



NARCIIM: Climate projections for decision makers.

A collaboration between UNSW and NSW government.

Never Stand Still

Science

Climate Change Research Centre

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How did a collaboration between
university and a state
government (& other agencies)
actually work?

Outline

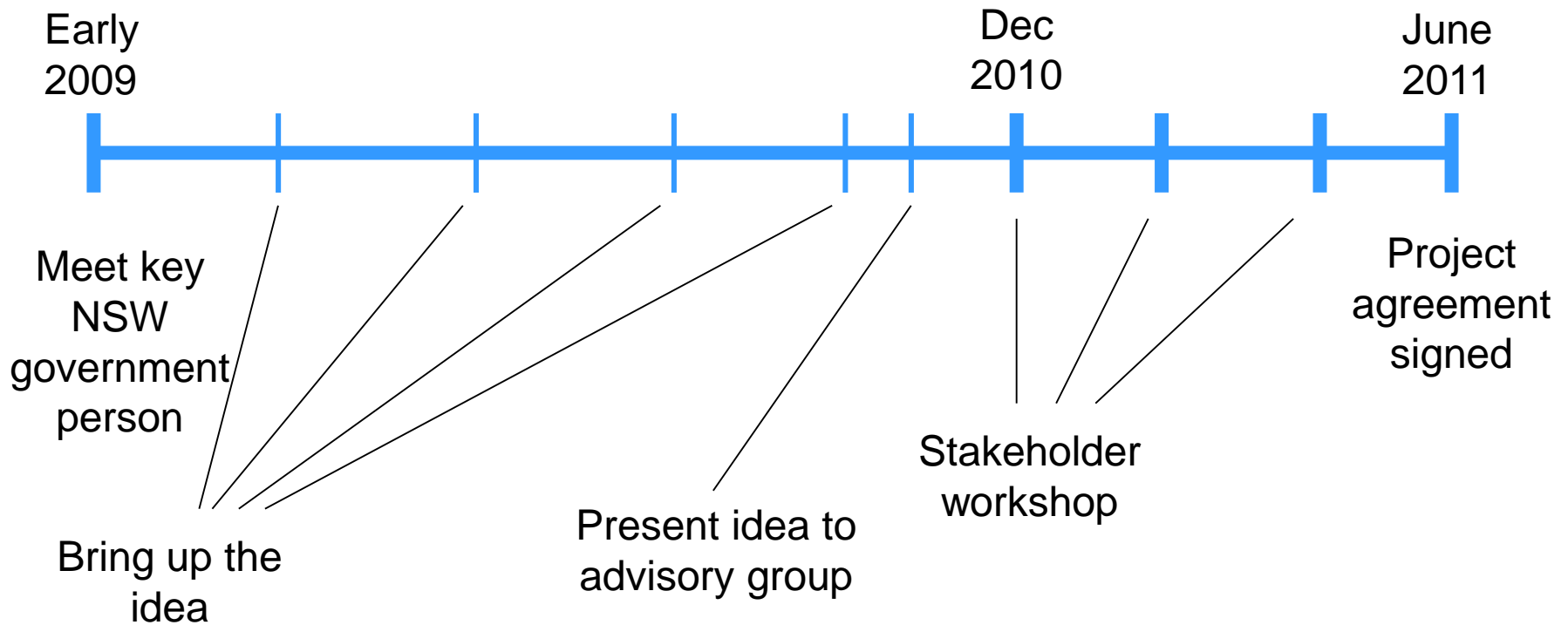
- NARClIM
- My Plan
- Their plan
- Final plan
- The actual project...
- Take home lessons

NARClIM

NSW / ACT Regional Climate Modelling project

NARClIM is a collaboration with state governments to produce a climate projection ensemble that can be used across government departments to include future climate change in planning processes in a systematic and consistent way.

Getting to that



My Plan

- Do lots of high resolution regional climate simulations
 - Choose the GCMs carefully
 - Choose the RCMs cleverly
 - Save a small set of standard outputs for them (extra cost for conversion to anything other than netCDF)
 - Do lots of interesting regional climate phenomena and model analysis!

Their Plan

- Consult superiors
- Consult subordinates
- Consult stakeholders
- Consult stakeholders again
- And again....
- Establish project governance
- Do project

The Final Plan - Governance

- **Management committee**
 - OEH Science lead
 - OEH policy lead
 - UNSW modelling lead
 - Meets regularly as needed (~bimonthly)
- **Steering committee**
 - Representatives from key stakeholders
 - Meets biannually
- **End user group**
 - Broad participation
 - Testing usability of output data

The Final Plan - Communication

Three tier approach to communication of project outputs

- 1) Summary data, maps, reports on easy access website – aimed at general audience
- 2) Data available in specific formats for use in impacts & adaptation studies – aimed at scientifically literate users (not climate science)
- 3) All data available for investigation of regional climate phenomena – aimed at climate scientists

The Final Plan

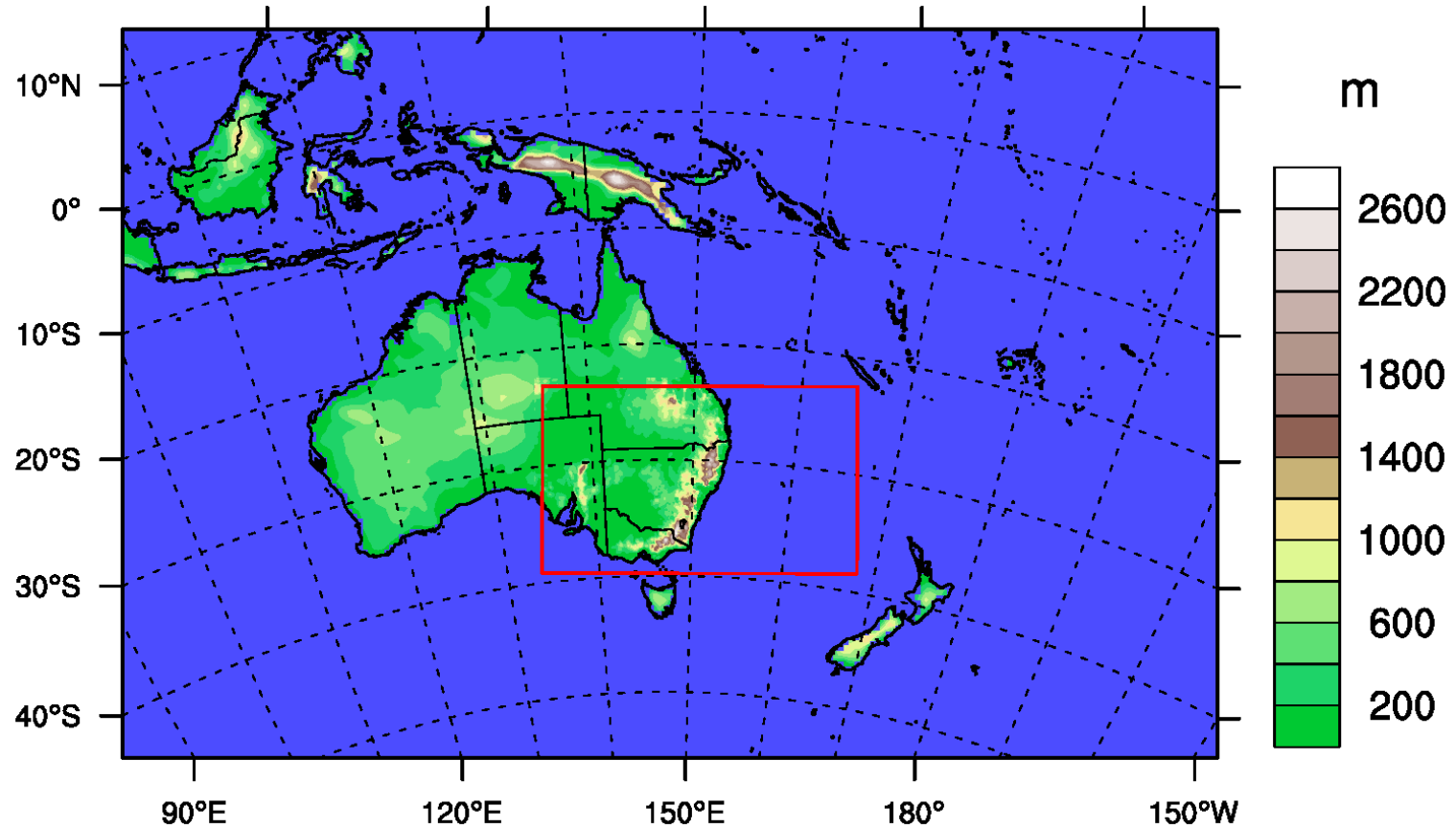
Regional Climate Modelling

- Buy and install a Petabyte data storage system at OEH (estimated 750TB needed)
- Perform regional climate simulations at NCI, Intersect & UNSW and transfer data to OEH
- Establish tiered access to the dataset

NARClIM Modeling

- A2 scenario
- 4 GCMs + 3 RCMs = 12 member ensemble
- 2 domains: AUS44 (CORDEX 50km), NSW/ACT (10km)
- Control period: NCEP re-analysis 1950-2010
- 3 GCM time-windows: 1990-2010, 2020-2040, 2060-2080
- Standard output variables & intervals selected
- Apply statistical bias correction to remove systematic bias

RCM domains



The Actual project

- Buy and install a Petabyte data storage system at OEH (estimated 750TB needed)
- Discover data transfer to OEH is extremely slow.... They only have a 10Mb pipe!
- The solution...



+



The Actual project

- Change of NSW government led to OEH “spill and fill” one year into project
- After this – of all OEH personnel involved in establishing the project only 1 remained!
- New OEH personnel were my stakeholders and I had to justify the project plan to them
- Fortunately they bought in to the project fairly quickly and we continued with relatively little disruption (No Trump appointees!)

The Actual project

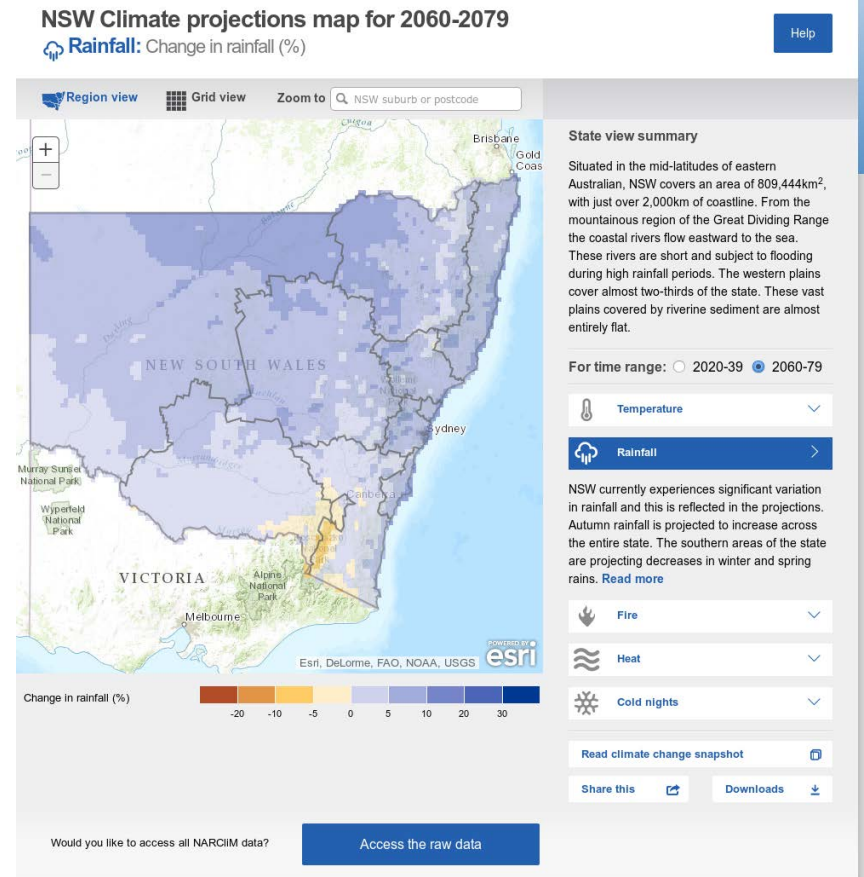
Presentations to potential end users were ongoing throughout the project

- I was involved in ~3 per year
- OEH personnel were running 6+ per year

NARCLiM data – Tier 1

NARCLiM data underpins the AdaptNSW website

<http://www.climatechange.environment.nsw.gov.au/>



NARClIM data – Tier 2

NARClIM data can be accessed through the climate data portal

<https://climatedata.environment.nsw.gov.au/>

The screenshot shows the NSW Climate Data Portal interface. At the top, there are logos for NSW Government Environment & Heritage and AdaptNSW. The navigation bar includes links for HOME, ACCOUNT, ACCESS DATA, HELP, and BACK TO ADAPTNSW. Below the navigation bar, there is a prompt to 'Login or register to access full site functionality' with 'Login' and 'Register' buttons. The main content area is titled 'Welcome to the NSW Climate Data Portal' and contains the following text: 'By following the sequence shown below, you can use the portal to access output from Regional Climate Model (RCM) simulations performed as part of the NSW and ACT Regional Climate Modelling (NARClIM) project. If you need help in choosing your models read the Guidance on Model Selection information.' Below this, it states: 'You will first need to **Login** to access data. If you wish to log in but do not have a password, you will first need to **Register**.' A flowchart illustrates the 10-step process for requesting data: Step 1: Create a Data Collection folder; Step 2: Start a Data Request in your Data Collection; Step 3: Choose your dataset (GCM/ Reanalysis); Step 4: Choose your resolution (data type (gridded/site)); Step 5: Choose your simulation/ models; Step 6: Choose your interpolation method and region; Step 7: Choose time period and temporal resolution; Step 8: Choose climate variables; Step 9: Review summary of your data request; Step 10: Submit Data Request. A final box indicates: 'You will be notified via email when your data is available.'

NARCLiM data – Tier 3

Ummmm.... Never quite happened
OEH IT security precludes directly sharing
data from the installed data storage system

Contact me for access
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Take home lessons

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Take Home Lessons

- Don't be too attached to your initial proposal
 - If it's good the final project will look just like it
 - Build in decision points for stakeholders
- Unexpected things will happen
 - Be conservative in your timeline so you can deal with these
- Learn from your partners
 - They know their stuff better than you!

“Co-design” of the project did lead to better (more useful) project outcomes.

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Thank you for your attention

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