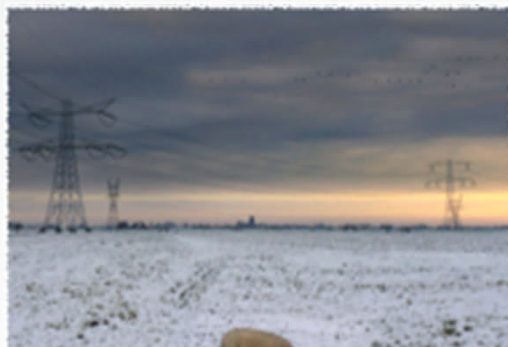
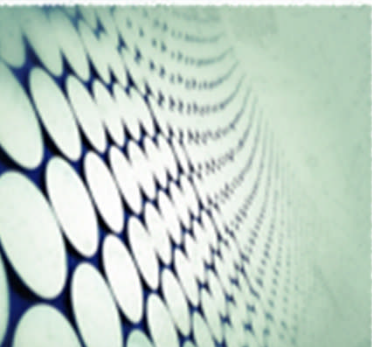


# ENEA as Climate Information provider: our Experience with the Energy Sector

Matteo De Felice, ENEA

Energy and Environment Modeling Unit (UTMEA)

Climate Modeling and Impacts Laboratory



# My experience

- Research on **machine learning** and **data mining** applied to energy systems modeling and forecast
- Problems about definitions:
  - ◆ PCA or EOF?
  - ◆ Anomalies?
  - ◆ Seasonal or Medium-Term Forecasting?

# Our Experience

- Activity with TERN
- Other activities (Critical Infrastructures)



# TERNA

- Italian Grid Operator (TSO)
- Predict peak demand in summer
- Photovoltaic production accounting (not S2D)

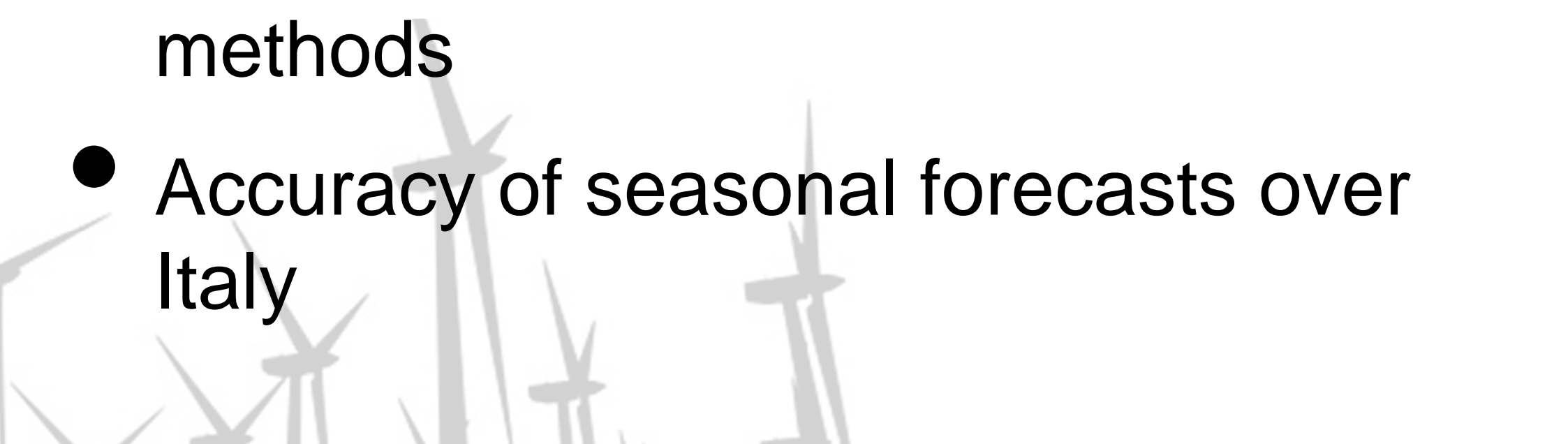


# S2D Climate Info

- Use of past demand time-series only
- **Urgent** need of information to describe present and predict future

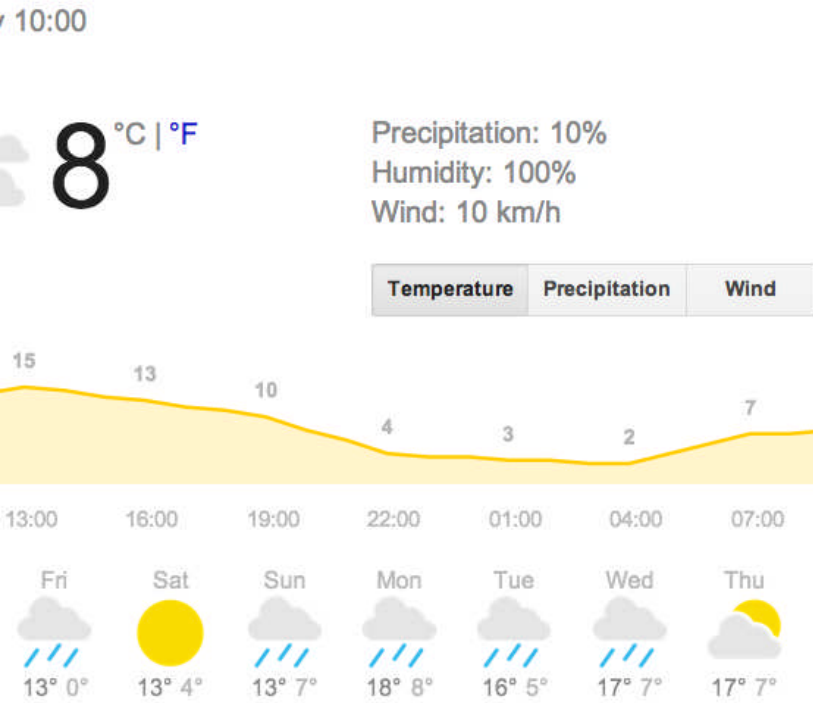


# Problems

- They don't know anything about climate forecasts
  - Inertia: tendency to use traditional methods
  - Accuracy of seasonal forecasts over Italy
- 

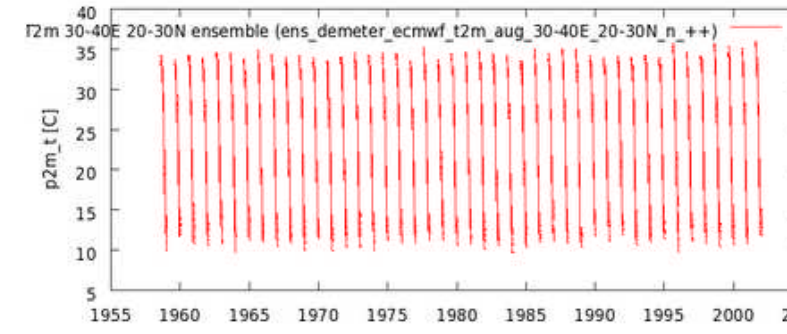


# Providing information

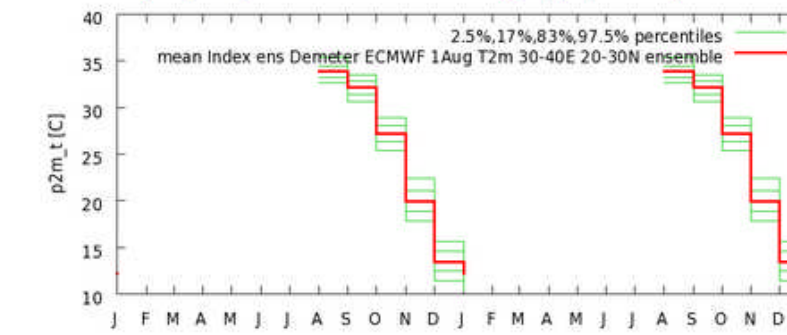


encapsulation means that the internal representation of an object is generally hidden from view outside

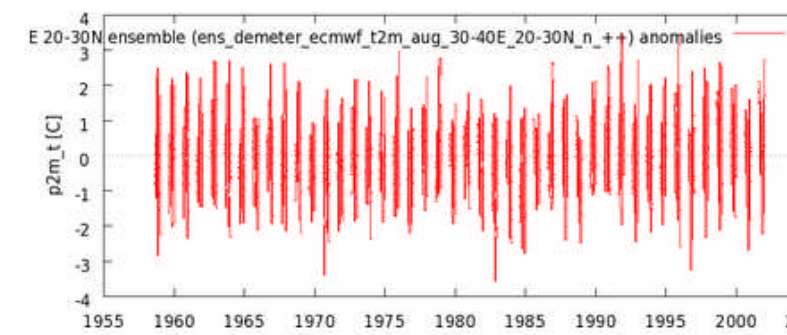
demeter ecmwf t2m aug 30-40E 20-30N n 07.dat, data/iens demeter ecmwf t2m aug 30-40E 20-30N n 08.dat, (eps, pdf, raw data)

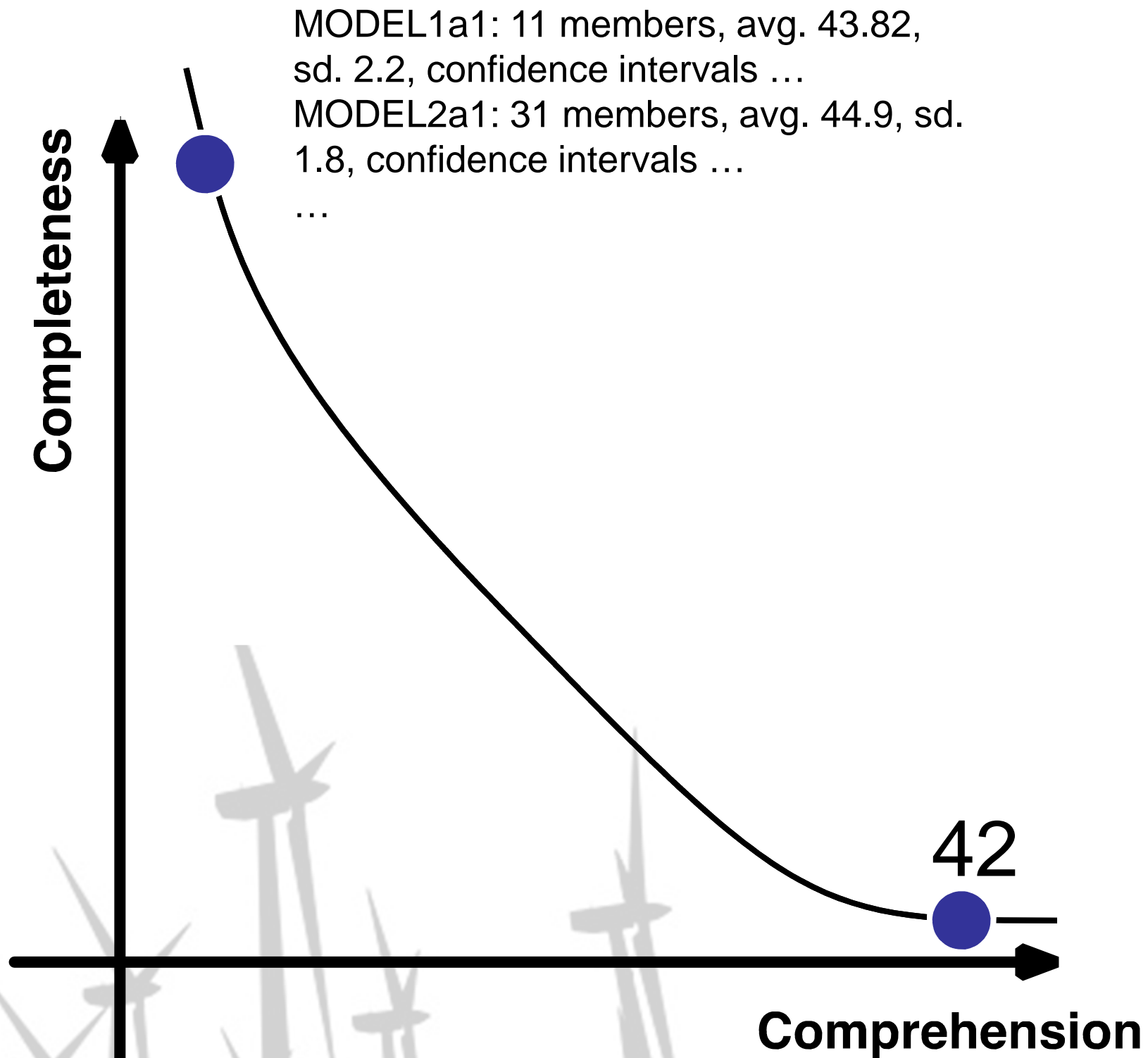


Two annual cycles, computed with all data available (eps, pdf, raw data)



Anomalies with respect to the above annual cycle (eps, pdf, raw data, netcdf)







# Other

 **IntelliCIS**  
COST Action IC0806

We need data  
exactly on this  
location



I don't know if  
data are  
reliable

Why we have  
multiple climate