



# **Operational climate service for renewable energy: From co-development to market. A story from the S2S4E project**

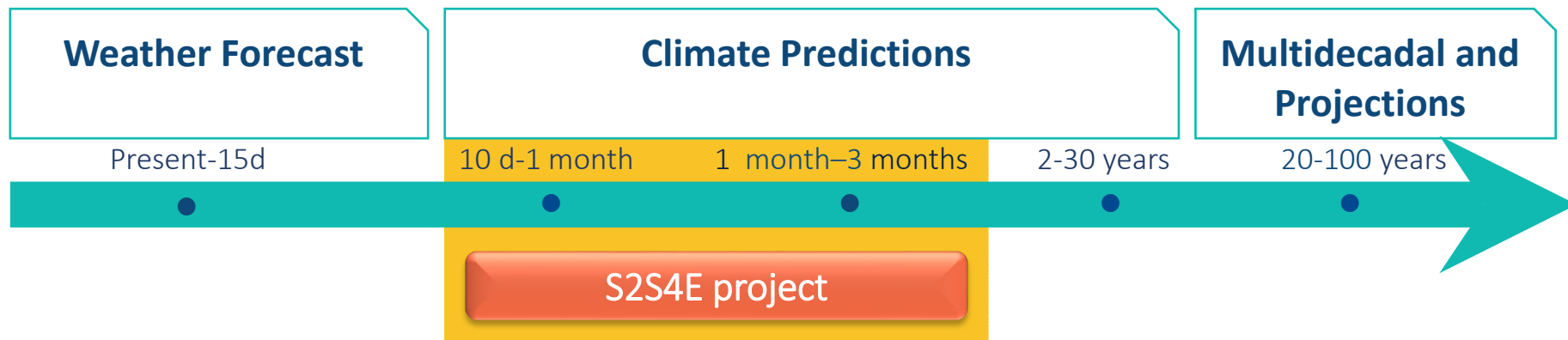
**SECLI-FIRM Webinar**

**Ilaria Vigo, Barcelona Supercomputing Center**



*This project has received funding from the Horizon 2020 programme under grant agreement n°776787.  
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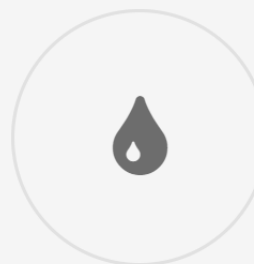
### **WIND POWER**

Wind speed and  
capacity factor  
predictions



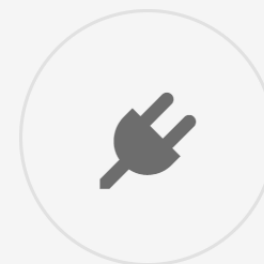
### **SOLAR POWER**

Solar radiation and  
capacity factor  
predictions



### **HYDROPOWER**

Prediction and  
changes in inflow  
predictions



### **ENERGY DEMAND**

Temperature and  
consumption rates  
predictions



# 3 YEARS



The S2S4E project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No. 776787.





# Co-Production with industrial partners...

**VATTENREGLERINGSFÖRETAGEN**  
UMEÄLVEN • ÄNGERMANÄLVEN • INDALSÄLVEN • LJUNGAN • LJUSNAN • DALÄLVEN



**S2S4E**  
Industrial Partners



## ...and external stakeholders



# Decision Support Tool (DST) step by step

**1 Understanding “users”**

**2 Forecasting**

**3 Visualization**

**4 Application**

**5 Feedback & Improvements**



**Users ≠ Decision makers**



**CEO**

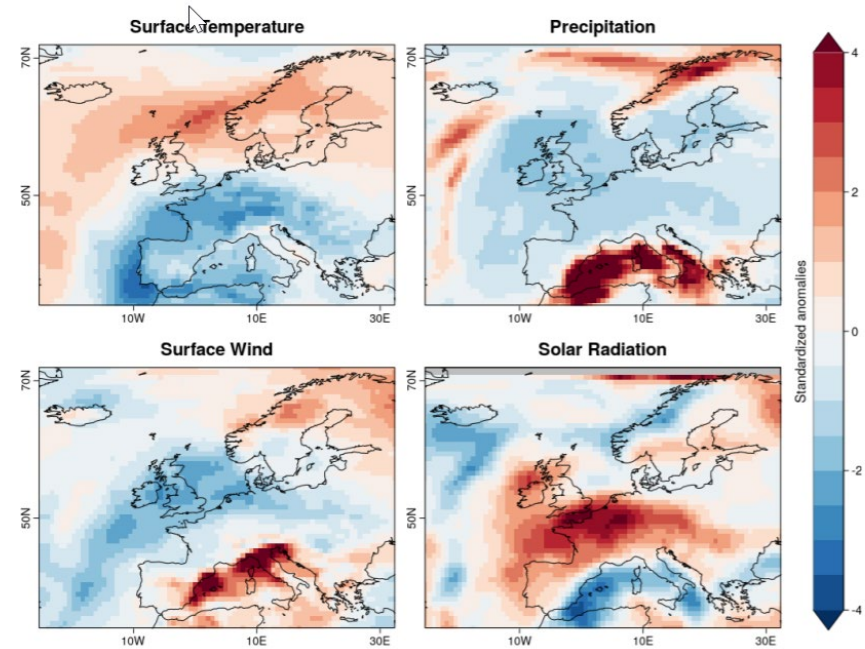


**Typology of  
decision makers**

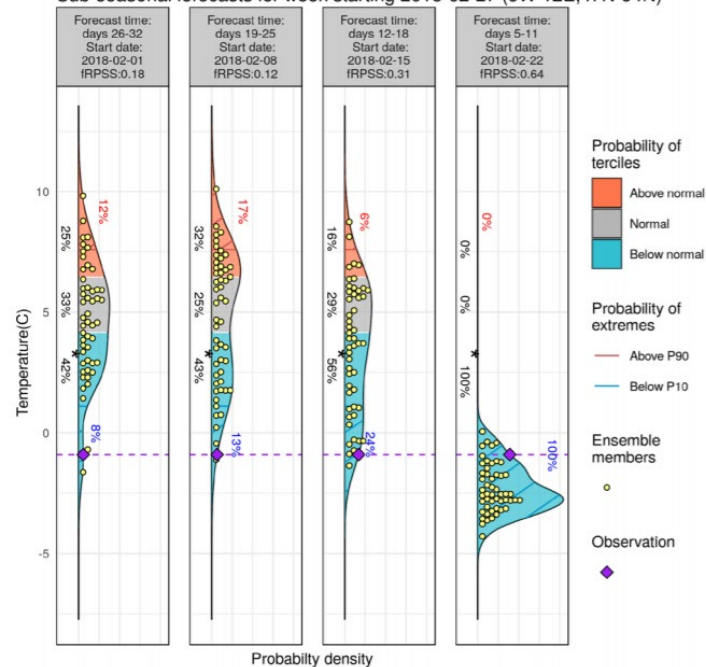




Understand motivations



Sub-seasonal forecasts for week starting 2018-02-27 (5W-12E,47N-54N)



# Case Studies

# Decision Support Tool (DST) step by step

**1 Understanding “users”**

**2 Forecasting**

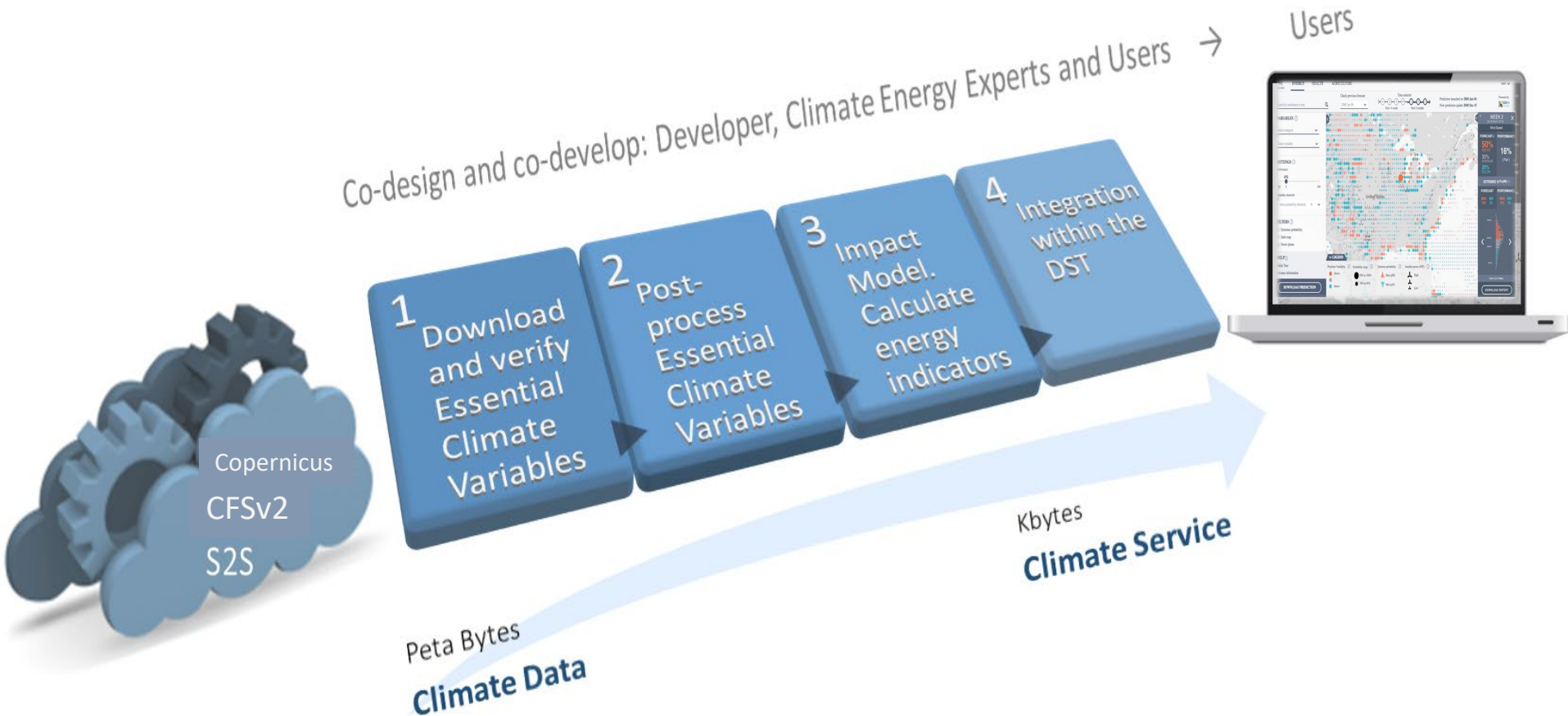
**3 Visualization**

**4 Application**

**5 Feedback & Improvements**



# From climate data to climate services





# Decision Support Tool (DST) step by step

**1**      Understanding “users”

**2**      Forecasting

**3**      **Visualization**

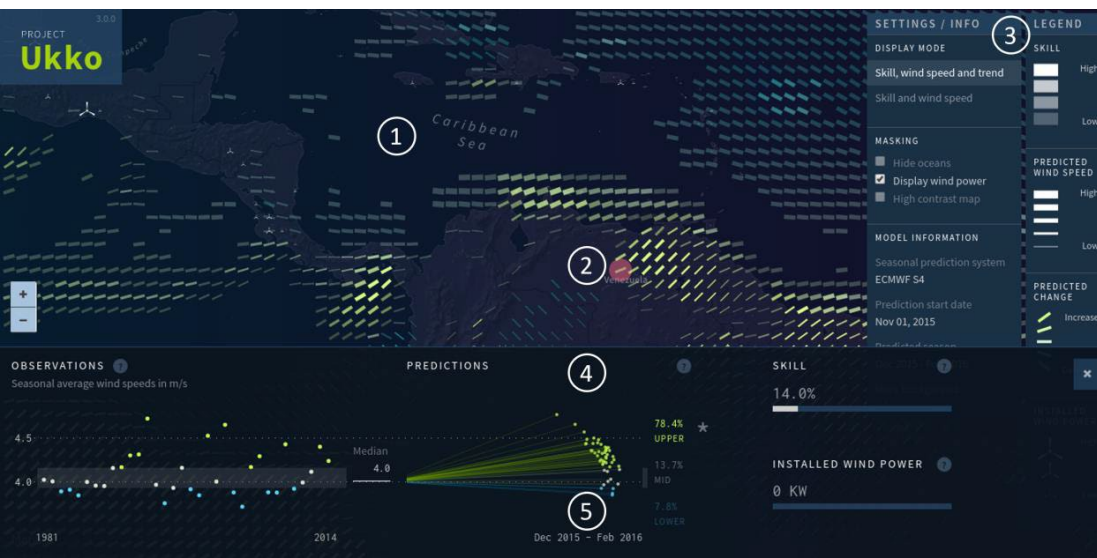
**4**      Interpretation

**5**      Feedback

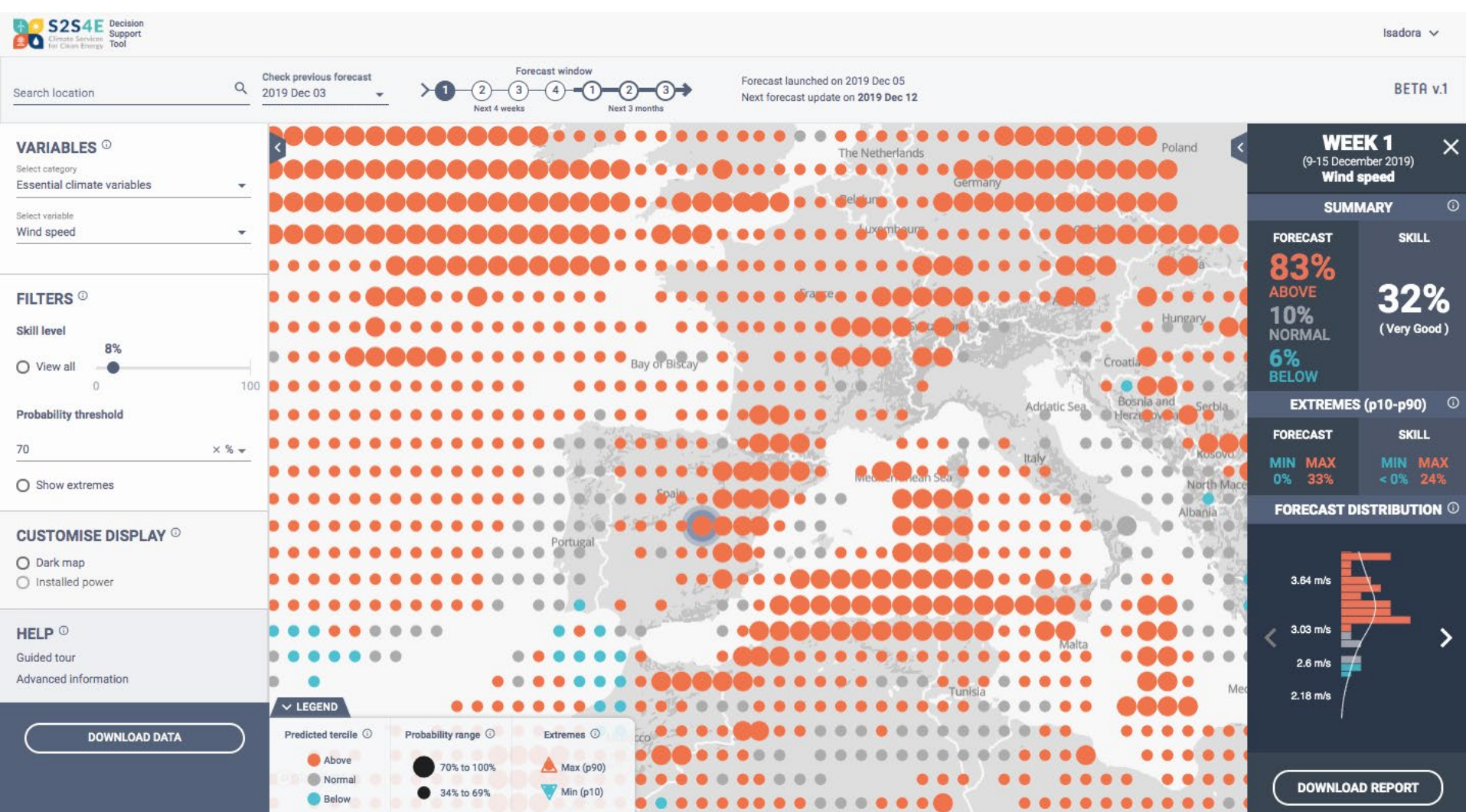
- u Stakeholder mapping
- u Workshop
- u Interviews
- u User journey map
- u User story mapping
- u Task workflow



- u Subject matter experts tests and rapid feedback
- u Usability testing
- u Eye tracking



# Decision Support Tool

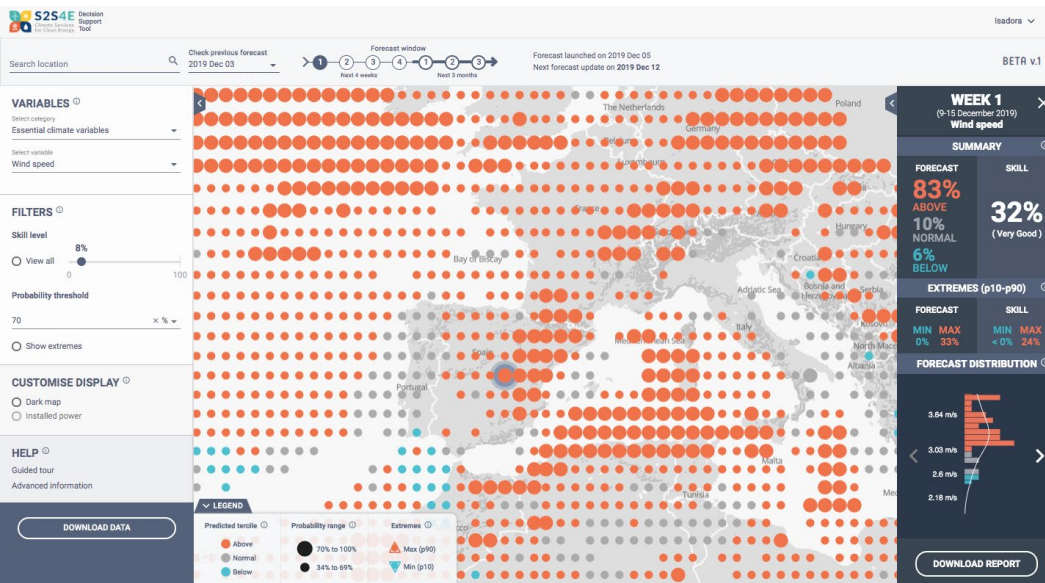


# Decision Support Tool (DST) step by step

- 1 Understanding “users”
- 2 Forecasting
- 3 Visualization
- 4 Application**
- 5 Feedback & Improvements



# Testing



## Case Studies



# Decision Support Tool (DST) step by step

**1 Understanding “users”**

**2 Forecasting**

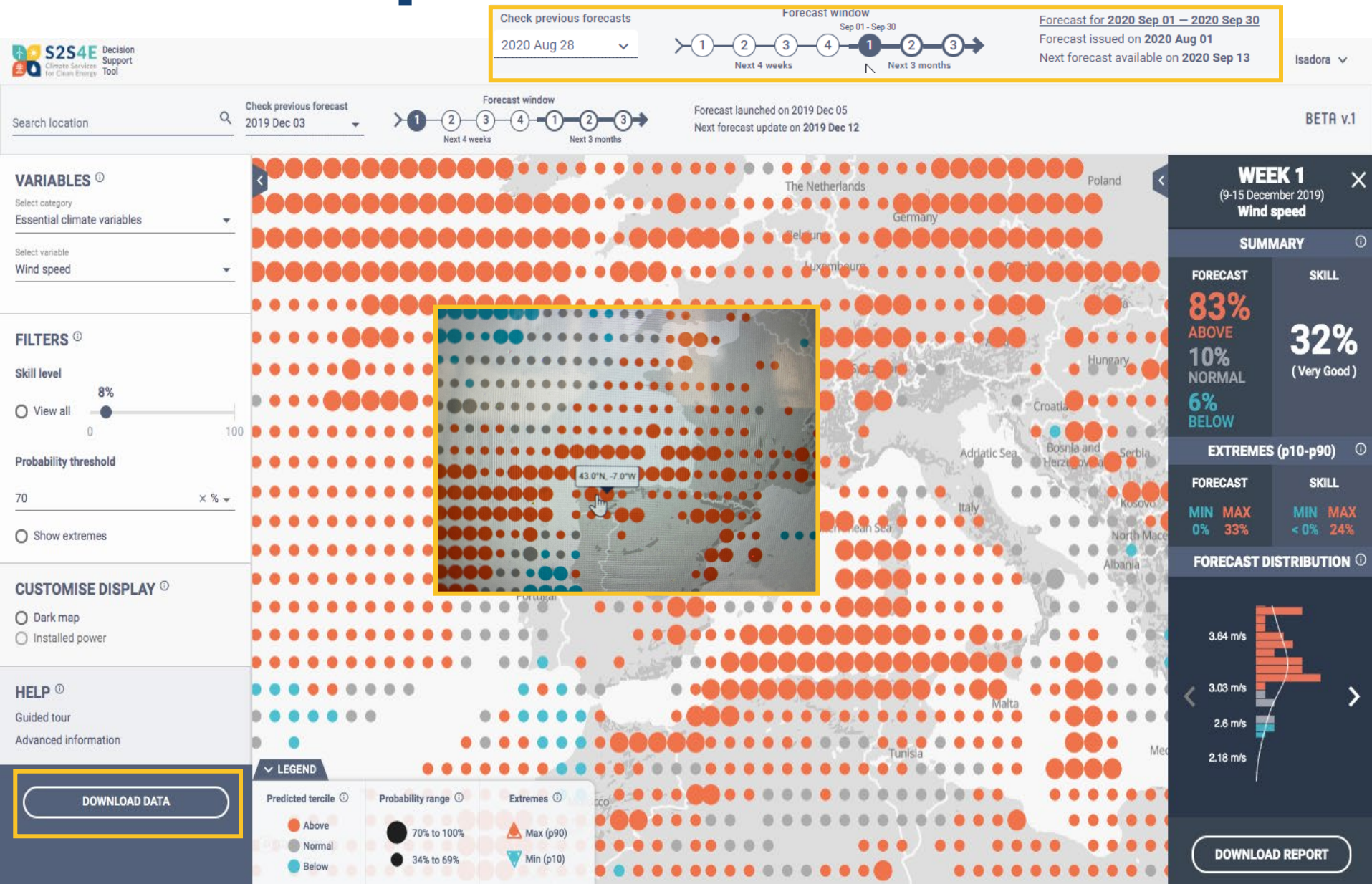
**3 Visualization**

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**5 Feedback & Improvements**



# DST Improvements



# Associated services

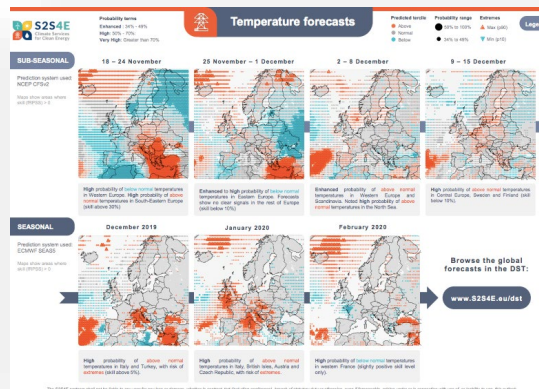
## Webinars

WEBINAR #2 | 25 NOV 2019



In this webinar "Climate forecasts for the Upcoming Winter Season", scientists from S2S4E give insight on forecasts for the next four weeks and three months provided in the online Decision Support Tool.

## Monthly outlooks



## Summer extremes



## Case studies & Factsheets



## R-package CSTools



R-Programming

<https://cran.r-project.org/package=CSTools>



# Impact evaluation & Market

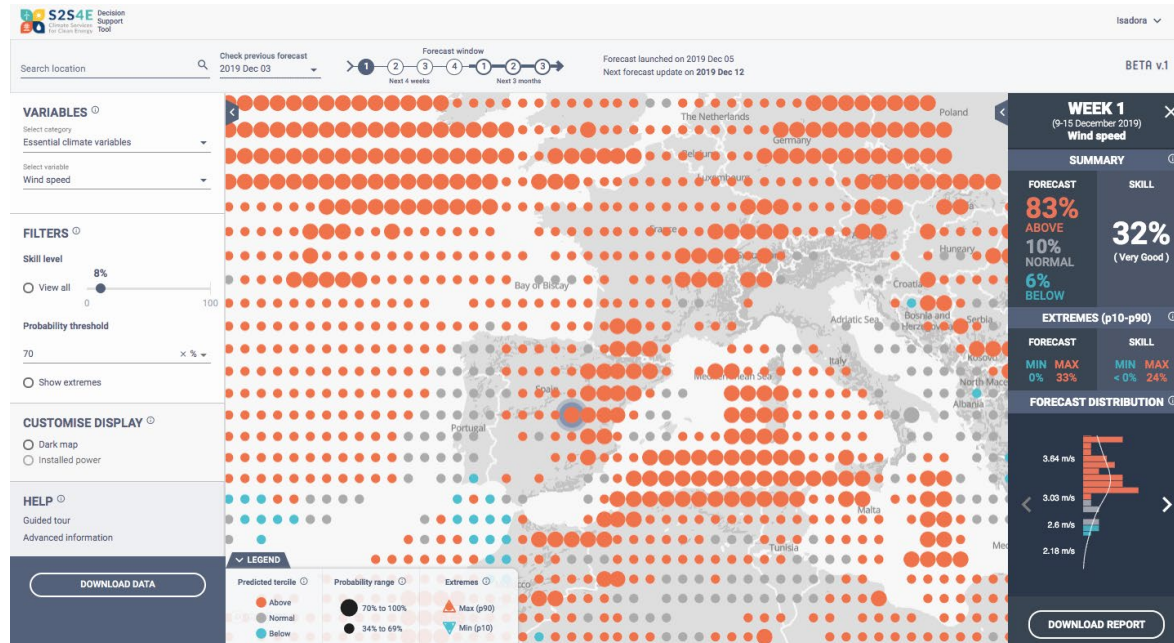
## Impact Evaluation

- Case Studies
- DST Operational

## The service after S2S4E Project

- Market Study
- Business Plan

# Decision Support Tool



<https://s2s4e-dst.bsc.es/#/>

# Thank you

## Get in touch for more information!



# S2S4E

Climate Services  
for Clean Energy



Public reports of the project will be available for download on the S2S4E website: **[www.s2s4e.eu](http://www.s2s4e.eu)**



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Supercomputing Center (BSC)  
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