



World Meteorological Organization
Weather • Climate • Water

Technical Commission for Atmospheric Science World Weather Research Programme

Sarah Jones, Chair WWRP SSC
Paolo Ruti, Chief WWRD, WMO



Christof Stache/AFP/Getty Images; Marina Shemesh /publicdomainpictures.net; Alexandros Vlachos/EPA; NOAA NWS; NOAA NWS



Societal challenges: a 10y vision

- **High Impact Weather and its socio-economic effects in the context of global change**
- **Water: Modelling and predicting the water cycle for improved Disaster Risk Reduction and resource management**
- **Urbanization: Research and services for megacities and large urban complexes**
- **Evolving Technologies: Their impact on science and its use**

Technical Commission for Atmospheric Science

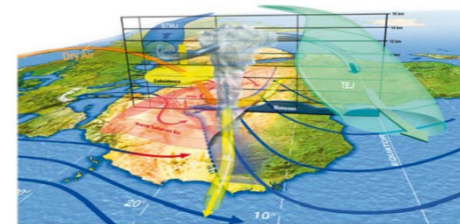
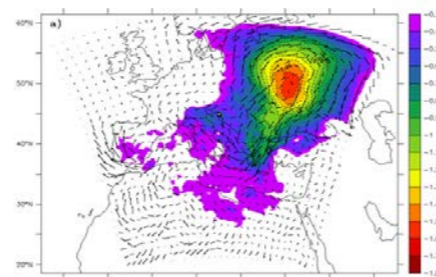
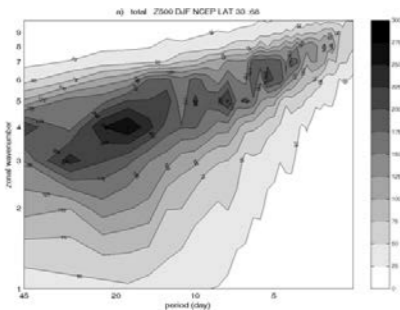




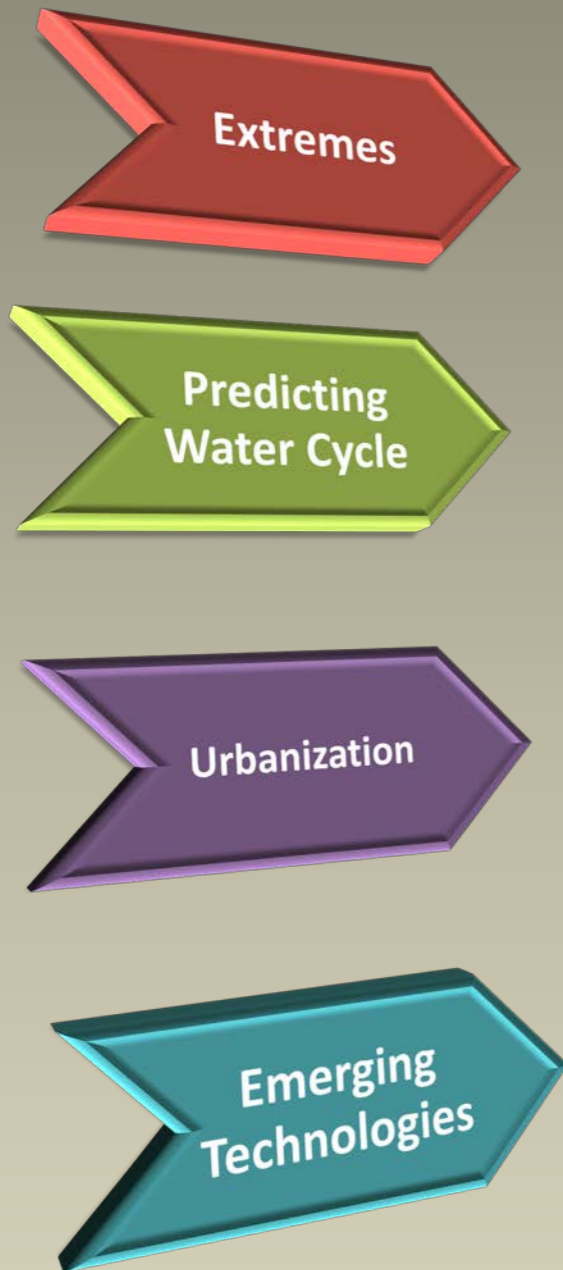
WWRP Mission



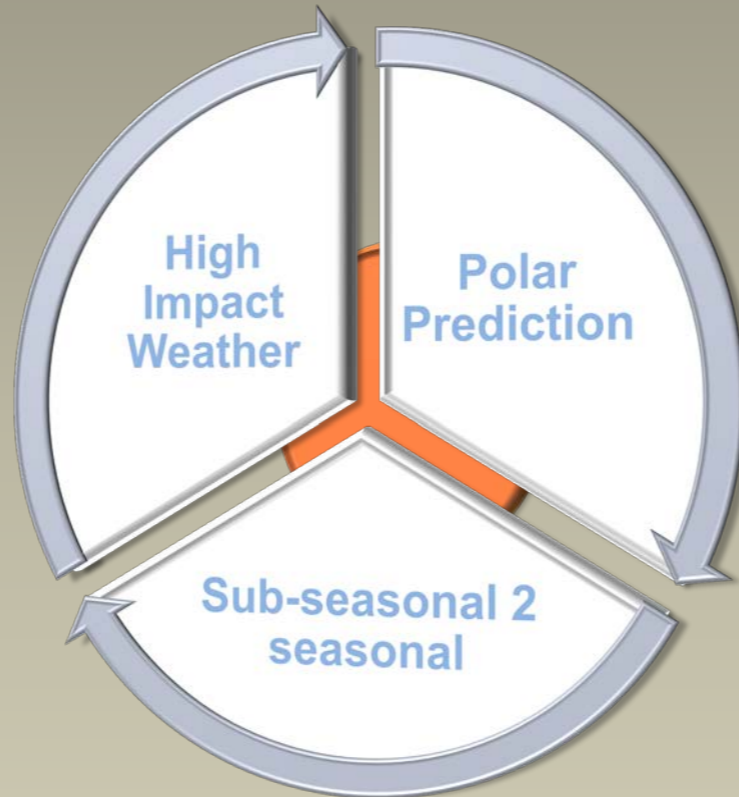
- WWRP advances society's resilience to high impact weather improving the accuracy, lead time and utilization of weather prediction, engaging users & stakeholders to facilitate transition to applications
- WWRP promotes research in the operational and academic communities supporting early career scientists
- WWRP aims at Seamless Prediction of the Earth System from minutes to months promoting convergence between weather, climate and environmental communities



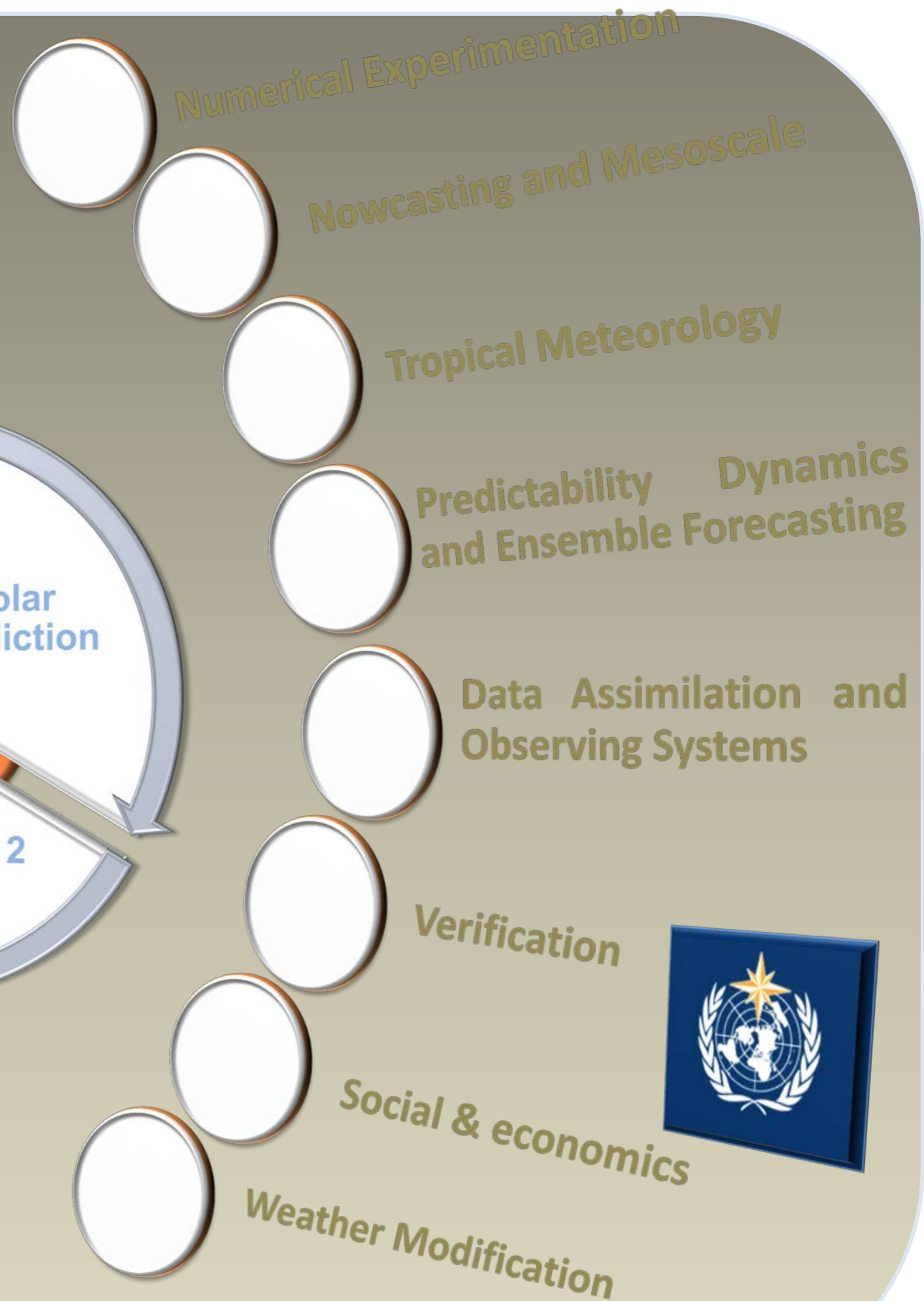
WWRP a seamless programme



Challenges



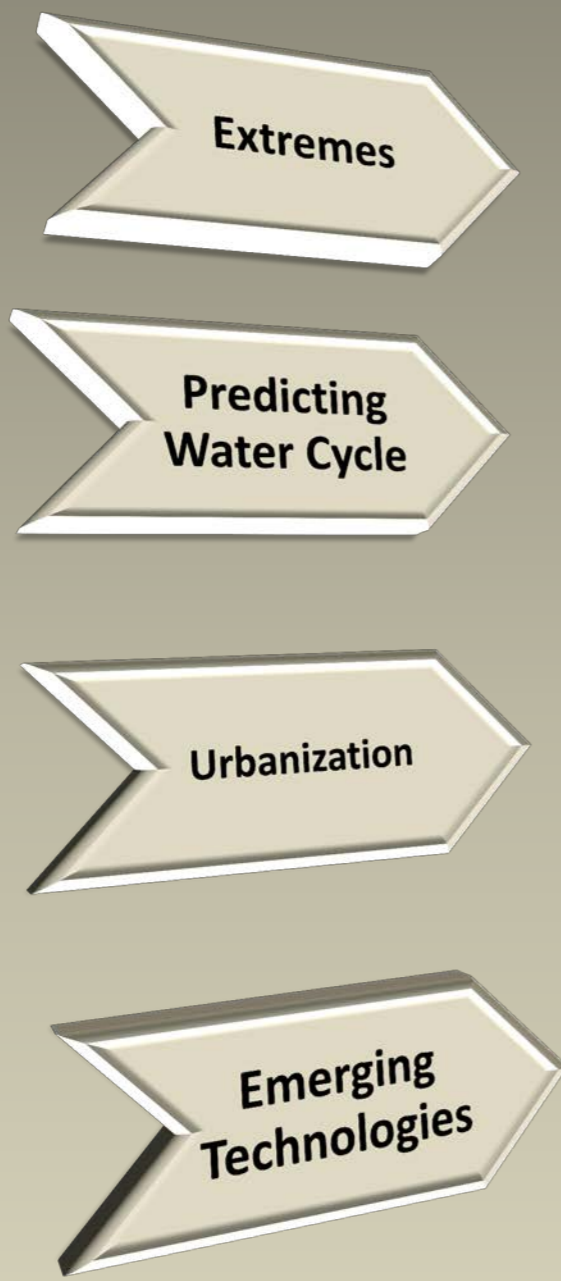
Key Projects



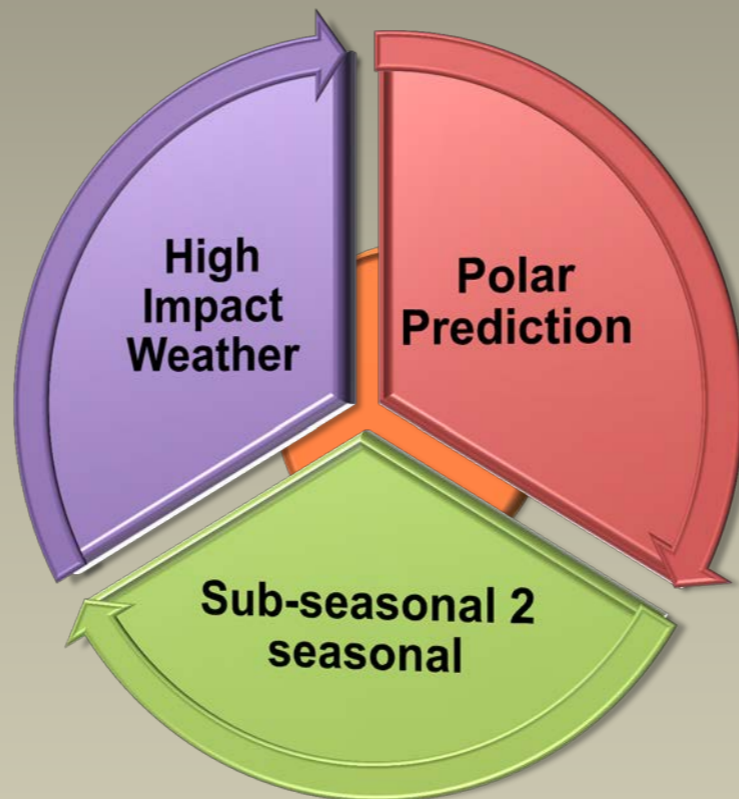
Working Groups



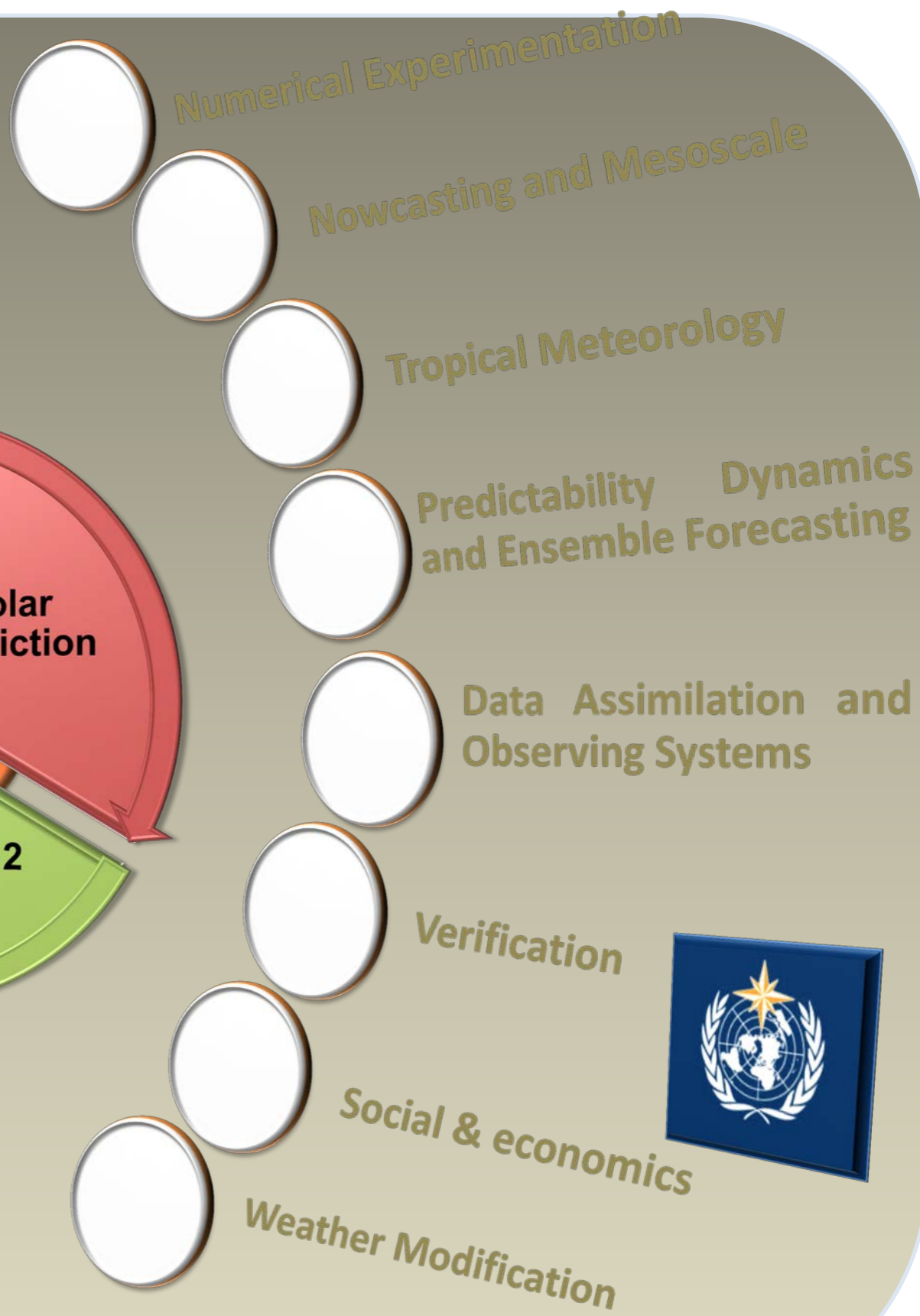
WWRP a seamless programme



Challenges



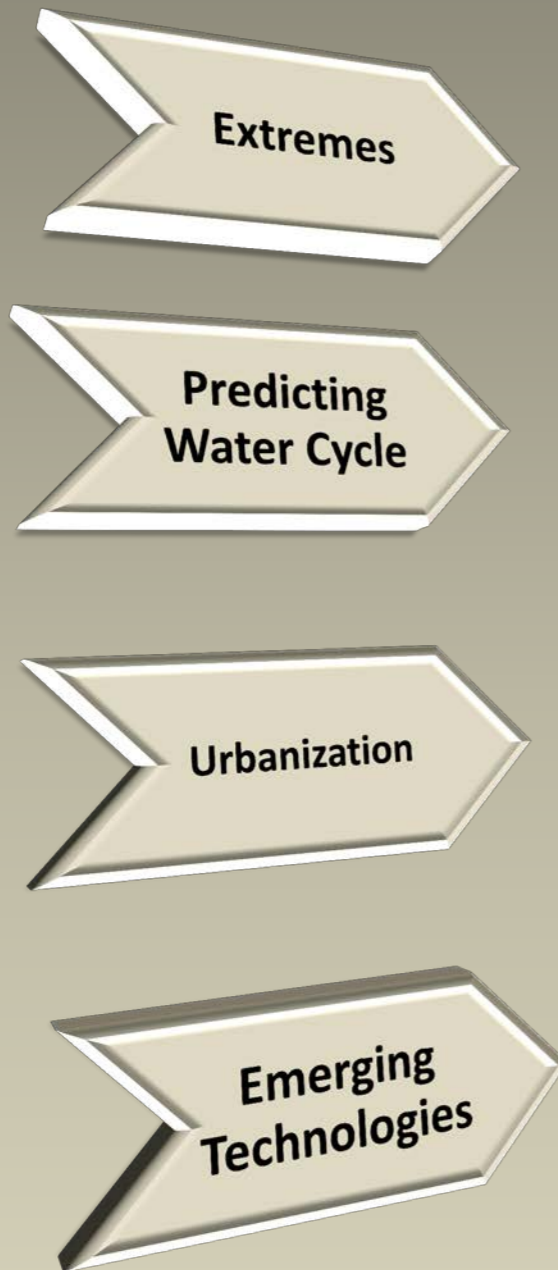
Key Projects



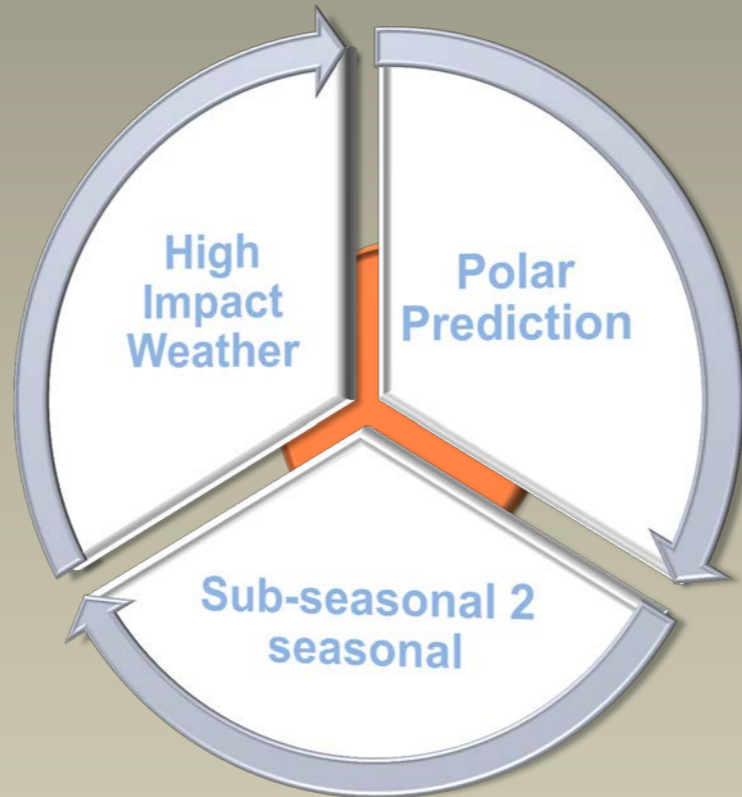
Working Groups



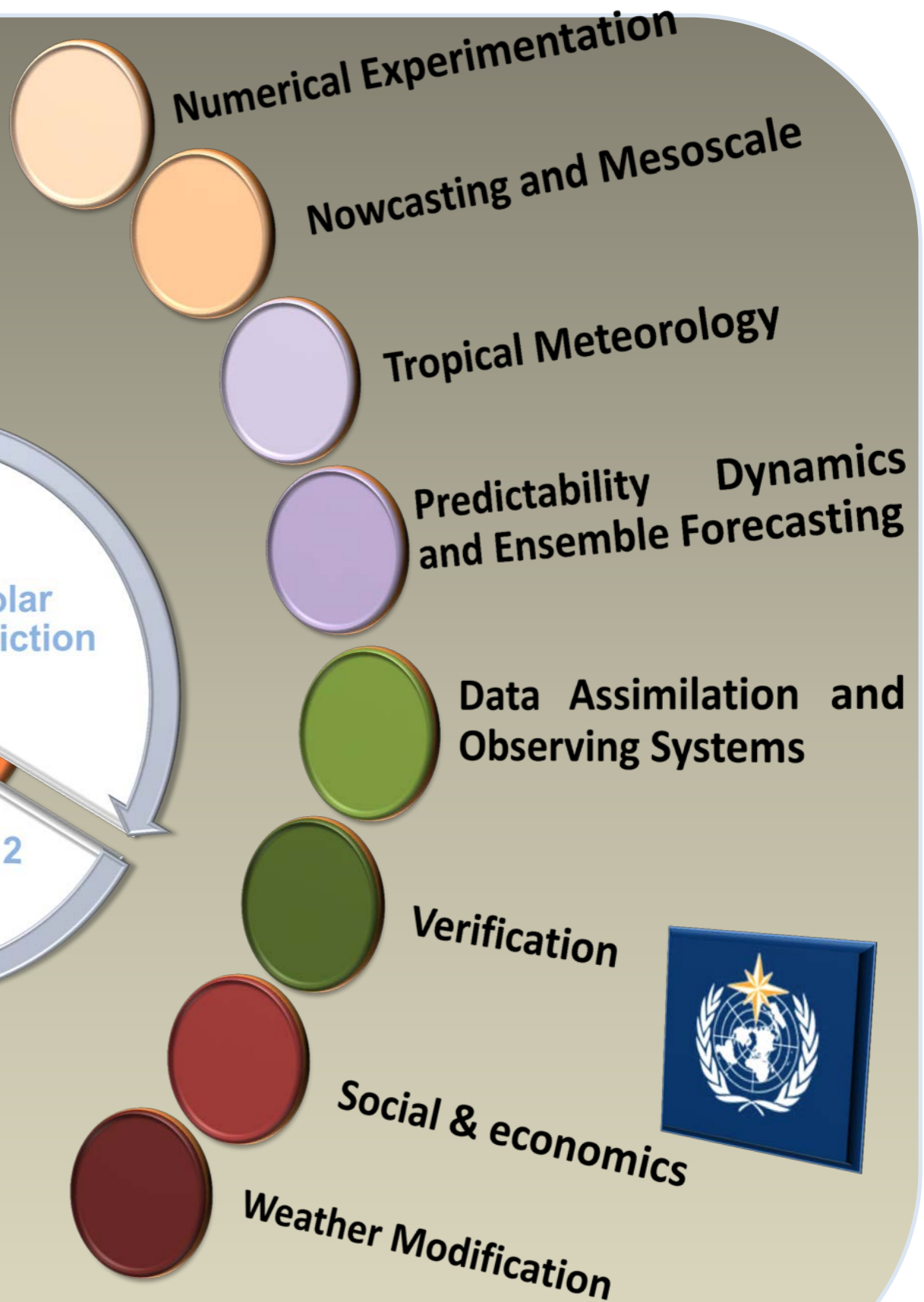
WWRP a seamless programme



Challenges



Key Projects



Working Groups





Sub-seasonal to seasonal



“Bridging the gap between weather and climate”

Co-chairs: Frédéric Vitart (ECMWF),
Andrew Robertson (IRI)

Evaluate potential predictability of sub-seasonal events through a multi-model approach.

Understand systematic errors and biases in the sub-seasonal to seasonal forecast range

Focus on specific extreme event case studies increasing resilience and improving adapting capacity.



**Project Office:
KMA/NIMR**



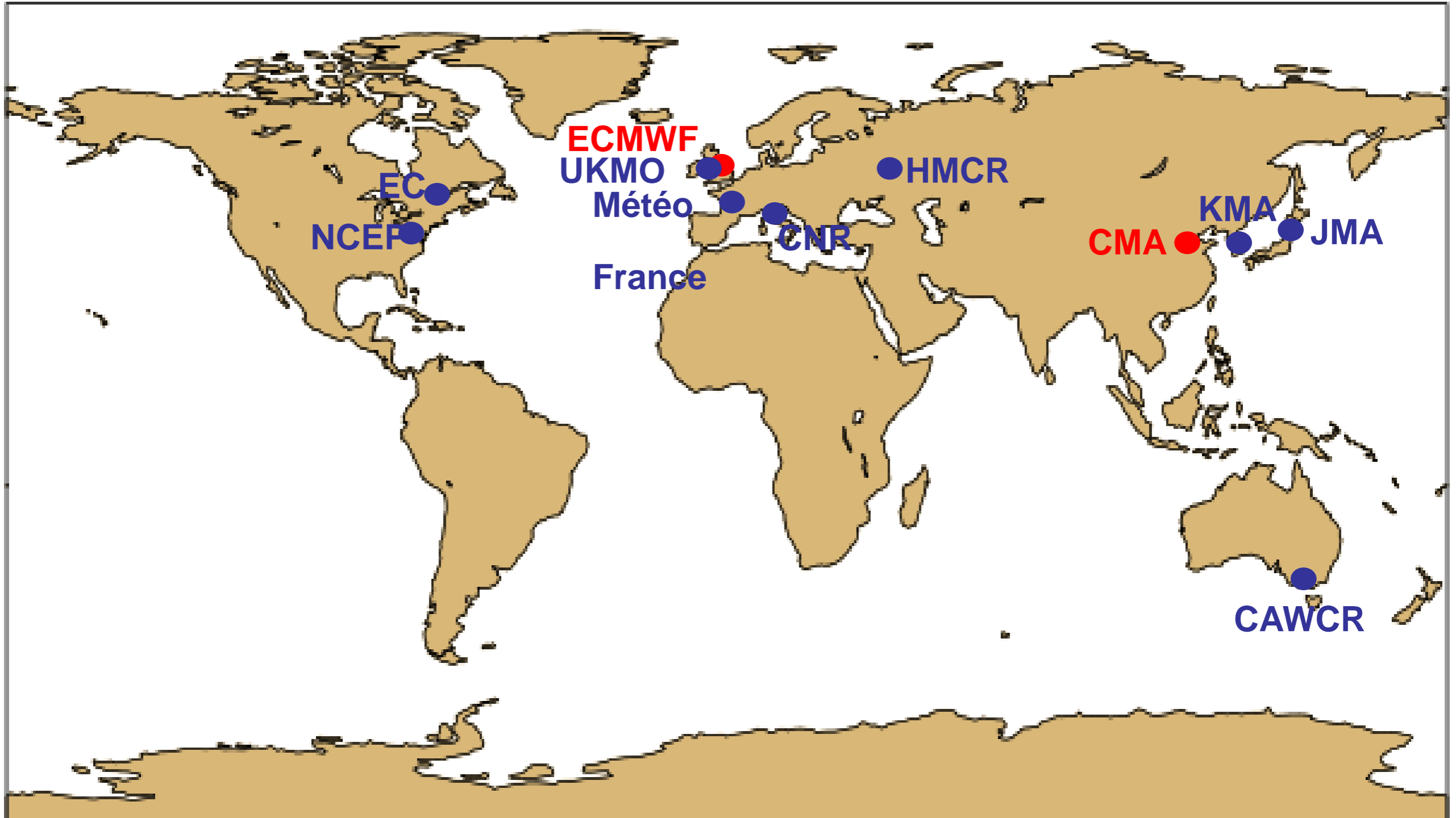


The main outcome in 2015



● 11 Data providers

● 2 Archiving centres



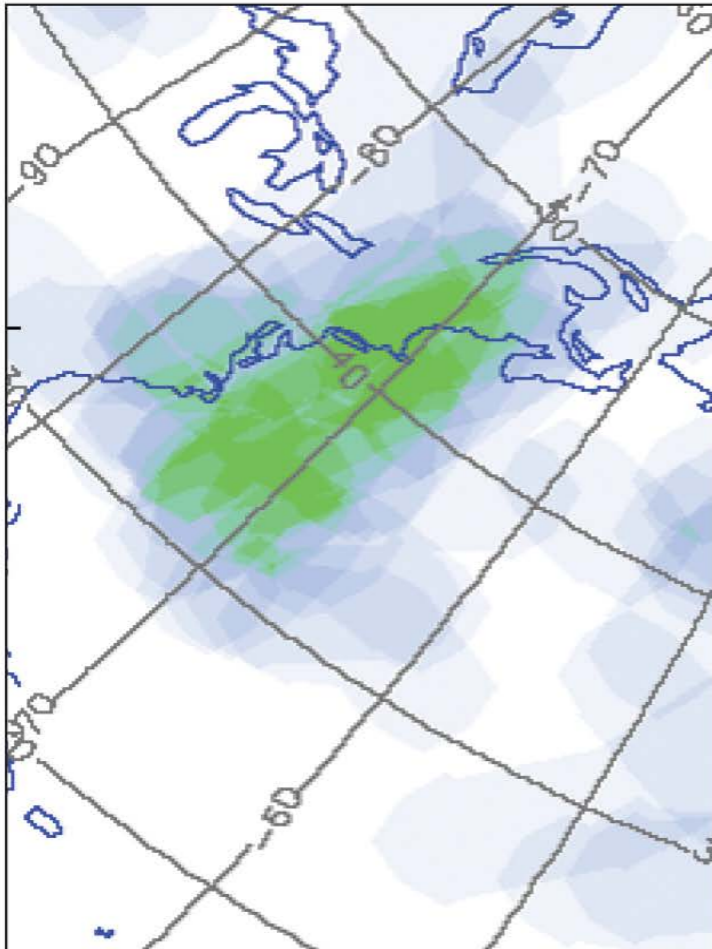


Extended medium-range forecast

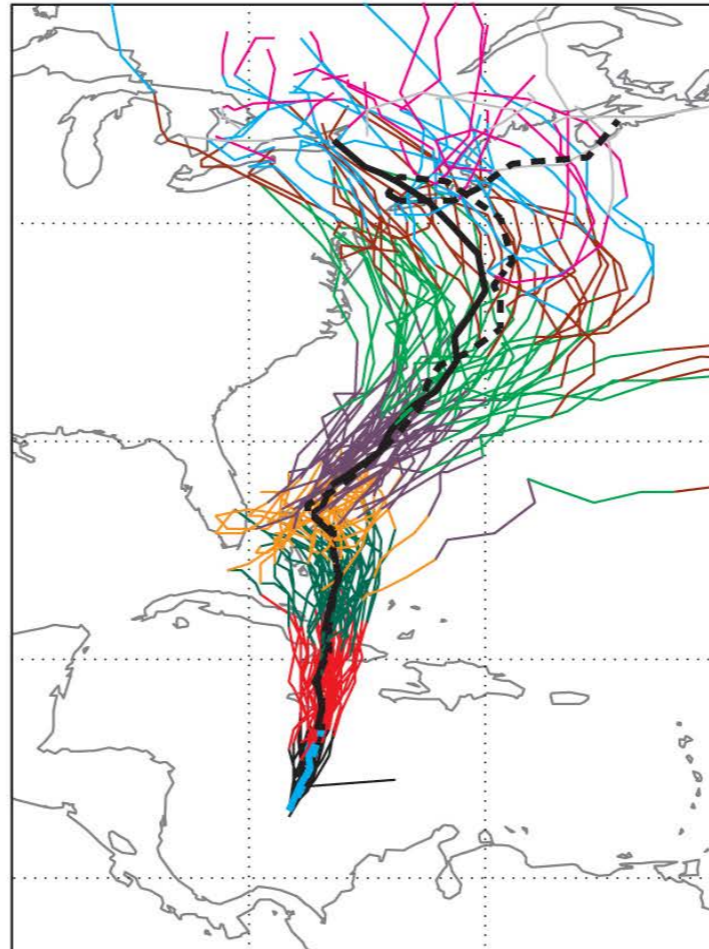


Superstorm Sandy

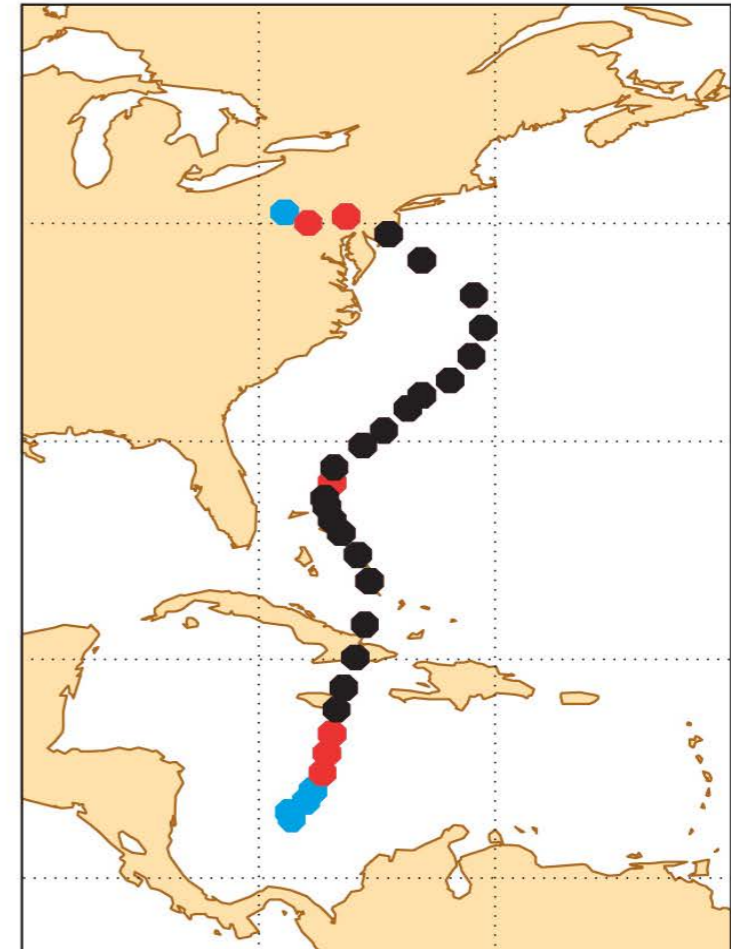
Probability of a wind storm
9.5 days before landfall



Track forecasts
6.5 days before landfall



Observed track of Sandy



Two days before Sandy formed (9.5 days before landfall in New Jersey) there was already a significant probability (25%) of a severe wind storm affecting the North-Eastern USA.

By the courtesy of A Thorpe ECWFM





High Impact Weather Project



- Increasing resilience to weather hazards through improving forecasts for timescales of minutes to two weeks and enhancing their communication and utility in social, economic and environmental applications
- Implementation Plan (2015-2024) approved by WWRP SSC
- Links to WCRP through quantifying vulnerability and risk assessment, and for response to High Impact Weather in a changing climate.

Chair: Brian Golding, MetOffice, David Johnston, NZ

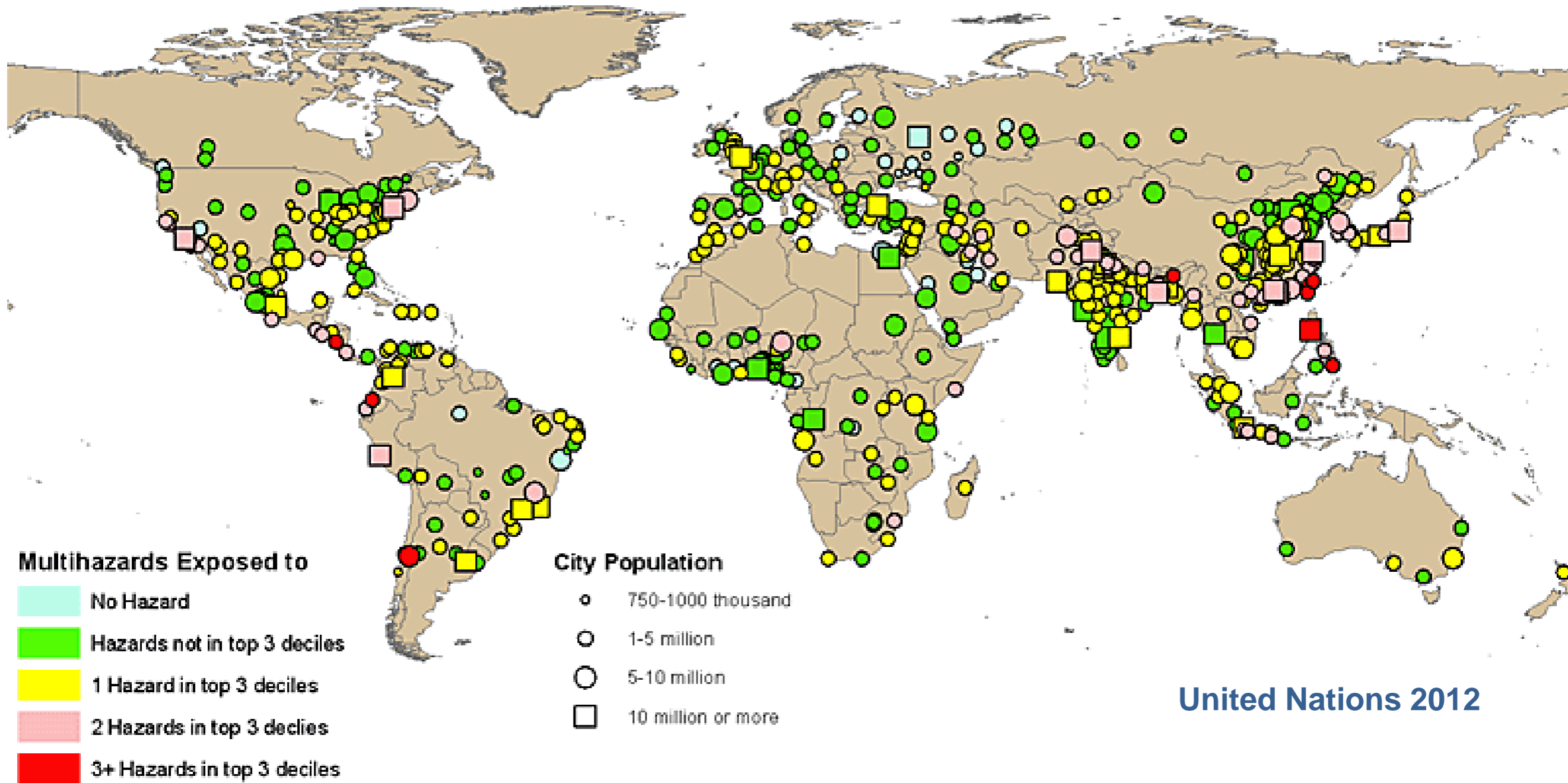


Christof Stache/AFP/Getty Images; Marina Shemesh /publicdomainpictures.net; Alexandros Vlachos/EPA; NOAA NWS; NOAA NWS





Urban agglomerations at risk of multiple natural hazards (2025)





Scope defined by a set of hazards



Urban Flood: Reducing mortality, morbidity, damage and disruption from flood inundation by intense rain.

Disruptive Winter Weather: Reducing mortality, morbidity, damage and disruption from snow, ice and fog to transport, power & communications infrastructure.



Wildfire: Reducing mortality, morbidity, damage and disruption from wildfires & their smoke.

Urban Heat Waves & Air Pollution: Reducing mortality, morbidity and disruption from extreme heat & pollution in the megacities of the developing and newly developed world.



Extreme Local Wind: Reducing mortality, morbidity, damage and disruption from wind & wind blown debris in tropical & extra-tropical cyclones, downslope windstorms & convective storms, including tornadoes.





Capacity building



Google: seamless prediction WMO

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





World Meteorological Organization

Weather • Climate • Water

Thanks

Info and contacts:

www.wmo.intwwrp

pruti@wmo.int