EUPORIAS

Highlights lessons learnt and recommendations

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@euporias

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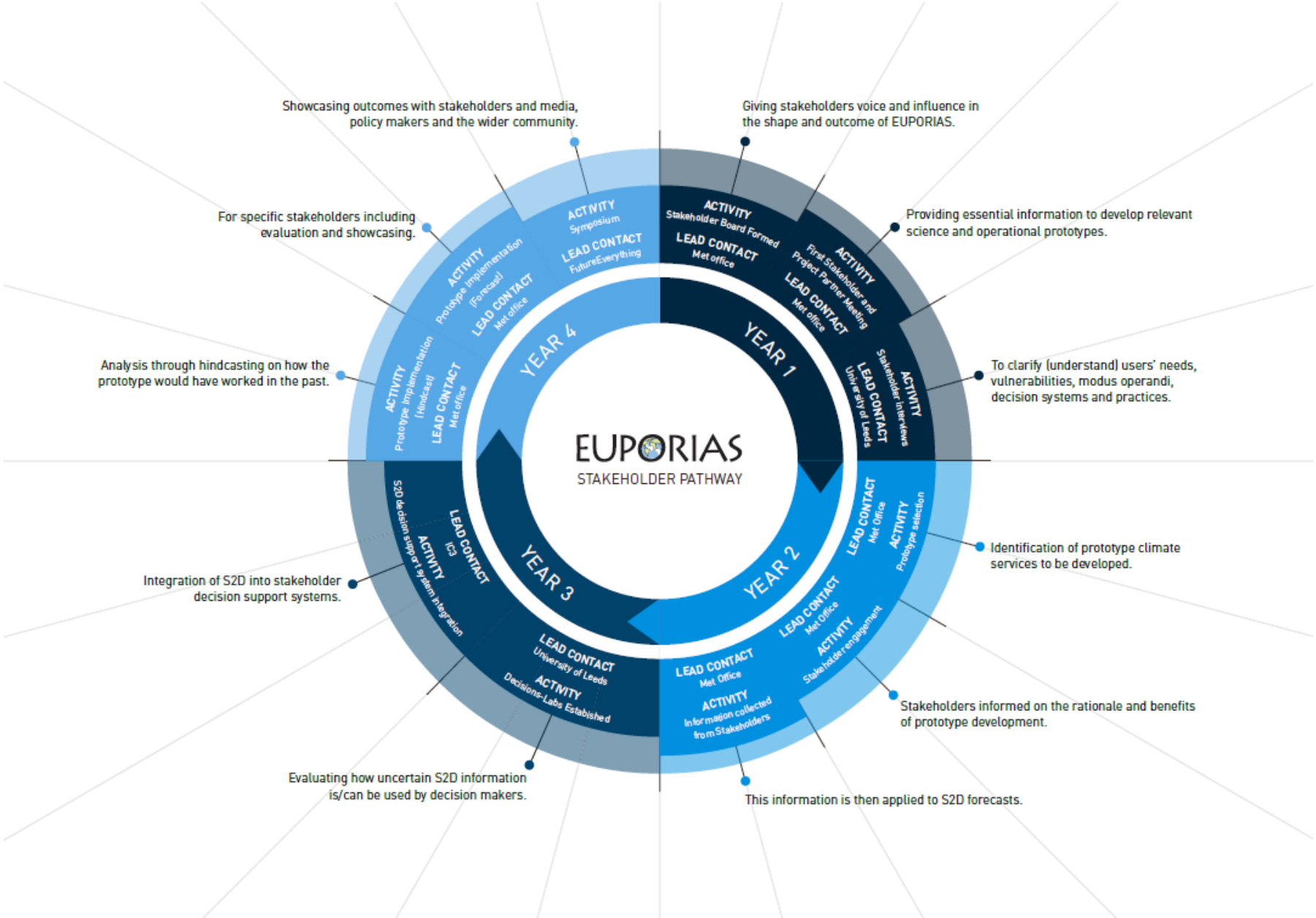
SEVENTH FRAMEWORK PROGRAMME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STAKEHOLDER PATHWAY
YEAR 1
YEAR 2
YEAR 3
YEAR 4
ACTIVITY
Stakeholder Board Formed
LEAD CONTACT
Met office
Giving stakeholders voice and influence in the shape and outcome of EUPORIAS.
ACTIVITY
First Stakeholder and Project Partner Meeting
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Providing essential information to develop relevant science and operational prototypes.
ACTIVITY
Stakeholder interviews
LEAD CONTACT
University of Leeds
To clarify (understand) users' needs, vulnerabilities, modus operandi, decision systems and practices.
LEAD CONTACT
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ACTIVITY
Prototype selection
Identification of prototype climate services to be developed.
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ACTIVITY
Stakeholder engagement
Stakeholders informed on the rationale and benefits of prototype development.
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ACTIVITY
Information collected from Stakeholders
This information is then applied to S2D forecasts.
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University of Leeds
ACTIVITY
Decisions-Labs Established
Evaluating how uncertain S2D information is/can be used by decision makers.
LEAD CONTACT
IC3
ACTIVITY
S2D decision support tools integration
Integration of S2D into stakeholder decision support systems.
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ACTIVITY
Prototype Implementation (Hindcast)
Analysis through hindcasting on how the prototype would have worked in the past.
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ACTIVITY
Prototype Implementation (Forecast)
For specific stakeholders including evaluation and showcasing.
LEAD CONTACT
FutureEverything
ACTIVITY
Symposium
Showcasing outcomes with stakeholders and media, policy makers and the wider community.

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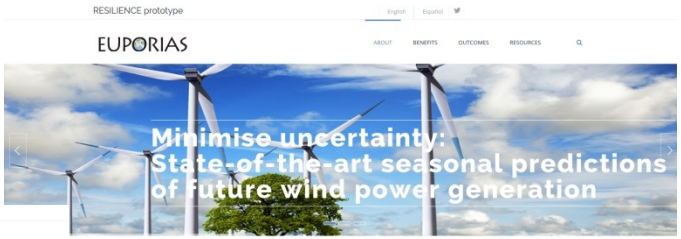
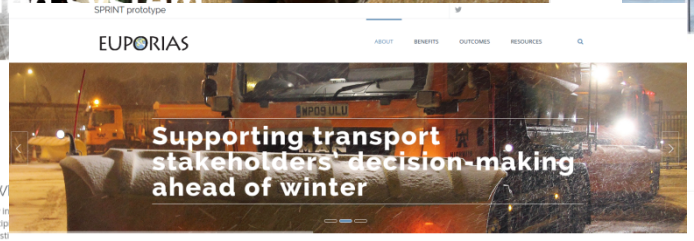
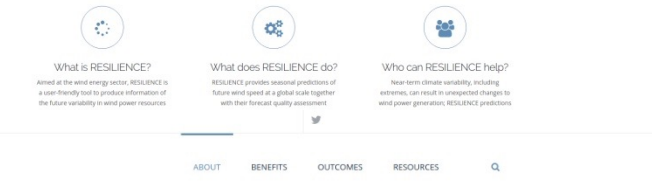
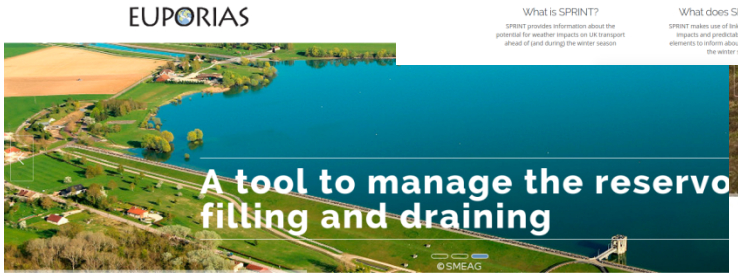
Prototypes and micro sites









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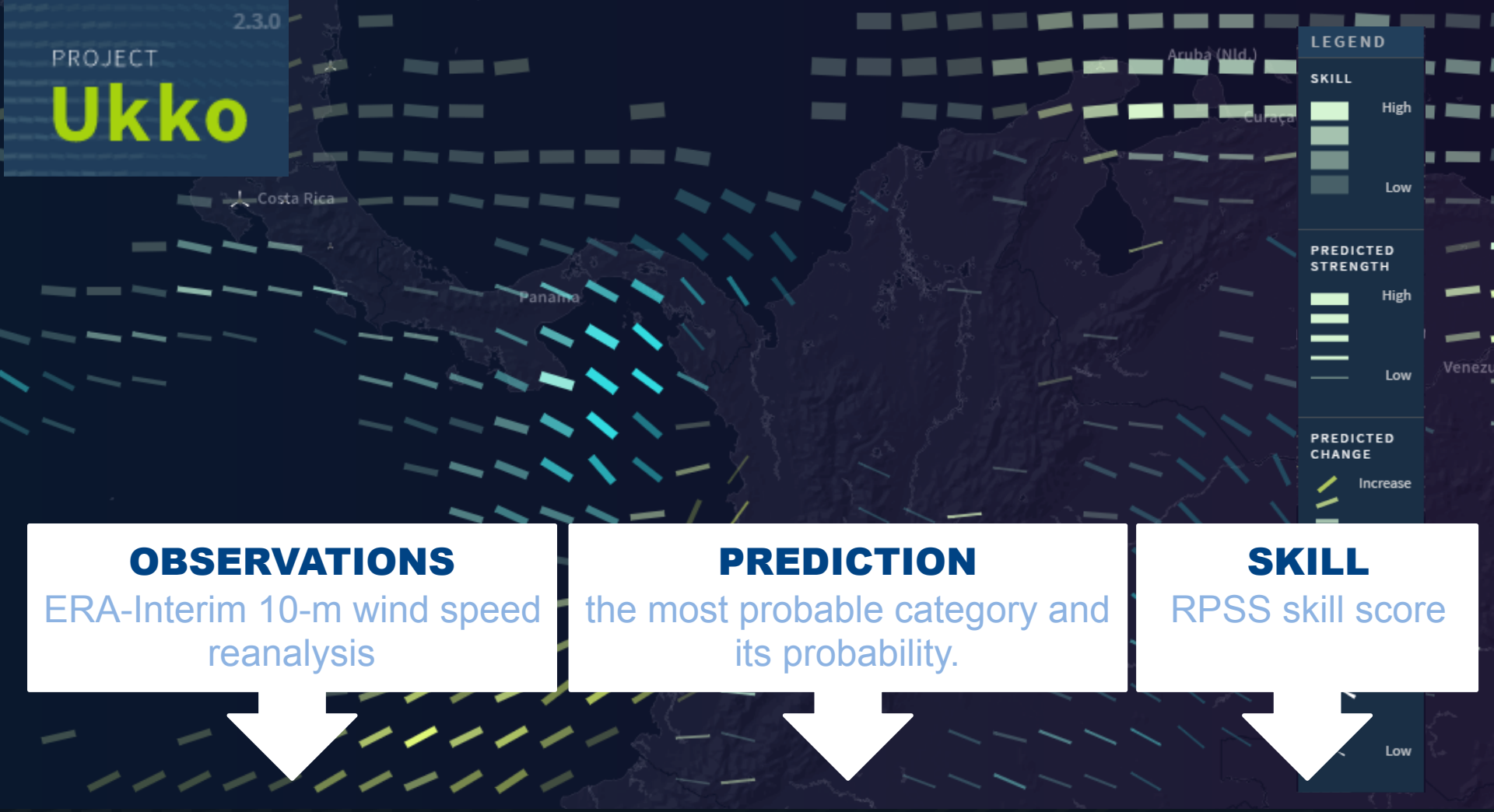
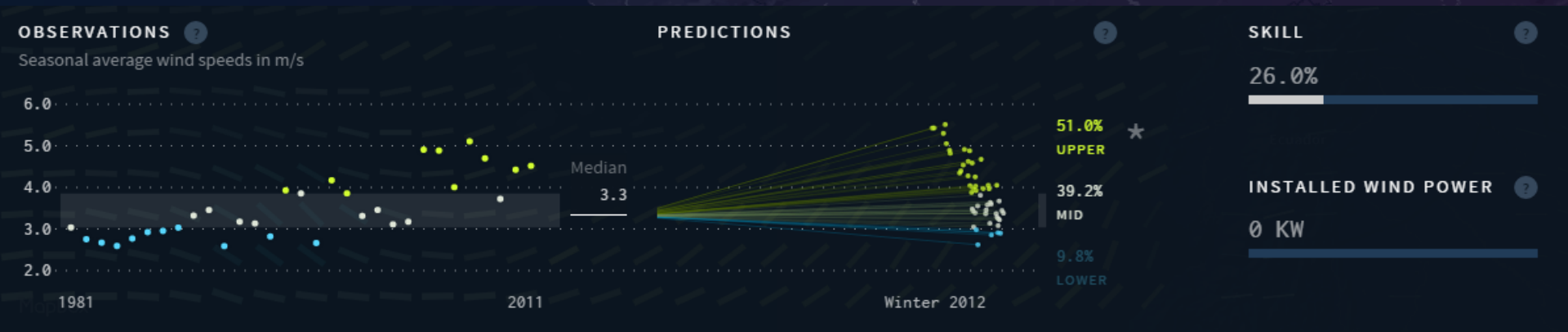
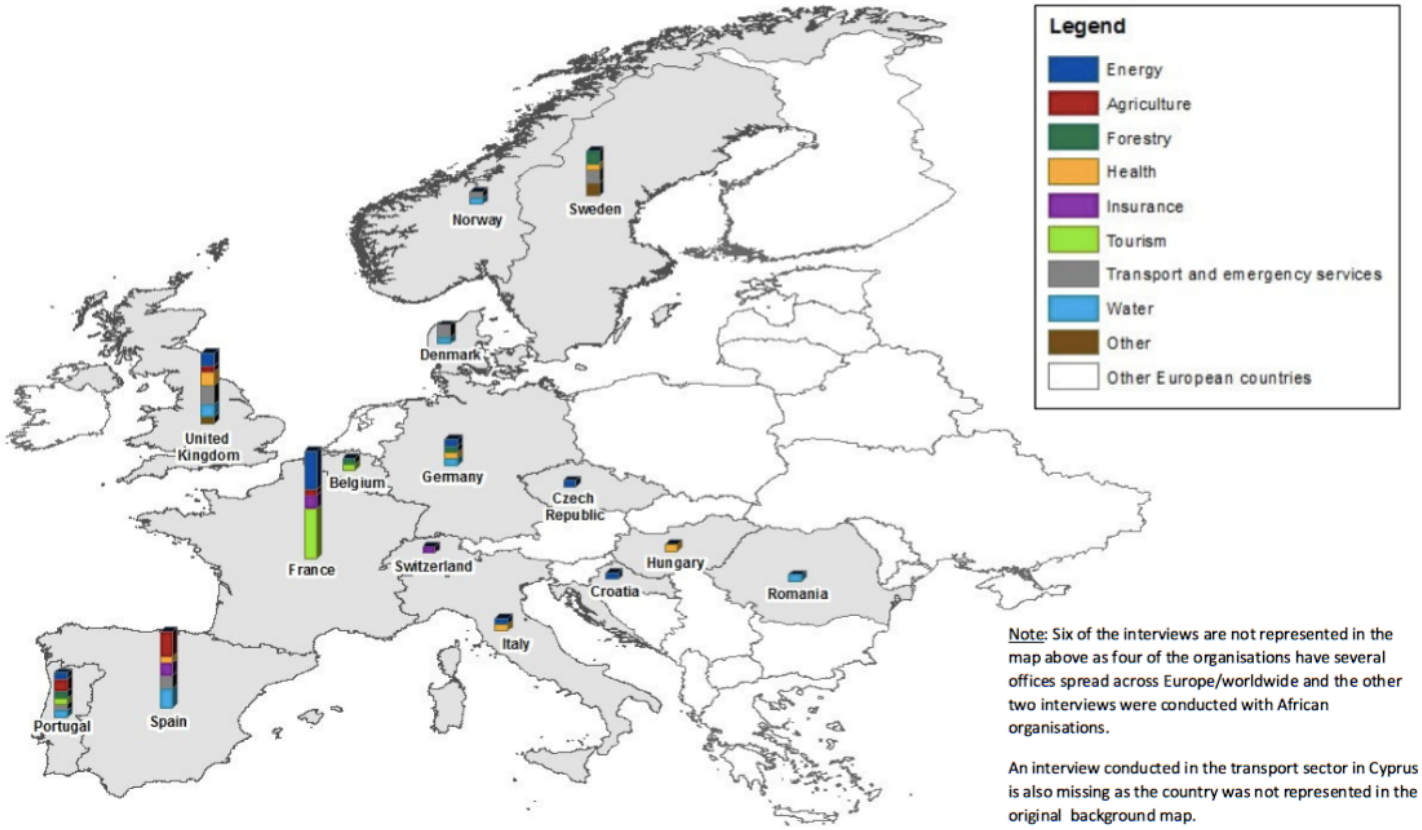
Selection process

- 17 measures of prototypes fitness for purpose were agreed during the GA.
- Two overriding ones:
  - User's engagement (evidence)
  - Expected value given the expected skill
- A international panel made of three experts independent from the project was identified.
- The experts were asked to rank the proposal using the criteria we identified.
- 5+1proposals were selected for further development.

Design as an opportunity


2.3.0
PROJECT
Ukko
Costa Rica
Panama
Aruba (Nld.)
Curaçao
Venezu
LEGEND
SKILL
High
Low
PREDICTED STRENGTH
High
Low
PREDICTED CHANGE
Increase
Low
OBSERVATIONS
ERA-Interim 10-m wind speed reanalysis
PREDICTION
the most probable category and its probability.
SKILL
RPSS skill score


OBSERVATIONS
Seasonal average wind speeds in m/s
6.0
5.0
4.0
3.0
2.0
Median
3.3
1981
2011
PREDICTIONS
51.0%
UPPER
39.2%
MID
9.8%
LOWER
Winter 2012
SKILL
26.0%
INSTALLED WIND POWER
0 KW



- The first comprehensive analysis of the use of seasonal climate forecasts in multiple sectors
- A new understanding of main barriers and enablers to the use of seasonal forecasts in users organisations;

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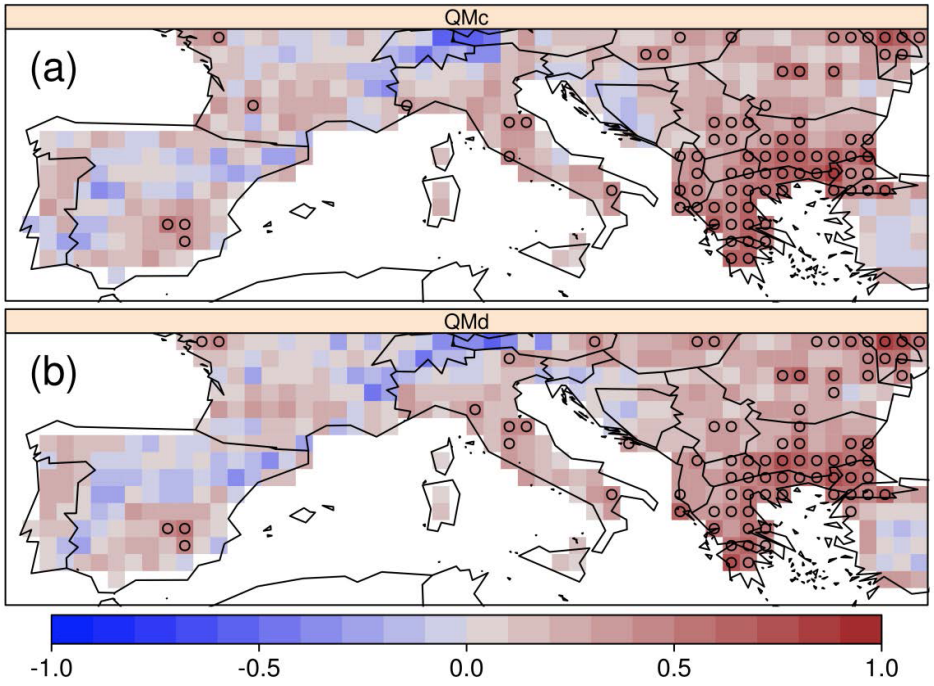
Science highlights



- Regionalisation and bias corrections are a must for many applications but prediction skill comes from large scale.
- Simple post-processing like aggregation through indices can be more relevant for users even if the skill is the same
- Easily accessible long-term observations are crucial to get most out of seasonal forecast

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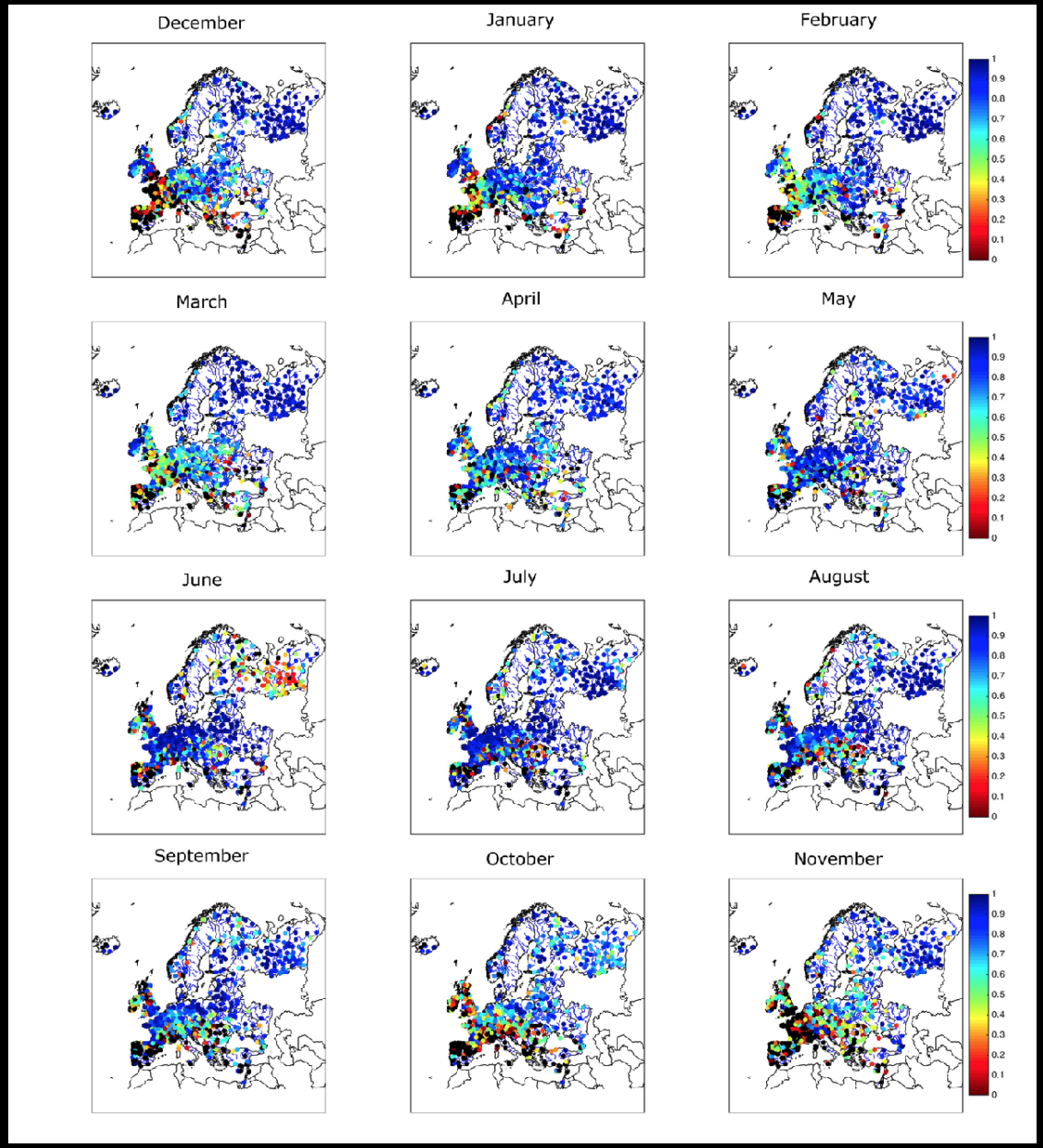
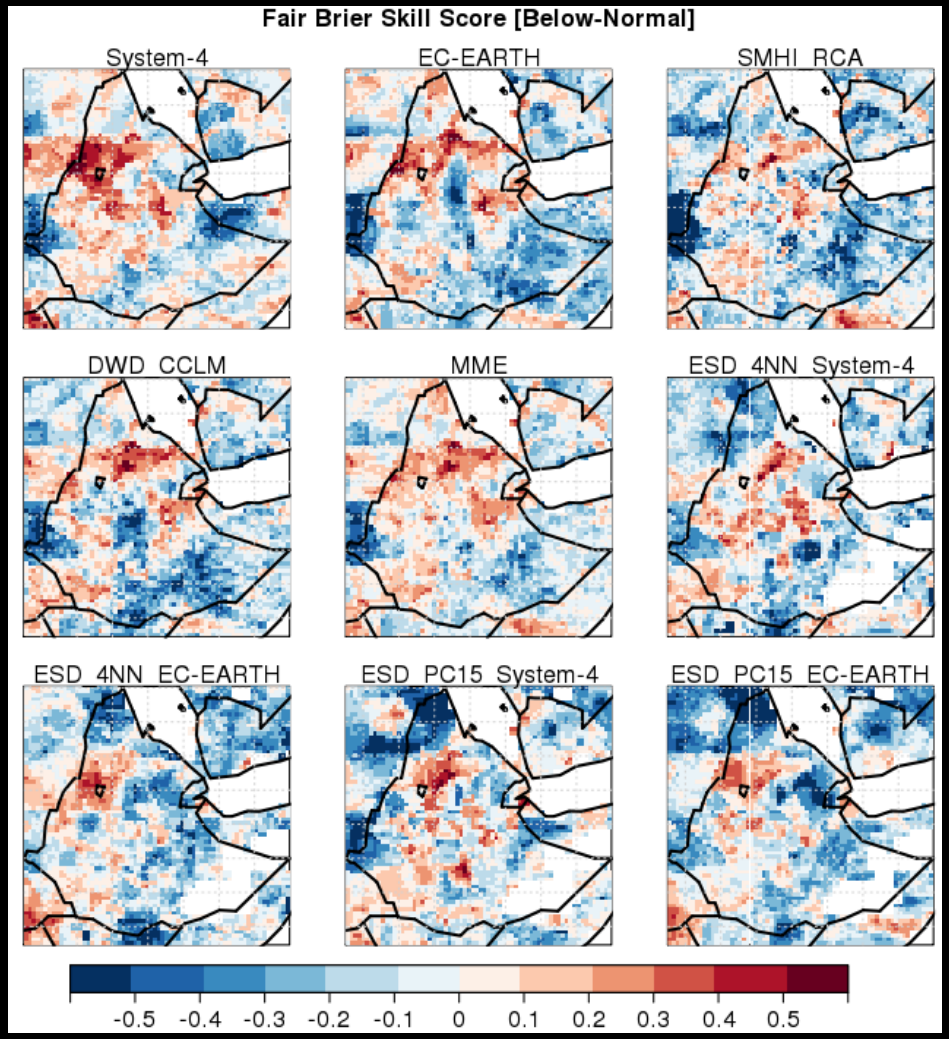
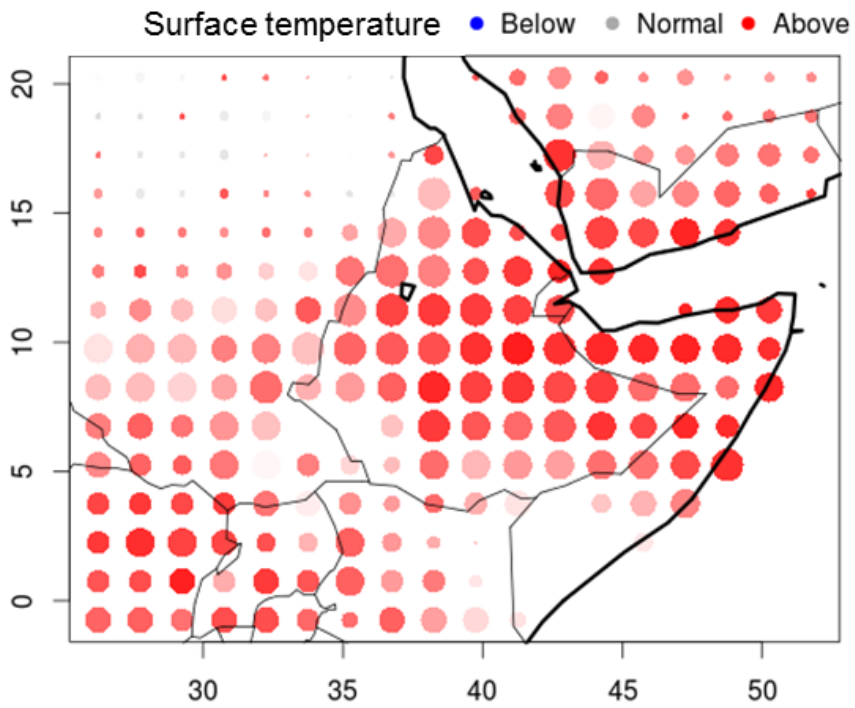
Euporias provided one of the first assessments of the skill in seasonal streamflow predictions in Europe for different lead times and start dates.

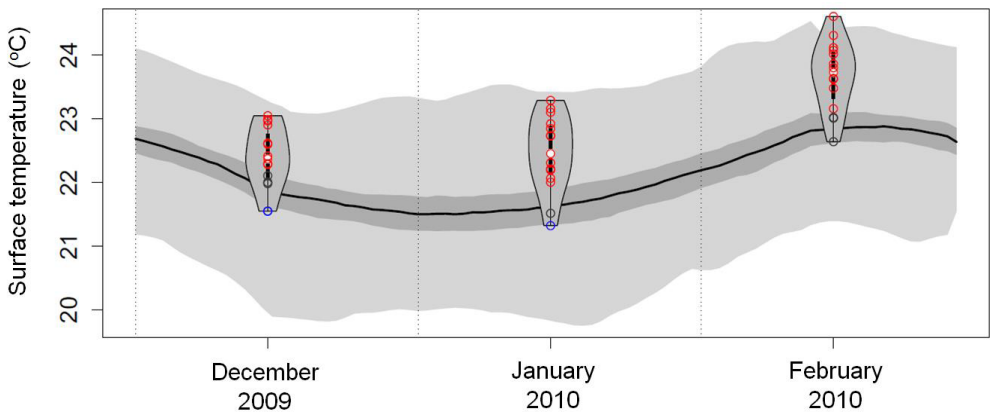
This suggests that the predictability of river flow in Europe for some basins (but not for others) can be much higher than the predictability of the atmospheric drivers.

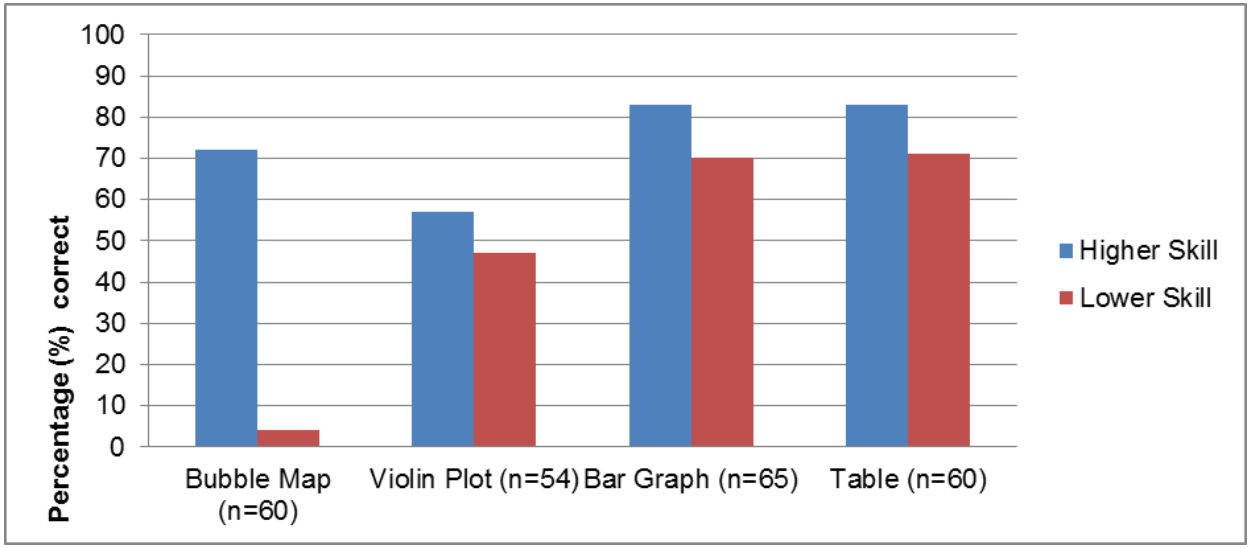




- A hi-resolution hindcast ensemble over East Africa.


Surface temperature
Below
Normal
Above
20
15
10
5
0
30
35
40
45
50


Surface temperature (°C)
20
21
22
23
24
December
2009
January
2010
February
2010


Percentage (%) correct
100
90
80
70
60
50
40
30
20
10
0
Bubble Map (n=60)
Violin Plot (n=54)
Bar Graph (n=65)
Table (n=60)
Higher Skill
Lower Skill

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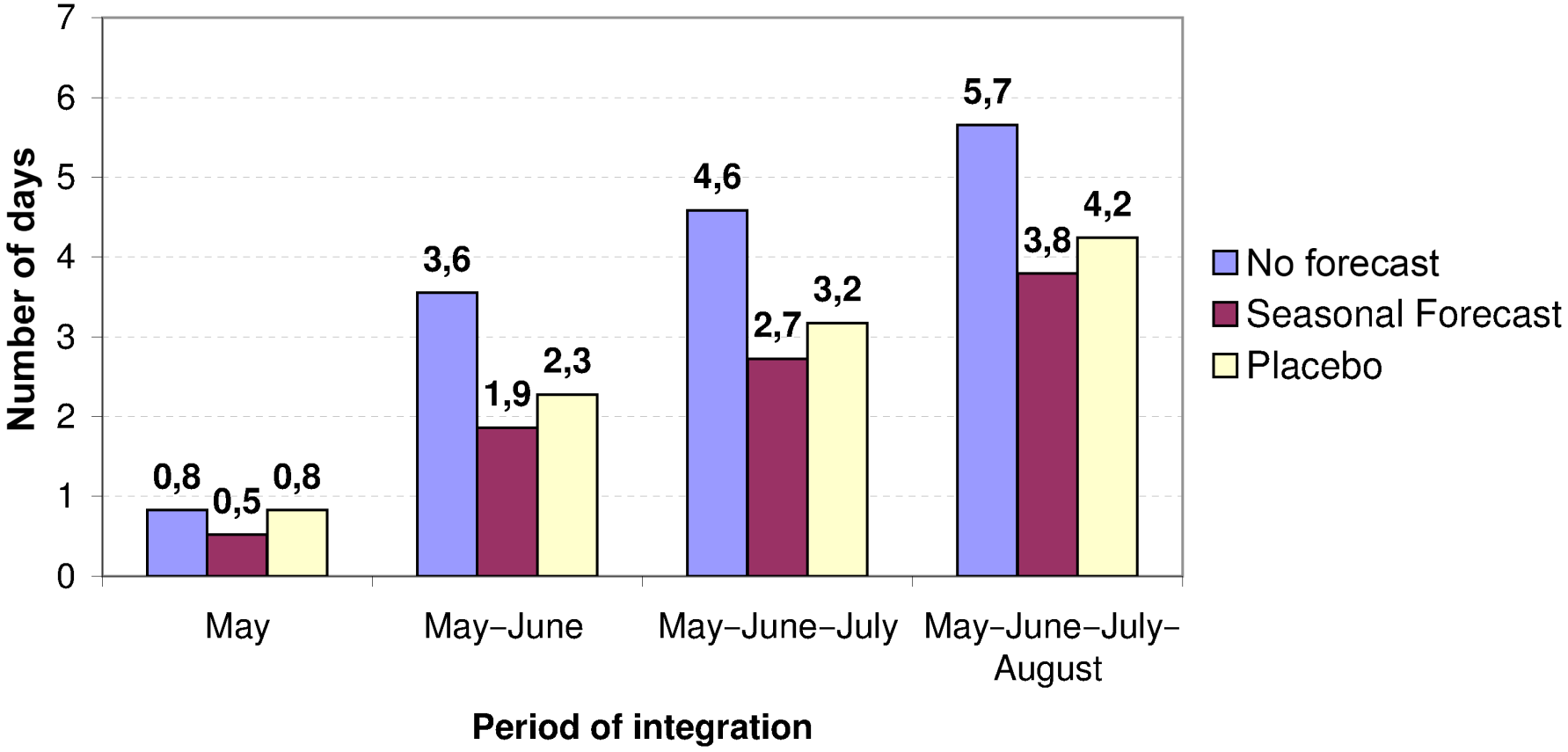
Number of days below the "vigilance" threshold
May IC - assessment over 29 years
Station : Gournay



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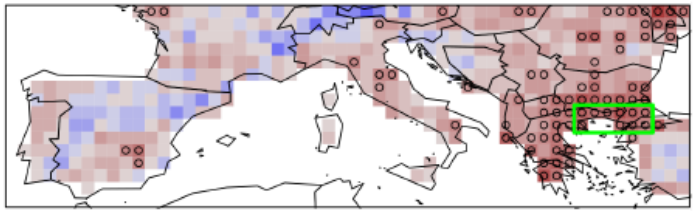
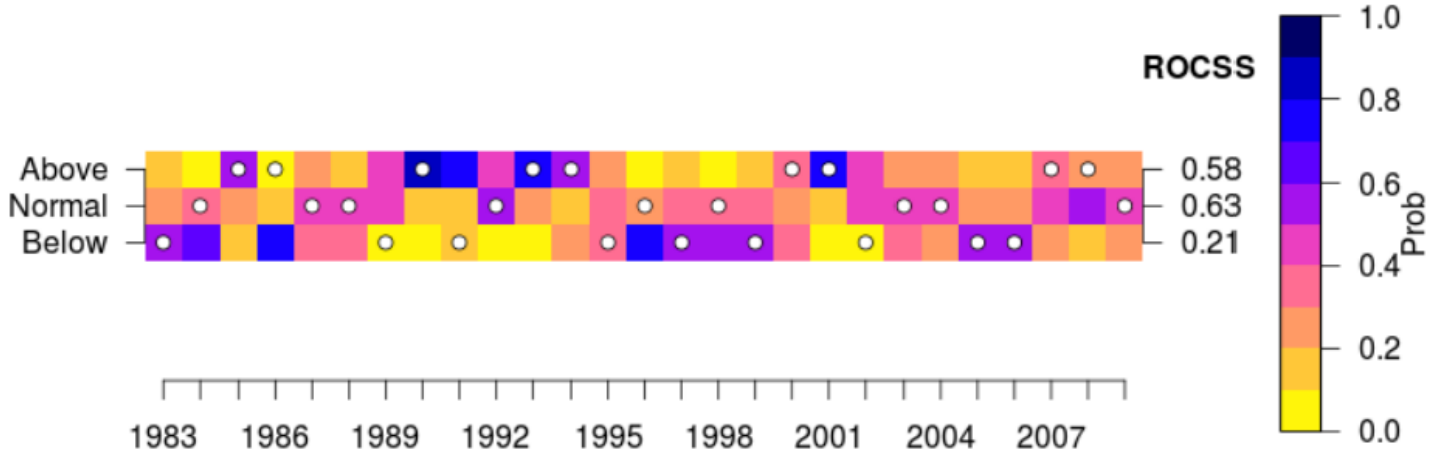
Tercile Validation Plot



```
pred.sub <- subsetGrid(grid = pred,
                       latLim = c(40,42.5), lonLim = c(24,26.5))
obs.sub <- subsetGrid(grid = obs,
                      latLim = c(40,42.5), lonLim = c(24,26.5))
tercileValidation(pred = pred.sub, obs = obs.sub)
```



Implementation of tercile validation as pesented by:
Diez et al. 2011. doi:10.1111/j.1600-0870.2011.00523.x

Users

There is not such thing as users; the landscape is heterogeneous and complex and generalisations are difficult to make.

•Different regulatory/institutional contexts;

- Complex organisational structures & myriad decisions…
- Role of individual in the org.: ≠ perceptions of needs;
- In-house capacity, expertise and resources available;
- Relative importance of climate information

- Continuum of information – users see no barriers between weather and climate

Entry points

- User-interaction during climate service developed is more of an opportunity for innovation than a rigid pre-defined contract.

- For funding this means:
  - promote project management practices that favours incremental development and allow for change in scope (e.g. Agile)

  - Focus should be put on enablers of conversations rather than solutions (e.g. discussion support systems)

Open questions

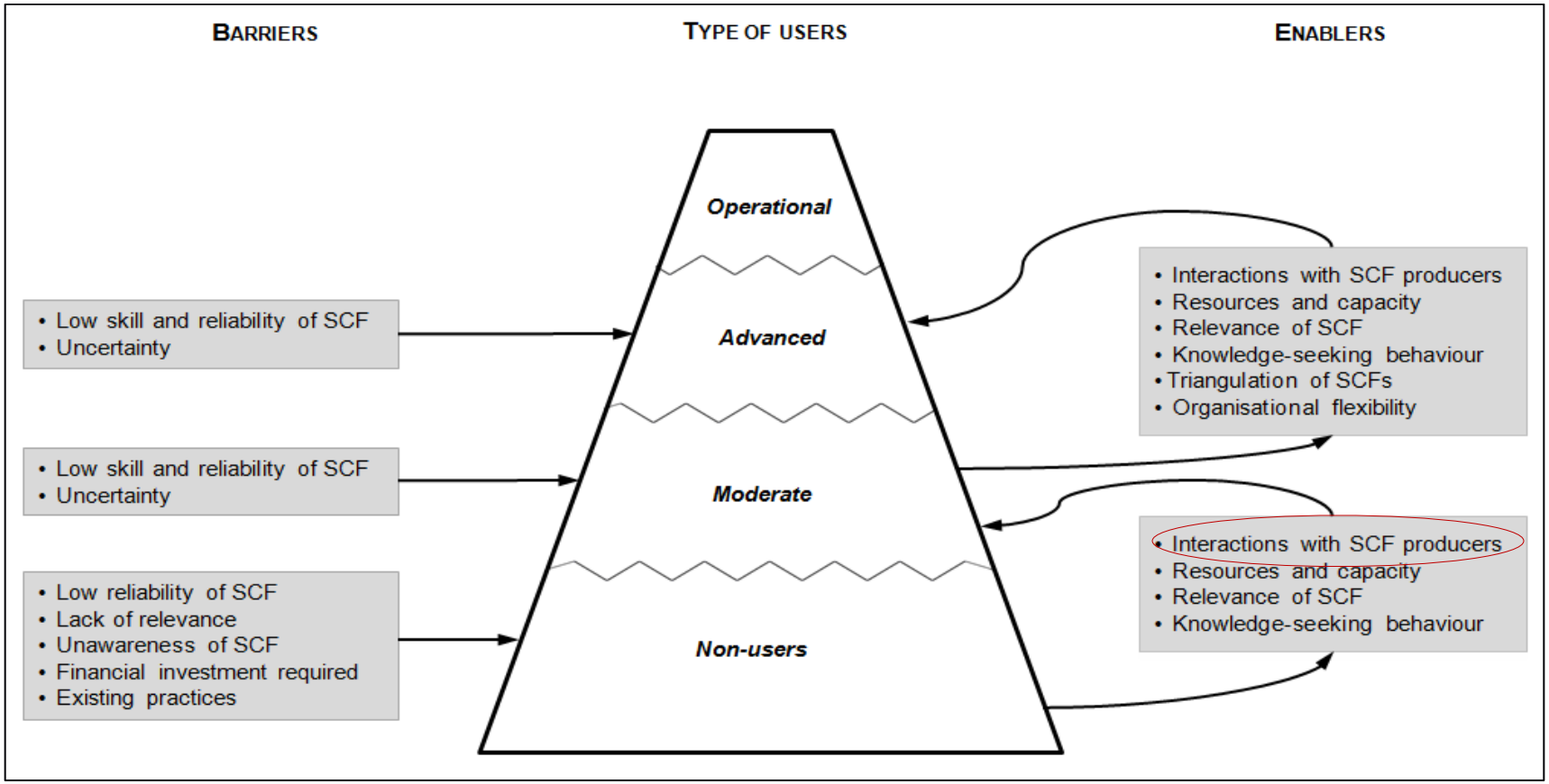
- How should we change the structure and the governance of projects to have more end-users without losing the need for generality?

- Innovation in climate services seems to occur on a tiny interface between users, providers and other actors: how can we mainstream this?

- Climate services development often require people with the right combination of skill-sets and experience. These are not easy to find nor to maintain in an academic environment that still prefer papers over user-experience. How can we define a new career path for climate service development?

How to engage?

UNIVERSITY OF LEEDS



Bruno Soares and Dessai (2016)

Thank you

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