



Australian Government
Bureau of Meteorology

Getting the most value from extreme weather forecasts

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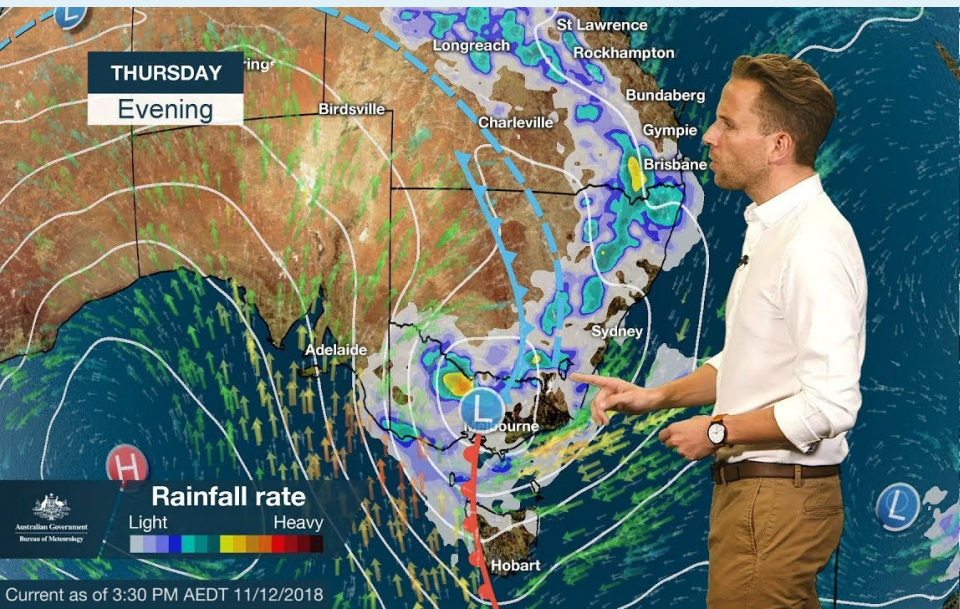


Photo: ABC News

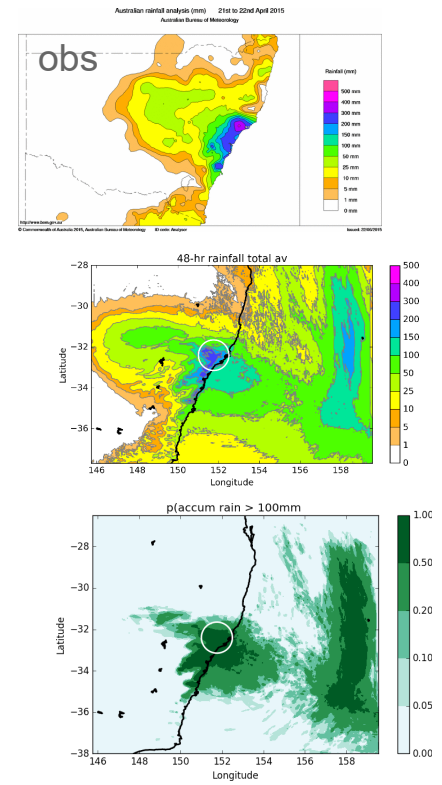


What makes a good forecast?

Ensemble approach has advantages

- Consistency – reflects best judgment
- Objective forecasts from numerical modelling of weather & hazards
- Quality – is accurate
- Ensemble mean forecast more accurate in some ways; realistic representation of uncertainty
- Value – leads to better decision
- Can make risk-based decisions based on probability and cost/loss

Communication from a trusted source





Assimilating
observed
scale n

Unbiased modelling
of intense small scale
weather features
their un

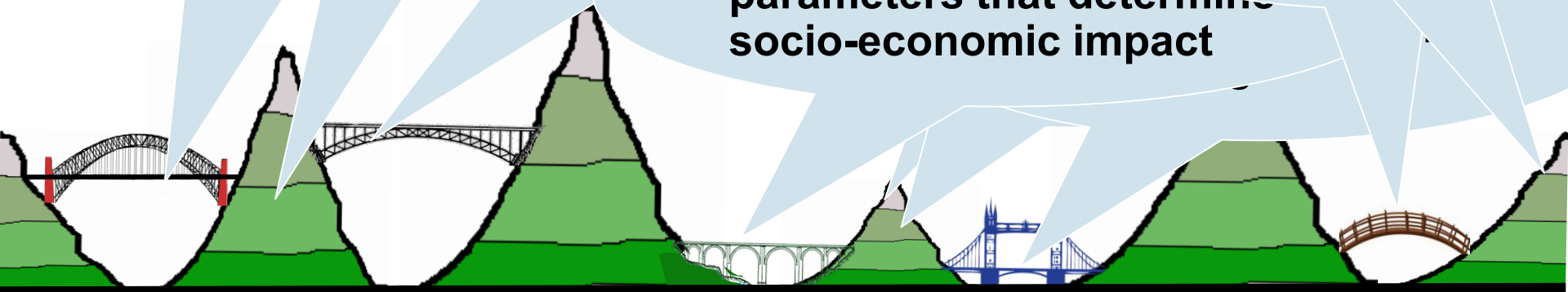
Predict

Trusting the source of
information and making
response

Measuring & attributing value

parameters that determine
socio-economic impact

at most



Sensor technology	Weather modelling	Hazard modelling	Social, economic & health modelling	Communication science: Messages & media	Behavioural psychology
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HIWeather promotes research into weak points in the prediction & warning of high impact weather

Topics

- **Workshops**
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- **Reviews**
 - Communicating high impact weather (Sept 2018 *Int. J. Disaster Risk Management*)
 - Wind hazard review
 - Current state of nowcasting & forecasting high impact weather
 - Review and classification of impact modelling

Research on evaluation approaches

- Metrics for spatially complex ensemble forecasts, allowing for observation error
- Survey of tropical cyclone skill in global model ensembles and use in TC forecasting
- User-relevant metrics
- Evaluating the warnings value chain
- Validating warnings with unconventional data
- Evaluating effectiveness of impact-based extreme weather warnings and behavioural recommendations