds and their actions on structures as that established over half century ago for cyclones. This is a major shortcoming that gives rise to unsafe and/or overly expensive works.

THUNDERR is an acronym of THUNDERstorm that expresses the Roar of the ERC project carried out at the University of Genova. It aims to detect thunderstorms, to create a database of wind records and weather scenarios, to conduct unprecedented laboratory tests and CFD simulations, to formulate thunderstorm models suitable for atmospheric sciences and structural design, to improve the format of wind actions, of engineering practice and of codification, to make building safer and more sustainable, to bring about a profound impact on society and its economy.

REGISTRATION INFO

Information on the registration fee and scholarships will be made available soon on the website: <http://www.thunderr.eu>. Interested persons are kindly requested to pre-register writing to the email address: thunderr@unige.it

TOPICS

Synoptic, mesoscale and thunderstorm meteorology
Wind storms and climate changes
Wind monitoring and thunderstorm detection
Downburst modelling and signal analysis
Laboratory and CFD simulation of downbursts
Monte Carlo simulation of wind velocity fields
Fundamentals of bluff-body aerodynamics
Wind loading and response of structures to thunderstorm outflows
Full-scale monitoring of structures
Damage induced by local storms
Research and codification perspectives

(list to be completed)

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