

The Latest Science of Seasonal Climate Forecasting

Emily Wallace Met Office 7th June 2018















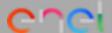


Background:

- Why are they useful?
- What do we mean by 'seasonal climate forecasting'?
- How is it possible?
- How do we know if they are any good?
- What do existing long-range forecasts look like for end-users?
- How are they used?
- What else could be done?

How will SECLI-FIRM use the latest science of seasonal climate forecasting























Background

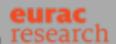


















If your business can...

- use historical weather data to make better decisions,
- make decisions several weeks or months ahead, and
- hedge decisions, or adjust them as time evolves

...seasonal climate forecasts could...

- increase confidence,
- reduce your costs,
- reduce your risk

























At least 1 month at a time

Properties of weather over an extended period: e.g. average summer temperature, number of windy days in autumn

climate

Description of likelihood of climate outcome (probabilistic)















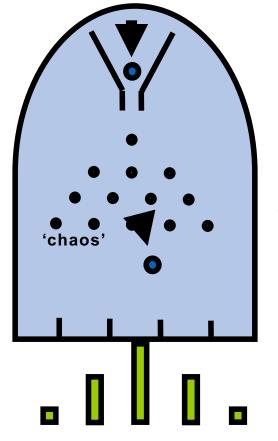


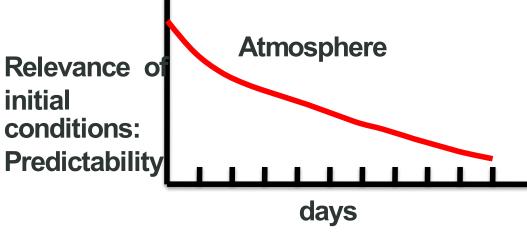


























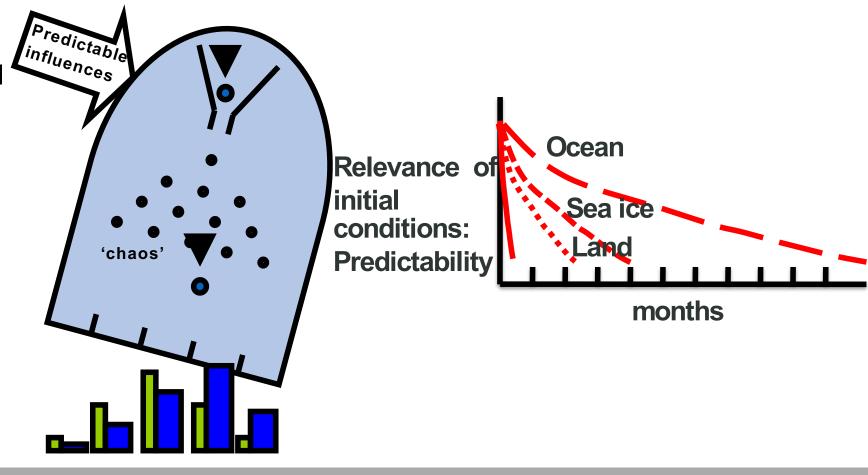






E.g.
Sea surface temperatures soil moisture tropical precipitation sea ice

Several influences can act at the same time!



















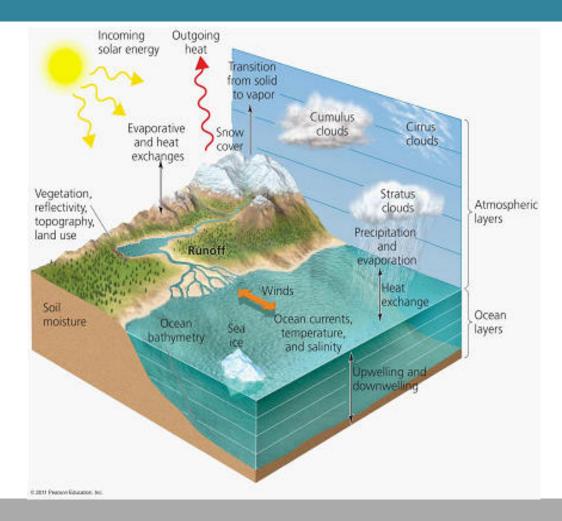




- 1) Estimate initial estate of earth system,
- 2) feed it into a model and then,
- 3) run the model forward in time

Compared to short-range forecasting:

- a) More complex model (ocean, landsurface, sea-ice)
- b) More components to initialize
- c) Need to run the model for longer

















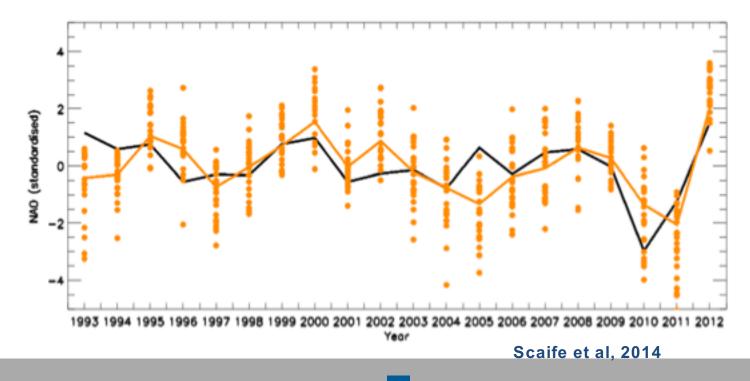






How do we know it's any good?

- Skill assessment

























How do we know it's any good?

- Value assessment!



Correct identification of calm weather windows can save many thousands of dollars per day in unplanned downtime, allowing large savings if decisions are made as early as possible...

Steele et al. (2017), OTC, pp. 1-8; Steele et al. (2018), OTC, pp. 1-8;



















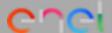




	Event observed	No event observed
Event forecast	Hit	False alarm
Action taken	COST +	COST
	REDUCED LOSS	
No event forecast No action taken	Miss LOSS	Correct rejection

Steele et al. (2017), OTC, pp. 1-8; Steele et al. (2018), OTC, pp. 1-8; Alessandri et al., 2016 Under Revision













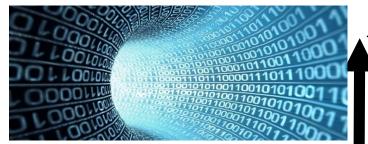




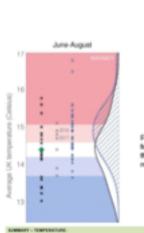


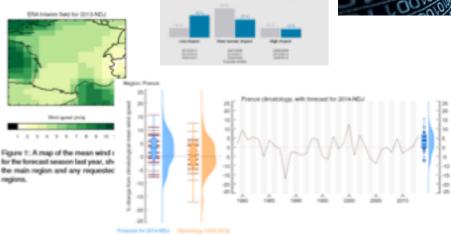




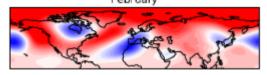


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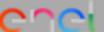


CONTEXT

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How will SECLI-FIRM use latest science of seasonal climate forecasting

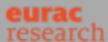


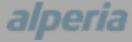








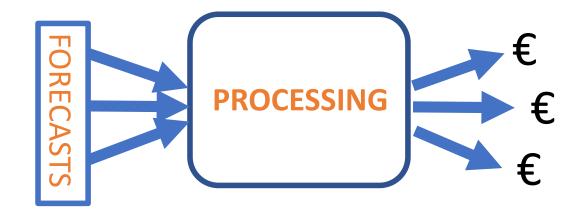








Work package 2:



Grand Multi-model ensemble

Optimization of climate prediction performance













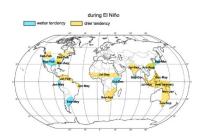


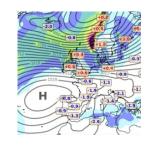


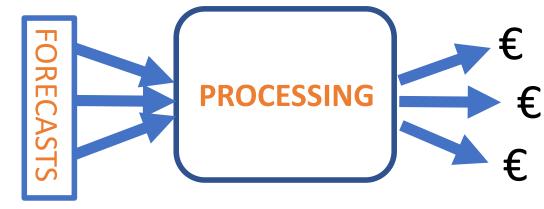


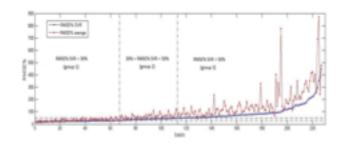


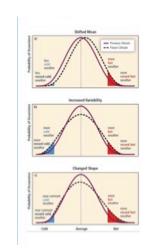




































Questions and answers



















