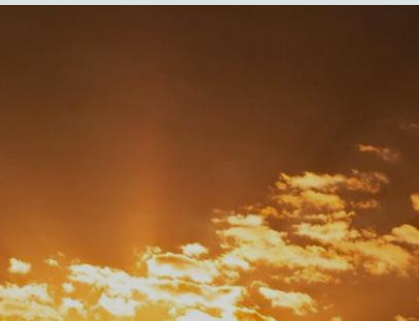




CLIMATE MODELS FOR ADAPTATION

Powerful tools for visualizing
future climate parameters



UNIVERSITÀ
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Catharsis Pitch Competition 2025

17/04/2025



CLIMATE IS (UNFORTUNATELY) CHANGING...

How can we see the future climate? And prevent the consequences it will have on us?

CLIMATE MODELS UNDER SELECTED GREENHOUSE GASES EMISSIONS FORCING (Representative Concentration Pathways)

Replicating **interactions and relationships** between atmospheric elements

GHG emission pathway acting in system evolution

Providing **long term projections** of many useful climatic parameters under **different emissions forcing scenarios**

THE CLIMATE DATA STORE

It is part of **EU's Copernicus Earth observation program**, with collaboration of ECMWF, IPCC and other international climate services

It provides **free, open access and high quality climate parameters** regarding:

- **past** (satellite observations and reanalysis)
- **present** (seasonal forecasts)
- **future** (projections)

More than 100 datasets are available, and they can provide data from observations and models developed by many international institutes

Each dataset provides specific weather parameters: **temperature, humidity, wind speed, solar irradiation, precipitations**, and many many others...



APPLICATION FIELDS

Land and species
protection

Agriculture
yield

Energy systems
performances

Infrastructures
resilience

Floods and droughts
management

Climate change
damages estimations

Practically... **ADAPTATION!**



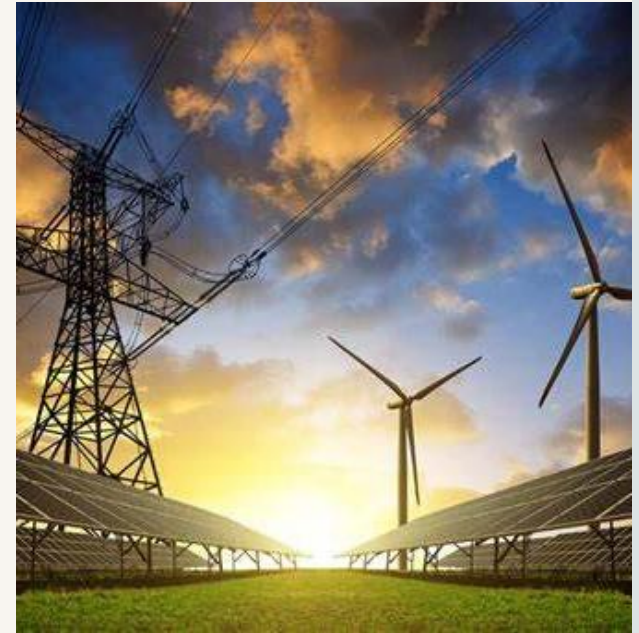
ENERGY SYSTEMS APPLICATION

PV technologies are very dependent on **air temperature** and **solar irradiation**, so it is expected a decrease of their performance due to climate change

Wind turbines' potential obviously depends on **wind speed**, and climate change can strongly modify the windiness of sites

Hydroelectric plants availability is going to be affected by changing **precipitations'** frequency and amount

And, broadly speaking, **changing temperatures** will affect **final energy consumption, grids, plants' cooling...**





Reliable and tailored future climate data, at high spatio-temporal resolution, now more than ever must be used in all these fields for **preventing and reducing potential effects of climate changes**

THANK YOU FOR YOUR ATTENTION!