Country Presentation: New Zealand

James Renwick

National Climate Centre

NIWA

Theme Leader, RA-V WG-CLS

www.niwa.co.nz/ncc/

W O R L D M E T E O R O L O G I C A L O R G A N I Z A T I O N

REGIONAL SEMINAR ON CLIMATE SERVICES

IN REGIONAL ASSOCIATION V (SOUTH-WEST PACIFIC)

Honiara, Solomon Islands, 1-4 November 2011

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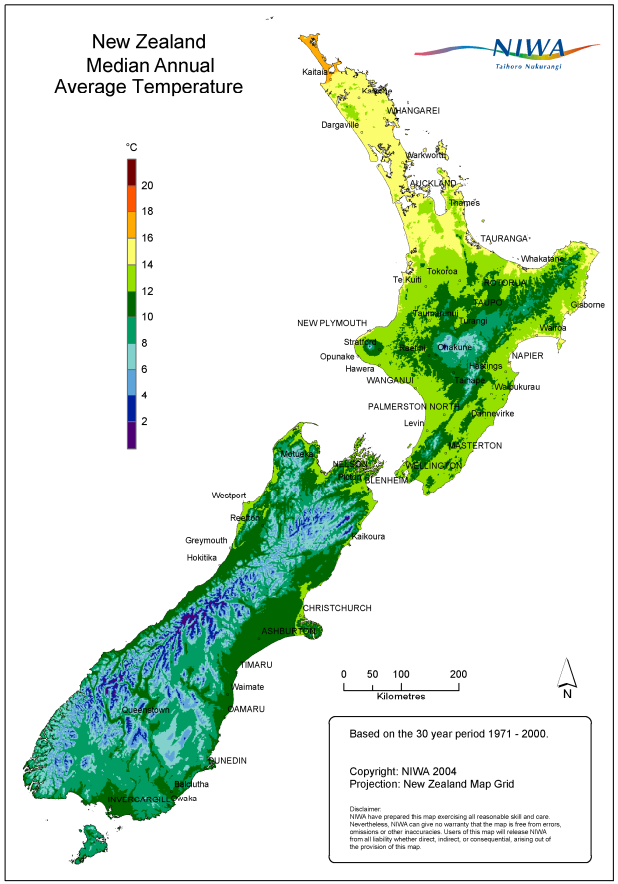
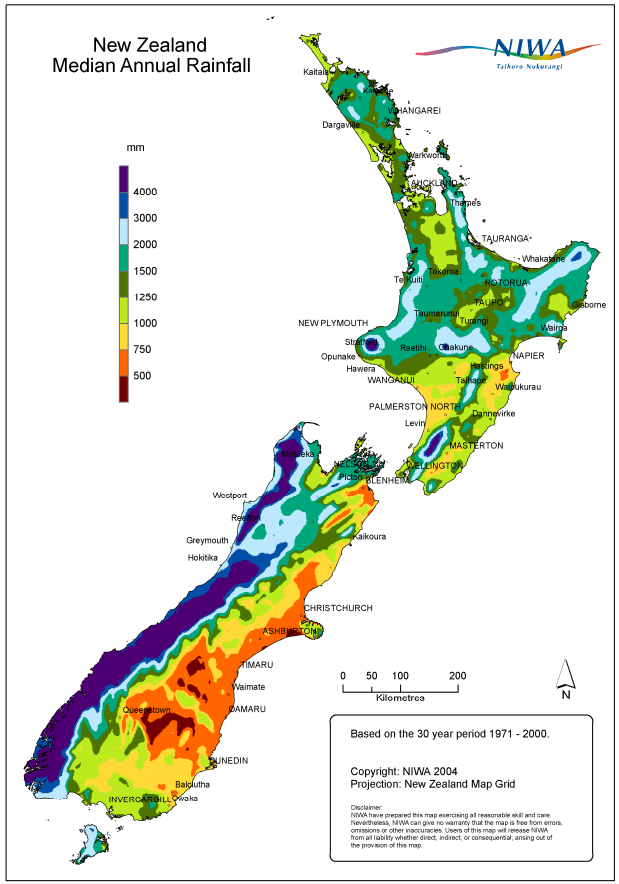
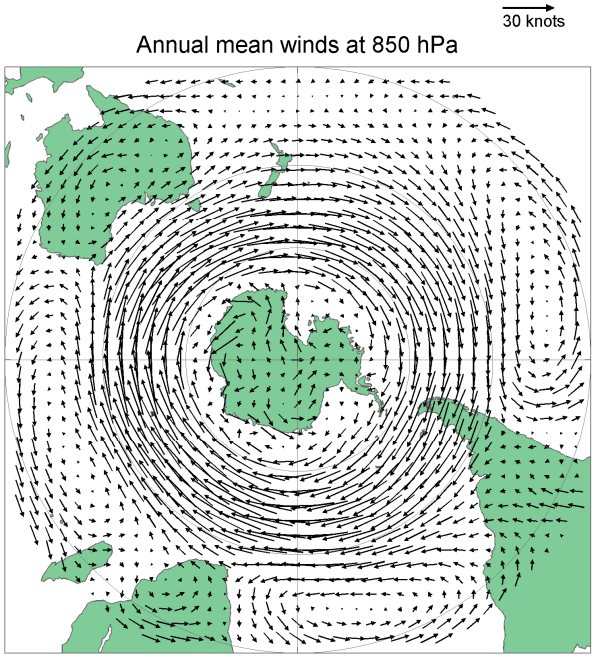
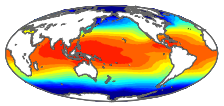
Mean Climate







- National mean temperature (& range) around 10℃
- Mean rainfall between 400 and 10,000mm
- Westerly wind flow controls the climate



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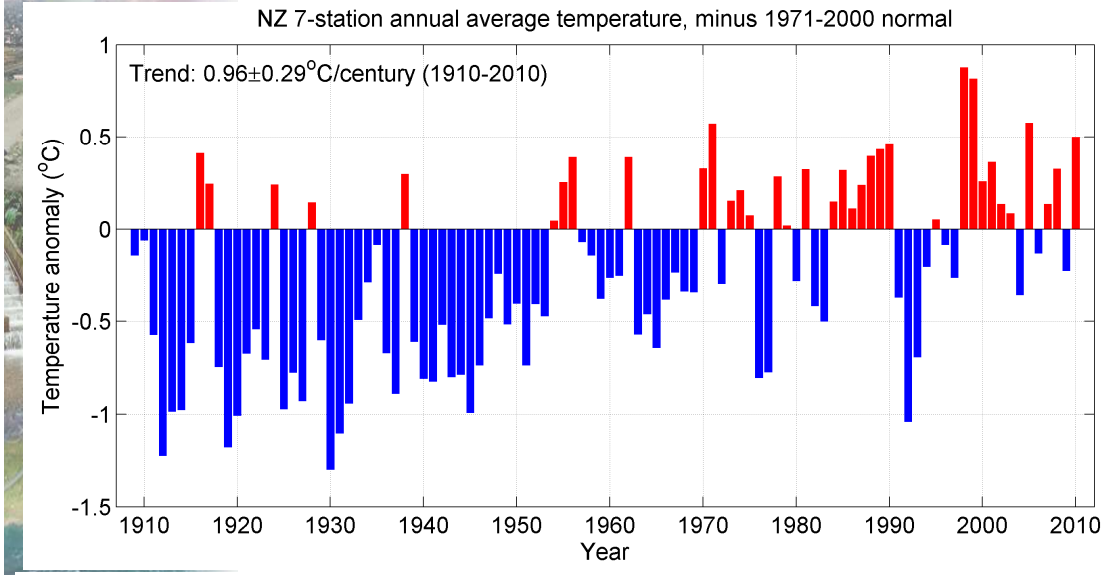
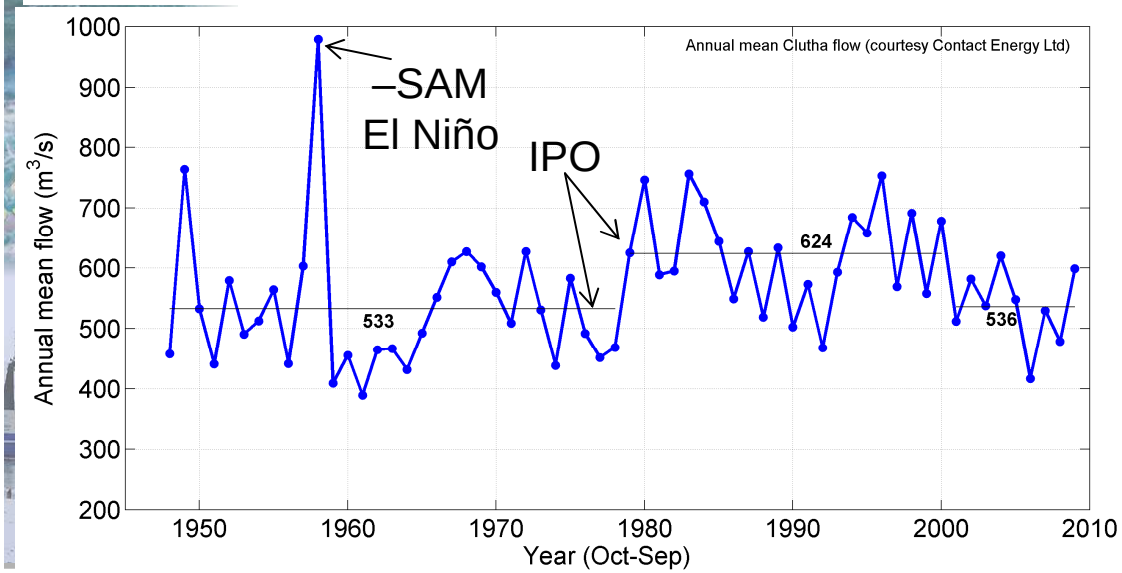
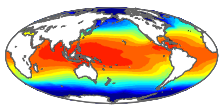
Interannual variability





- Winds modulated by
  - ENSO, IPO, SAM
- Stronger westerlies in
  - El Niño, +IPO, –SAM
  - Cooler, more rain in west
- Weaker westerlies in
  - La Niña, –IPO, +SAM
  - Warmer, more rain in east

- Temperature
  - Around 1° warming, last 100y
  - Interannual change up to 1°
- Major river flow (precipitation)
  - IPO shifts around 10%
  - Interannual changes often 20%



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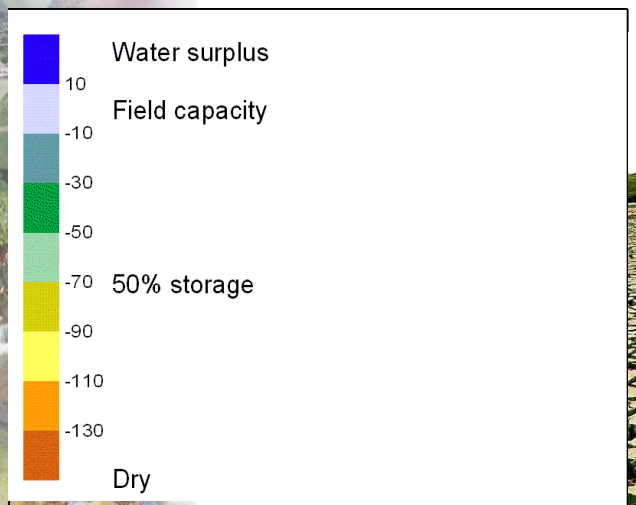
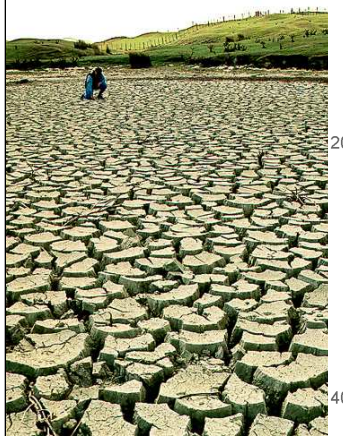
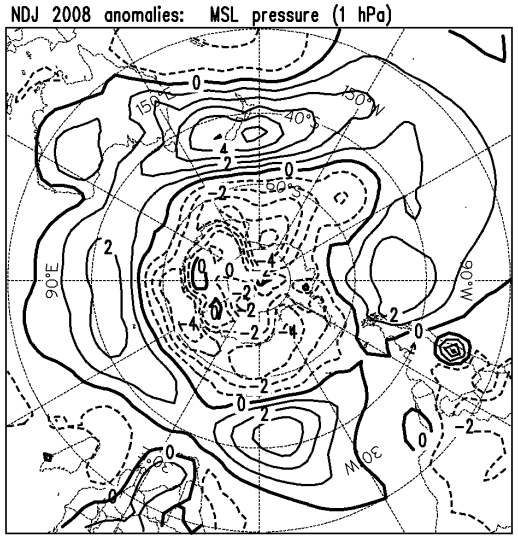
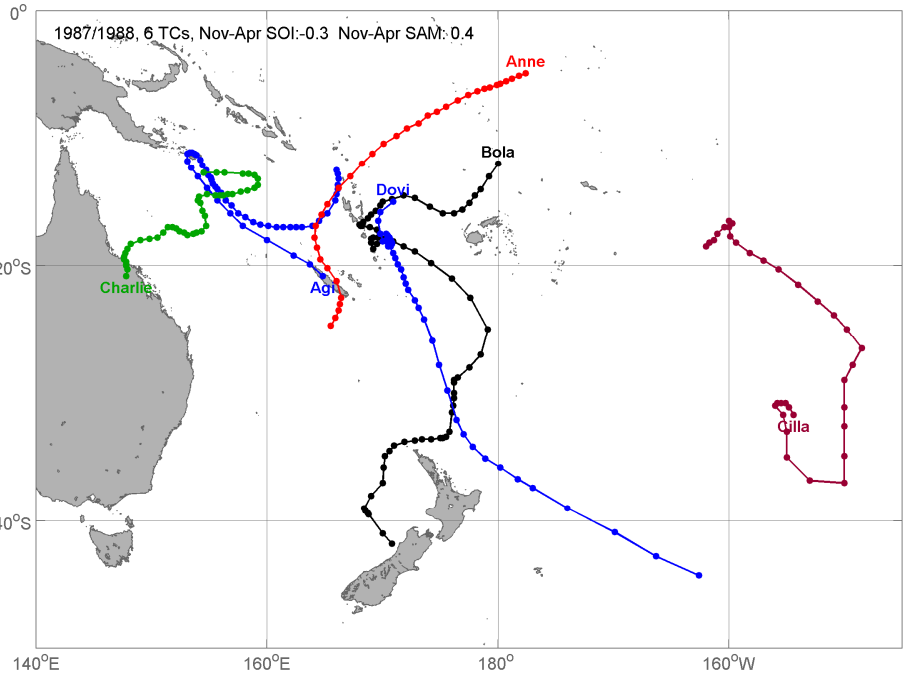
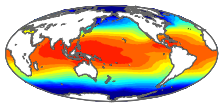
Extremes











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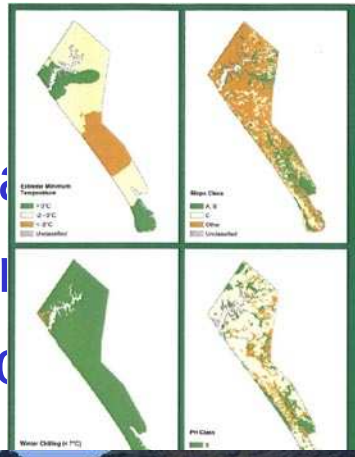
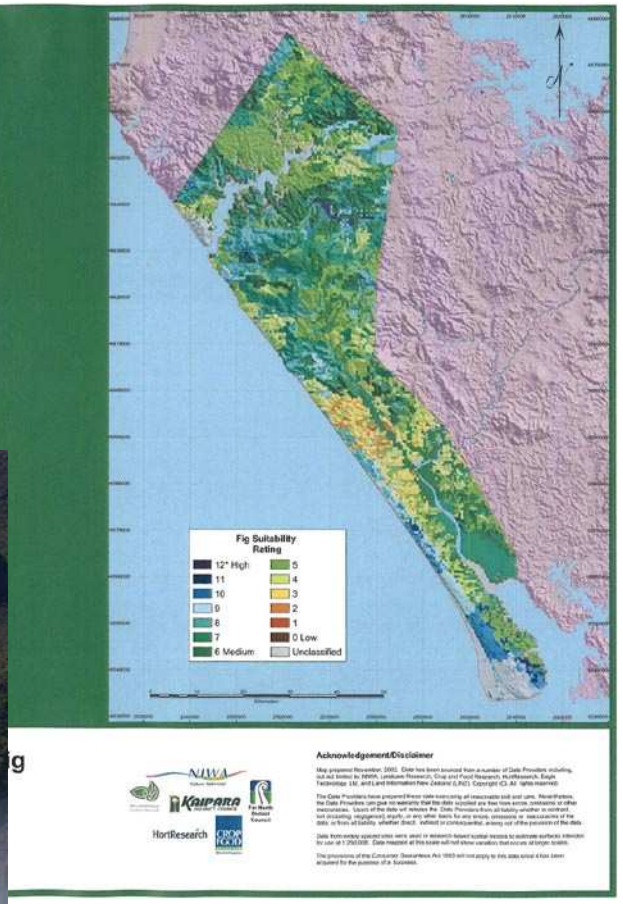
Sector users

- Agriculture
  - Monthly-sea
  - Soil moistur
  - Identifying c





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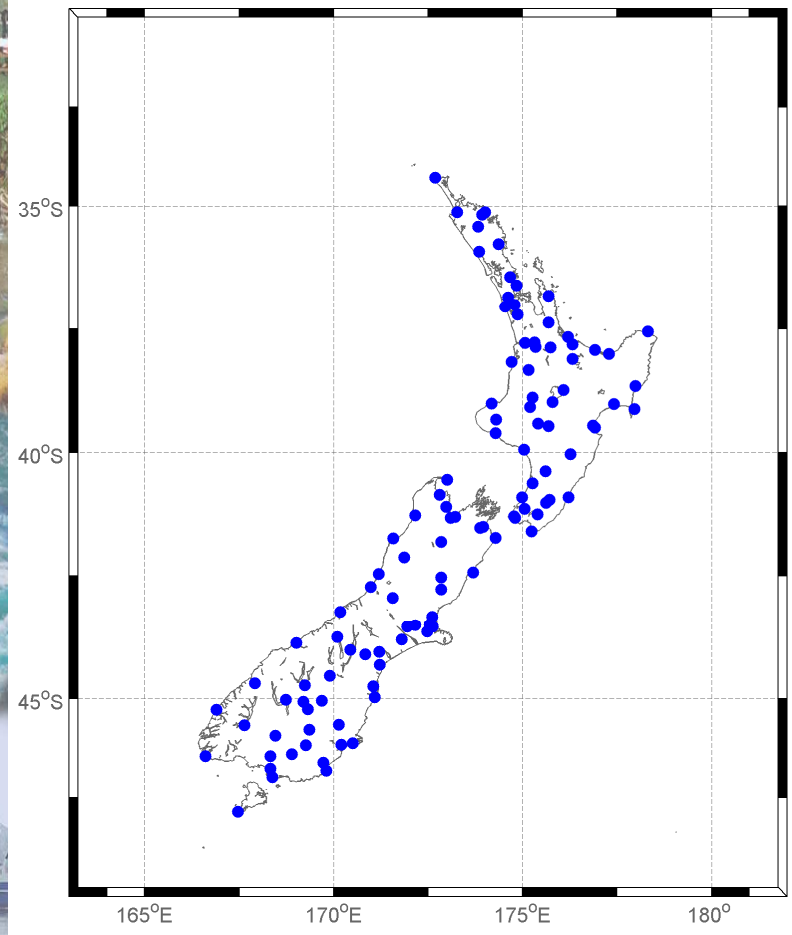
Observational network



- Over 100 sites reporting daily
- Many more reporting monthly
- Several hundred rainfall sites
- All available through web interface to climate database

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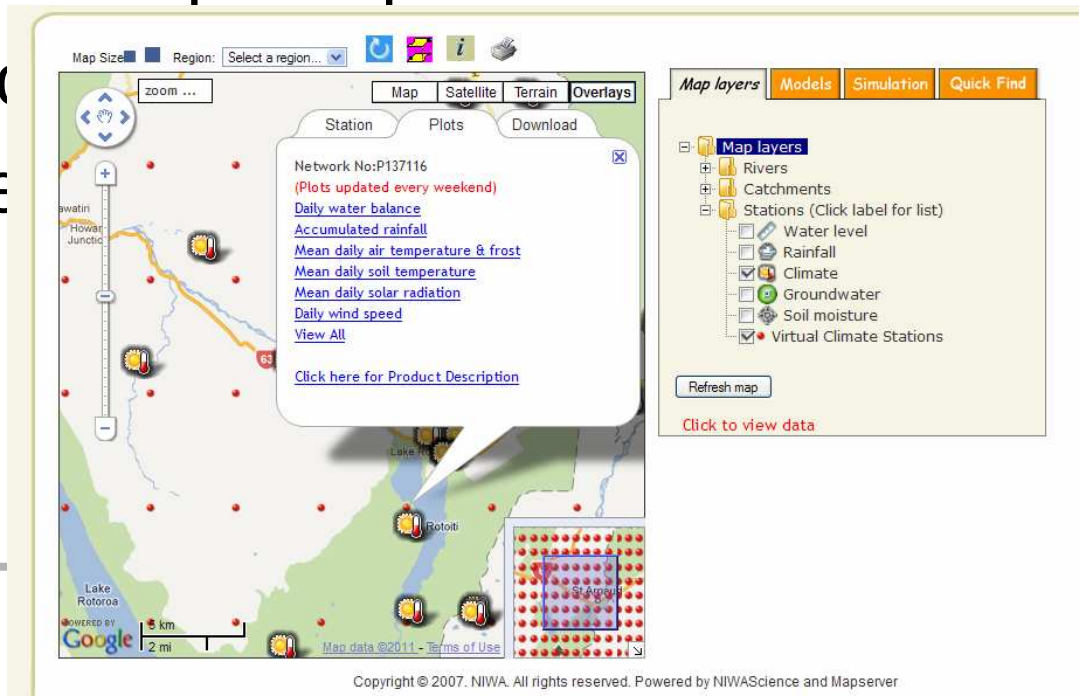
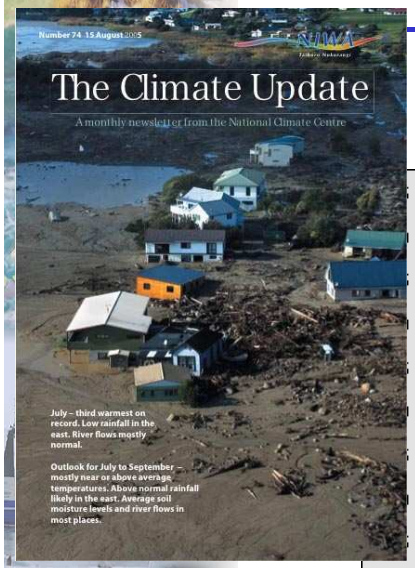
Infrastructure/expertise

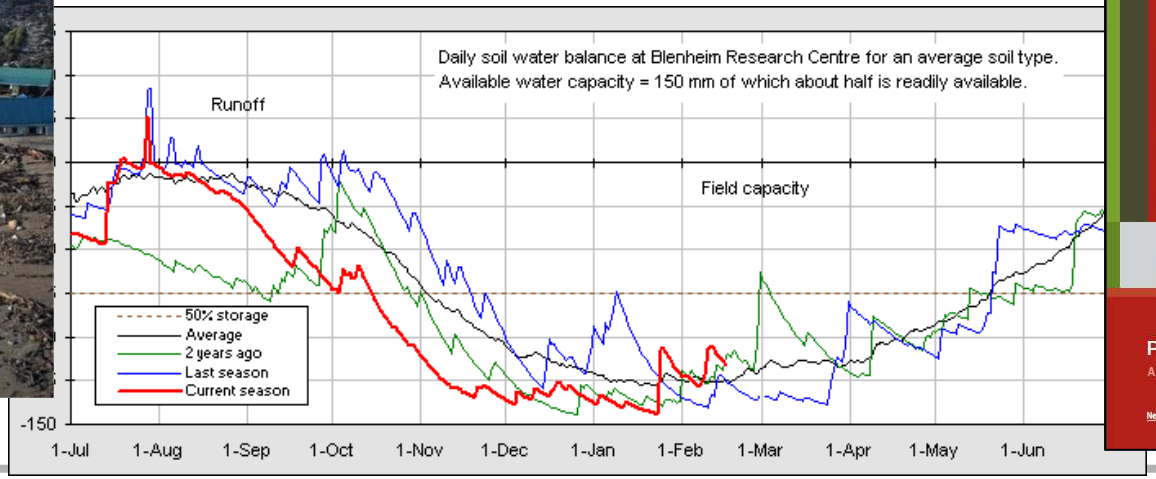
- NIWA National Climate Centre
  - ~25 affiliated science staff
  - Monthly climate summaries, seasonal outlooks
  - Research, consultancy, applications
- Climate data base [Clidb]
- Water resour
- Web interface

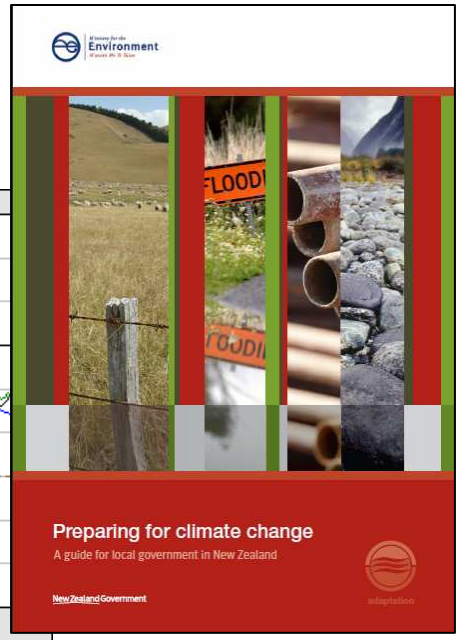


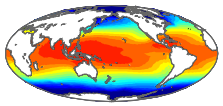
Status of climate services

- As described in Andrew Tait's presentation
  - Wide range of research, data analysis, consulting
  - Data access and display
  - Regular seasonal forecasting (NZ and Pacific)
  - Climate change scenarios, advice









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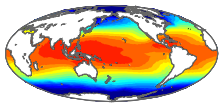
Research Programme

What does the country need to know,
To make the most of the climate
Reduce vulnerability; develop effective adaptation & risk management; strengthen our international position

What science needs to be done?
To observe ↔ To understand ↔ To model ↔ To predict → To apply

Atmosphere Land Ocean Ice Antarctic	Analyse trends, variability, extremes Link to big picture Couplings, feedbacks Physical processes	Atmosphere, ocean, ice Global collaboration N.Z.-specific Apply new understanding	Weekly-seasonal Ocean variability Decadal changes Long term trends Extremes Water, Ice	Economics Land use Energy Marine Policy Management Communities



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GFCS

- Goal - *Enable better management of the risks of climate variability and change at all levels, through development and incorporation of science-based climate information and prediction into planning, policy and practice*
- Working with industry and government
  - Climate variability, seasonal forecasts, climate change scenarios, IPCC
  - Promoting a risk-management approach
    - And taking advantage of opportunities
  - Central and regional government advice

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Challenges to deliver climate services

- Maintaining observational networks
  - Funding for on-going monitoring
- Maintaining skill base
  - Succession planning
- Communication & relationship building
  - User education
  - Knowledge of user needs
  - Mutual trust and understanding

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