

A 3D bathymetric map of the Kaikōura Canyon, showing the rugged seafloor topography. The landmasses are colored in shades of green and brown, while the ocean floor is depicted in various shades of blue and white, indicating different depths and sediment types. The canyon itself is a deep, narrow feature extending from the coast into the open ocean.

Kaikōura Canyon

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National and International Team of Researchers

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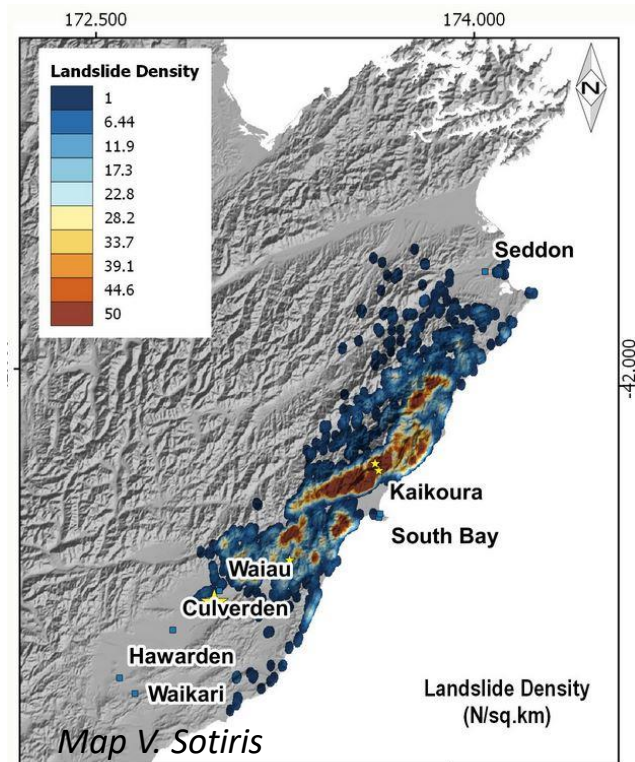
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- MPI – ZBD201611 (to NIWA for 1 day ship-time)
- Tangaroa Reference Group
- European Research Council (to University of Malta)
- NOAA Ocean Exploration (to NIWA and others)

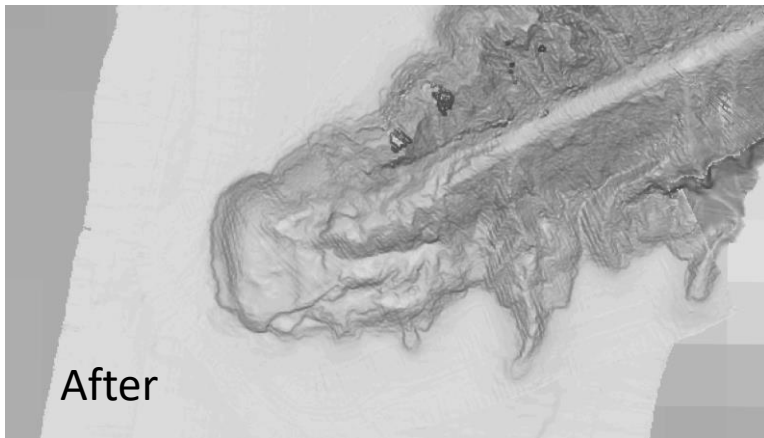
The Kaikōura Earthquake



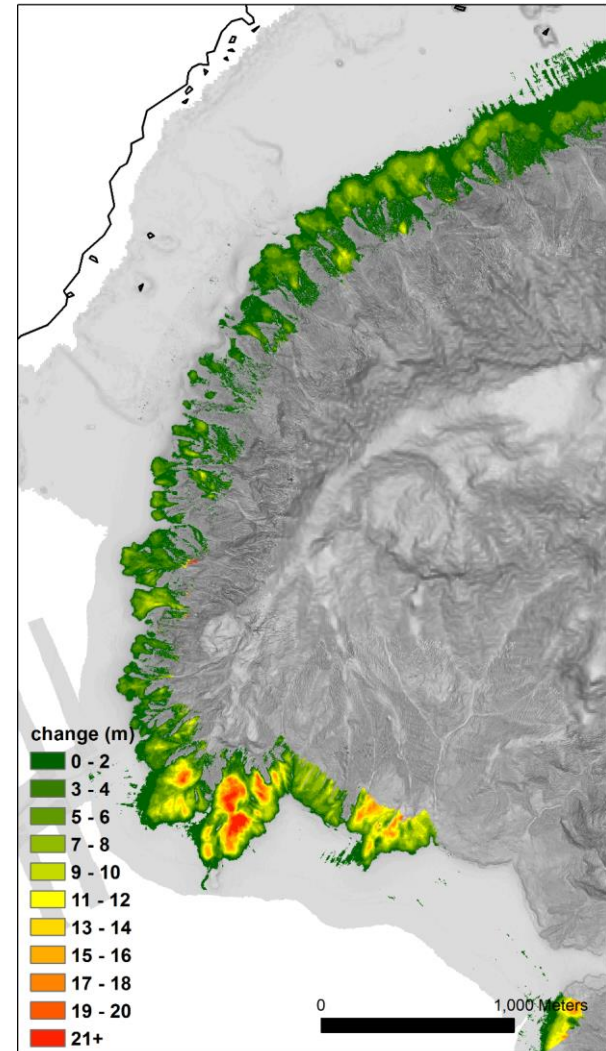
Submarine Landslides



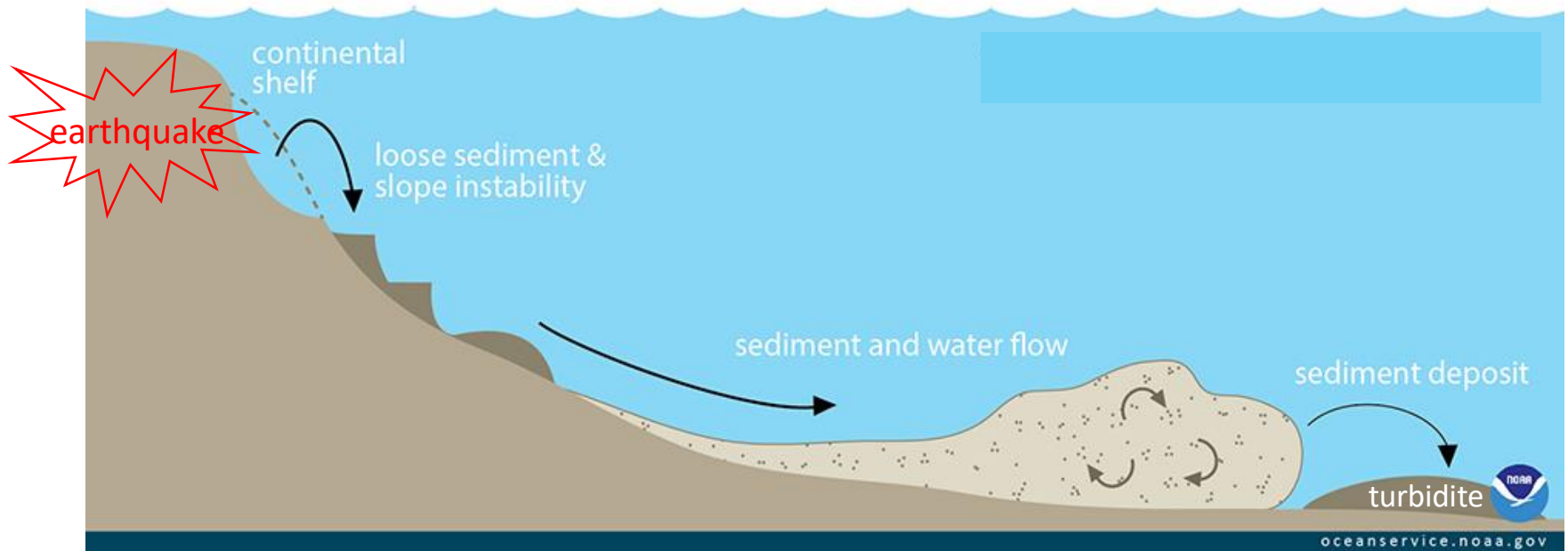
Before



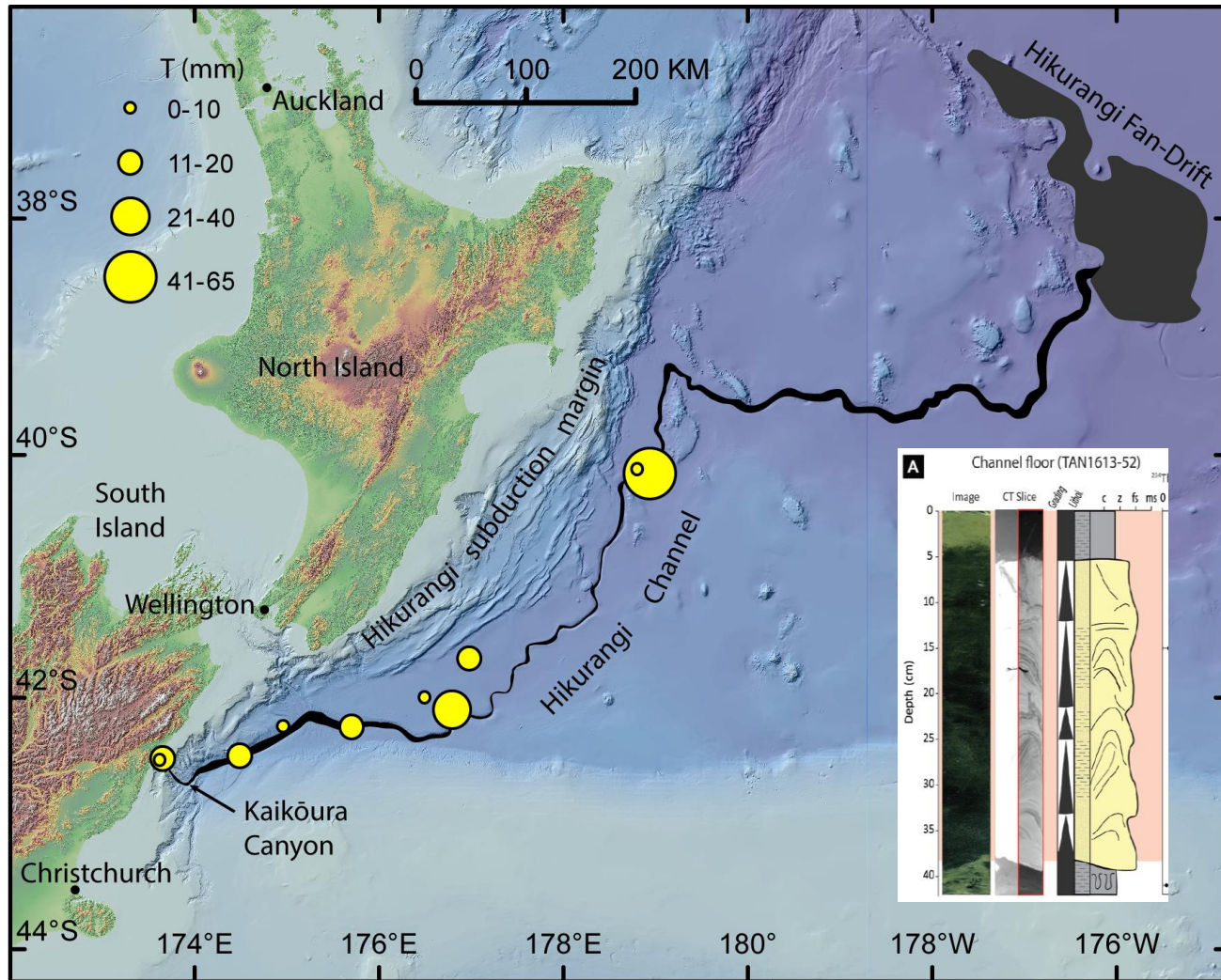
After



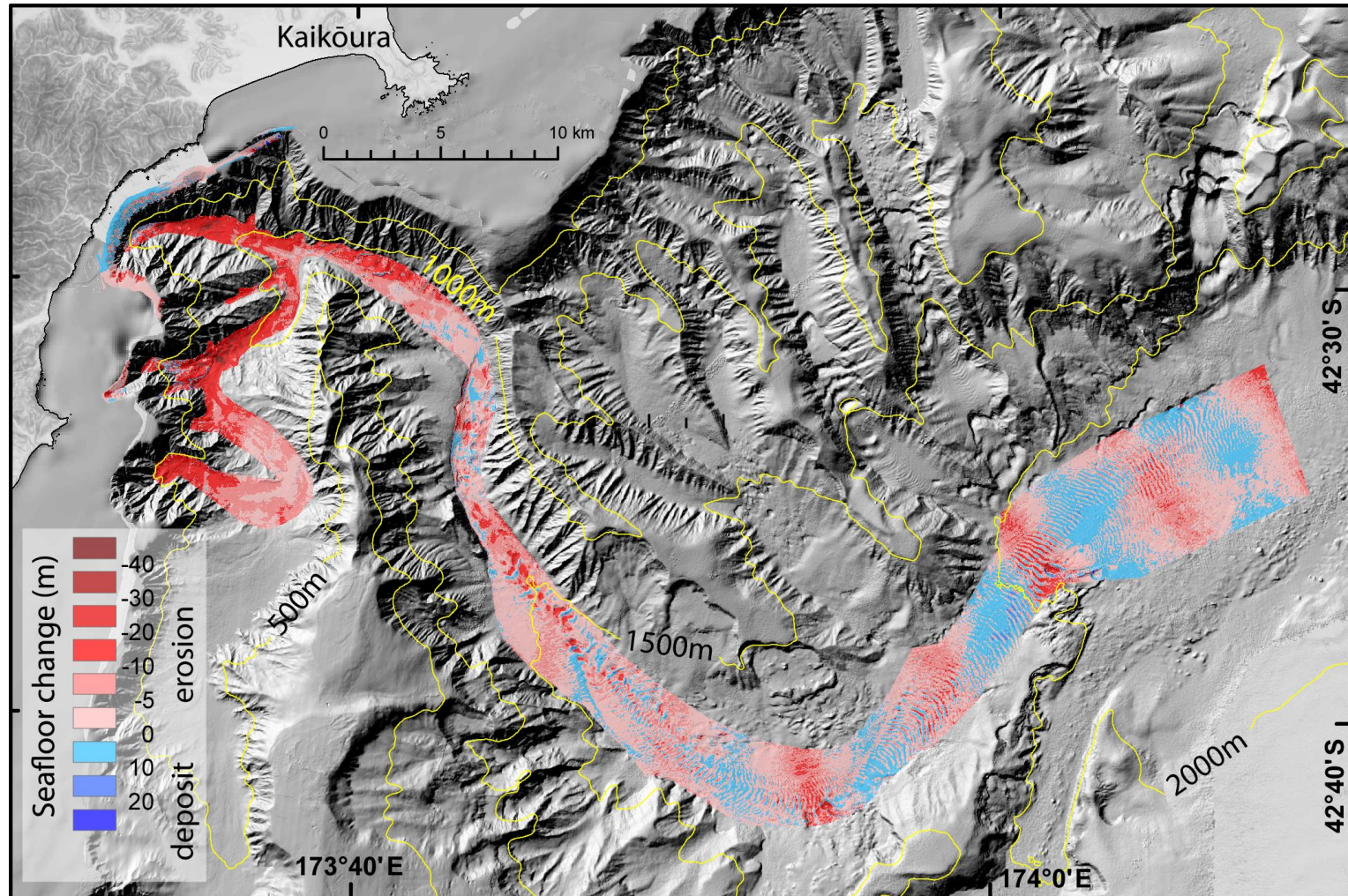
Slope Failure and Turbidity Current



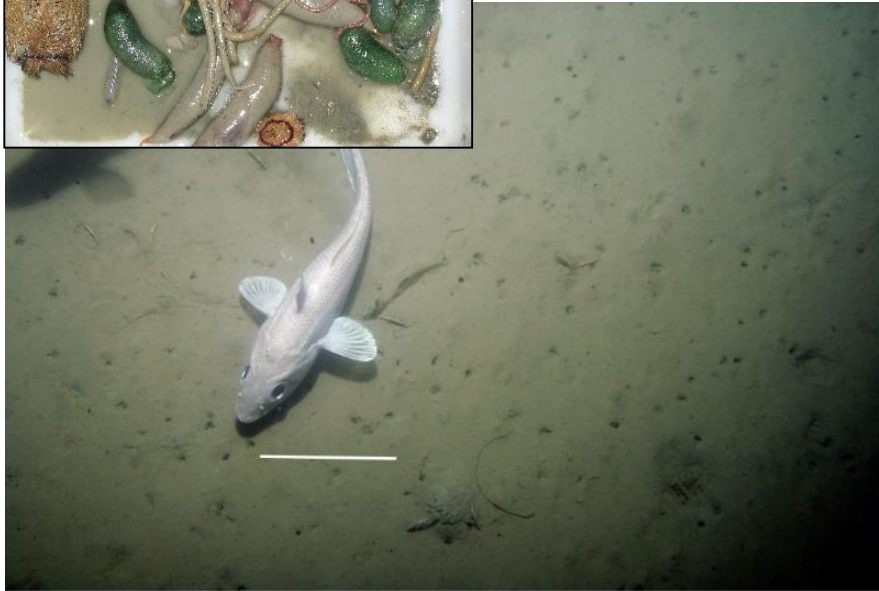
Turbidity current and Turbidites



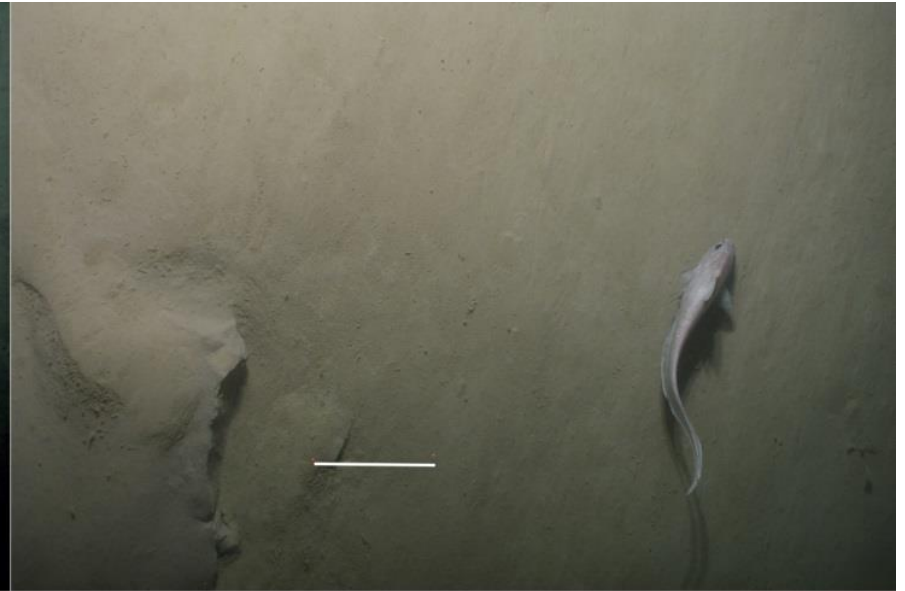
Sediment Erosion and Deposition in the Canyon



Impact on Seafloor Communities

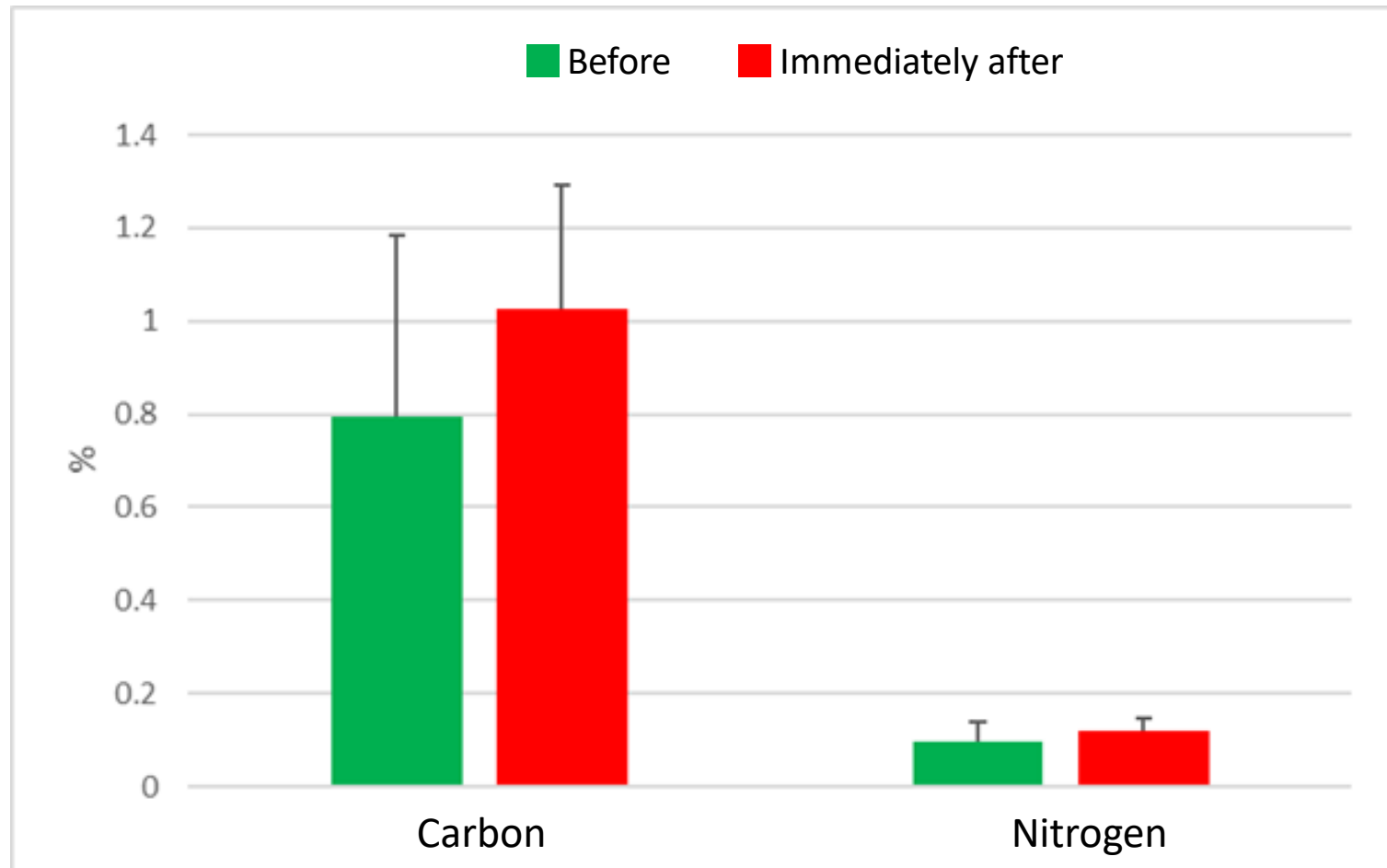


Before

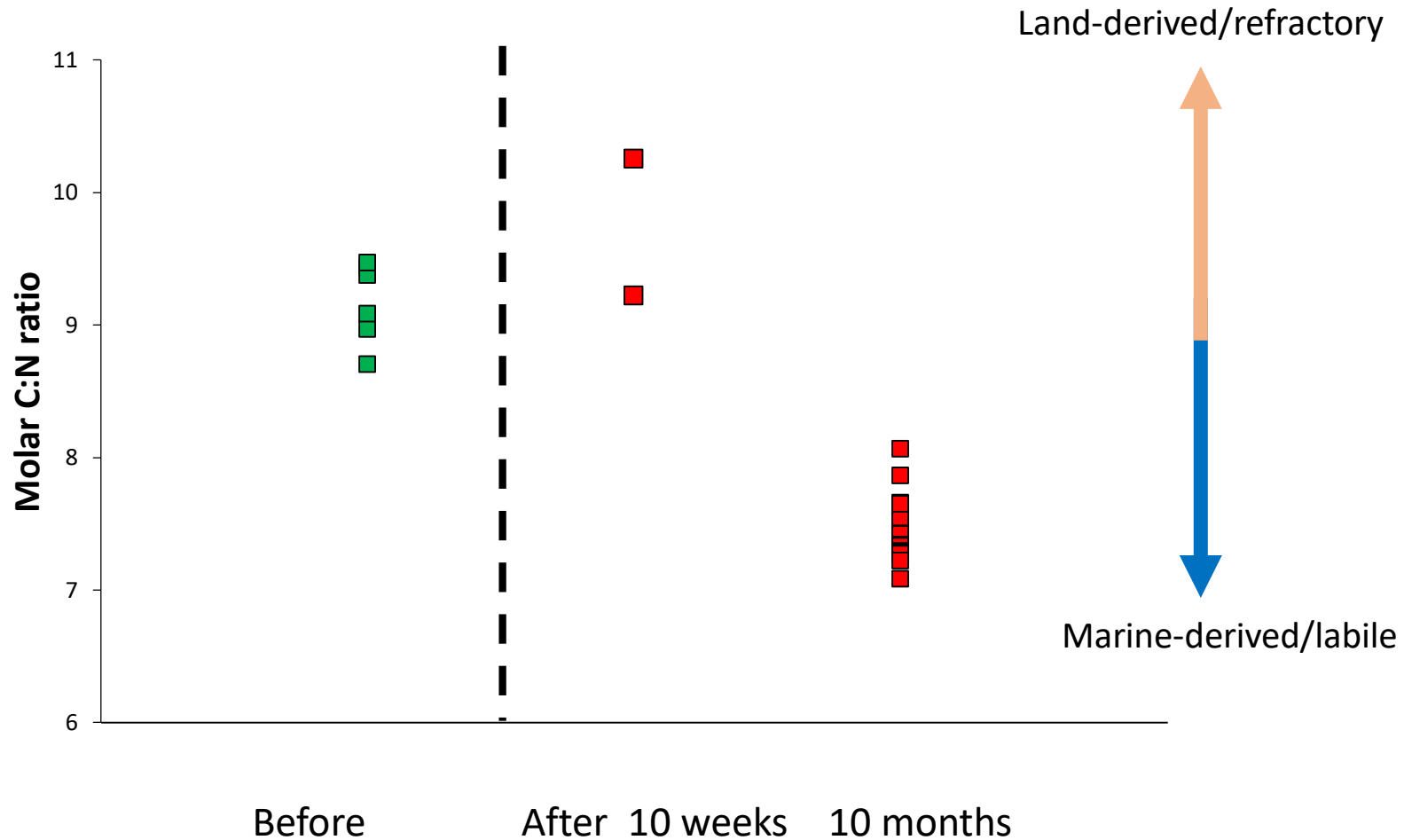


10 weeks after

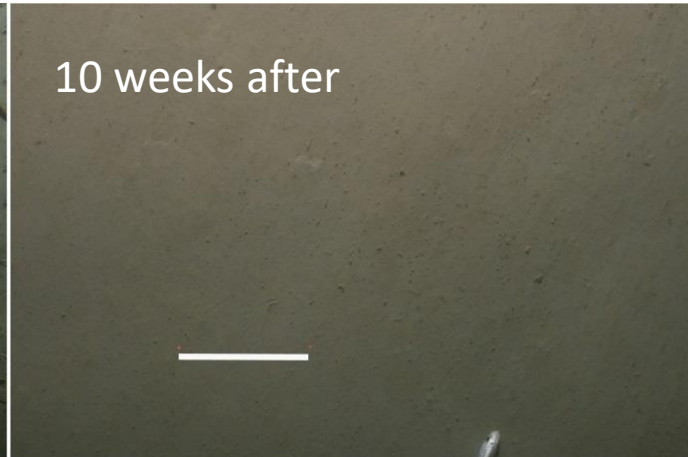
Organic Matter Transfer



Organic Matter Transfer



Recovery of Seafloor Communities



Key points

- The Kaikōura Earthquake triggered submarine landslides and a turbidity current that travelled more than 600 km
- 850 Mt sediment and 7 Mt carbon were exported to the deep ocean
- Some seafloor animal communities were initially wiped out
- These communities showed signs of recovery after 10 months, other communities might not recover to their original state, while others are apparently unaffected
- Earthquake-triggered canyon 'flushing events' are important natural structuring agents that can occur at intervals of approximately 140 years in the Kaikōura region

Future research

- Sampling processing
- Data analysis
- Repeat surveys and sampling
- Funding?

Thank you