Climate Futures
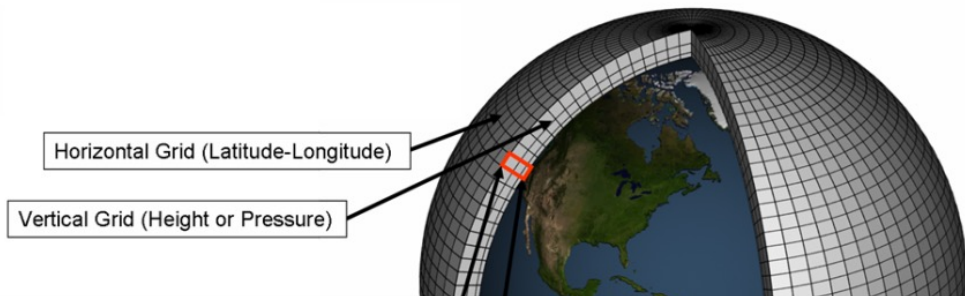
A confluence of science, legislation and innovation in the face of climate change
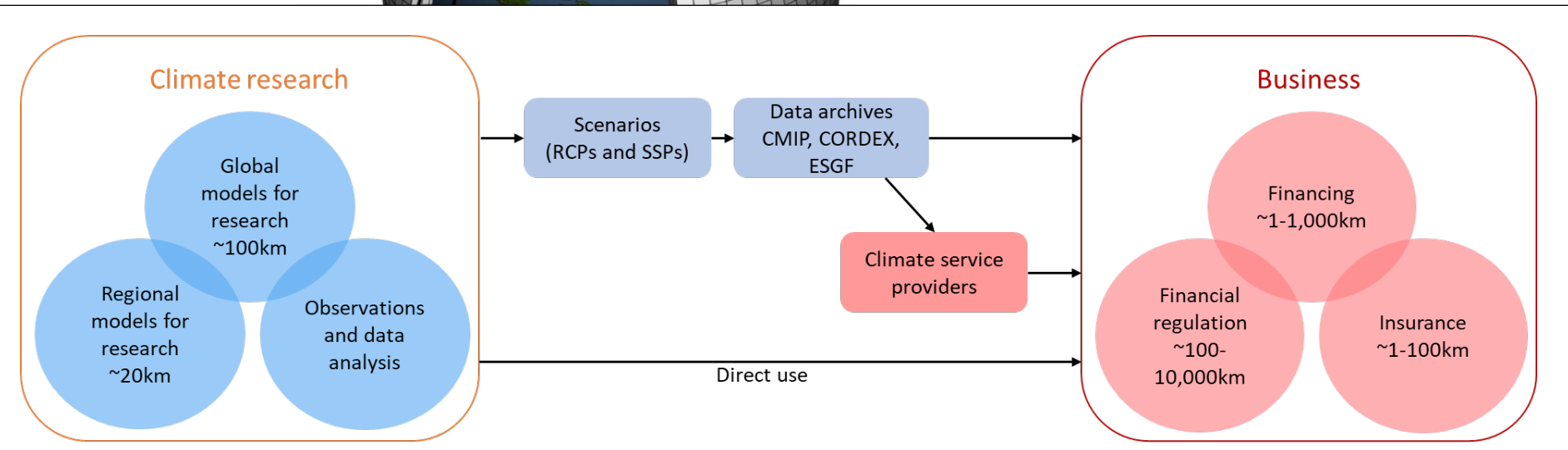
Presented at Murihiku Regeneration
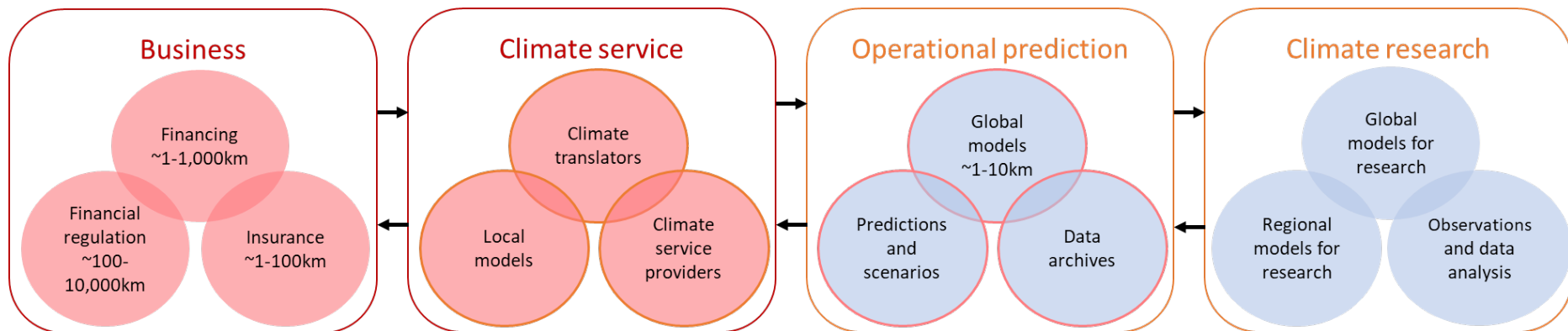Energy and Innovation Wānanga

23 May 2023

Horizontal Grid (Latitude-Longitude)

Vertical Grid (Height or Pressure)

Why do scientists run climate models?

Climate research

Global models for research ~100km

Regional models for research ~20km

Observations and data analysis

Scenarios (RCPs and SSPs)

Data archives CMIP, CORDEX, ESGF

Climate service providers

Direct use

Business

Financing ~1-1,000km

Financial regulation ~100-10,000km

Insurance ~1-100km

How the climate modelling community should serve the needs of stakeholders

Business

- Financing ~1-1,000km
- Financial regulation ~100-10,000km
- Insurance ~1-100km

Climate service

- Climate translators
- Local models
- Climate service providers

Operational prediction

- Global models ~1-10km
- Predictions and scenarios
- Data archives

Climate research

- Global models for research
- Regional models for research
- Observations and data analysis

Some challenges

- Disconnect between business demands and what science can currently provide
- Climate models not designed to provide financially meaningful/useful information
- Open access to data or re-packaging by climate service providers not enough

Combining climate change data (sea level rise) and financial data (house values) to diagnose climate risk

$24,000,000

STRAND
Marsden Project

blogs.otago.ac.nz/strandproject

UNIVERSITY of OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021

Public Act   2021 No 39

Date of assent   27 October 2021

And who wrote this text anyway?

$300M capital injection for New Zealand Green Investment Finance (NZGIF) in this year's budget

Climate-related disclosures: Financial institutions (including banks, insurers, and investment firms) → impact of climate change on business operations, financial performance, and strategies.

Mandatory reporting: Mandatory reporting on climate risk exposure → physical, transition, and liability risks.

Governance and oversight: Directors and executives of financial institutions must consider climate-related risks in their decision-making processes.

Climate-related stress testing: Regulatory authorities to climate stress test financial institutions.

Green finance initiatives: Encourages financial institutions to invest in sustainable and low-carbon projects.

Artificial Intelligence in climate science and its applications

- Improving the spatial resolution of global climate models.

- Improving the fidelity of weather forecast models

- Diagnosing the severity of extreme precipitation events

- And how the severity of those events is likely to change under climate change

- Pure AI-based weather forecasts
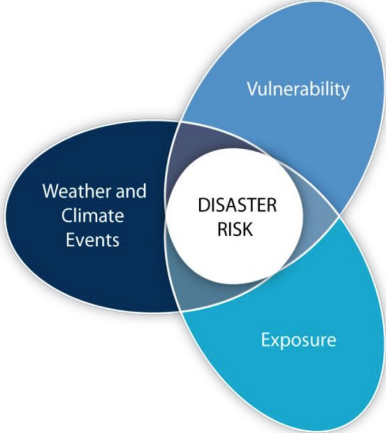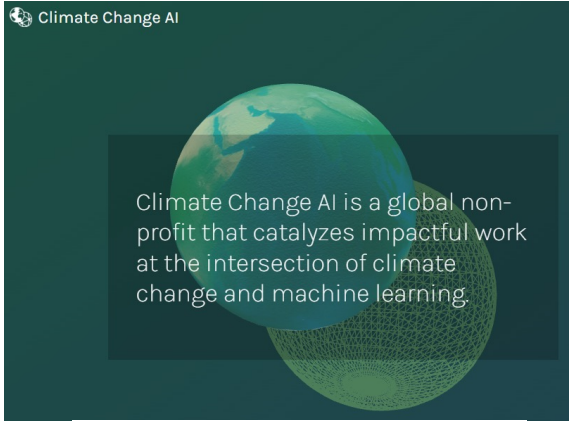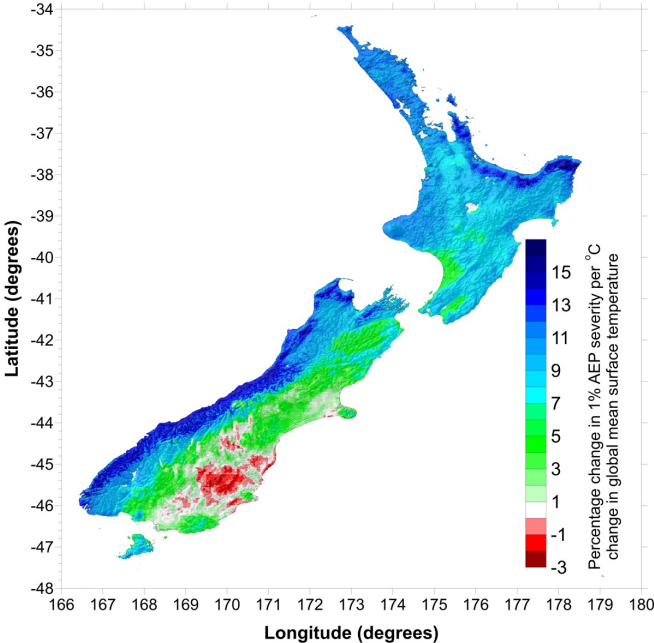
Greg Bodeker

greg@bodekerscientific.com