World Meteorological Organization

Weather • Climate • Water

The quiet revolution of numerical weather prediction*

Paolo Ruti,

World Weather Research Programme,WMO

*Peter Bauer, Gilbert Brunet, Alan Thorpe, Nature 2015

Should I bring an umbrella tomorrow?

Questions like these are answered quite sufficiently today

But what happens with questions like these

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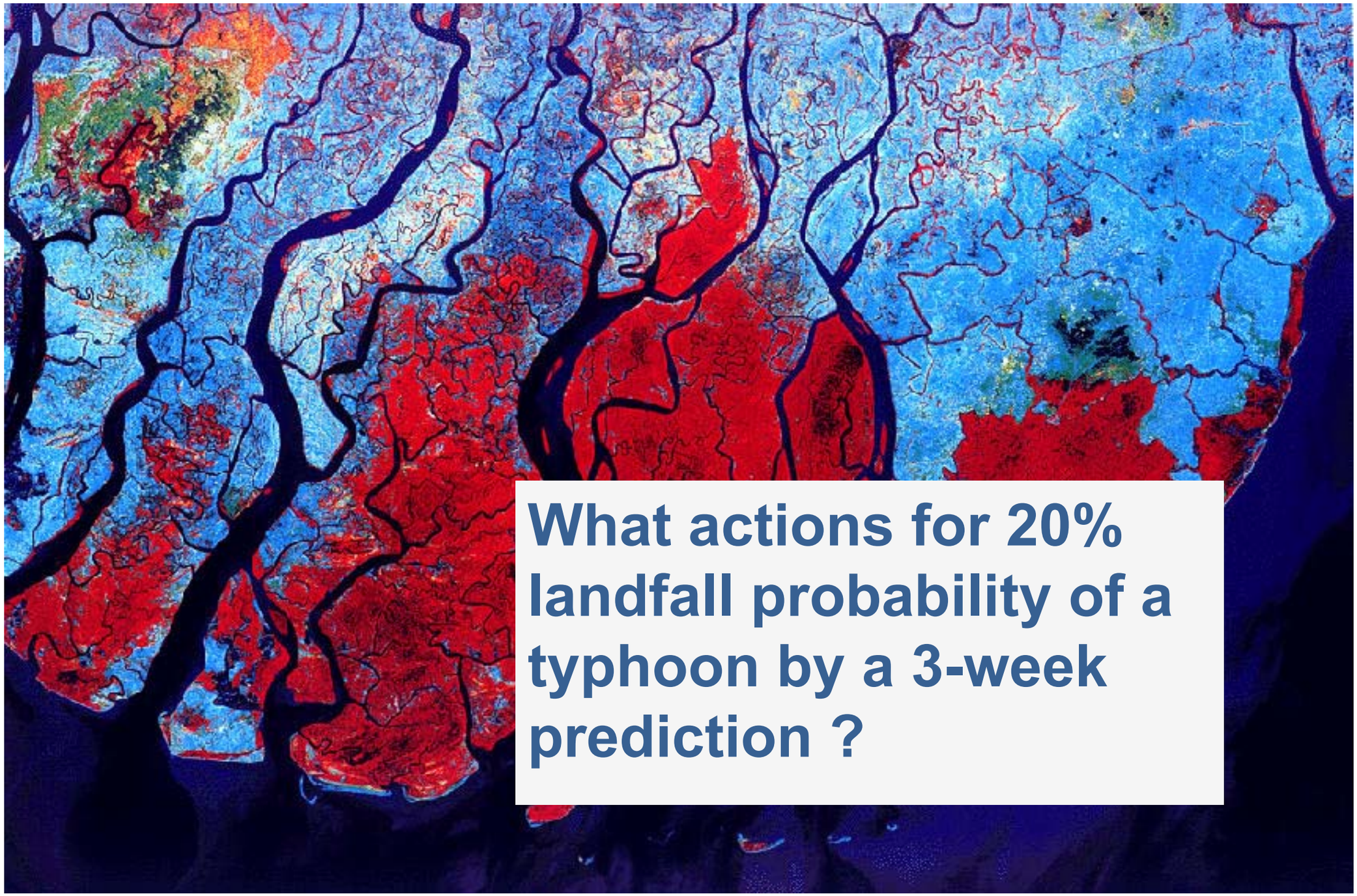
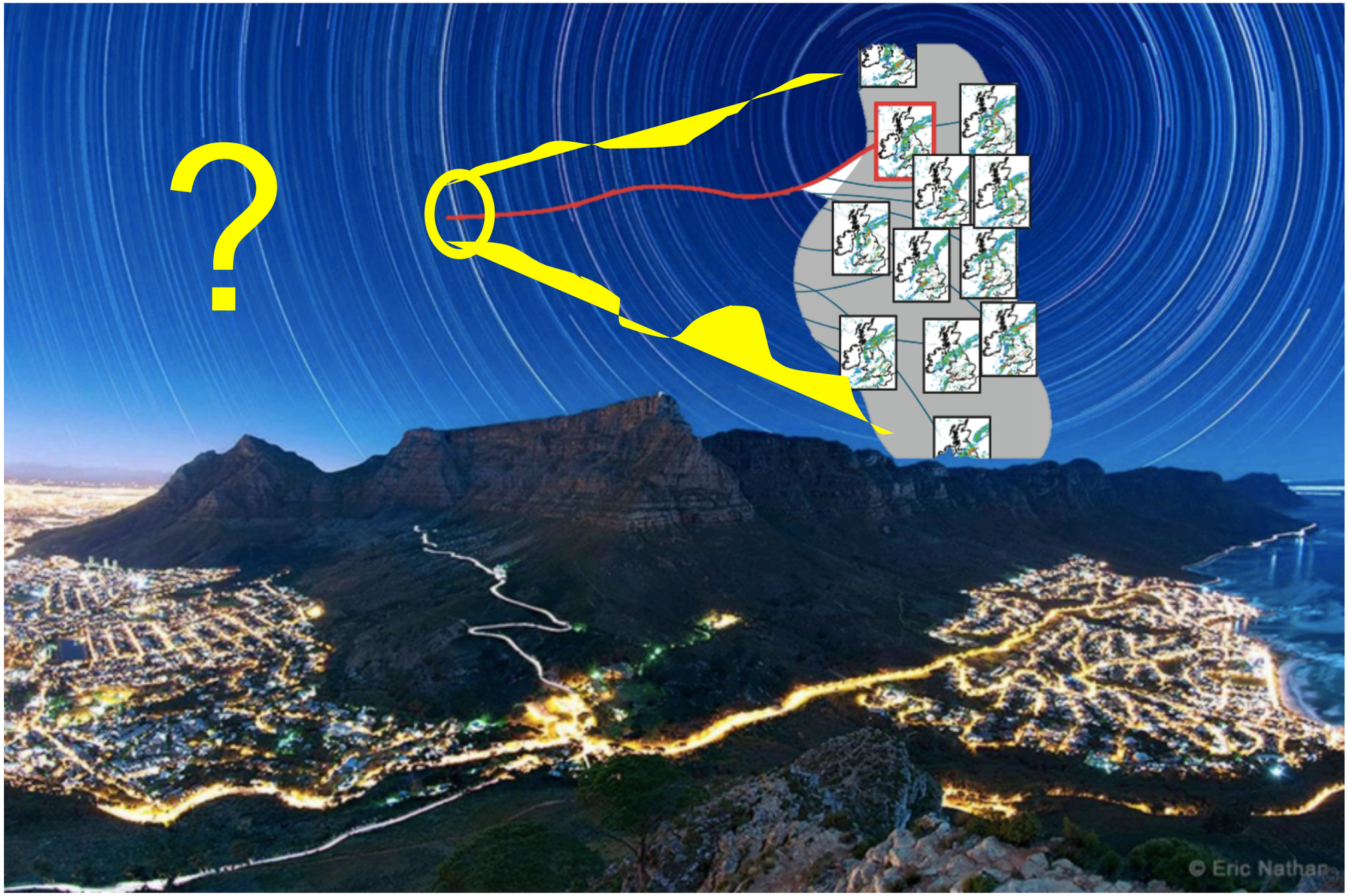


What actions for 20% landfall probability of a typhoon by a 3-week prediction ?

But what happens with questions like these

How to shape the met-future?



Some food for thought

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Improving predictive skill

We need more technology

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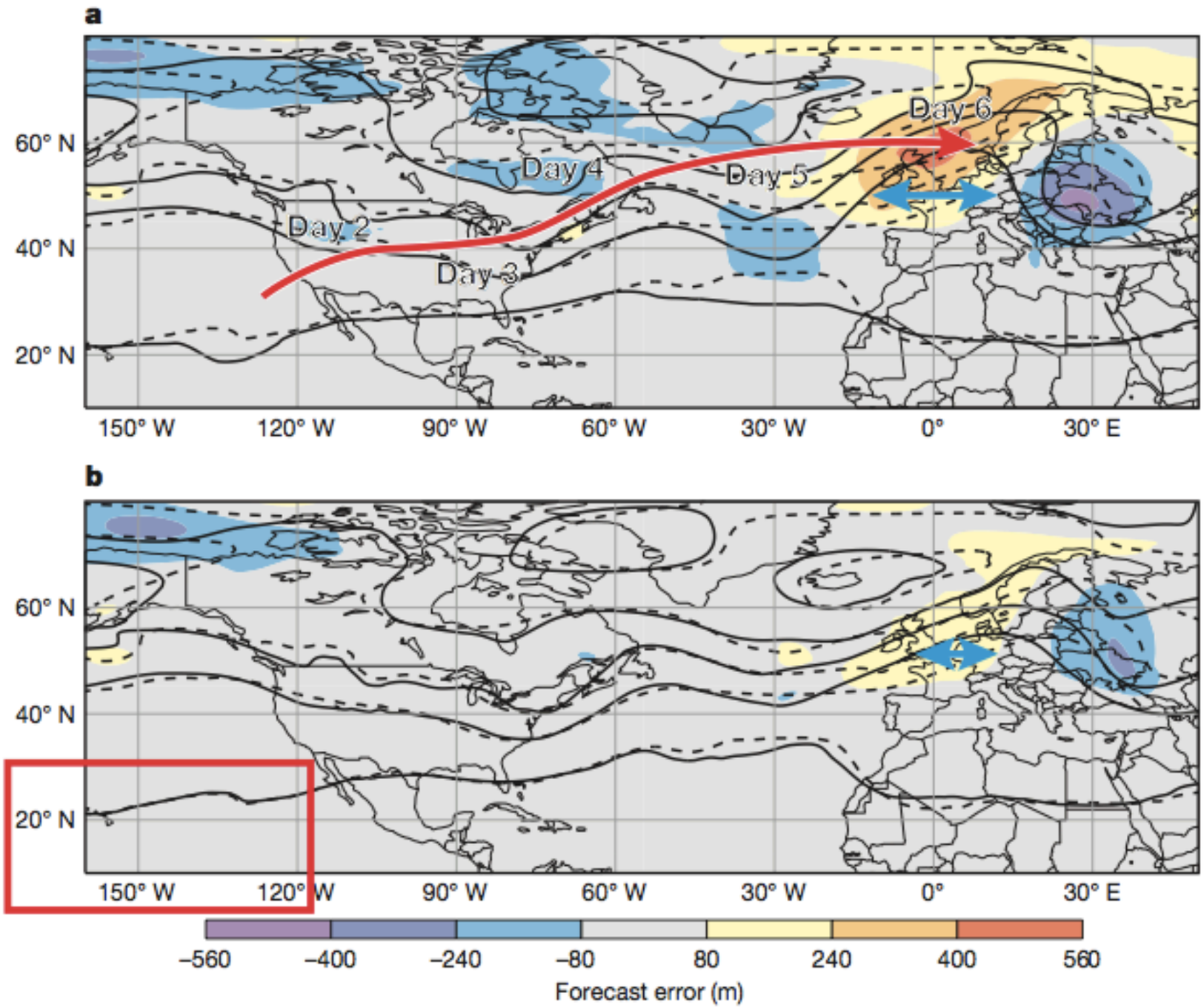
Improving predictive skill

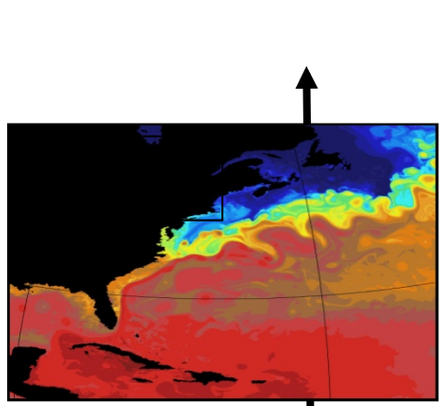
We need more technology

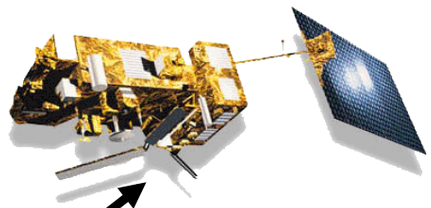
A multi-disciplinary prediction

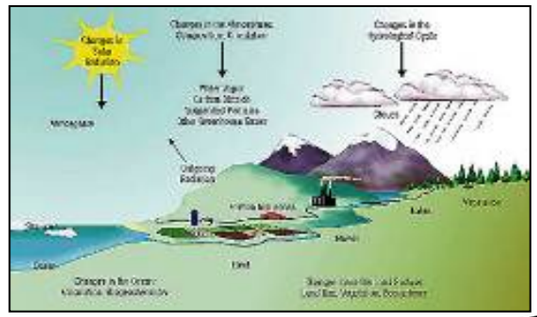
Improving predictive skill



Improving predictive skill







Earth Observation

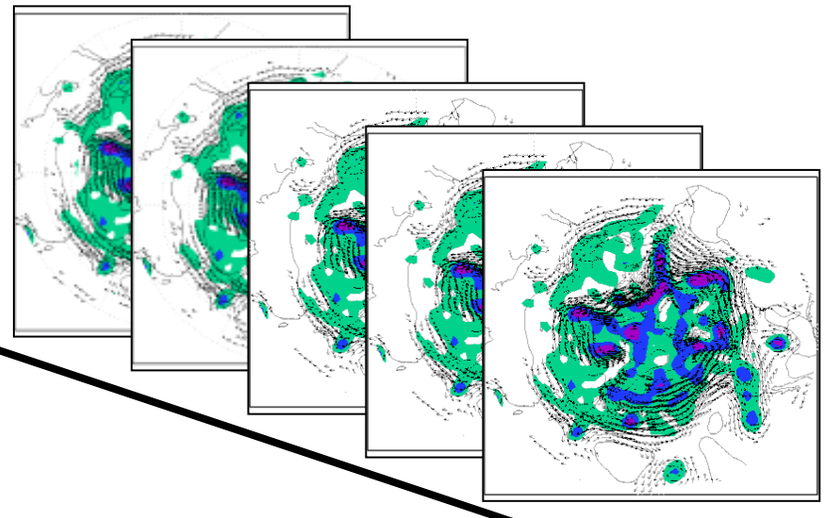
Computing

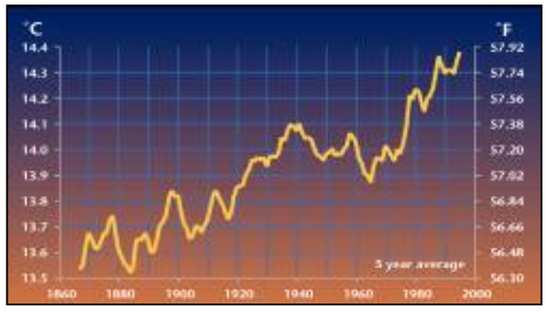
Resources

Resolution

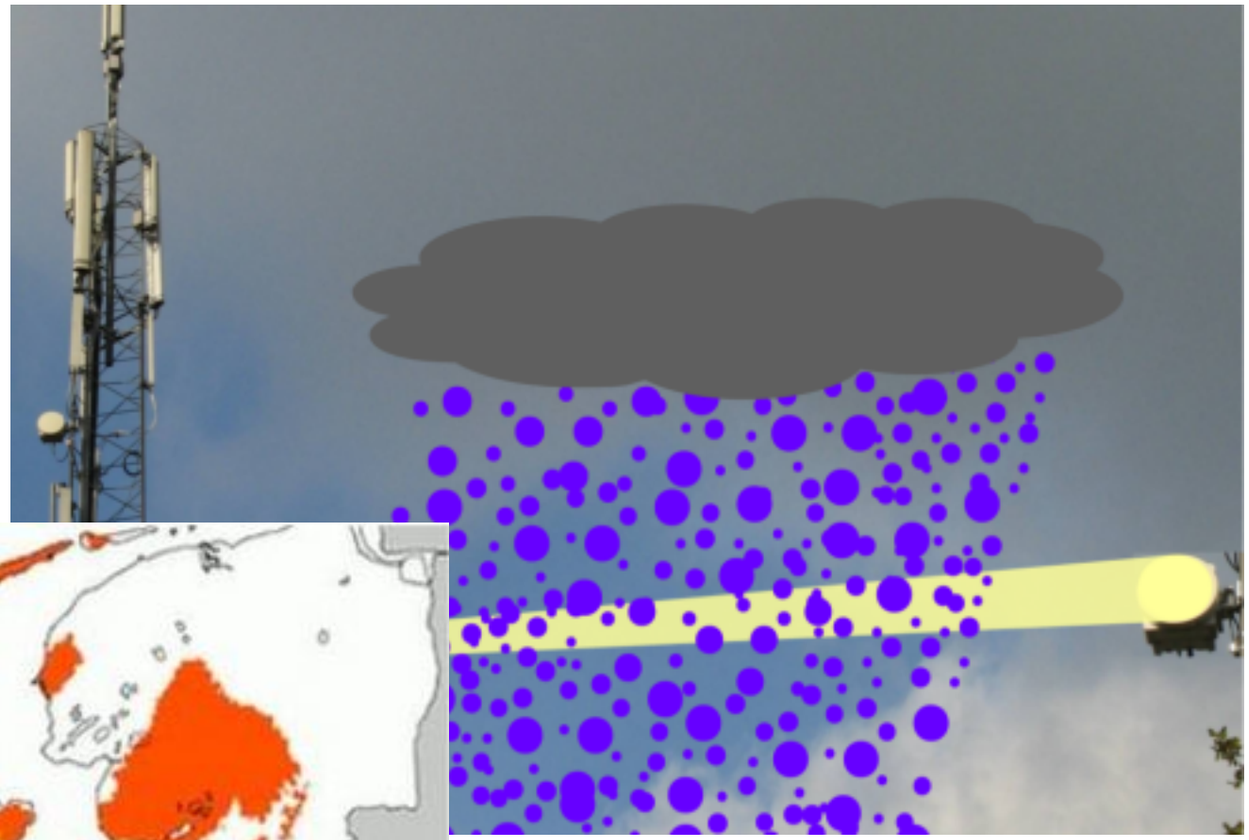
Complexity

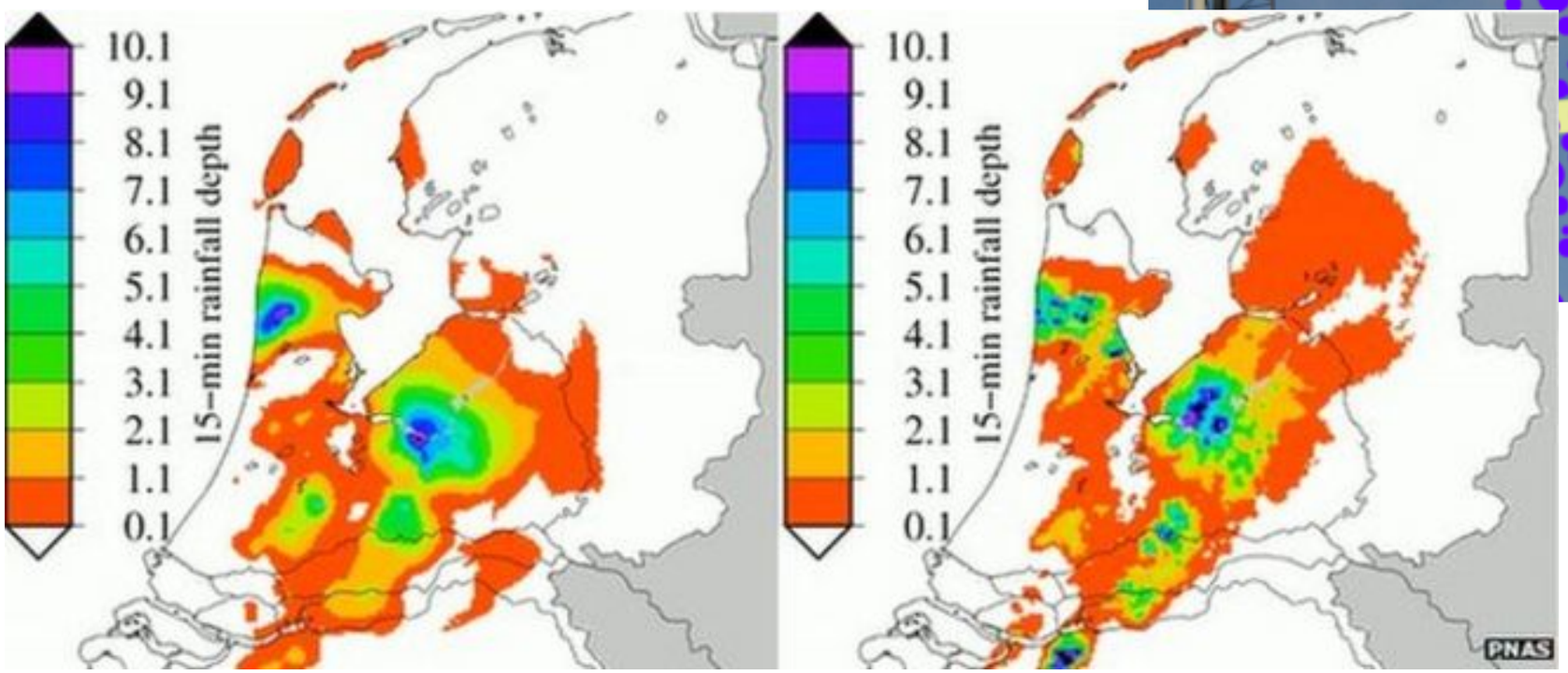
Duration and/or Ensemble size





We need more technology





We need more technology

A multi-disciplinary prediction

IMPROVE

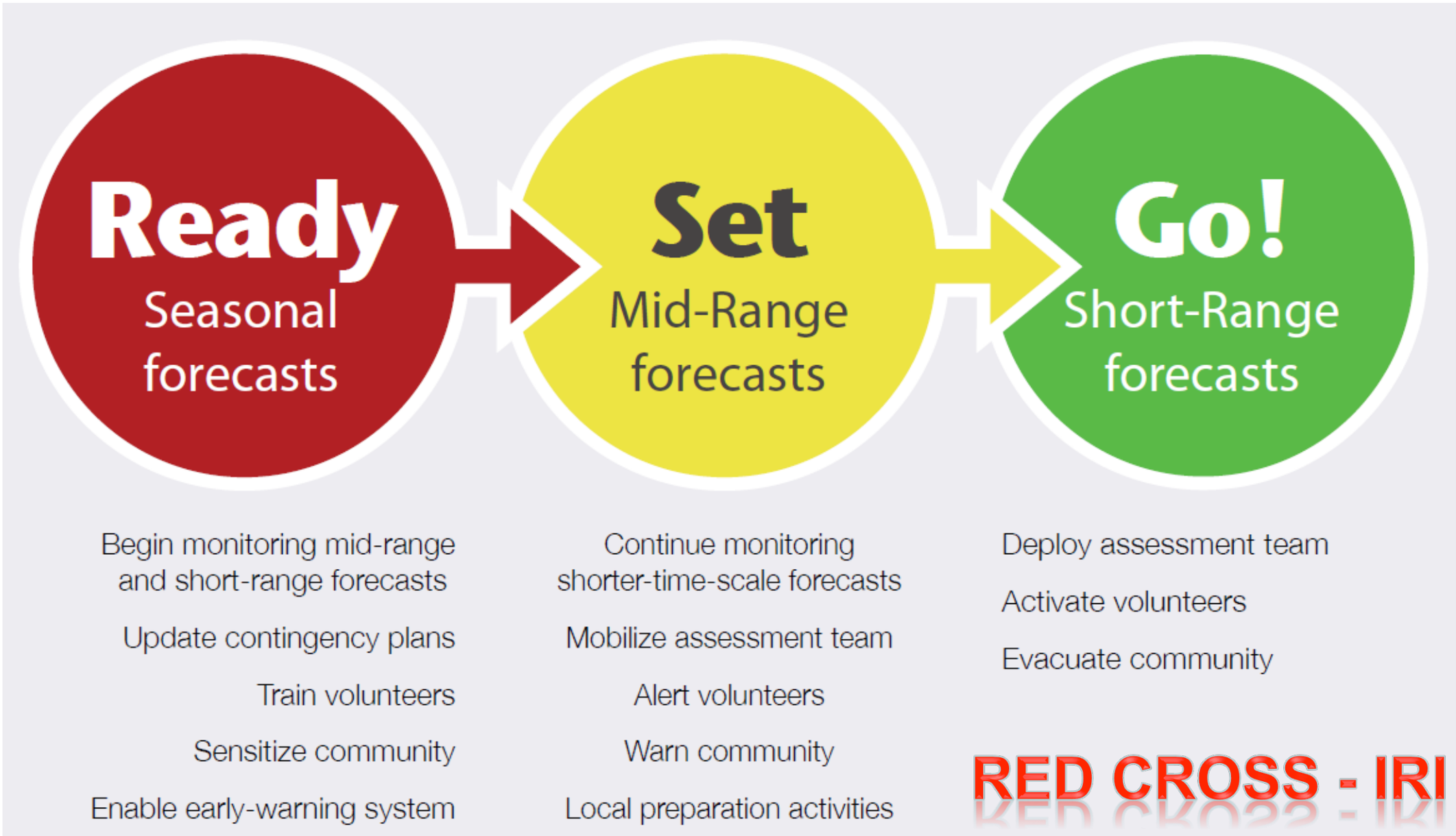
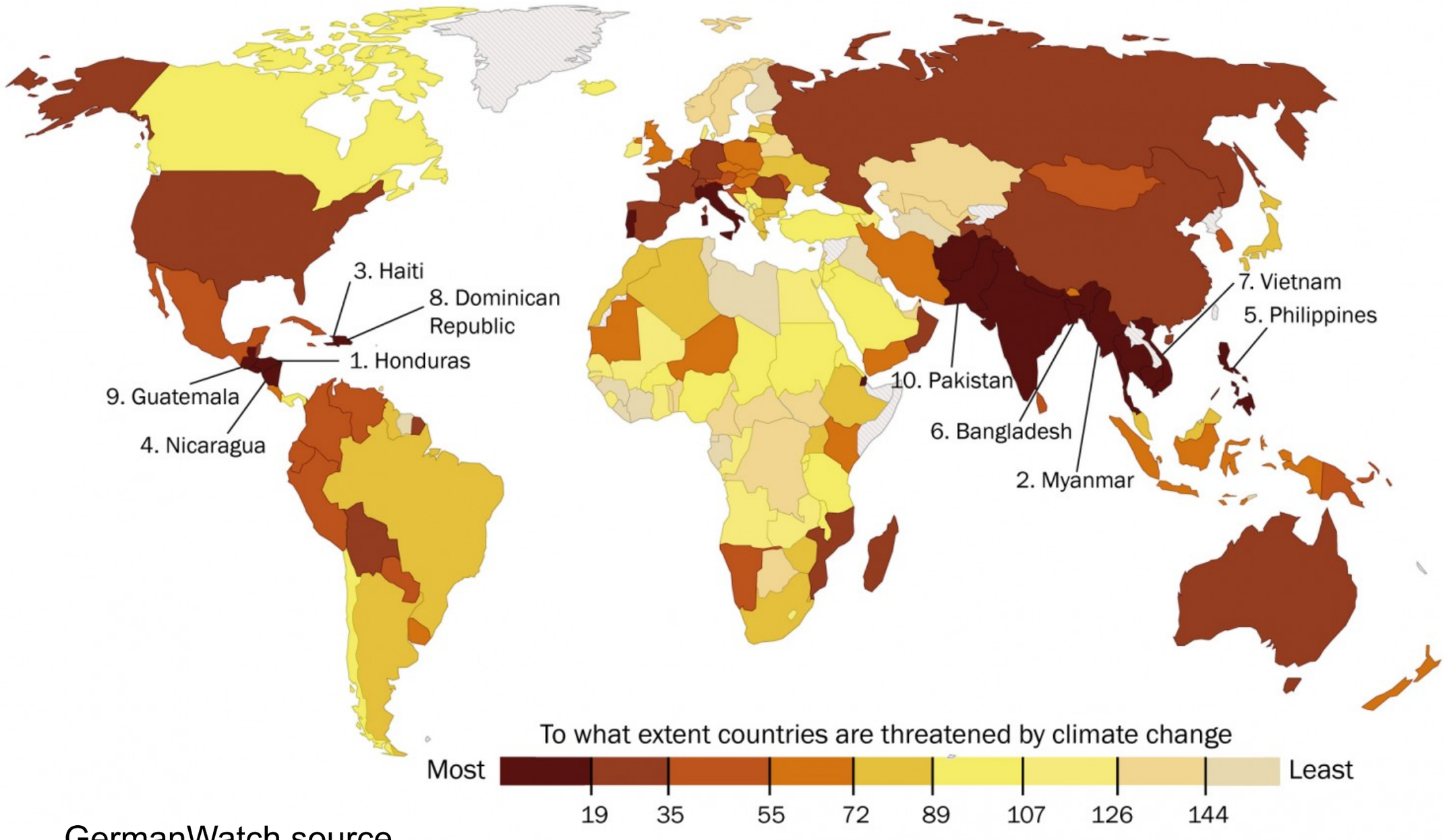


Figure B5: Ready-Set-Go tool demonstrating actions to be taken with seasonal, intraseasonal and weather forecasts.

Who suffers the most ?



GermanWatch source

What successful people read before bed?

Google: seamless prediction WMO

https://www.wmo.int/media/content/seamless-prediction-minutes-months

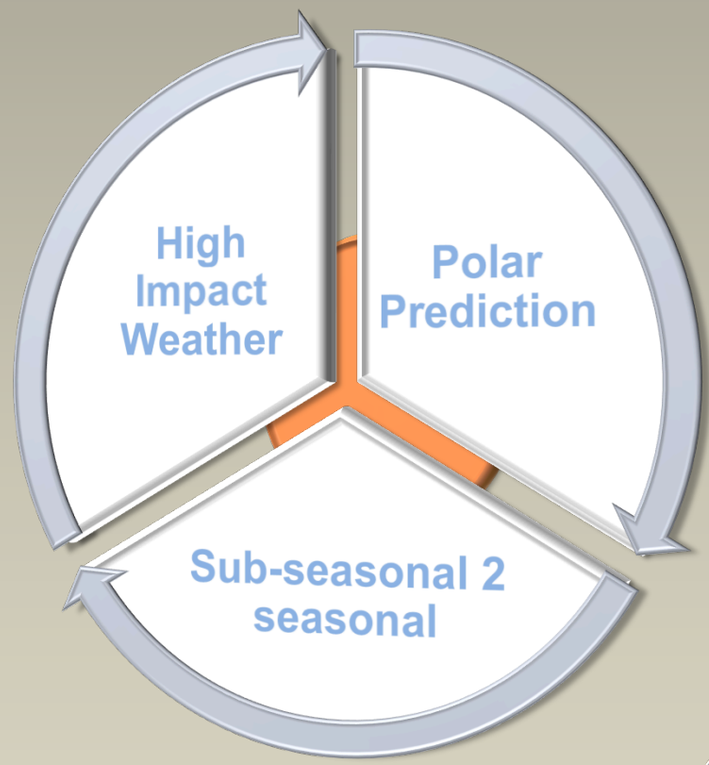
Thanks

pruti@wmo.int

WWRP a seamless programme

WWRP WORLD WEATHER RESEARCH PROGRAMME

- Extremes
- Predicting Water Cycle
- Urbanization
- Emerging Technologies



- Numerical Experimentation
- Nowcasting and Mesoscale
- Tropical Meteorology
- Predictability Dynamics and Ensemble Forecasting
- Data Assimilation and Observing Systems
- Verification
- Social & economics
- Weather Modification

Challenges Key Projects Working Groups

WWRP a seamless programme

WORLD WEATHER RESEARCH PROGRAMME

Challenges

- Extremes
- Predicting Water Cycle
- Urbanization
- Emerging Technologies

Key Projects

- High Impact Weather
- Polar Prediction
- Sub-seasonal 2 seasonal

Working Groups

- Numerical Experimentation
- Nowcasting and Mesoscale
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WWRP a seamless programme

WORLD WEATHER RESEARCH PROGRAMME

Extremes

Predicting Water Cycle

Urbanization

Emerging Technologies

High Impact Weather

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Challenges Key Projects **Working Groups**

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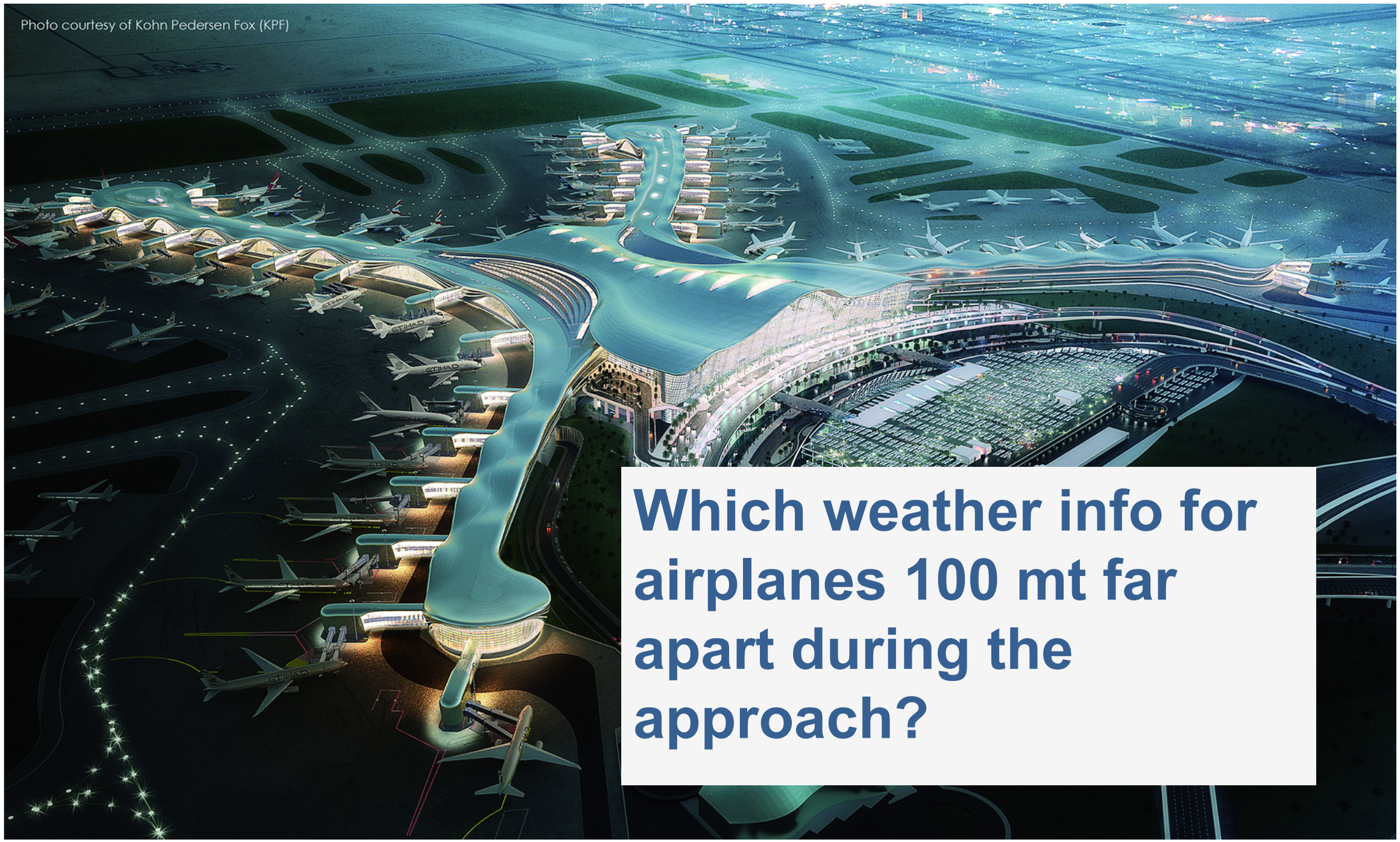

Which weather info for airplanes 100 mt far apart during the approach?