Introduction to the S2S4E project
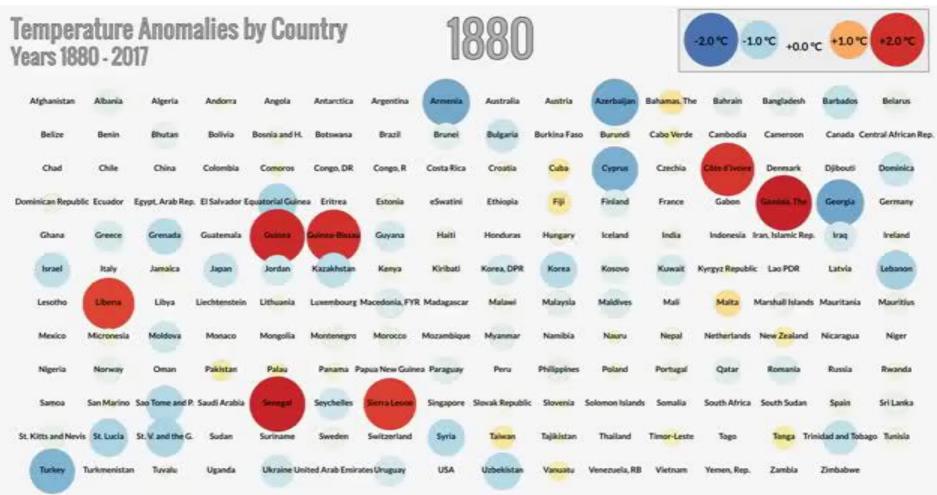
Albert Soret Miravet (BSC)

Climate forecasting for energy. 15 December 2020, online

Weather forecast is a familiar concept …

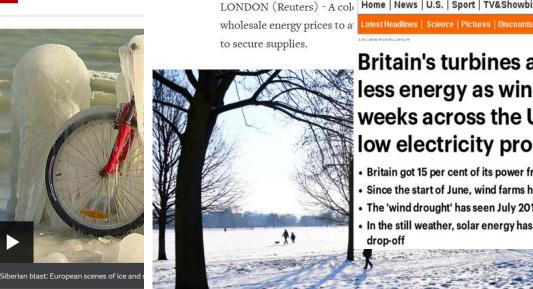# … and climate change too, but what about climate variability?

Link: https://youtu.be/PhbdyNnUliM

Context and motivation

▶ Energy sector routinely uses weather forecast, especially between day-ahead and one week. Beyond this time horizon, climatological data are used.

'Beast from the East' sends British energy prices skyward

By Susanna Twidale

LONDON (Reuters) - A col... wholesale energy prices to a... to secure supplies.

Europe freeze... East' arrives

28 February 2018

Siberian blast: European scenes of ice and s...

Thursday, Aug 30th 2018 1PM 25°C 4PM 26°C 5-Day Forecast

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Britain's turbines are producing 40% less energy as wind 'disappears' for six weeks across the UK causing record low electricity production

- Britain got 15 per cent of its power from wind last year — twice as much as coal
- Since the start of June, wind farms have been producing almost no electricity
- The 'wind drought' has seen July 2018 be 40% less productive than July 2017
- In the still weather, solar energy has increased by 10% to help cover the drop-off

S2S4E
Climate Services
for Clean Energy

Applications

Weather forecast	Climate predictions		Decadal	Climate projections or multidecadal
	Sub-seasonal	Seasonal		
1-15 days	10 d-1 month	1-6 months	1-10 years	20-100 years

Time

Applications for wind/solar/hydro generation

Post-construction decisions
Energy producers: commit energy sales for next day
Grid operators: Market prices and grid balance
Energy traders: Anticipate energy prices
Plant operators: planning for cleaning and maintenance

Post-construction decisions
Energy producers: Resource management strategies
Energy traders: Resource effects on markets
Plant operators: Planning for maintenance works, especially offshore wind O&M
Plant investors: anticipate cash flow, optimize return on investments

Pre-construction decisions
Power plant developers: Site selection. Future risks assessment.
Investors: Evaluate return on investments
Policy-makers: Asses changes to energy mix
River-basin managers: understand changes to better manage the river flow

Applications for demand

Daily operation decisions
Grid operators:
Anticipate hot/cold days. Schedule power plants to reinforce supply.
Energy traders: Anticipate energy prices.

Mid-term planning
Grid operators:
Anticipate hotter/colder seasons Schedule power plants to reinforce supply.
Energy traders:
Anticipate energy prices.

Long-term planning
Grid operators:
Anticipate addition of more capacity. Adaptation of transmission lines
Policy-makers:
Plan addition of more capacity. Understand changes to energy mix

S2S4E project

S2S4E
Climate Services for Clean Energy

Replicability in other sectors

Forbes

How Thomas Cook Flew Into The Perfect Storm

Enrique Dans
Leadership Strate
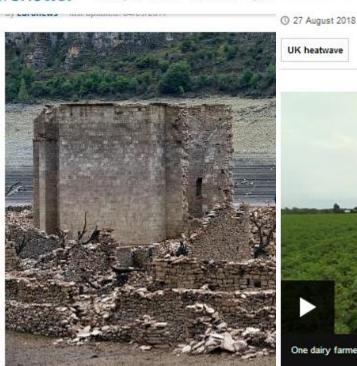Teaching and cons

LONDON, ENGLAND - SEPTEMB
September 23, 2019 in London,
triggered a massive repatriation

The year the West was burning: 2020 wildfire season got so extr
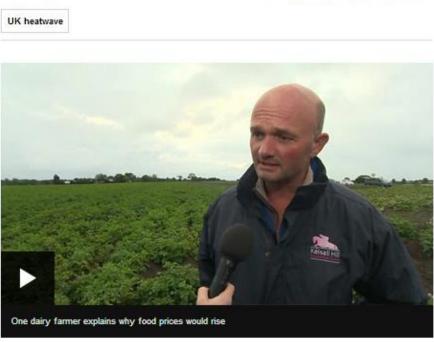
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Food prices 'to rise 5%' because of extreme weather

27 August 2018   f ⊙ ⊮ ☒ ⋖ Share
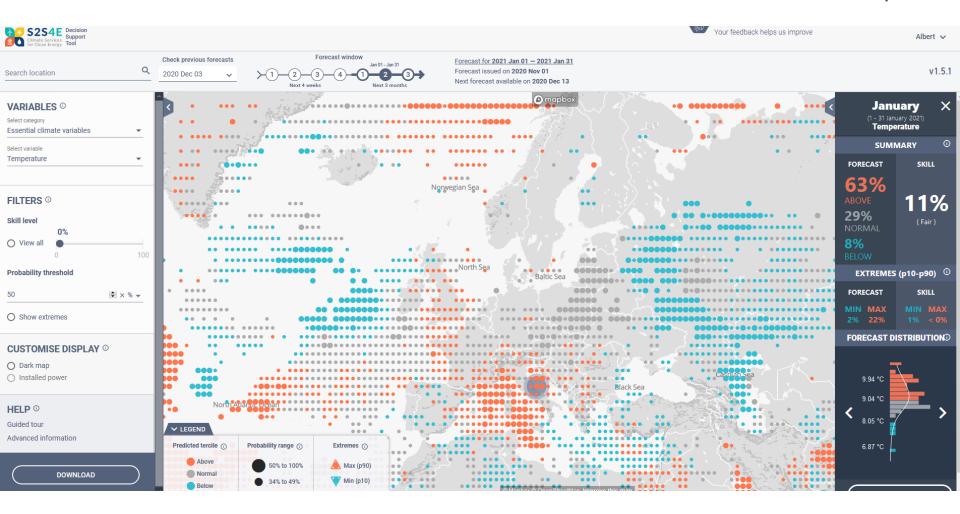
UK heatwave

▶

One dairy farmer explains why food prices would rise

Meat, vegetable and dairy prices are set to rise "at least" 5% in the coming
months because of the UK's extreme weather this year, research
suggests.

Current forecasts

s2s4e.eu/dst

Forecast available in the S2S4E DST for January 2021, issued in November, for temperature

Current forecasts
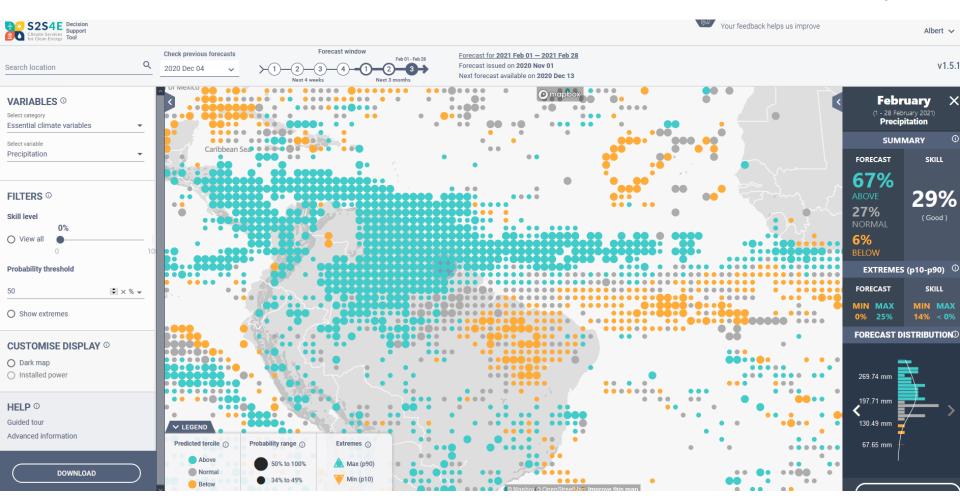
s2s4e.eu/dst

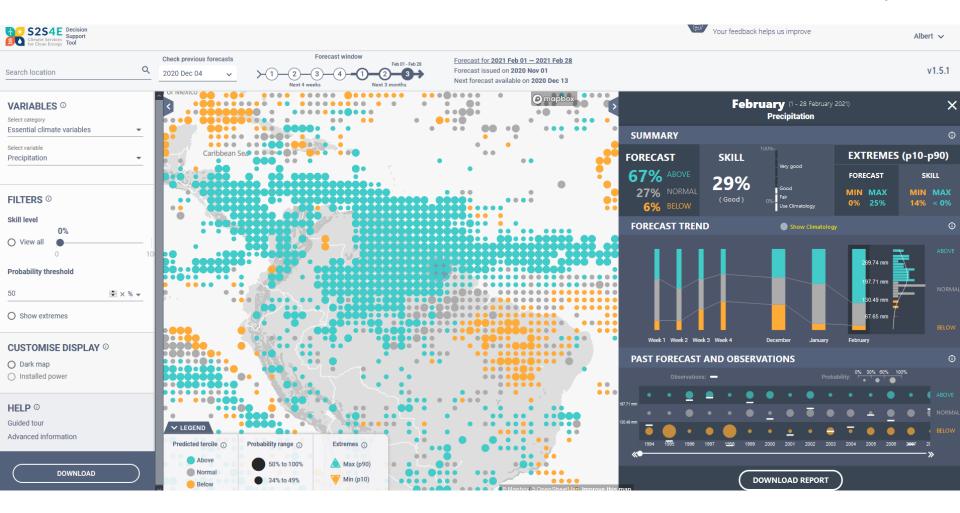Forecast available in the S2S4E DST for February 2021, issued in November, for inflow anomaly

Current forecasts

s2s4e.eu/dst

Forecast available in the S2S4E DST for February 2021,
issued in November, for precipitation

Current forecasts

s2s4e.eu/dst

Forecast available in the S2S4E DST for February 2021, issued in November, for precipitation

Thank you

Contact: albert.soret@bsc.es

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