

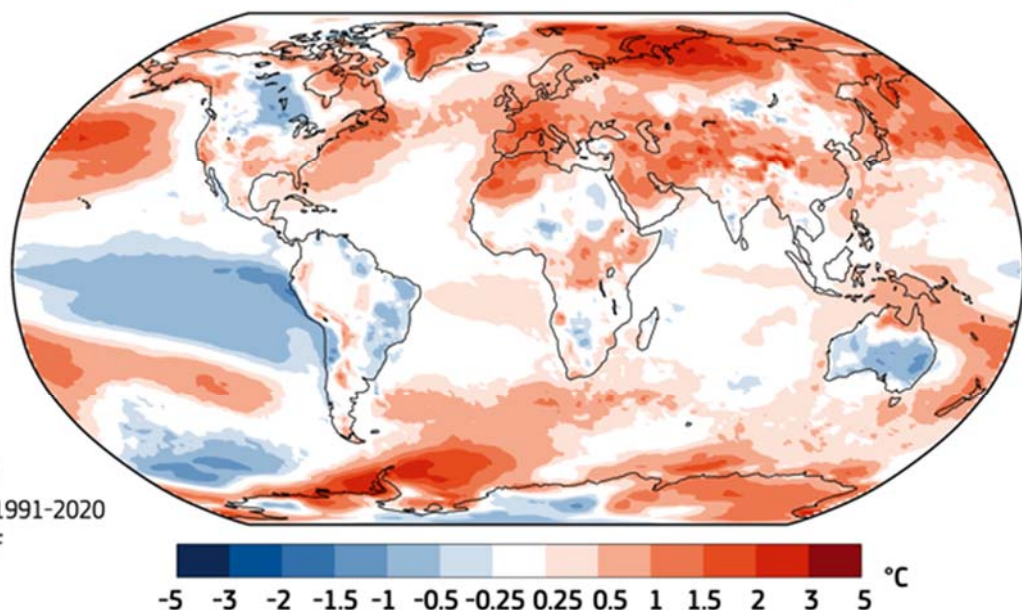
## Climate predictions: recent developments and applications

Giovedì 18 Gennaio 2024 – ore 16:30, Aula Arduino

Relatore: **Dr. Paolo Ruggieri**

Dipartimento di Fisica e Astronomia “Augusto Righi” - Università di Bologna

### 2022 Surface air temperature anomaly



Climate predictions emerged at the end of the 20<sup>th</sup> century as the experimental exercise of predicting the statistics of meteorological variables over the course of a season or a year ahead in time by exploiting the knowledge of the initial state of slow components of the Earth system. The exercise was conducted primarily with General Circulation Models initialized with data provided by a global observing system of the atmosphere and the ocean. It was largely successful. Nowadays, climate forecasting is supported by internationally coordinated routine operational predictions that reveal substantial room for meaningful applications. Operational predictions have proven to be skillful well beyond the expectations of the niche that developed them in the past three decades. In this seminar, I will discuss the historical development and the rationale of climate predictions and their contemporary classifications into sub-seasonal, seasonal and decadal forecasts. The seminar will review the state-of-the-art operational predictions and will provide insight into promising proof-of-concept approaches to bridge them with sectoral applications. Example applications in the context of water management and human health are also provided.

Proponente: **Francesco Marra**