

DATE: 16 Oct. 2024

TIME: 11:00 AM



Short BIO: Dr. Mario Marcello Miglietta works at the Institute of Atmospheric Sciences and Climate (CNR-ISAC), where he is Research Director (DR) from 2019. He is PI of the working group on "Extremes".

PhD in Physics, he was an officer for the Italian Air Force from 1993 to 2001, as member of the Meteorological Service, and full professor at University of Bari (2023-2024).

He had several experiences abroad: at the National Center for Atmospheric Research in Boulder, Colorado, at the University of Tokyo, at the ULBRA, Porto Alegre, Brazil, and he was visiting scientist at the European Commission, Joint Research Center, for about 3 years. He is the national representative at the International Association of Meteorology and Atmospheric Sciences, and he was recently elected as member of its International Commission on Dynamic Meteorology. His research focuses on Supercells and Tornadoes; Mediterranean Tropical-like cyclones; Orographic precipitation; Application of numerical models for the analysis of severe weather.

He has published more than 100 papers, and his H-index is 39.

Tornadoes in Italy: are they an effect of climate change?

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ABSTRACT: Although rare, intense tornadoes can occasionally affect the Italian territory. In recent years, some initial steps have been taken toward the identification of possible risk scenarios, studying the conditions associated with tornadoes in some Italian regions. Considering the morphology of the Italian territory, complex circulations induced and/or modulated by the presence of the sea and of the orography may develop; hence, the conceptual models developed for the U.S. Midwest should be modified or adapted to the peculiar Mediterranean environment.

In the Ionian regions, the warm Mediterranean Sea surface and the orography of Calabria appear fundamental to explain the genesis of intense tornadoes occasionally affecting the region. More recently, a conceptual model for the development of tornadoes in the Po Valley was proposed, in which two surface boundaries created a triple point: an outflow boundary generated by convection triggered in the Alpine foothills, and a dryline generated by downslope winds from the Apennines, while warm and moist air was advected westward from the Adriatic Sea east of the boundaries. Tornadoes that affected the Italian territory in the past will be analyzed, and some indications on the way climate change will affect tornado frequency and intensity will be provided.



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