S2S4E
Climate Services for Clean Energy

OUTLOOK

16 November 2020

with

Sub-seasonal forecasts

for the weeks of 16 - 22 November, 23 - 29 November, 30 November - 6 December, and 7 - 13 December 2020

&

Seasonal forecasts

for the months of December 2020, and January and February 2021

The S2S4E Decision Support Tool (DST) v1.6.0 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 16th of November 2020 for the coming four weeks and next three months. These S2S4E forecasts were made by post-processing the climate prediction systems ECMWF-Ext-ENS (sub-seasonal) and ECMWF SEAS5 (seasonal), following the methodology described in the **advanced help** of the DST.

SUMMARY

Unusually warm temperatures until mid-December

According to sub-seasonal forecasts for the next 4 weeks, temperatures warmer than normal for the season are expected throughout most of Europe until mid-December, with high extremes predicted in the Baltic Sea region.

Different conditions for western and eastern Mediterranean

Sunny and dry conditions are expected in western Mediterranean until the end of November, particularly in the Iberian Peninsula and parts of Italy. By contrast, eastern Mediterranean will see cloudy and rainy weather in the next two weeks, particularly in the Balkans and Greece.

Windy, wet and cloudy November for Scandinavia

Scandinavia is predicted to see above normal wind speeds and precipitation, and below normal solar radiation in the last two weeks of November, with a risk of extremes in the week 16-22 November. Windy conditions with a risk of extremes are also expected in the UK, northern France, Belgium, the Netherlands and Germany in the week 16-22 November.

Rainy February for Norway

Forecasts show a strong signal of high precipitation in Norway in February (>70% probability and >20% skill).

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

s2s4e@bsc.es

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

s2s4e.eu/climate-services/outlooks

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This project has received funding from the Horizon 2020 programme under grant agreement n°776787. The content of this report reflects only the author's view. The European Commission is not responsible for any use that may be made of the information it contains.

S2S4E Climate Services for Clean Energy

Probability terms

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

Temperature forecasts

Legend

Predicted tercile
- Above
- Normal
- Below

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

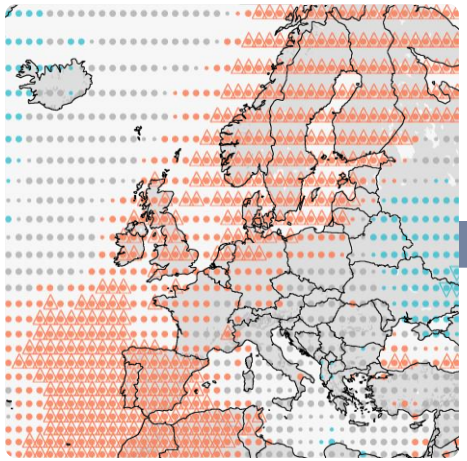
Extremes
- Max (p90)
- Min (p10)

SUB-SEASONAL

Prediction system used: ECMWF-Ext-ENS

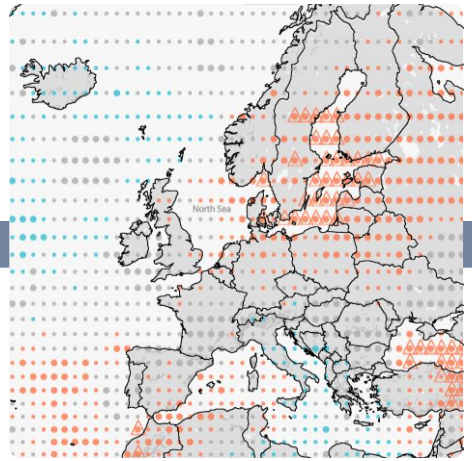
Maps show areas where skill (fRPSS) > 0

16 - 22 November



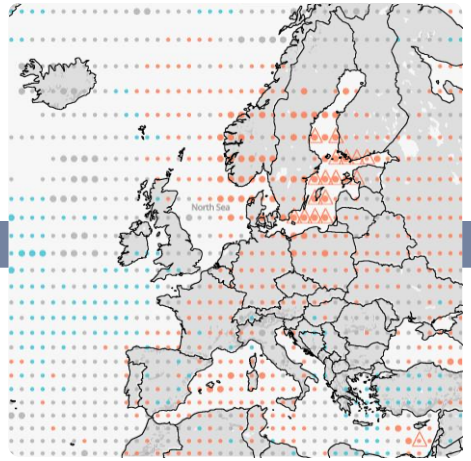
Very high probability of above normal temperature in western Europe, with risk of extremes in Spain, the UK and Scandinavian countries (50% skill).

23 - 29 November



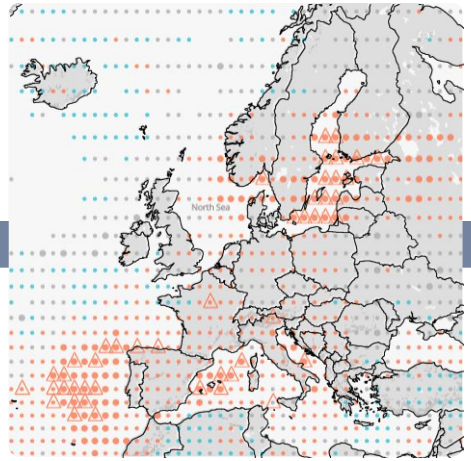
High probability of above normal temperature in the Baltic Sea region and in the Black Sea, with risk of extremes (30% skill).

30 November - 6 December



High probability of above normal temperatures in the Baltic Sea region and Norway (20% skill).

7 - 13 December



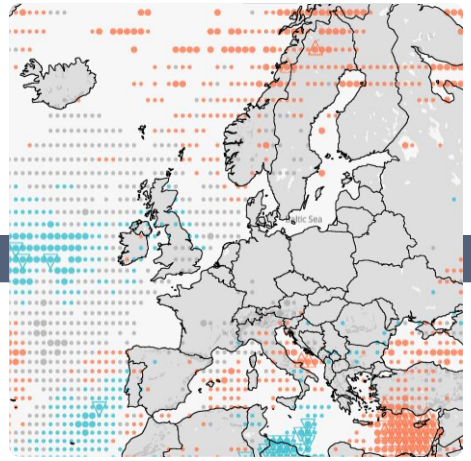
High probability of above normal temperatures persists in the Baltic Sea. **Enhanced** probability of above normal temperature in the south of Europe (<20% skill).

SEASONAL

Prediction system used: ECMWF SEAS5

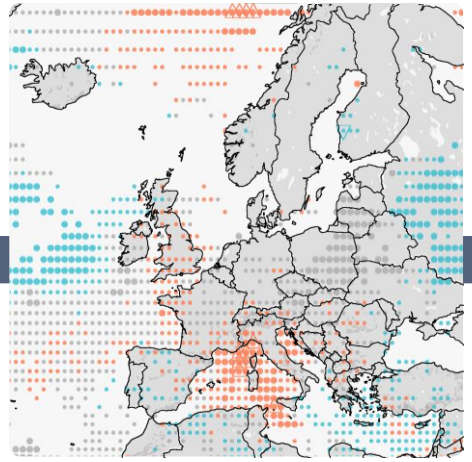
Maps show areas where skill (fRPSS) > 0

December 2020



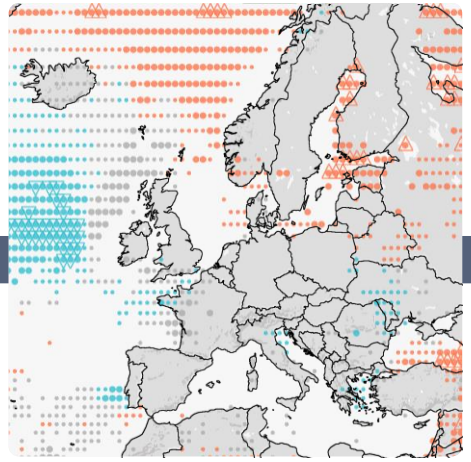
High probability of above normal temperatures in the north of the Scandinavian peninsula (~5% skill).

January 2021



High probability of above normal temperatures in parts of Italy (~10% skill).

February 2021



High probability of above normal temperatures in Estonia, Finland, parts of Norway and Sweden (skill>0%) with risk of extremes.

Browse the global forecasts in the DST:

www.S2S4E.eu/dst

S2S4E Climate Services for Clean Energy

Probability terms

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

Wind speed forecasts

Legend

Predicted tercile
- Above
- Normal
- Below

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

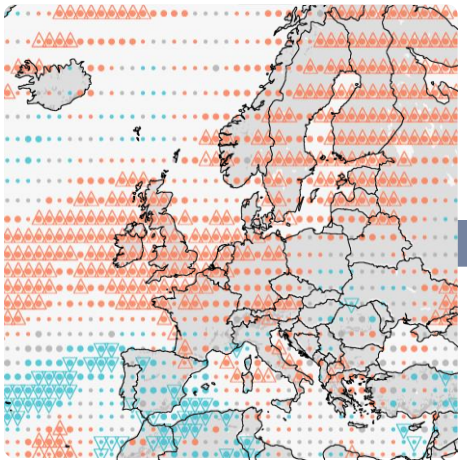
Extremes
- Max (p90)
- Min (p10)

SUB-SEASONAL

Prediction system used: ECMWF-Ext-ENS

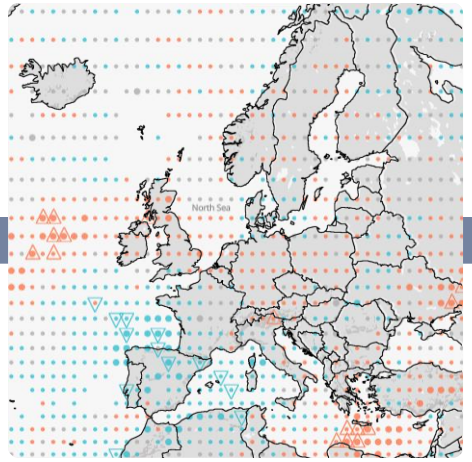
Maps show areas where skill (fRPSS) > 0

16 - 22 November



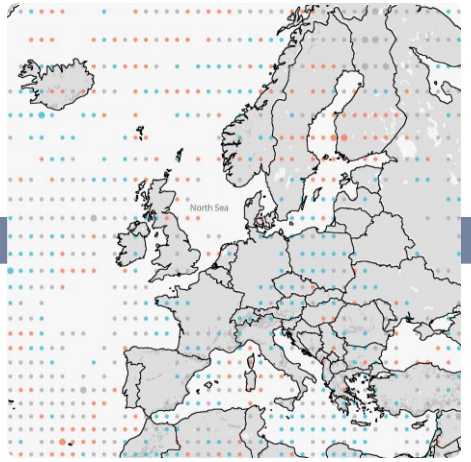
Very high probability of above normal wind speeds in the British Isles and Scandinavia, with risk of extremes (20-30% skill).

23 - 29 November



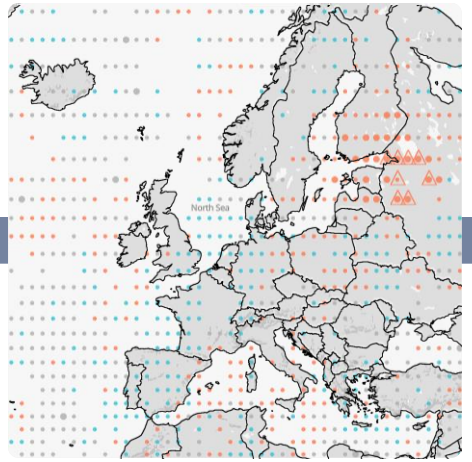
High probability of below normal wind speed in the Iberian Peninsula and the Bay of Biscay (10% skill).

30 November - 6 December



Forecasts show no clear signals.

7 - 13 December



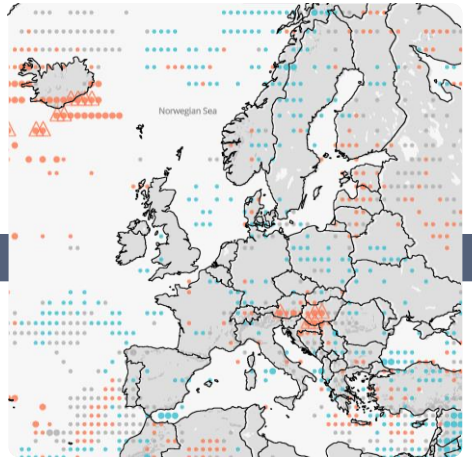
High probability of above normal wind speed in the south of Finland (<5% skill)

SEASONAL

Prediction system used: ECMWF SEAS5

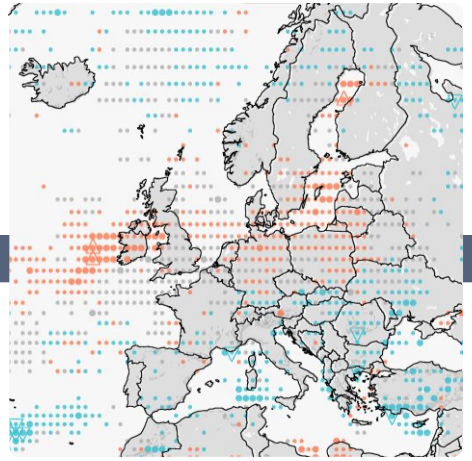
Maps show areas where skill (fRPSS) > 0

December 2020



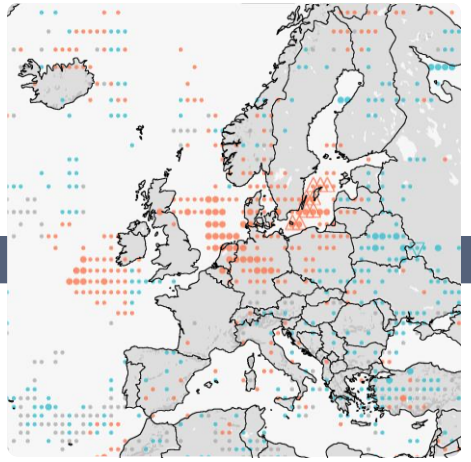
High probability of above normal wind speed in parts of Austria, Hungary and Croatia (>5% skill), with risk of extremes.

January 2021



High probability of above normal wind speed in Ireland, and **enhanced** probability in Denmark, Germany, Poland, Lithuania and southern Sweden (~5% skill).

February 2021



High probability of above normal wind speed in parts of Germany, Denmark, Belgium, the Netherlands and Sweden (~5% skill).

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Precipitation forecasts

Probability terms

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

Legend

Predicted tercile
- Above
- Normal
- Below

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

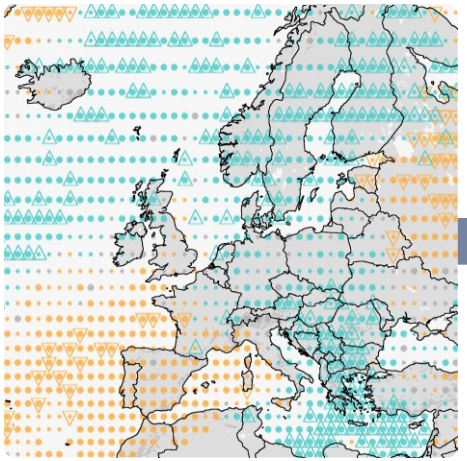
Extremes
- Max (p90)
- Min (p10)

SUB-SEASONAL

Prediction system used: ECMWF-Ext-ENS

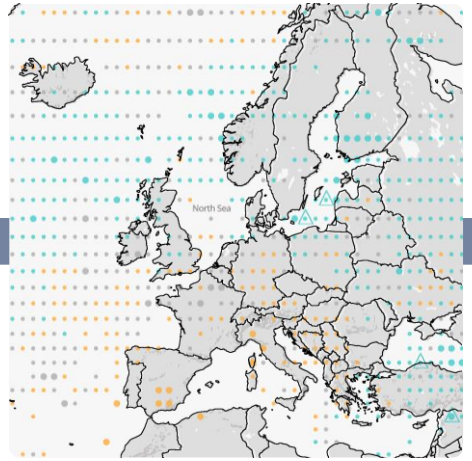
Maps show areas where skill (fRPSS) > 0

16 - 22 November



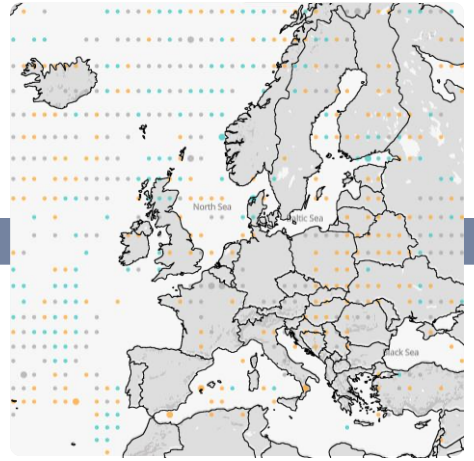
Very high probability of above normal precipitation in Scandinavian countries, the Balkans and eastern Mediterranean, with risk of extremes (20% skill).

23 - 29 November



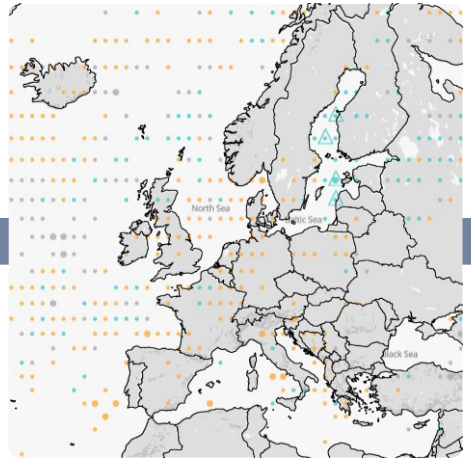
Enhanced probability of above normal precipitation in northeastern Europe, and of below normal precipitation in southwestern Europe (<10% skill).

30 November - 6 December



Generally **enhanced** probability of below normal precipitation across Europe (<5% skill).

7 - 13 December



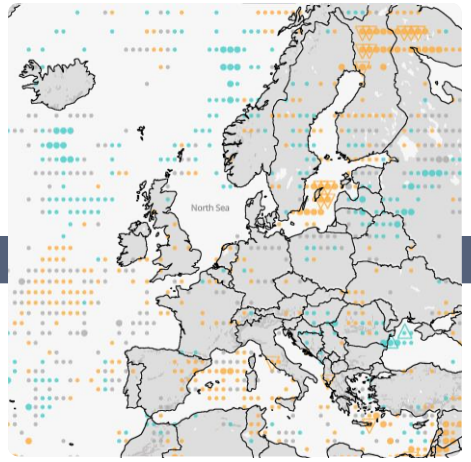
Generally **enhanced** probability of below normal precipitation across Europe except in the Baltic Sea (<5% skill).

SEASONAL

Prediction system used: ECMWF SEAS5

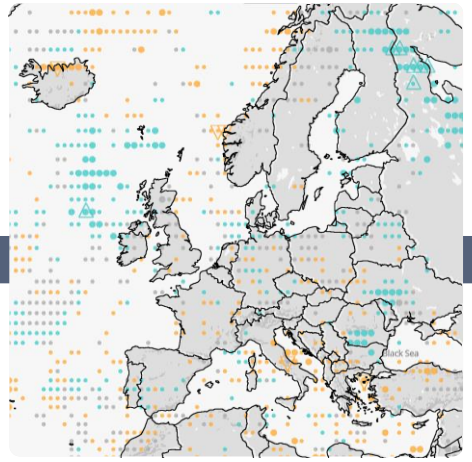
Maps show areas where skill (fRPSS) > 0

December 2020



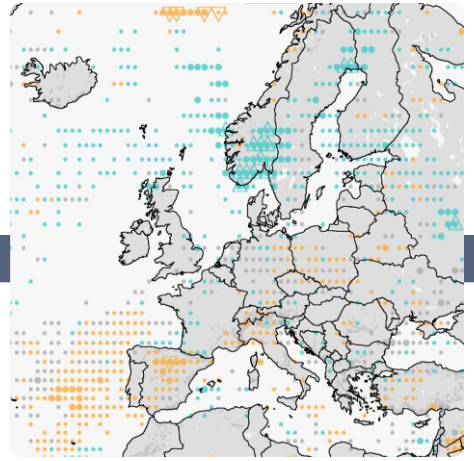
Forecasts show no clear signals.

January 2021



Forecasts show no clear signals.

February 2021



High or **very high** probability of above normal precipitation in the south of Norway (>15% skill), with risk of extremes. **High** probability of below normal precipitation in parts of the Iberian peninsula (>5% skill).

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Probability terms

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

Solar radiation forecasts

Legend

Predicted tercile
- Above
- Normal
- Below

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

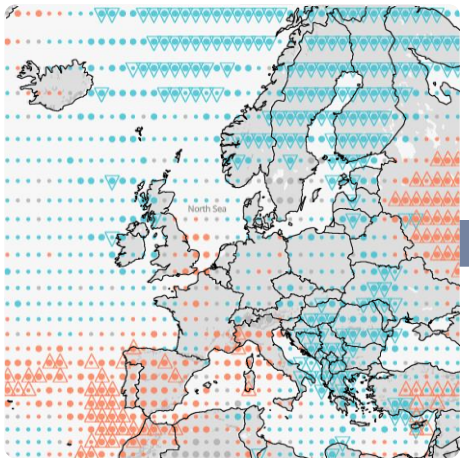
Extremes
- Max (p90)
- Min (p10)

SUB-SEASONAL

Prediction system used: ECMWF-Ext-ENS

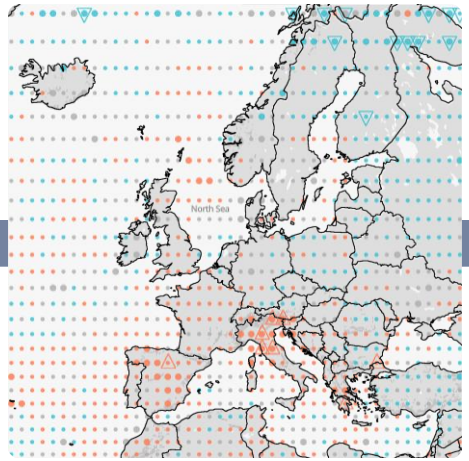
Maps show areas where skill (fRPSS) > 0

16 - 22 November



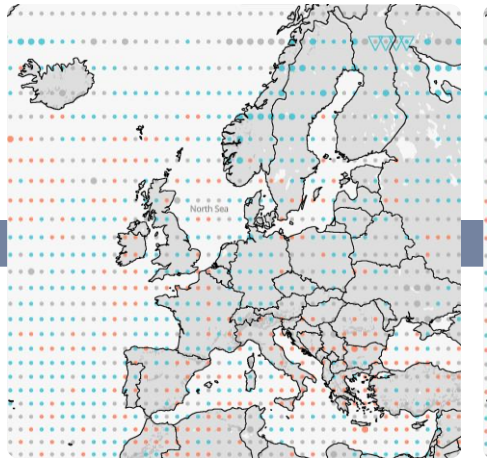
Very high probability of below normal solar radiation in Scandinavian countries and the Balkans, with risk of extremes (50% skill).

23 - 29 November



High probability of above normal solar radiation in the Iberian Peninsula and Italy (20% skill).

30 November - 6 December



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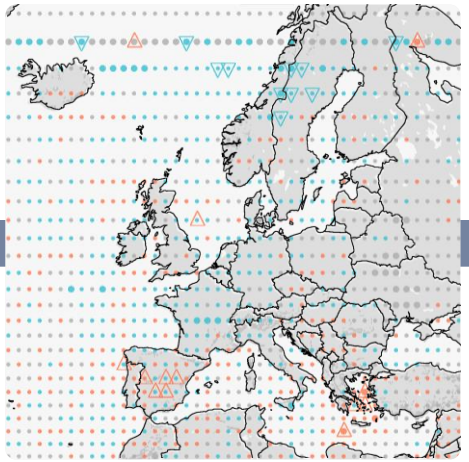
7 - 13 December



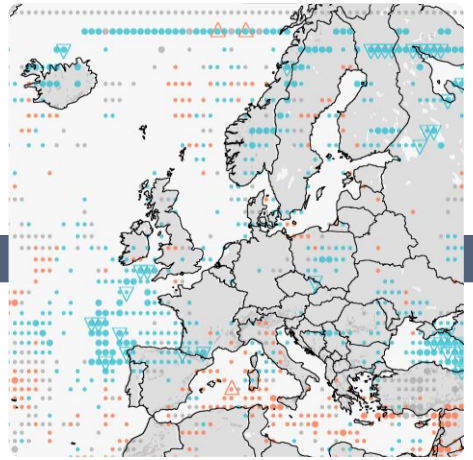
Forecasts show no clear signals.

SEASONAL

Prediction system used: ECMWF SEAS5

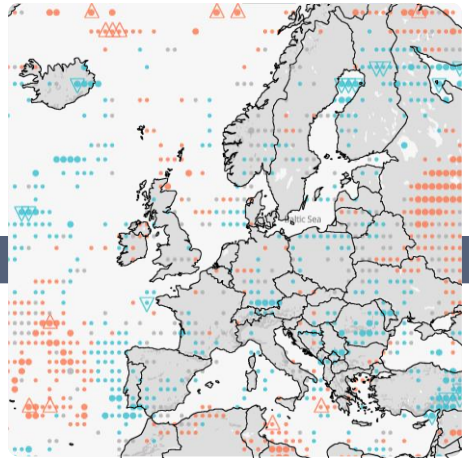
Maps show areas where skill (fRPSS) > 0

December 2020



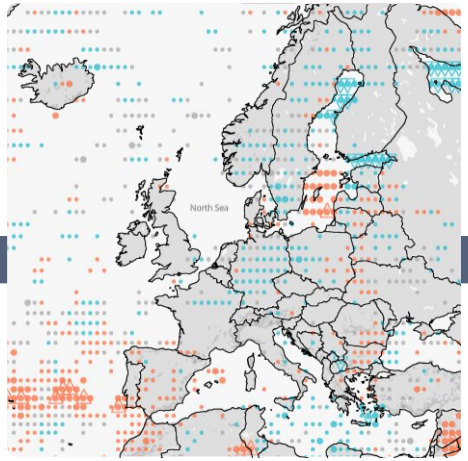
Enhanced probability of below normal solar radiation in parts of Spain and France (skill>0%).

January 2021



Forecasts show no clear signals.

February 2021



Enhanced probability of below normal solar radiation in Germany (~5% skill)

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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 (51 for both ECMWF-Ext-ENS and 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 are shown with a triangle symbol when the probability of an extreme event occurring is over 25%.

SKILL SCORES

Fair	>0% to <15%
Good	15-30%
Very good	>30%

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.

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S2S4E
Climate Services for Clean Energy

OUTLOOK USER GUIDE

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