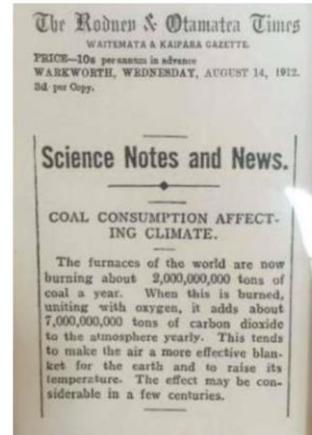




- My family has lived in Christchurch for over 150 years
- I'd like to talk about the climate change from Ecan perspective

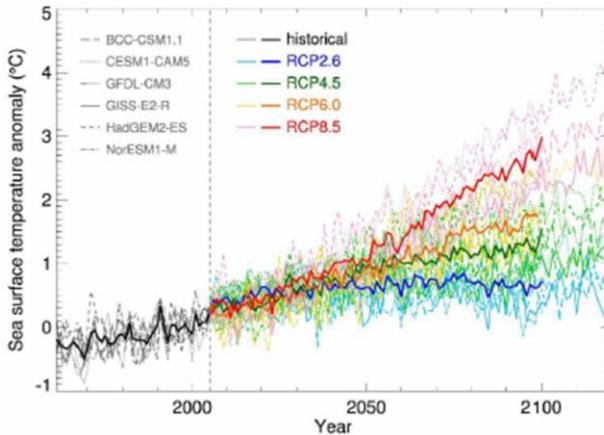
What will we talk about

- How will the climate change
- What we're doing about it
- What you can do about it



- 1912 Otamatea Times: 2,000,000,000 tons of coal were burned every year and adds 7,000,000,000 tons of carbon dioxide to the atmosphere.

How will the climate change locally



Climate Change Projections for New Zealand from work by the [National Institute of Water and Atmospheric Research](#) (NIWA), downscaling global predictions to the New Zealand context for the Ministry for the Environment



- MetService vs Google day to day
- The ambiguity of climate change?
- This graph shows the sea surface temperature
- However, different measurement generates different outcome so you get variation for the results
- The red line is the worst case scenario
- This work took global statistics but scale down to NZ context/ Canterbury Context

Source: Ministry for the Environment Website and Environment Canterbury Website

How will the local climate change by 2090

- 6 to 35 extra days per year where temperatures exceed 25°C (roughly double)
- 13 to 38 less days per year with frosts
- Summer more rainfall (1-8%) Winter less rainfall (1-12%)
- Frequency of extremely rainy days are unlikely to change
- 2-10% increased frequency of extremely windy days
- Sea level rise will impact east Christchurch, particularly the lower Avon
- More flooding



- We are talking about 70 years from now on
- More river flooding in the lower Avon area (Flood will become the main concern in the environmental policy)

How will the local climate change by 2090

- 30 less days where it snows (in Alpine area)
- Droughts more frequent and more extreme in North Canterbury (impacts on farming community)
- Increased needs for water resources
- Longer fire season (because it'll be drier)
- Longer growing season (more seasonal fruits!)
- Increase in pests and weeds

Source: Ministry for the Environment Website and Environment Canterbury Website



Drivers and Impacts of Climate Change

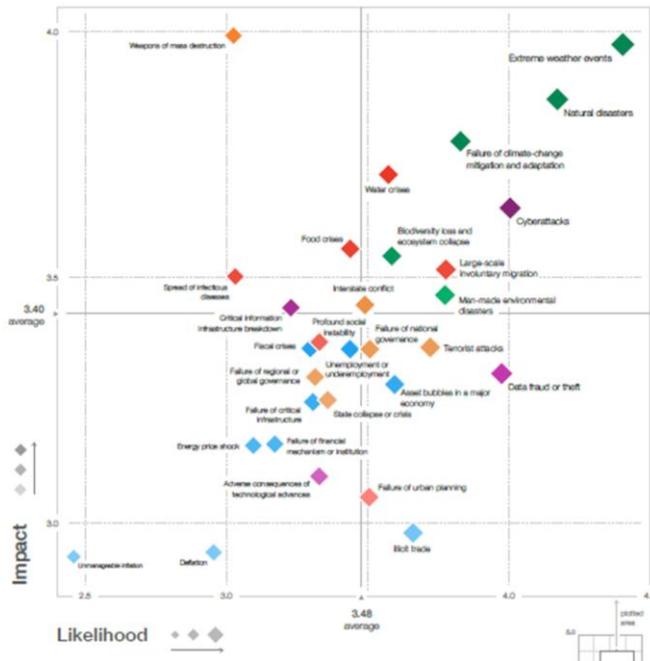
- Climate-driven changes e.g. more hot days, sea level rise
- Transition-driven changes e.g. electric vehicles, farms to forestry (to reduce emission)
- Environmental – land damage, seasonal changes, ecosystem changes (special species)
- Economic – house prices
- Social – social disruption, health impacts, cost of living
- Cultural – wāhi tapu, taonga species, mahinga kai
- Governance – legal liability, funding stressors, adaptive planning



- We've done the literature review and gone back to the Local Government Act – 4 aspects (Environmental/Economic/Social/Cultural)
- Economic: especially house crisis because of flooding issue
- Social:
 - Eg. social disruption – other parts of the world affected by climate change more dramatically and cause migration
 - Eg. cost of living – central government focus on the low-emission economy (we are not using cheap things to pollute the environment)
- Cultural application: traditional food collection chain will be affected
- Adaptive Planning – what is like to live here considering all the changes?

Global Context and local impact

Figure 1: The Global Risks Landscape 2018



Source: World Economic Forum Global Risk Assessment 2018



World Economic Forum: <https://www.weforum.org/>

- Top right hand corner is the factor that will have high impact (eg. extreme weather/natural disaster)
- Eg. Flooding is the biggest issue in NZ so we can know that and prevent it

What we are doing about it?

- Climate Change Integration Programme
- Regional Climate Change Working Group & Regional Risk Assessment
- Long-term environmental monitoring (Data)
- Coastal hazards & Freshwater science
- Flood protection schemes (video on next slides)
- CWMS – freshwater supply reliability
- Reducing organisation emissions
- Public Transport
- Advocacy



- Collaboration between Ecan strategists and city council
- Regional Climate Change Working Group (eg. Canterbury Mayoral Forum)

Waimakariri Flood Protection Scheme

<https://youtu.be/OnCEAd2S3tk>

What you can do about it?

- Find a trusted source of information e.g. Ministry for the Environment
- Build your understanding of current risks in your area e.g. flooding
- Build your resilience to those risks e.g. getting ready for flooding
- Be open to adapting e.g. try new foods
- Participate in consultations e.g. low emissions economy
- Reduce emissions e.g. ecological footprint calculator, transport options, eat less meat, buy local, reduce, reuse, recycle, plant trees



- It is important that everybody do what they can do (eg. Reduce the emission from personal level)

What you can do about it?

- Let us know:
- Your insights on climate impacts and other issues already affecting you
- Your views on our current activities and priorities relating to climate change



For more info:

<https://ecan.govt.nz/your-region/your-environment/climate-change/climate-change-in-canterbury/>

<https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region/canterbury>

<https://www.niwa.co.nz/climate-change>



**Environment
Canterbury**
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