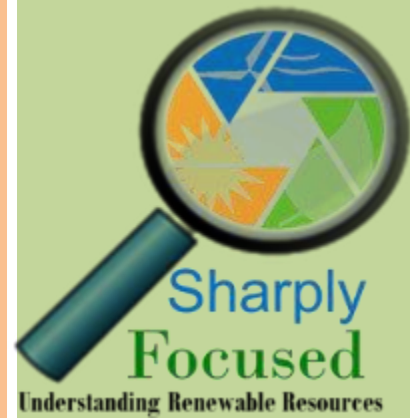


The Role of Atmospheric Science in Enabling the Renewable Energy Revolution

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Your assumptions are your windows on the world. Scrub them off every once in a while, or the light won't come in.

Alan Alda, actor, writer and director

Klondike Wind Farm. Photo © Justin Sharp

Utility Variable-Generation Integration Group
Meteorology and Forecasting Workshop
Atlanta, Georgia : June 20, 2017

Public Service Announcement

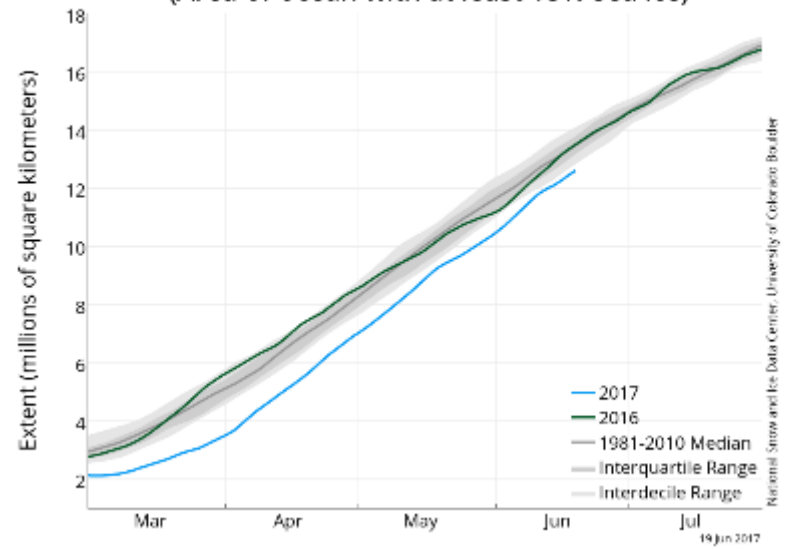
Things improved a little in April relative to Feb and March – ASIE is now running around the 20th percentile or so of the 1981-2010 mean now!

Arctic sea-ice volume trends are frightening

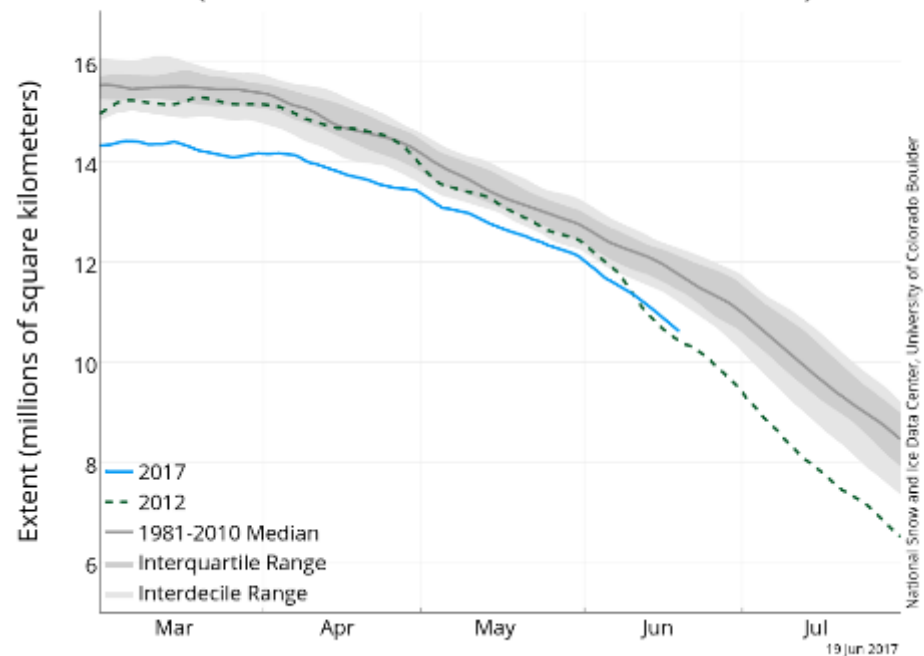
Trend in the Antarctic is worrisome but a recent development.

Arctic 925 mb temperatures have normalized slightly but are still well above average.

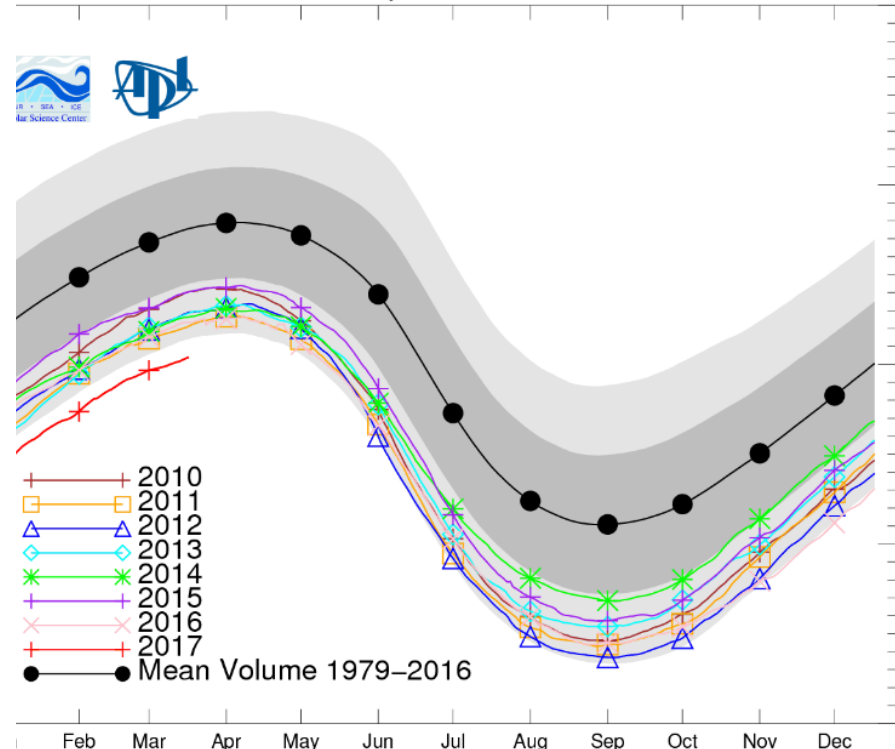
Antarctic Sea Ice Extent
(Area of ocean with at least 15% sea ice)



Arctic Sea Ice Extent
(Area of ocean with at least 15% sea ice)



PIOMAS Daily Arctic Ice Volume



Current Siloed Utilization of Meteorology in the Project Life Cycle

- Project and turbine siting
- Climatology based averages and extremes
- Used to finance the project



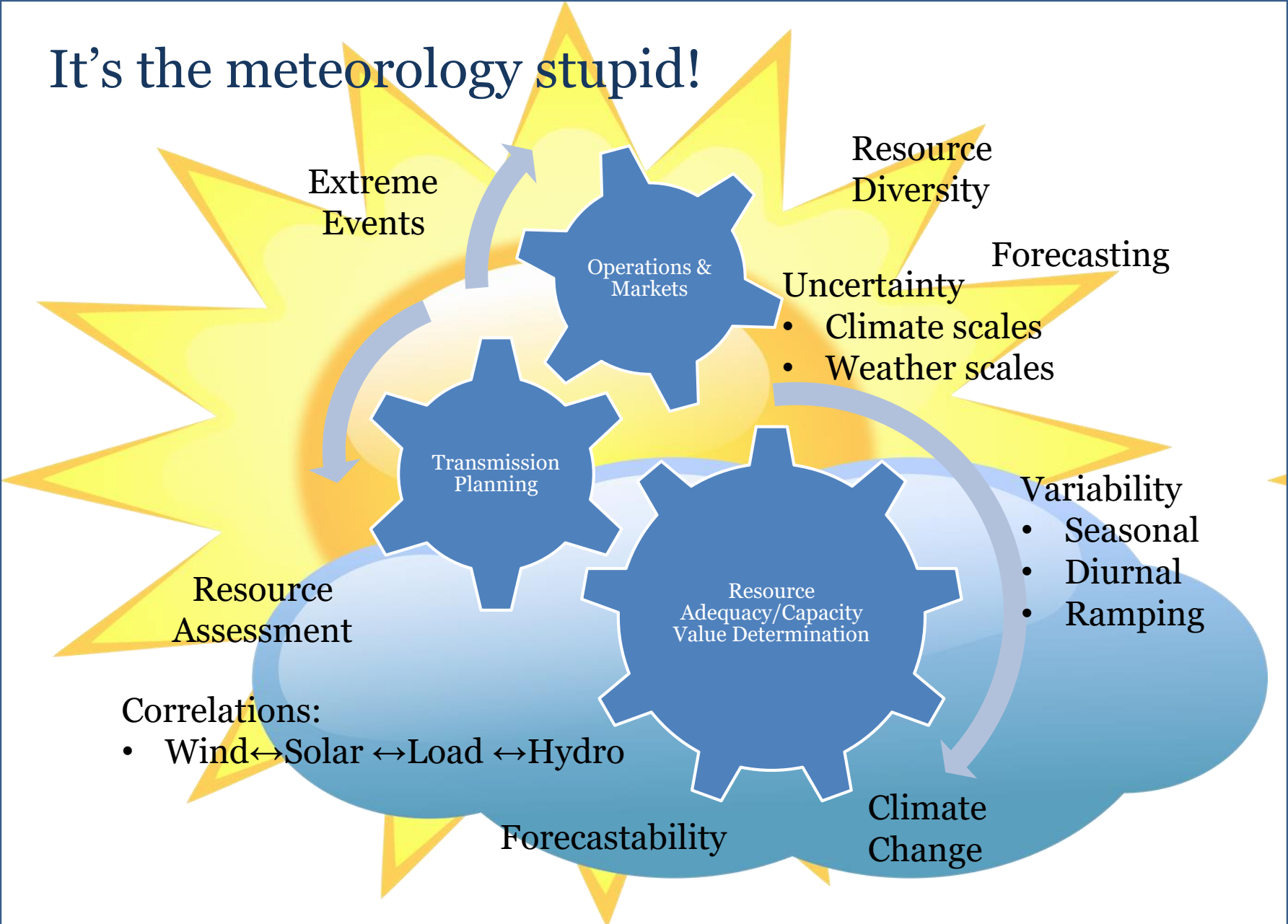
- Project and regional scale weather prediction and translation to generation



It's the meteorology stupid! Get Out of the Silos



It's the meteorology stupid!



Geologist is to Oil and Gas as...?

- Uncertainty and variability are a function of footprint and weather
- Wind, solar, load and to some extent hydro are all interdependent
- Even imports and exports are weather dependent

