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Water Information
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Water Information Services

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19 August 2009

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Presentation outline

- The context
  - Drought, future changes, water data and information
- Water Data and the Australian Water Resources Information System (AWRIS)
- Extended Hydrological Prediction Services
  - Informing decisions
  - Data, science, systems and services

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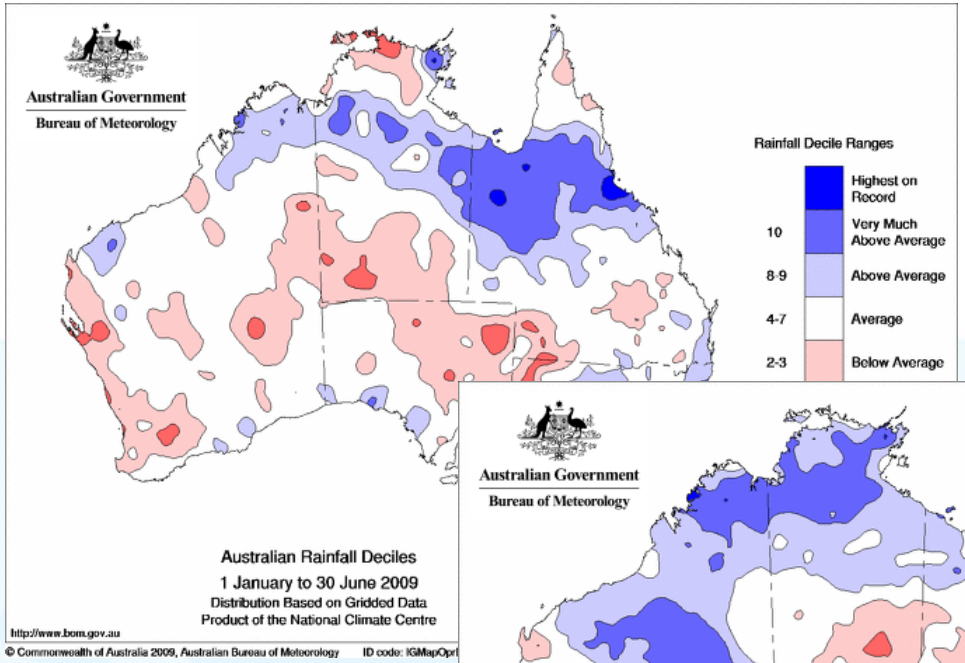
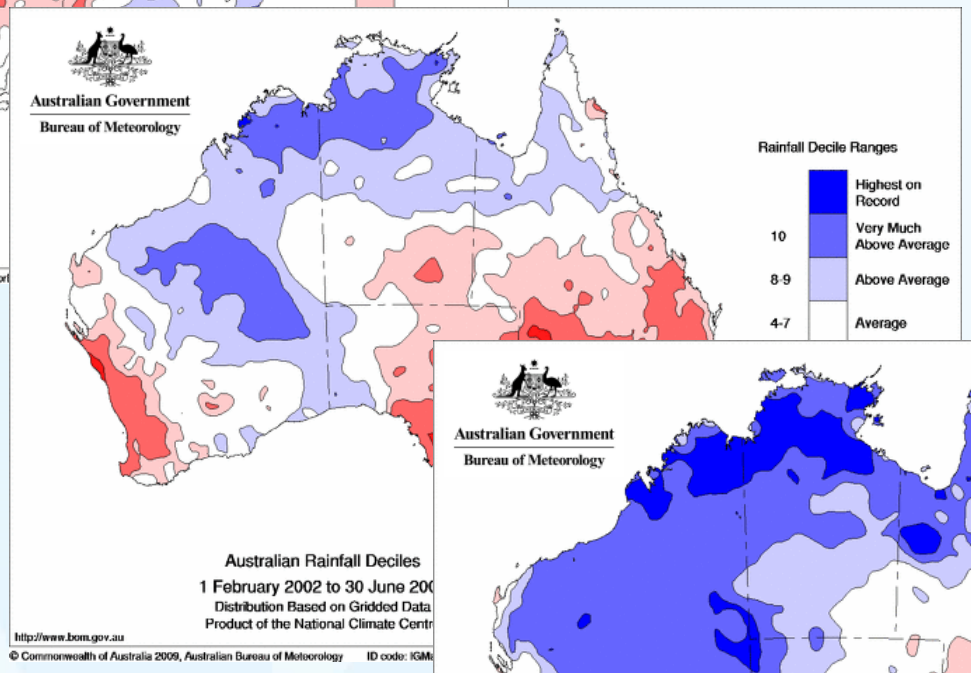
Recent rainfall

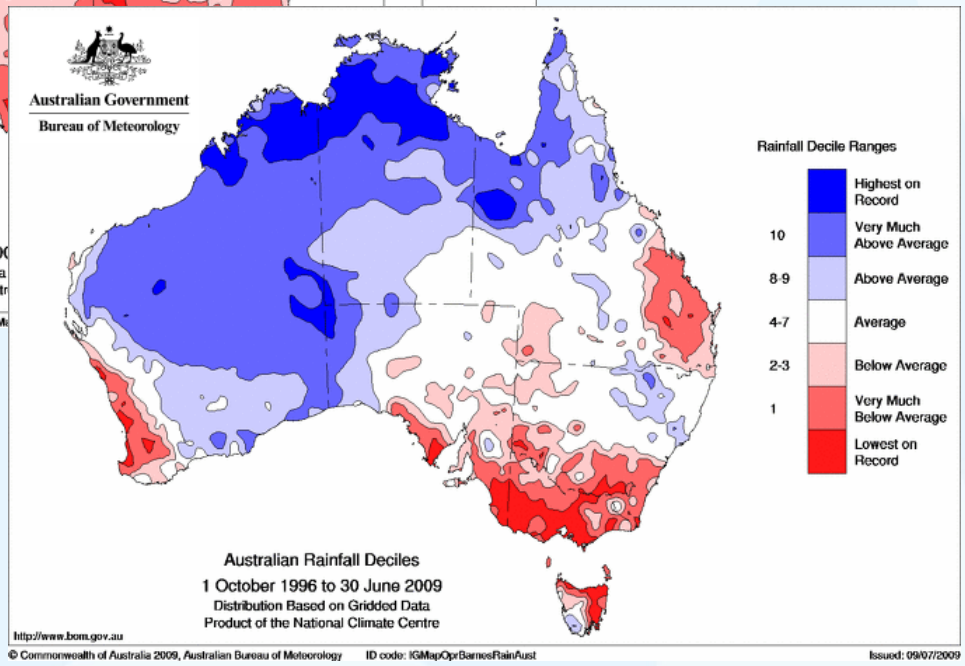


This Year



Last 12+

Last 7+ years



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Improving water information services

A $12.9b investment by the Australian Government in:

- Murray Darling Basin Authority (and a new plan)
- water purchases for the environment
- modernising water delivery infrastructure
- water supply augmentations
- urban water reform
- reform in water pricing and market rules
- sustainable yields assessments
- **water information**

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New water information role

- 10-year program, started July 2007, $450m funding
- Legislative backing
  - Water Act 2007, Water Regulations 2008
- Relies strongly on
  - collaboration with data providers
  - development of the Australian Water Resources Information System (AWRIS)
  - R&D with CSIRO on the Water Information Research and Development Alliance (WIRADA)

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Water Data

- Set standards for water data
- Collect primary information from water data holders and build an Australian Water Resource Information System (AWRIS)
- Assist water data holding agencies to modernise their observing system

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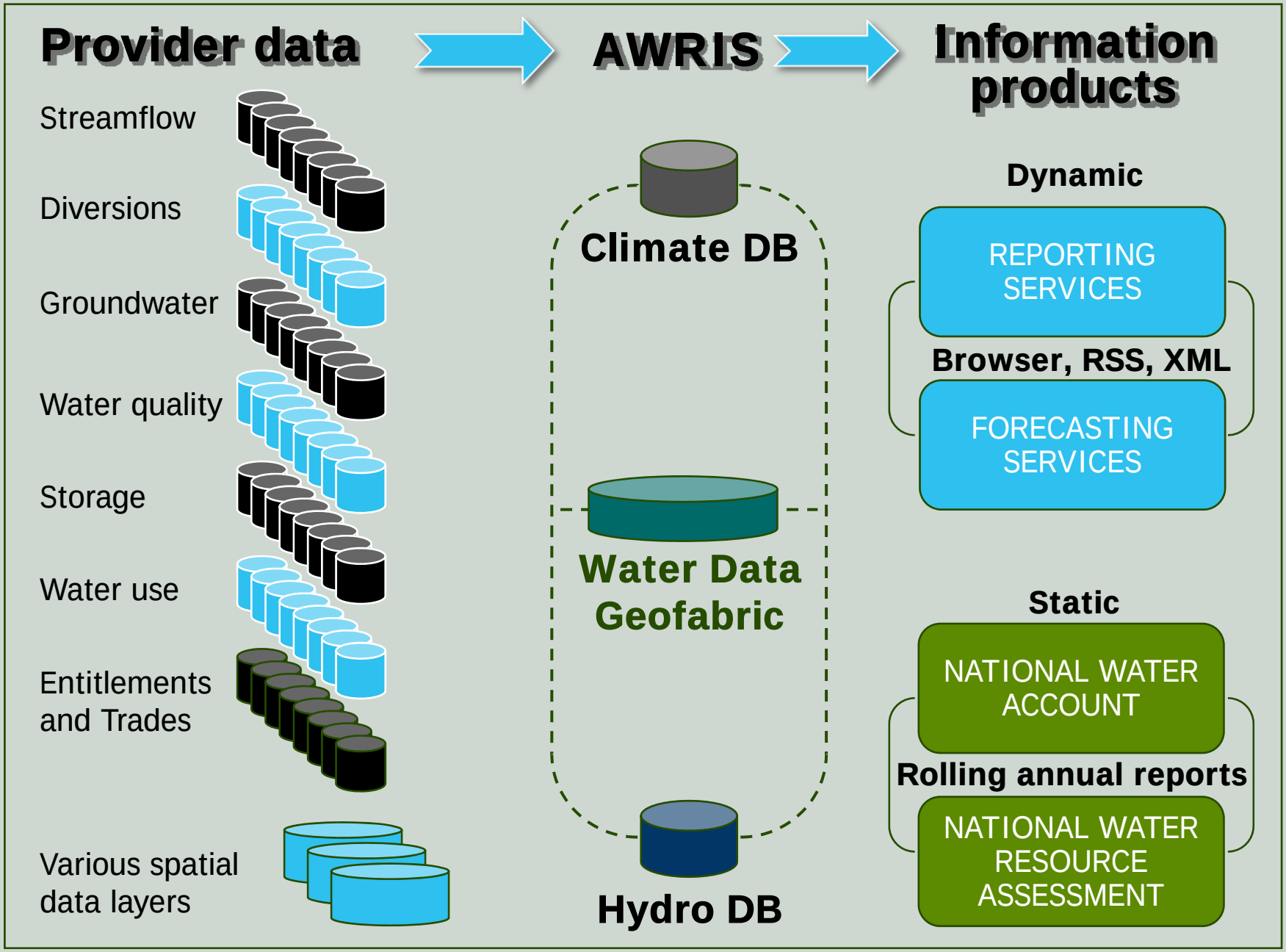
Provider data
AWRIS
Information products
Streamflow
Diversions
Groundwater
Water quality
Storage
Water use
Entitlements and Trades
Various spatial data layers
Climate DB
Water Data Geofabric
Hydro DB
Dynamic
REPORTING SERVICES
Browser, RSS, XML
FORECASTING SERVICES
Static
NATIONAL WATER ACCOUNT
Rolling annual reports
NATIONAL WATER RESOURCE ASSESSMENT

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The AWRIS Project

- NWC funding ... $10m over 2 years, under ‘Raising National Water Standards’
- The Bureau is to run the project and ‘own’ AWRIS
- Initial emphasis on:
  - User/stakeholder interaction
  - Product conceptualisation
  - Geofabric/ data relationship development
  - Data merge investigation
  - Architectural development

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Improving hydrologic observing systems

The Bureau won't make observations beyond current meteorological and flood monitoring

It has $80m to invest with States to update hydrologic monitoring systems

Project funding is being directed to:

- improving the quality and currency of water data
- Filling critical gaps in observing networks
- Simplifying the task of data delivery to the Bureau

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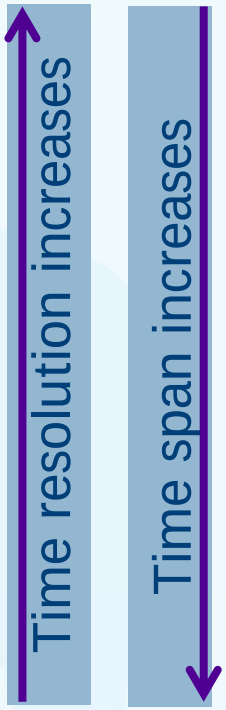
Water Forecasting Services

- Flood Forecasting and Warning
  - Hours to days, as per current activity
- Short-term Flow Forecasting
  - 1 to 5 days, linked to NWP activity
- Extended Hydrological Prediction
  - Weeks to seasons, linked to seasonal outlook activity
  - Longer-range, years-decades-climate change, linked to GCM activity



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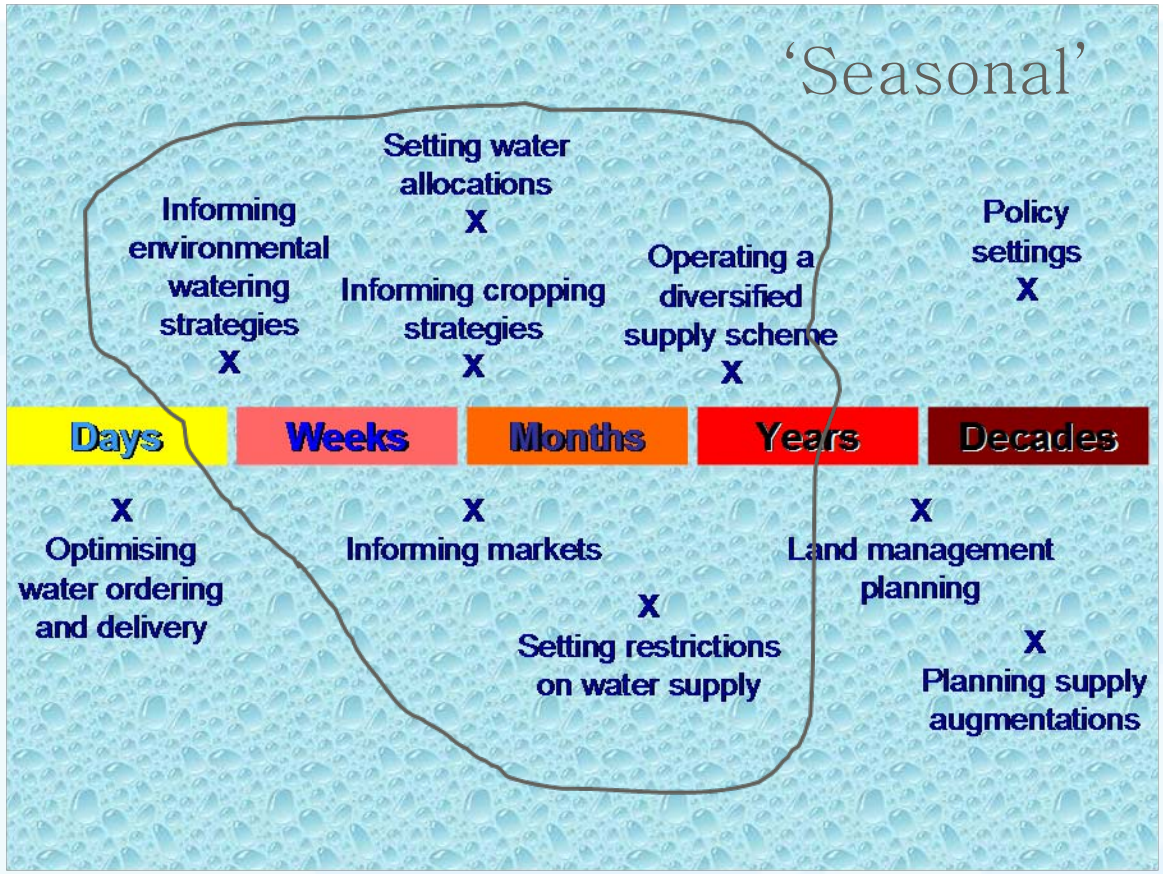
Informing decisions



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Modelling systems – challenges & future development

- A seasonal water availability prediction service needs
  - A communication and adoption strategy aimed at matching customer needs with capability
  - Statistical prediction model (BJP)
  - Downscaled outputs from the POAMA climate prediction model
  - Hydrological modelling systems
  - Verification systems
  - Planning to use CAWCR's new coupled climate and earth system simulator (ACCESS)

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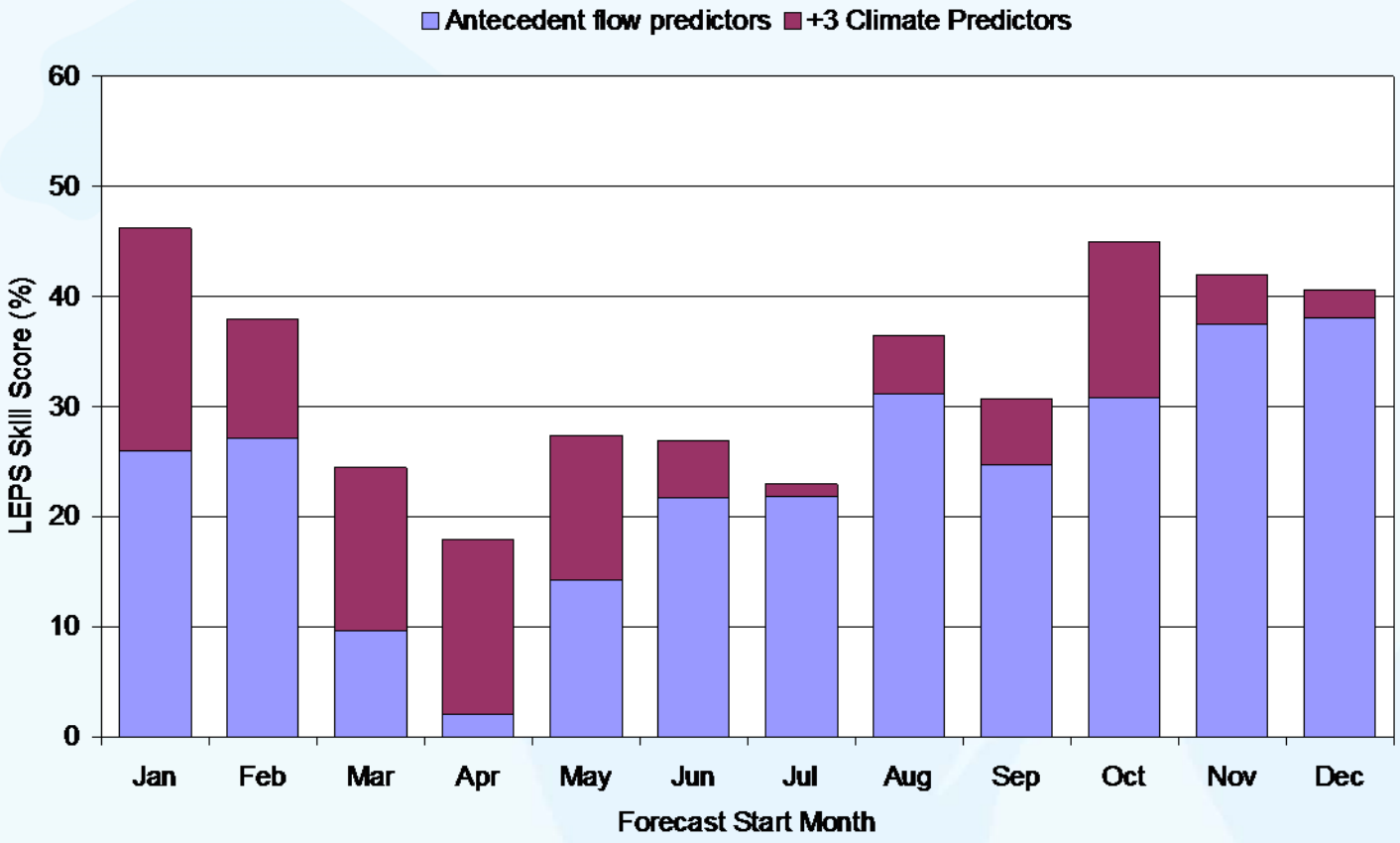
BJP modelling – Stepwise selection of predictors (Wang & Robertson)

LEPS skill scores for three month streamflow forecasts at station 405214



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Long term prediction services

- Pilot long-term predictions on priority catchments
- Develop a business case for more automated long-term predictions
- Developing high quality streamflow datasets for climate variability analysis and climate change detection
- Investigating the scientific basis and application of decadal-scale predictions of water availability

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Extended predictions – key data needs

- High quality long period climatologies
  - Streamflow, rainfall, temperature, ... predictors
- Predictors
  - SST, circulation indices, antecedent conditions, ...
  - Timely access to service user needs
- Downscaled climate data from GCMs
- Geospatial datasets

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Australian Hydrologic Modelling System

- Aims to serve the modelling needs for the Bureau's Water Information Services
  - Water resource assessments, water accounts, flood warning and short-term flow forecasting, extended predictions
  - Coupled to AWRIS, climate models, river management models, etc
- Strong collaboration with CSIRO, eWater CRC, CAWCR and universities
- Developed over the next five years
- Discussion paper now being finalised

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Thank you…

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Superintendent
Extended Hydrological Prediction

Water Division