METRICS FOR ASSESSING CLIMATE CHANGE IMPACTS
MODES OF VARIABILITY

MODES OF VARIABILITY
IDEA
CLIMATOLOGICAL RENEWABLE ENERGY DEVIATION INDEX (CREDI)

- Cumulative sum
- Anomaly w.r.t. `climate`
- Period of interest

- in Full Load Hours
CLIMATOLOGY
SOLAR CLIMATOLOGY

- Daily cycle *big* issue
  - Very low values —> Hourly needed!
  - Data needed for smooth & physical climatology
SOLAR CLIMATOLOGY

- Rolling window (on hour of day)
  - Window size; >20D, <60D
  - Quantitive assessment needed
  - Initial assessment (qualitative; 40D)
SOLAR CLIMATOLOGY

![Graph showing solar potential over months from March to July. The graph includes lines for different solar potential scenarios and their comparison to initial climatology.]
CLIMATOLOGICAL DEFINITION
INTER-ANNUAL TO DECADAL

- **WON:**
  - Long term large variation observed
  - In line with found variations of extremes [others]

- **SPV:**
  - Long term inter-annual and decadal variability
ASSESSMENT DURING THE YEAR

- Startpoint is vital
  - Annual cycle
  - Seasonal changes
ASSESSMENT DURING THE YEAR

▸ Startpoint is vital
  ▸ Annual cycle
  ▸ Seasonal changes
▸ Widest spread in *storylines*
  ▸ Wind -> May 1st
  ▸ Solar -> Jan 1st
ANNUAL WIND CREDI

- Large values observed
- Variation between years
  - Path is important

- Storylines!
SEASONAL STORYLINES

- Large values observed
- Variation between seasons

- Storylines!!

SEASONAL STORYLINES

- Large values observed
- Variation between seasons

- Storylines!!!

Inspired by: https://www.10.1016/j.wace.2021.100350
CONCLUDING REMARKS

- Look to other fields for inspiration
- CREDI
  - Climatology is vital
  - Period correct of analysis