FROM FIORDS to Antarctica

TRACKING CHEMOSYNTHESIS-DERIVED CARBON THROUGH REDUCED SEAFLOOR FOOD WEBS

1 WHAT ARE CHEMOSYNTHESIS AND METHANE SEEPS?

- Chemosynthetic microbes make organic matter using chemical energy, not sunlight
- Methane seeps are seafloor areas where methane-rich fluids or gas escape
- Reduced compounds, such as methane and sulphide, can fuel these microbes

THE BIG QUESTION

Can Fiordland help predict how Antarctic seep ecosystems will develop?

2 WHY CARE?

- New seeps are emerging in the Ross Sea, Antarctica
- They can affect the local ecosystem and global carbon cycle
- We still don't know much about them

TWO PLACES, ONE CONNECTION

FIORDLAND NEW ZEALAND

Large input of terrestrial organic matter can fuel chemosynthesis

ROSS SEA ANTARCTICA

New seeps are being discovered and mysteries remain

3 WHY FIORDLAND?

- Antarctica is remote and hard to study
- Fiords are glacier-carved systems at a later stage of glacial evolution
- Organic-rich sediments can create reduced conditions that support chemosynthesis

4 HOW CAN WE TRACE THE CARBON?

- Gather published food-web data from the literature
- Compare indicators such as stable isotopes, fatty acids, and biomass
- Look for chemosynthesis-derived carbon signals
- Identify patterns that may help predict Antarctic seep food webs

Did you know?

Fiords are shaped by glaciers, making them useful natural laboratories for studying how post-glacial seafloor ecosystems may develop

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