Subseasonal to Seasonal Forecasts for the Energy Sector

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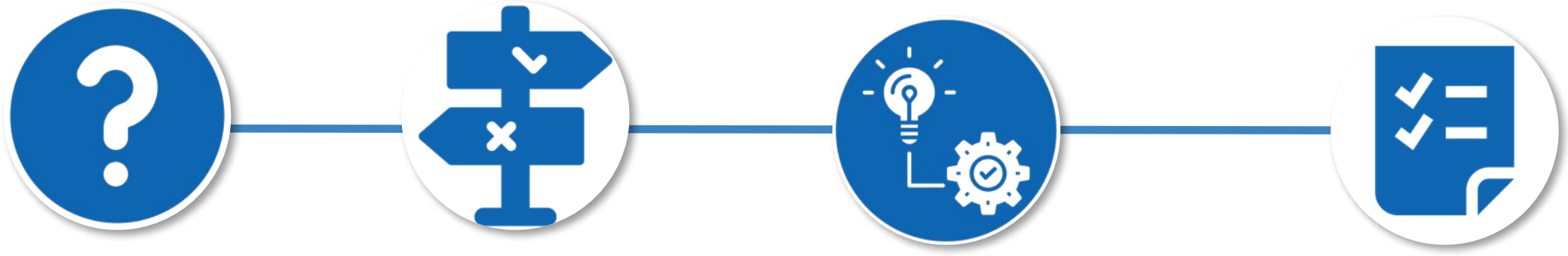
S2S4E Climate Sprint, Paris, 13 November 2019

Overview



Why S2S Forecasts **What for?** **Solutions** **Key messages**

What is at stake?

Cimate Change

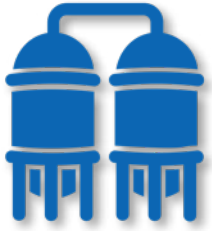
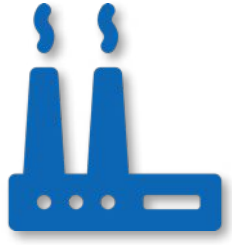
~ 1 bn people have no access to electricity

Energy Sector ~1/3 of $C0_2$ emissions

Decarbonizing the electricity sector is promising, but increases its dependance on weather and climate



For renewables:
Wind, Solar, Hydro power

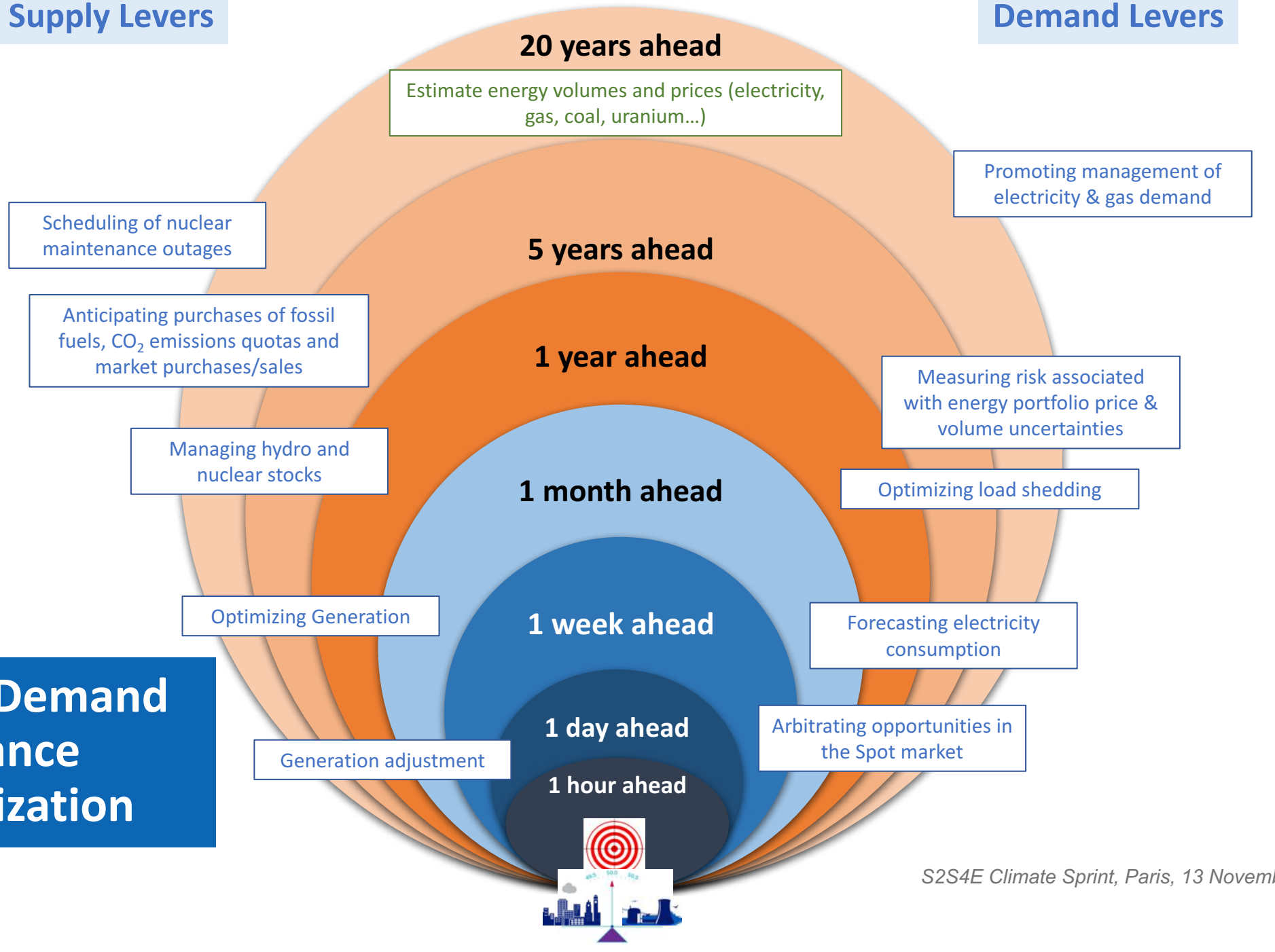




But also for traditionnal fossil power plants

Need to improve forecasts

Supply Levers

Demand Levers



Supply/Demand Balance Optimization

S2S: a window of opportunity

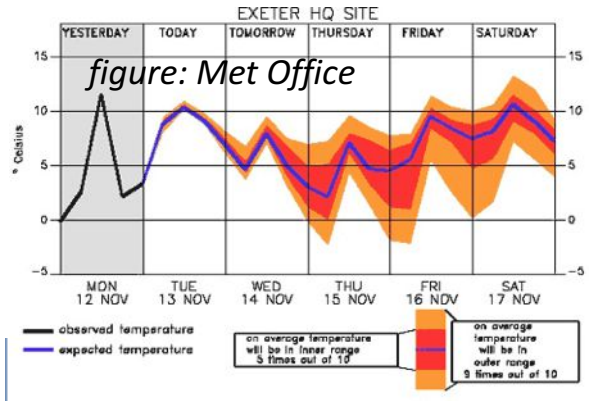


figure: Met Office

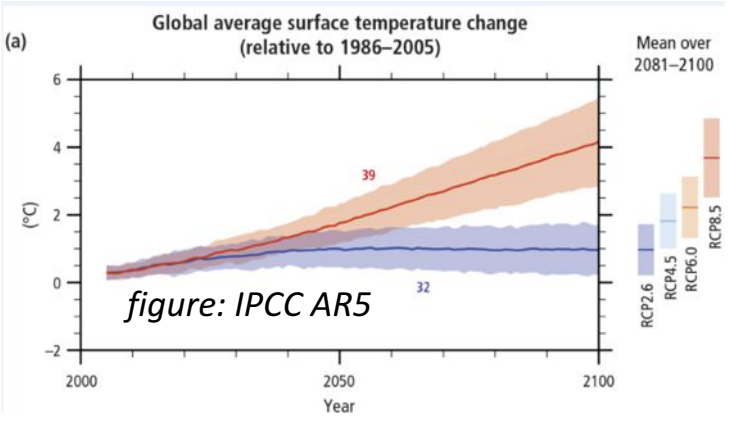
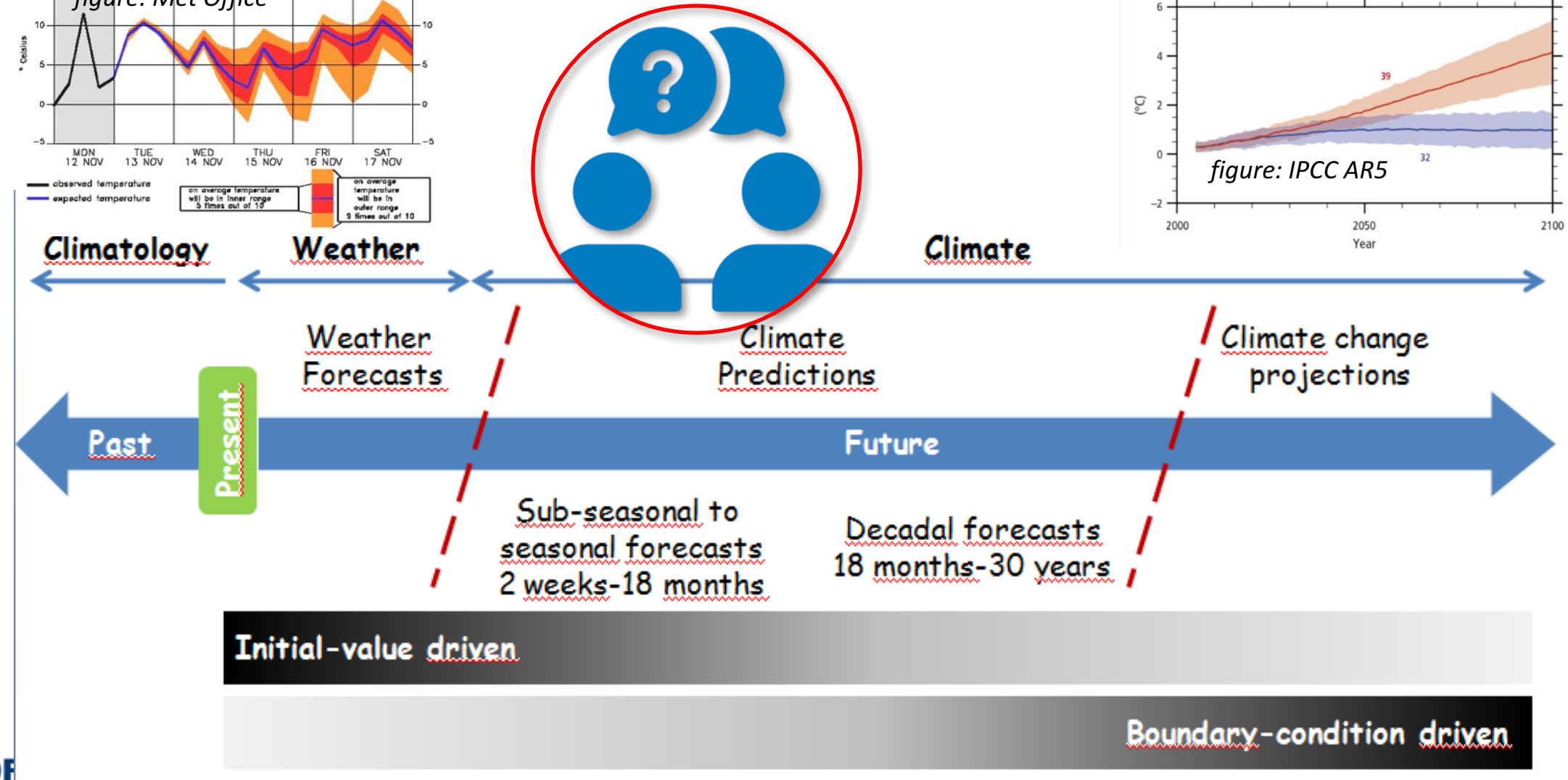
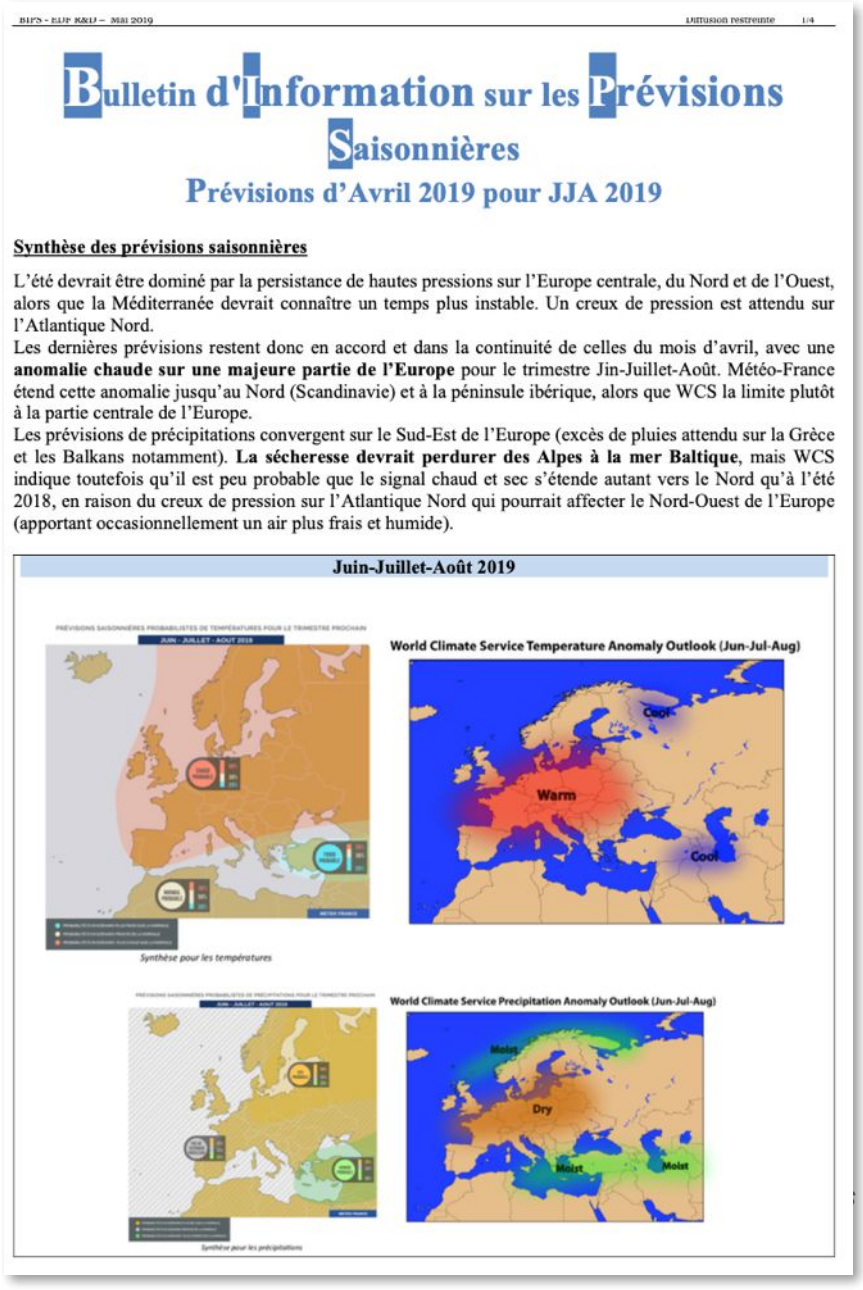


figure: IPCC AR5



EDF Seasonal Outlooks

EDF internal product



BIP'S - ELIP S&D – Mai 2019 — Diffusion restreinte — 1/4

Bulletin d'Information sur les Prévisions Saisonnières

Prévisions d'Avril 2019 pour JJA 2019

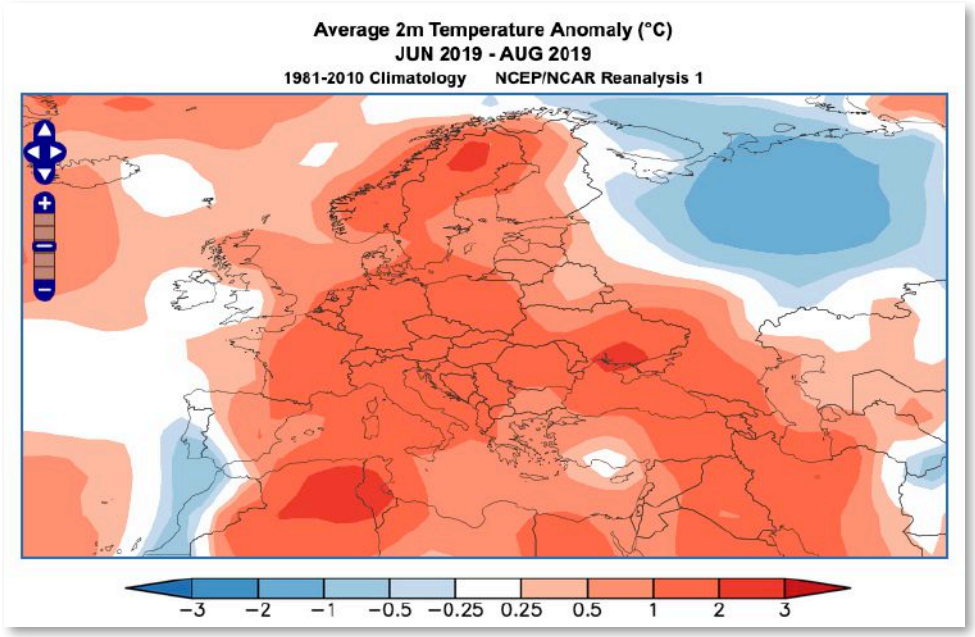
Synthèse des prévisions saisonnières

L'été devrait être dominé par la persistance de hautes pressions sur l'Europe centrale, du Nord et de l'Ouest, alors que la Méditerranée devrait connaître un temps plus instable. Un creux de pression est attendu sur l'Atlantique Nord.

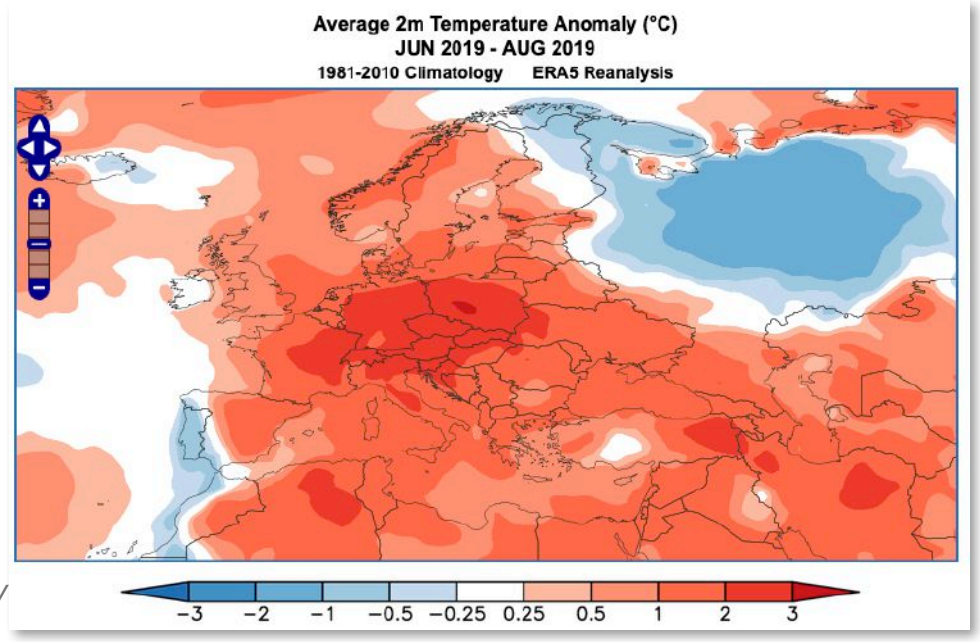
Les dernières prévisions restent donc en accord et dans la continuité de celles du mois d'avril, avec une **anomalie chaude sur une majeure partie de l'Europe** pour le trimestre Jin-Juillet-Août. Météo-France étend cette anomalie jusqu'au Nord (Scandinavie) et à la péninsule ibérique, alors que WCS la limite plutôt à la partie centrale de l'Europe.

Les prévisions de précipitations convergent sur le Sud-Est de l'Europe (excès de pluies attendu sur la Grèce et les Balkans notamment). **La sécheresse devrait perdurer des Alpes à la mer Baltique**, mais WCS indique toutefois qu'il est peu probable que le signal chaud et sec s'étende autant vers le Nord qu'à l'été 2018, en raison du creux de pression sur l'Atlantique Nord qui pourrait affecter le Nord-Ouest de l'Europe (apportant occasionnellement un air plus frais et humide).

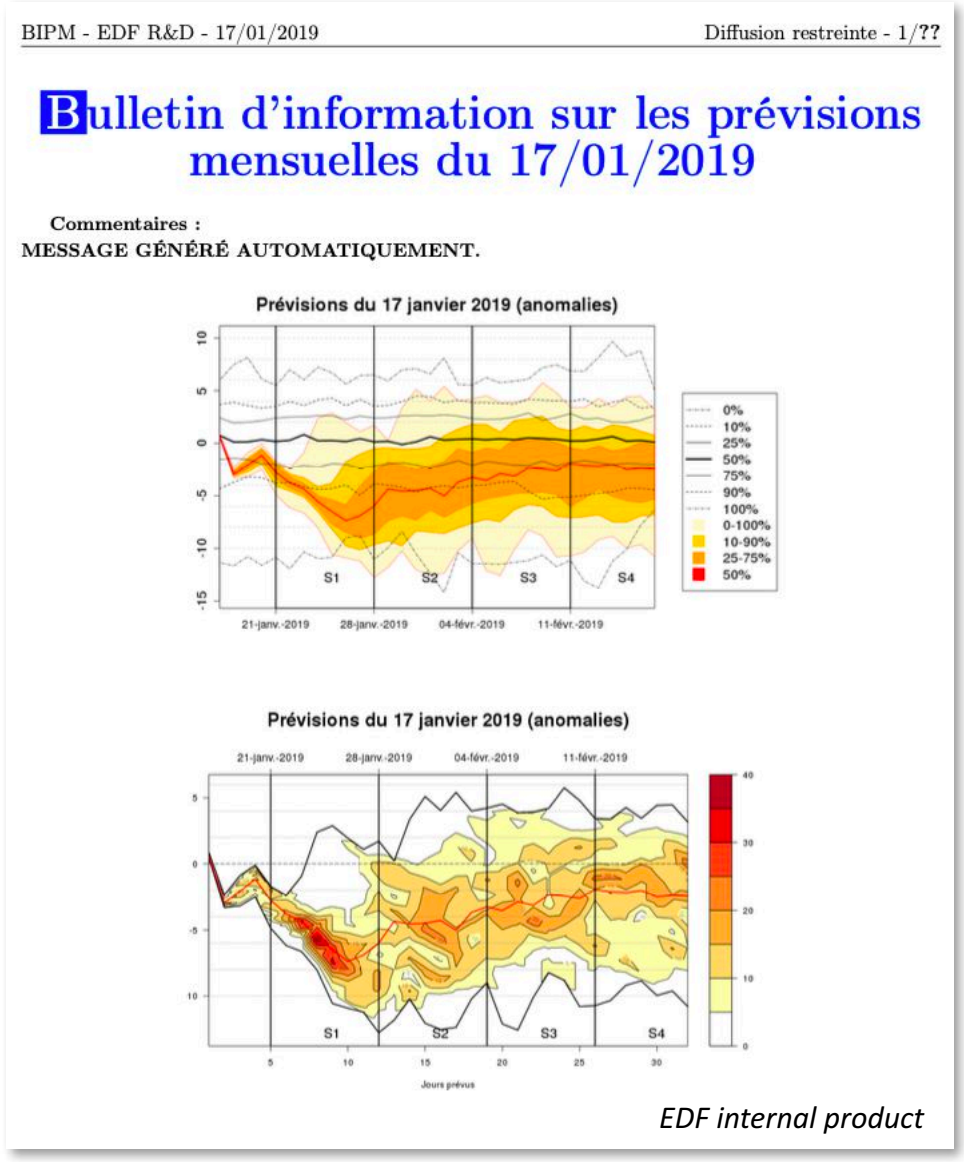
Juin-Juillet-Août 2019



Reanalysis mapping products from WCS



EDF Monthly Outlooks



BIPM - EDF R&D - 17/01/2019 Diffusion restreinte - 1/??

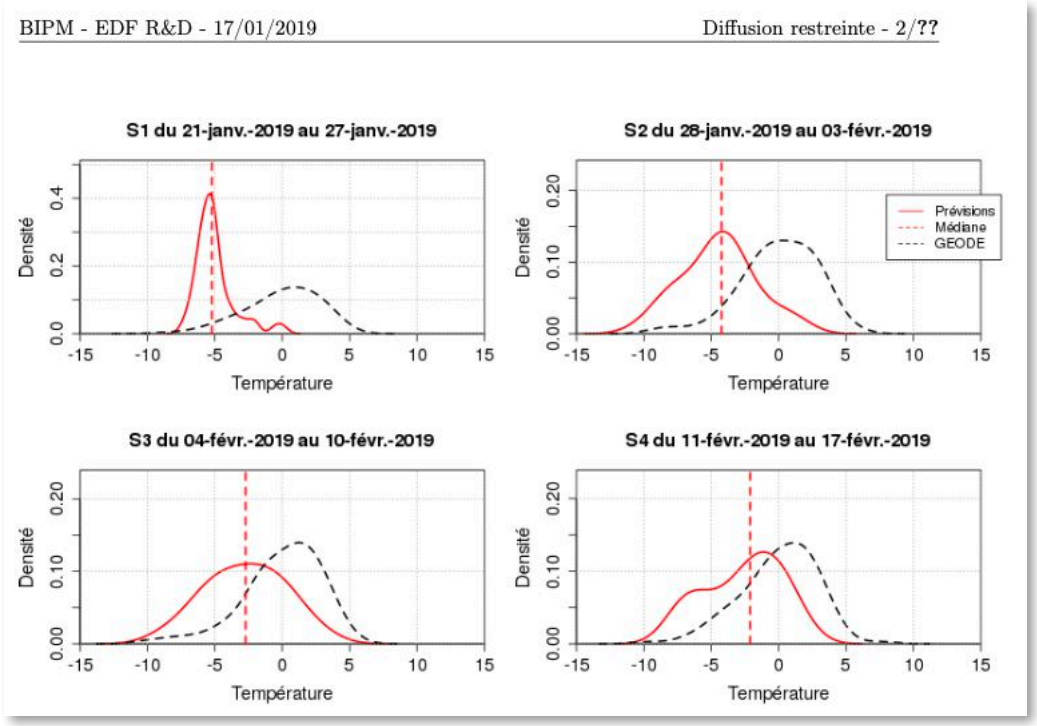
Bulletin d'information sur les prévisions mensuelles du 17/01/2019

Commentaires :
MESSAGE GÉNÉRÉ AUTOMATIQUEMENT.

Prévisions du 17 janvier 2019 (anomalies)

Prévisions du 17 janvier 2019 (anomalies)

EDF internal product



BIPM - EDF R&D - 17/01/2019 Diffusion restreinte - 2/??

S1 du 21-janv.-2019 au 27-janv.-2019

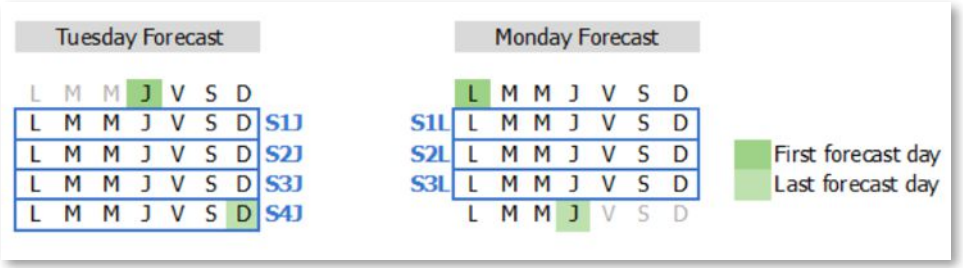
S2 du 28-janv.-2019 au 03-févr.-2019

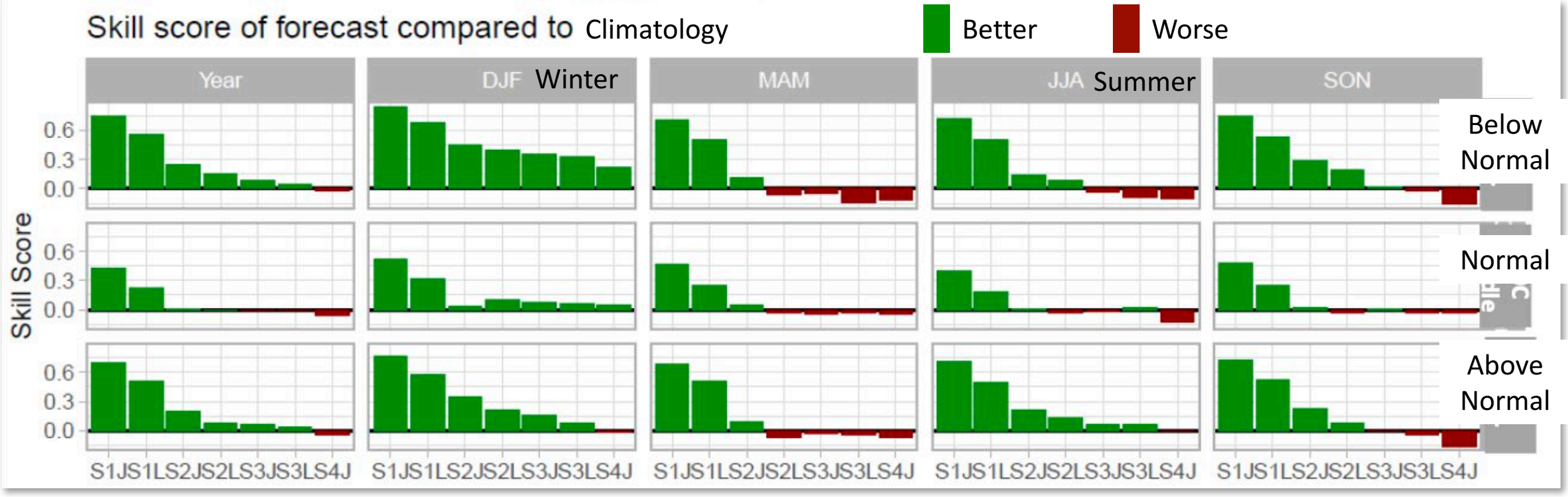
S3 du 04-févr.-2019 au 10-févr.-2019

S4 du 11-févr.-2019 au 17-févr.-2019

EDF internal product

Is there any value in the forecasts?





Monthly forecasts evaluation, March 2016 to February 2019, T2m ROC Skill Score against EDF's climatology

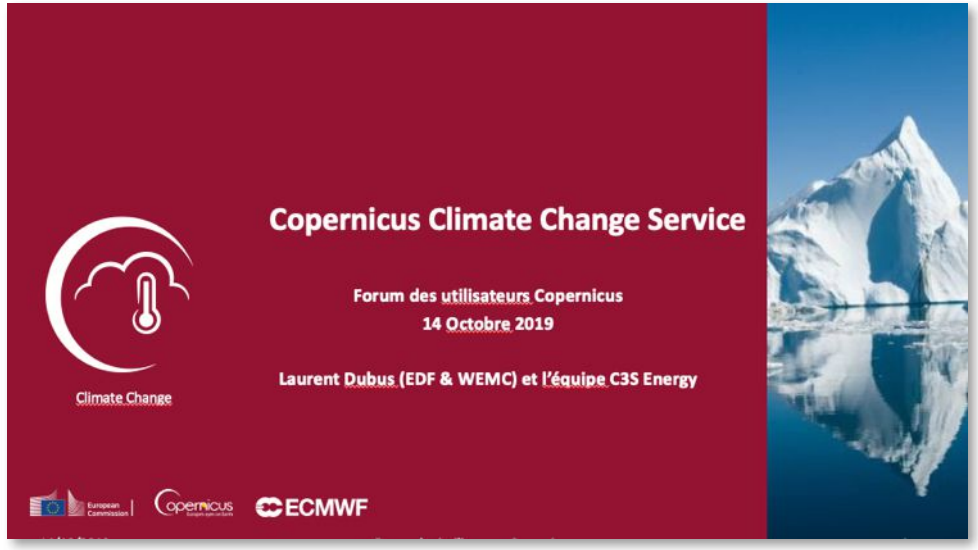
Current value for temperature in France

- ✓ Winter: up to week 4
- ✓ Summer: up to week 3
- ✓ Spring & Autumn: up to week 2, not worse than climatology in weeks 3 & 4
- ✓ Larger added value for « strong » anomalies

Current practice in the energy sector

- Weeks to months ahead generally addressed using climatological data
- Monthly and seasonal forecasts have been used since ~2003 …
- … But mainly in a qualitative / graphical way
- Numerical / Quantitative monthly to seasonal forecasts are now used in operations, in combination with climatological data

The developing Climate Services ecosystem



S2S4E
Climate Services for Clean Energy

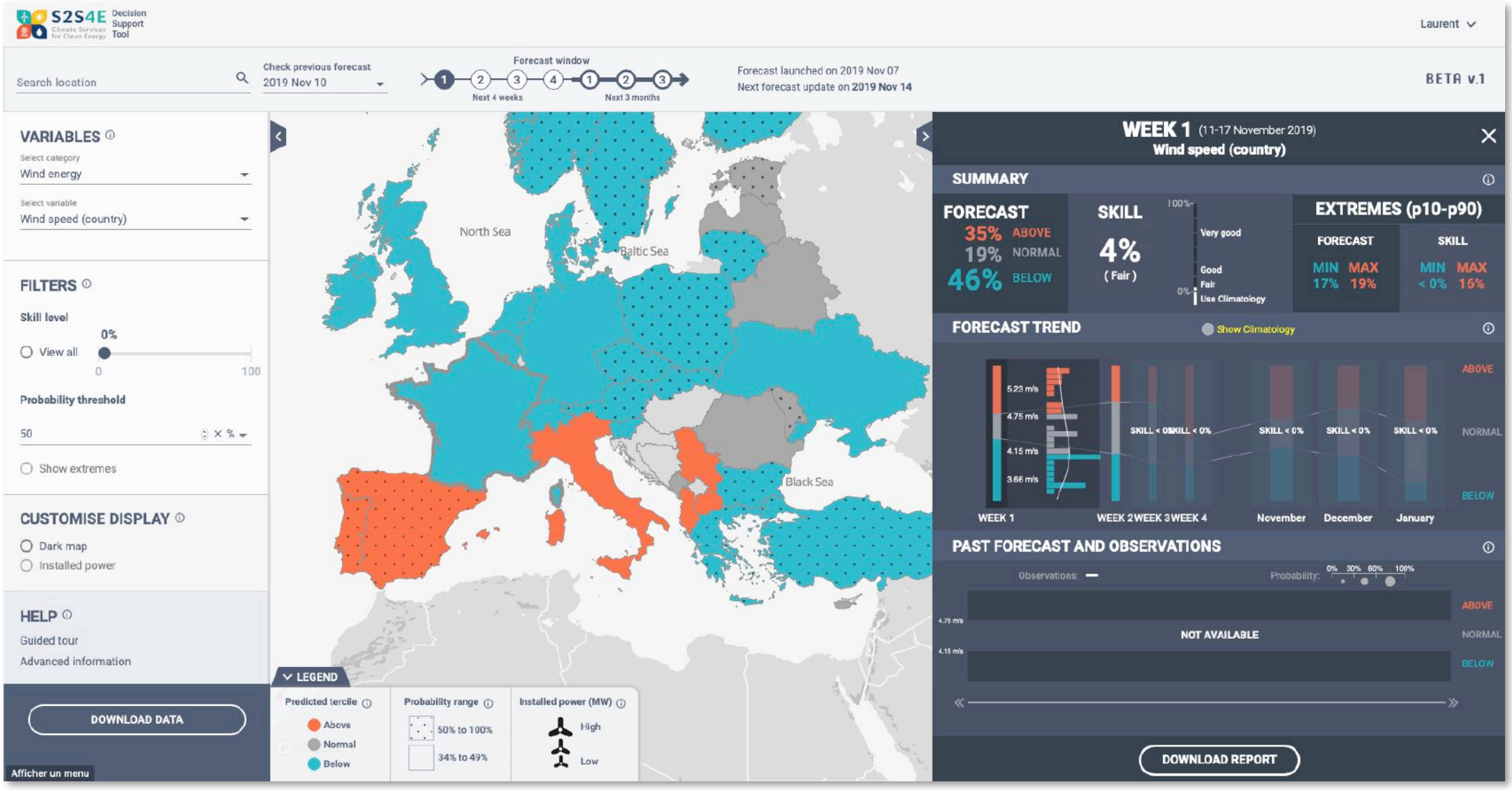
SECLi FIRM
The Added Value of Seasonal Climate Forecasting for Integrated Risk Management

World Climate Service

Offers:

- ✓ **Climate and Energy variables**
- ✓ **Subseasonal & Seasonal**

The developing Climate Services ecosystem



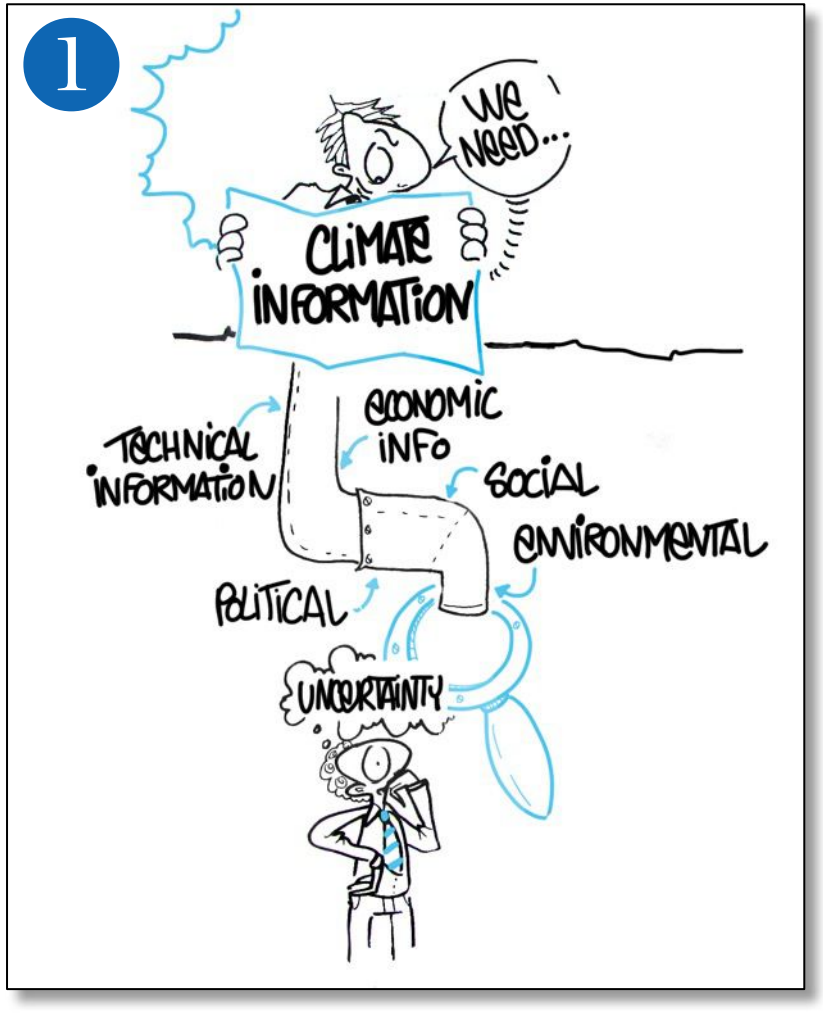
Barriers & limits

- Difficulty for some users to handle probabilistic information
- The information has to be tailored to fit the users' needs, and be easy to understand
- Need to reconcile probabilistic information with (eventually) deterministic decision making
- Limited predictability over Europe

Summary

- ❑ The energy transition increases the energy sector's dependance on climate
- ❑ S2S Forecasts can play a critical role
- ❑ But the information needs to be tailored carefully to the needs
- ❑ S2S4E is proposing novel solutions...

➔ Contribute by testing the Decision Support Tool, give your feedback and contribute to its development so that it provides you what you need


1
WE NEED...
CLIMATE INFORMATION
TECHNICAL INFORMATION
ECONOMIC INFO
SOCIAL
ENVIRONMENTAL
POLITICAL
UNCERTAINTY


2
PARTNERSHIPS

Thank you!

Questions ?