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

How to plan next 10-day traffic in Shanghai when a tropical cyclone is approaching?

How to plan hazards-free cities?
But what happens with questions like these

What actions for 20% landfall probability of a typhoon by a 3-week prediction?
But what happens with questions like these?

What health protocol should we run to be prepared for the next sand and dust storm?
How to shape the met-future?
Some food for thought

Improving predictive skill
Some food for thought

Improving predictive skill

We need more technology
Some food for thought

Improving predictive skill

We need more technology

A multi-disciplinary prediction
Improving predictive skill
Improving predictive skill

World Weather Research Programme

Duration and/or Ensemble size

Resources

Computing

Resolution

Earth Observation

Complexity
We need more technology
We need more technology
A multi-disciplinary prediction

**Ready**
Seasonal forecasts
- Begin monitoring mid-range and short-range forecasts
- Update contingency plans
- Train volunteers
- Sensitize community
- Enable early-warning system

**Set**
Mid-Range forecasts
- Continue monitoring shorter-time-scale forecasts
- Mobilize assessment team
- Alert volunteers
- Warn community
- Local preparation activities

**Go!**
Short-Range forecasts
- Deploy assessment team
- Activate volunteers
- Evacuate community

**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
Technical Commission for Atmospheric Science

Challenges
- High Impact Weather
- Sub-seasonal 2 seasonal

Key Projects
- Polar Prediction

Working Groups
- Predictability Dynamics and Ensemble Forecasting
- Data Assimilation and Observing Systems
- Verification
- Social & economics
- Weather Modification
- Numerical Experimentation
- Nowcasting and Mesoscale
- Tropical Meteorology
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- Extremes
- Predicting Water Cycle
- Urbanization
- Emerging Technologies

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WWRP - a seamless programme
Technical Commission for Atmospheric Science

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