S2S4E
Climate Services for Clean Energy

OUTLOOK

18 November, 2019

with

Sub-seasonal forecasts

for the weeks of
18 – 24 November, 25 November – 1 December,
2 – 8 December, 9 – 15 December

&

Seasonal forecasts

for the months of
December, January and February

The beta version of S2S4E Decision Support Tool (DST) is an operational climate service that integrates, for the first time, sub-seasonal to seasonal climate predictions with renewable energy production and electricity demand.

Find examples of how the DST forecasts can inform the energy sector in the

Case Studies Factsheets

available at:

www.S2S4E.eu

This outlook presents forecasts available on the DST on the 18th of November for the coming four weeks and next three months. These S2S4E forecasts were made by postprocessing the climate prediction systems: NCEP CFSv2 (sub-seasonal) and ECMWF SEAS5 (seasonal), following the methodology described in the **advanced help** of the DST.

⌄ OUTLOOK USER GUIDE

PREDICTED TERCILE

- 🔴 Above
- ⚪ Normal
- 🔵 Below

The forecast information provided is probabilistic. Instead of one single model realisation, several realisations are considered (ensemble members), providing a set of several possible outcomes (48 for NCEP CFSv2 and 51 for ECMWF SEAS5). This information is summarised and transmitted in the form of probabilities. Three equiprobable categories (terciles) have been used: below normal, normal and above normal. Each one of these tercile categories contains one third (33.3%) of the events over the reference period. The forecasted probability corresponds to the percentage of ensemble members predicting below normal, normal or above normal conditions, based on the past climatology.

PROBABILITY RANGE

- ⚫ 50% to 100%
- • 34% to 49%

As seen in the DST, regions where the predicted probability of the most likely tercile equals or is higher than 50% are represented with a bigger symbol, to highlight areas of larger probability. Users can customise the exact percentage of predicted probability (from 0 to 100%) in the DST.

EXTREMES

- 🔺 Max (p90)
- 🔻 Min (p10)

To provide information about the probability of having very high or very low climate conditions, the DST displays the percentage of members under the 10th percentile and the percentage of members exceeding the 90th percentile. These 10th and 90th percentiles have been computed from the climatological period. Extreme events show with the triangle symbol when the probability of an extreme event occurring is over 25%

SKILL SCORES

In the maps presented in this outlook, only regions with positive skill are shown. Skill scores below 0 are defined as unskilful, those equal to 0 are equal to the climatology forecast, and anything above 0 is an improvement upon climatology, up to 1, which indicates a "perfect" forecast. In the DST these values have been expressed as percentages, where a skill of 1 would equal to 100% skill. FairRPSS for terciles and Brier Skill Scores for extremes are used.

@ If you have queries or feedback you can contact us at:

s2s4e@bsc.es

The DST outlooks are released once per month and available at:

s2s4e.eu/climate-services/ outlooks

Subscribe to the outlooks and register to the DST at:

www.s2s4e.eu/dst

Temperature forecasts

S2S4E Climate Services for Clean Energy

Probability terms
Enhanced : 34% - 49%
High: 50% - 70%:
Very High: Greater than 70%

Predicted tercile
- Above
- Normal
- Below

Probability range
- 50% to 100%
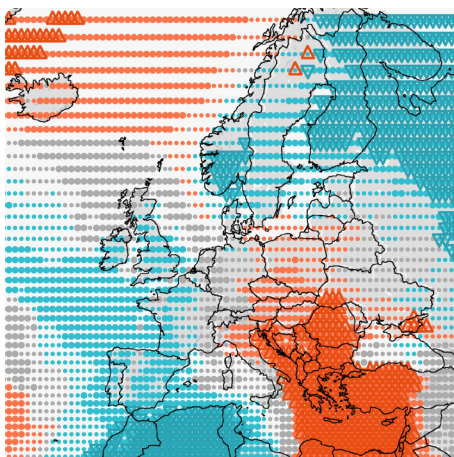- 34% to 49%

Extremes
- Max (p90)
- Min (p10)

SUB-SEASONAL

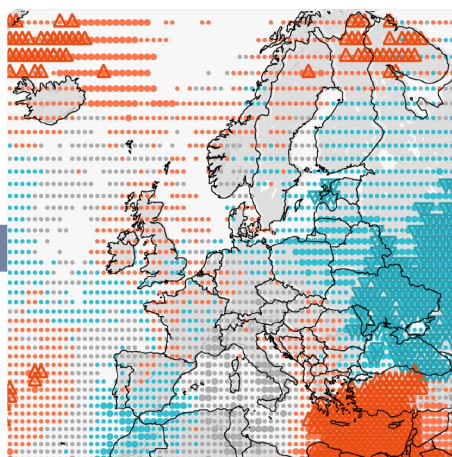Prediction system used: NCEP CFSv2

Maps show areas where skill (fRPSS) > 0
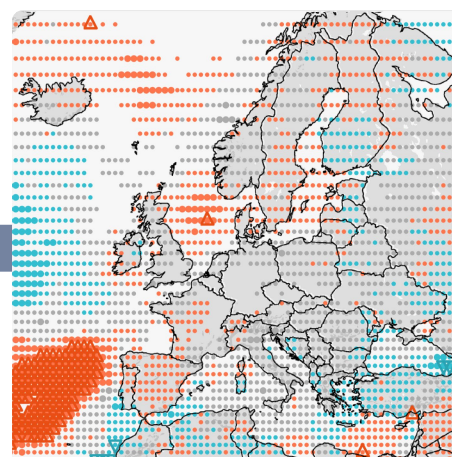
18 – 24 November

High probability of below normal temperatures in Western Europe. **High** probability of above normal temperatures in South-Eastern Europe (skill above 30%)

25 November – 1 December

Enhanced to high probability of below normal temperatures in Eastern Europe. Forecasts show no clear signals in the rest of Europe (skill below 10%)

2 – 8 December

Enhanced probability of above normal temperatures in Western Europe and Scandinavia. Noted **high** probability of above normal temperatures in the North Sea.
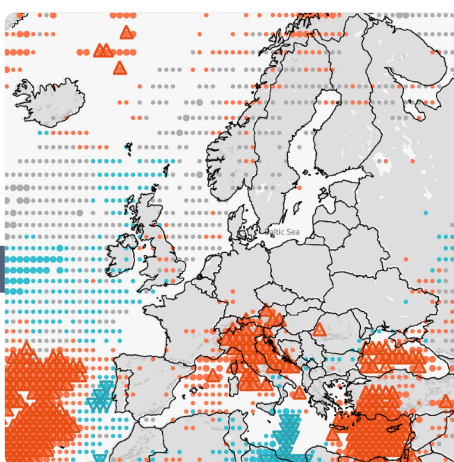
9 – 15 December
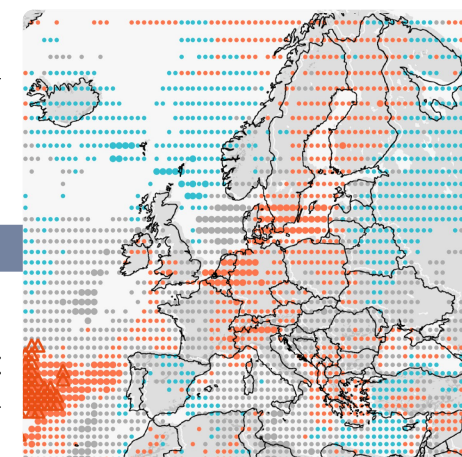
High probability of above normal temperatures in Central Europe, Sweden and Finland (skill below 10%).

SEASONAL
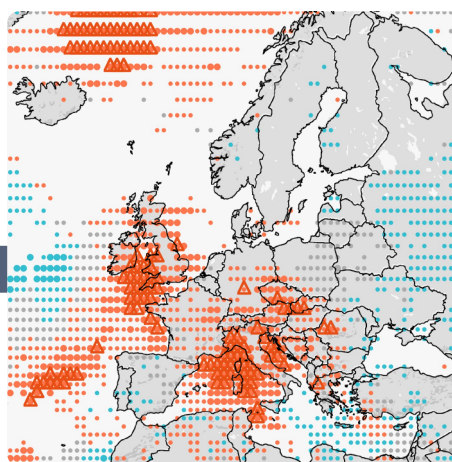
Prediction system used: ECMWF SEAS5

Maps show areas where skill (fRPSS) > 0
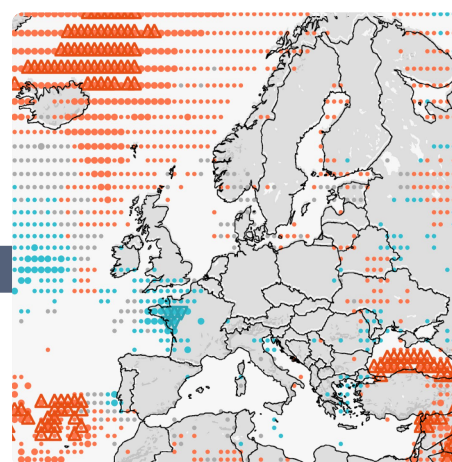
December 2019

High probability of above normal temperatures in Italy and Turkey, with risk of extremes (skill above 5%).

January 2020

High probability of above normal temperatures in Italy, British Isles, Austria and Czech Republic, with risk of extremes.

February 2020

High probability of below normal temperatures in western France (slightly positive skill level only).

Browse the global forecasts in the DST:

www.S2S4E.eu/dst

Wind speed forecasts

S2S4E — Climate Services for Clean Energy

Probability terms
Enhanced : 34% - 49%
High: 50% - 70%:
Very High: Greater than 70%

Predicted tercile
- Above
- Normal
- Below

Probability range
- 50% to 100%
- 34% to 49%

Extremes
- Max (p90)
- Min (p10)

Legend

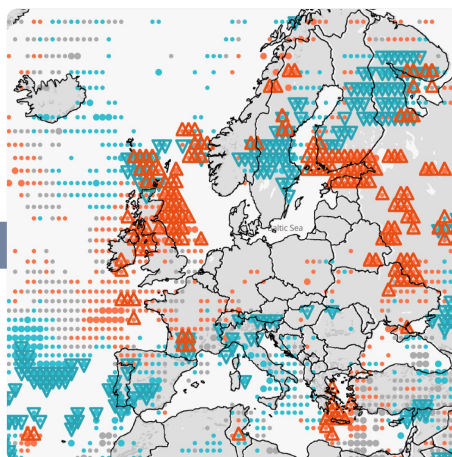## SUB-SEASONAL

Prediction system used: NCEP CFSv2

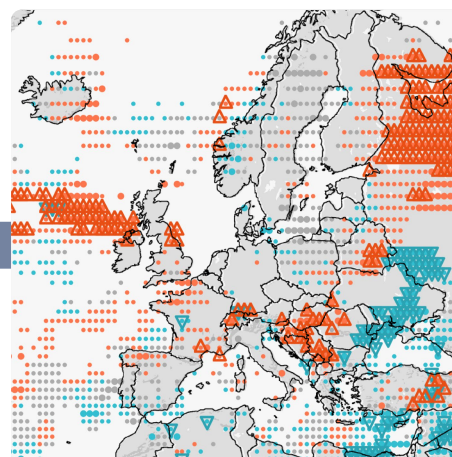Maps show areas where skill (fRPSS) > 0

18 – 24 November
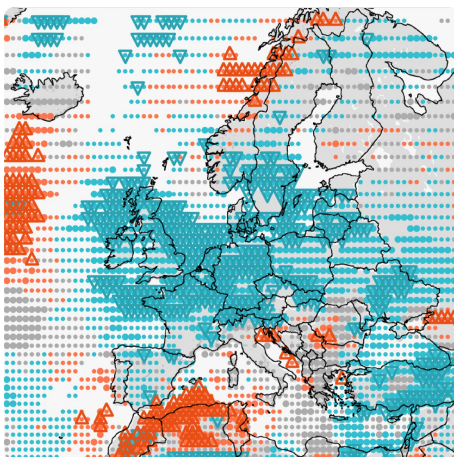
Very high probability of below normal winds in most of Europe, with risk of extremes over extended areas in Central Europe (skill above 10%).
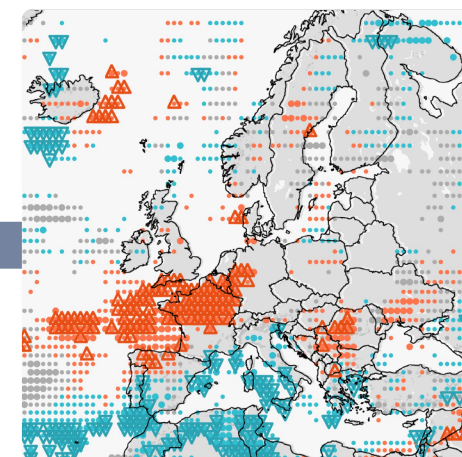
25 November – 1 December

High probability of above normal winds in the British Isles and France, with risk of extremes in the British Isles (skill below 10%).

2 – 8 December

High probability of above normal winds in the British Isles, France, and the Balkans, with risk of extremes in the latter region.
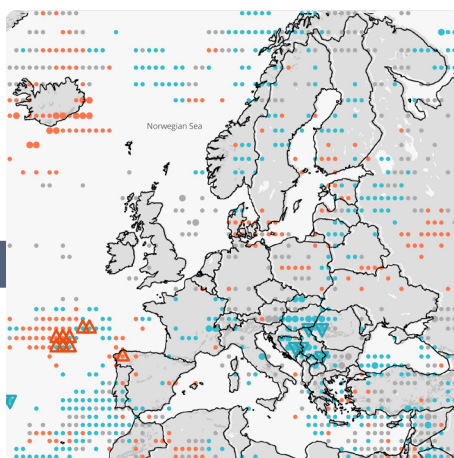
9 – 15 December

High to **very high** probability of above normal winds in France, Bay of Biscay and Southern UK, with risk of extremes in these three regions (skill above 10%).
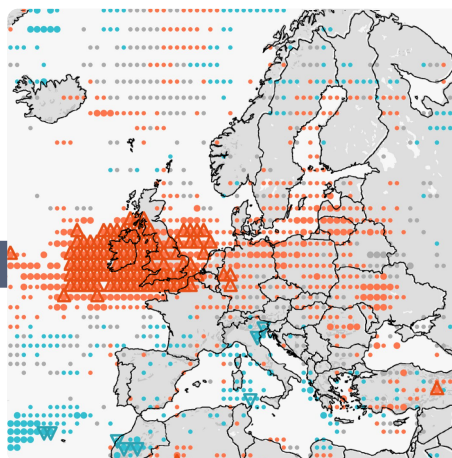
SEASONAL

Prediction system used: ECMWF SEAS5

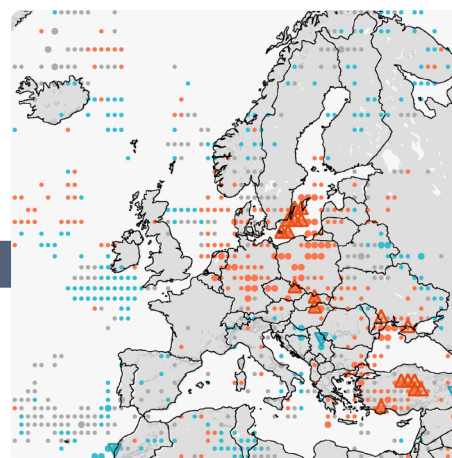Maps show areas where skill (fRPSS) > 0

December 2019

High probability of below normal winds in the Balkans (skill above 5%).

January 2020

Very high probability of above normal winds in Ireland, with **high** or **enhanced** probability also in the UK, Germany and Poland.

February 2020

High probability of above normal winds in Germany and Poland (only slightly positive skill).

Browse the global forecasts in the DST:

www.S2S4E.eu/dst

Precipitation forecasts

Probability terms
Enhanced : 34% - 49%
High: 50% - 70%:
Very High: Greater than 70%

Predicted tercile
- Above
- Normal
- Below

Probability range
- 50% to 100%
- 34% to 49%
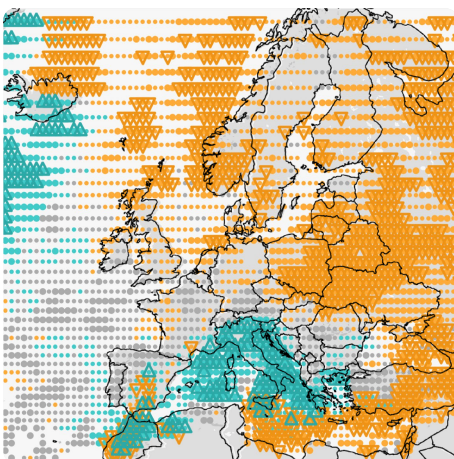
Extremes
- Max (p90)
- Min (p10)

Legend
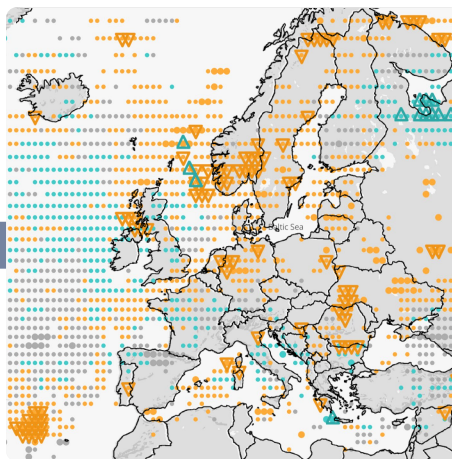
SUB-SEASONAL

Prediction system used:
NCEP CFSv2

Maps show areas where
skill (fRPSS) > 0

18 – 24 November

High probability of below normal precipitation in Central and Northern Europe, with risk of extremes in Norway and Eastern Europe (skill above 20%).
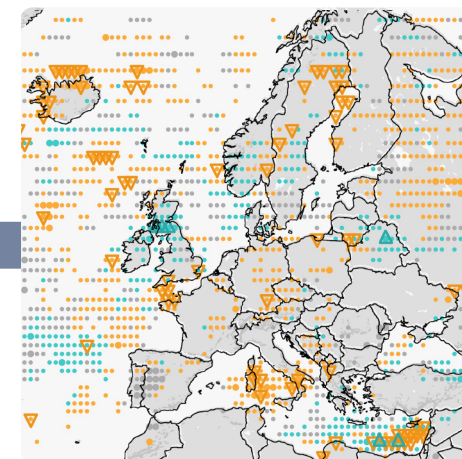
25 November – 1 December

Enhanced to **high** probability of below normal precipitation in Scandinavia, Germany and Baltic countries, with risk of extremes (skill below 10%).

2 – 8 December
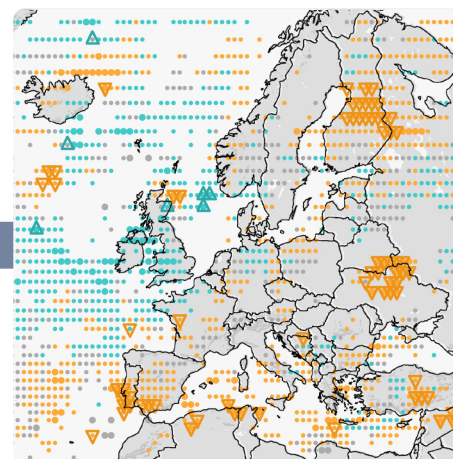
Enhanced probability of above normal precipitation in the British Isles. **Enhanced** probability of below normal precipitation across the Mediterranean (skill below 5%).
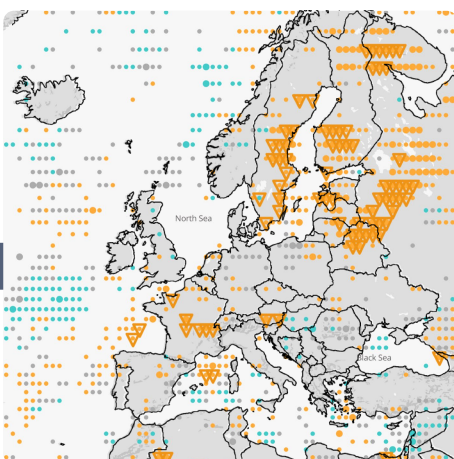
9 – 15 December

Enhanced probability of above normal precipitation to remain in the British Isles. **Enhanced** probability of below normal precipitation over Europe mainland (skill below 5%).
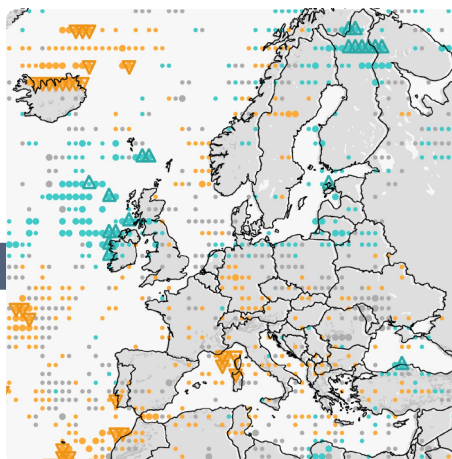
SEASONAL

Prediction system used:
ECMWF SEAS5

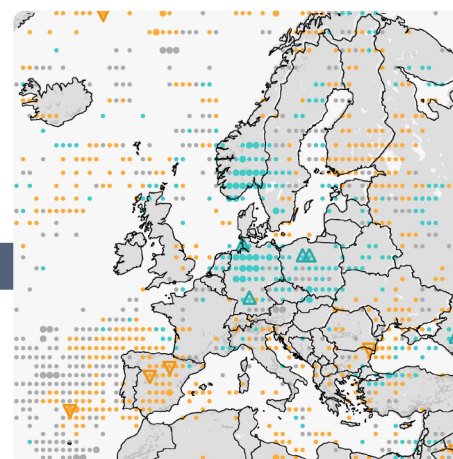Maps show areas where
skill (fRPSS) > 0

December 2019

High probability of below normal precipitation in the Baltic countries with risk of extremes (skill above 5%).

January 2020

High probability of above normal precipitation in parts of the British Isles (only slightly positive skill).

February 2020

High probability of above normal precipitation in Germany and Norway, and enhanced probability of below normal precipitation in Spain.

Browse the global forecasts in the DST:

www.S2S4E.eu/dst

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Climate Services for Clean Energy

Probability terms
Enhanced : 34% - 49%
High: 50% - 70%:
Very High: Greater than 70%

Solar radiation forecasts

Predicted tercile
- Above
- Normal
- Below

Probability range
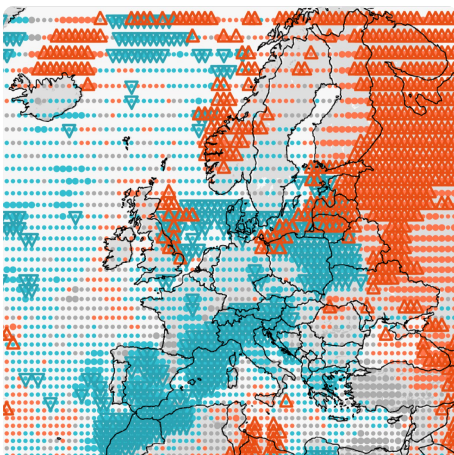- 50% to 100%
- 34% to 49%

Extremes
- Max (p90)
- Min (p10)

Legend

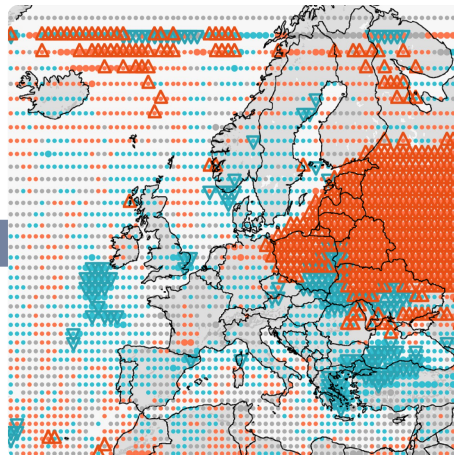## SUB-SEASONAL

Prediction system used:
NCEP CFSv2

Maps show areas where
skill (fRPSS) > 0

18 – 24 November

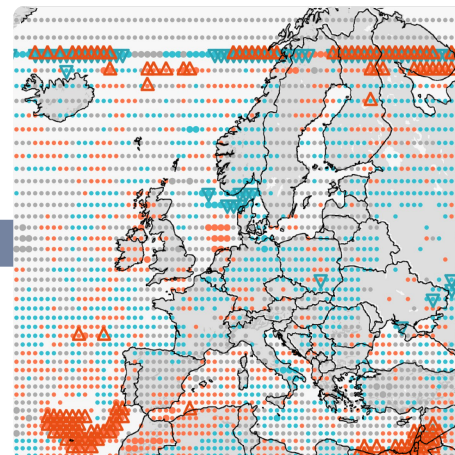**High** to **very high** probability of below normal solar radiation over most of Europe. Risk of extremes in the Alps, Iberia, and North and Baltic Sea regions.
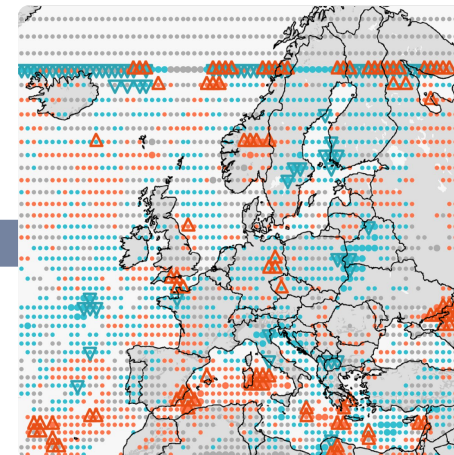
25 November – 1 December

High to **very high** probability of above normal solar radiation in North-Eastern Europe, with risk of extremes (skill above 20%).

2 – 8 December

Enhanced probability of below normal solar radiation in Germany, Scandinavia and Balkans (skill below 10%).
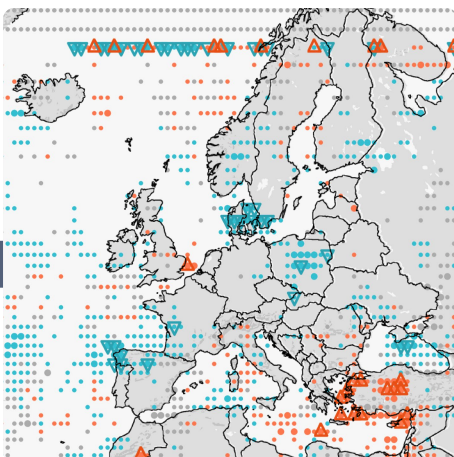
9 – 15 December

Enhanced probability of below normal solar radiation over large areas in Europe mainland (skill below 10%).
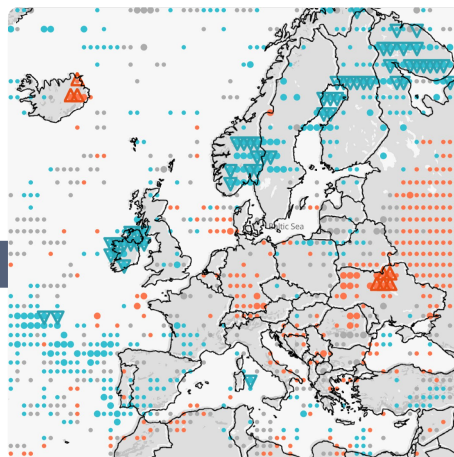
SEASONAL

Prediction system used:
ECMWF SEAS5

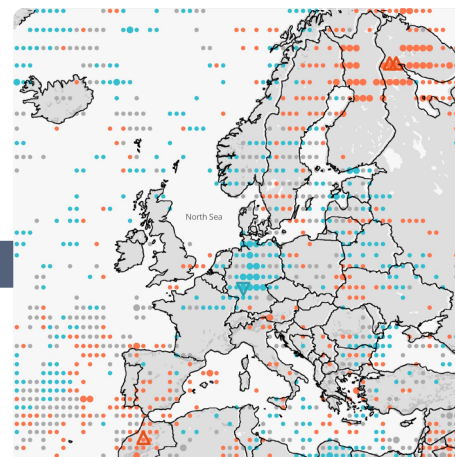Maps show areas where
skill (fRPSS) > 0

December 2019

High probability of below normal radiation in Denmark and Poland (skill above 10%)..

January 2020

High probability of below normal radiation in Ireland and Norway (skill above 5%).

February 2020

High probability of below normal radiation in central Germany (skill above 10%).

Browse the global forecasts in the DST:

www.S2S4E.eu/dst