

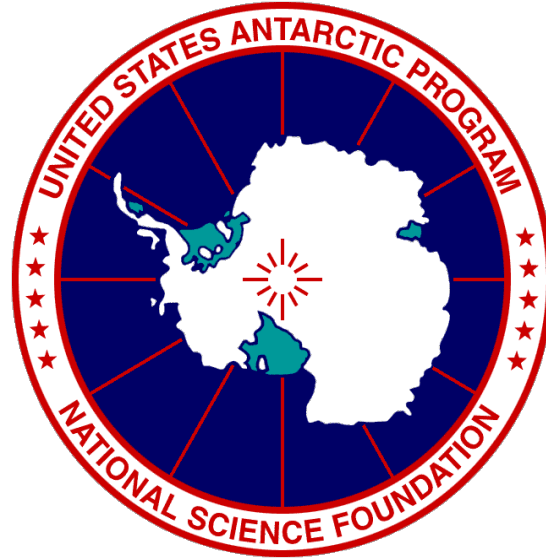


Antarctic Terrestrial Ecosystems

Byron Adams
Brigham Young University
Wilkes Climate Summit
May 16-17, 2023



Long Term Ecological Research Program (LTER)



Funded by the **National Science Foundation**
Supported by the **United States Antarctic Program**

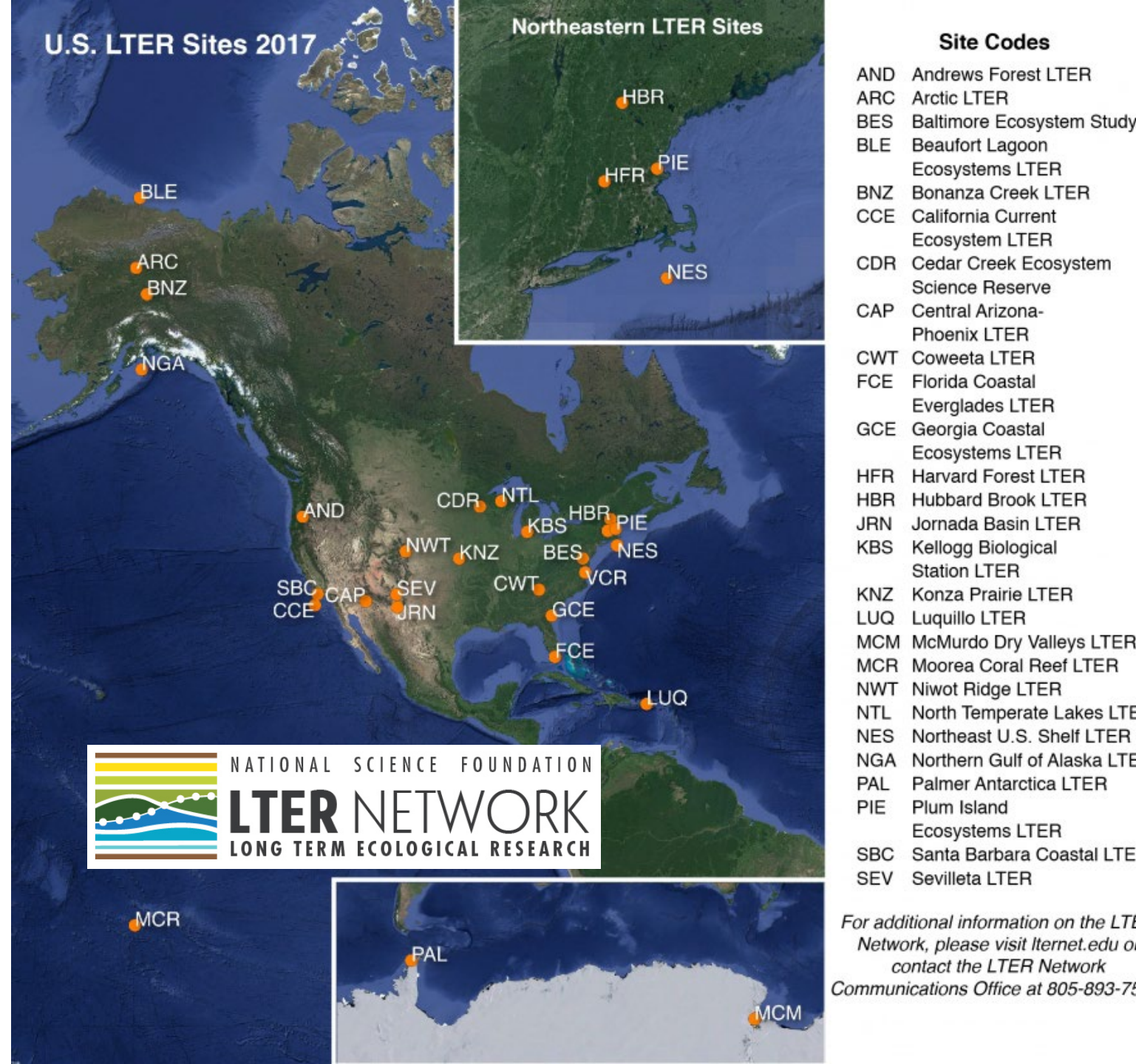


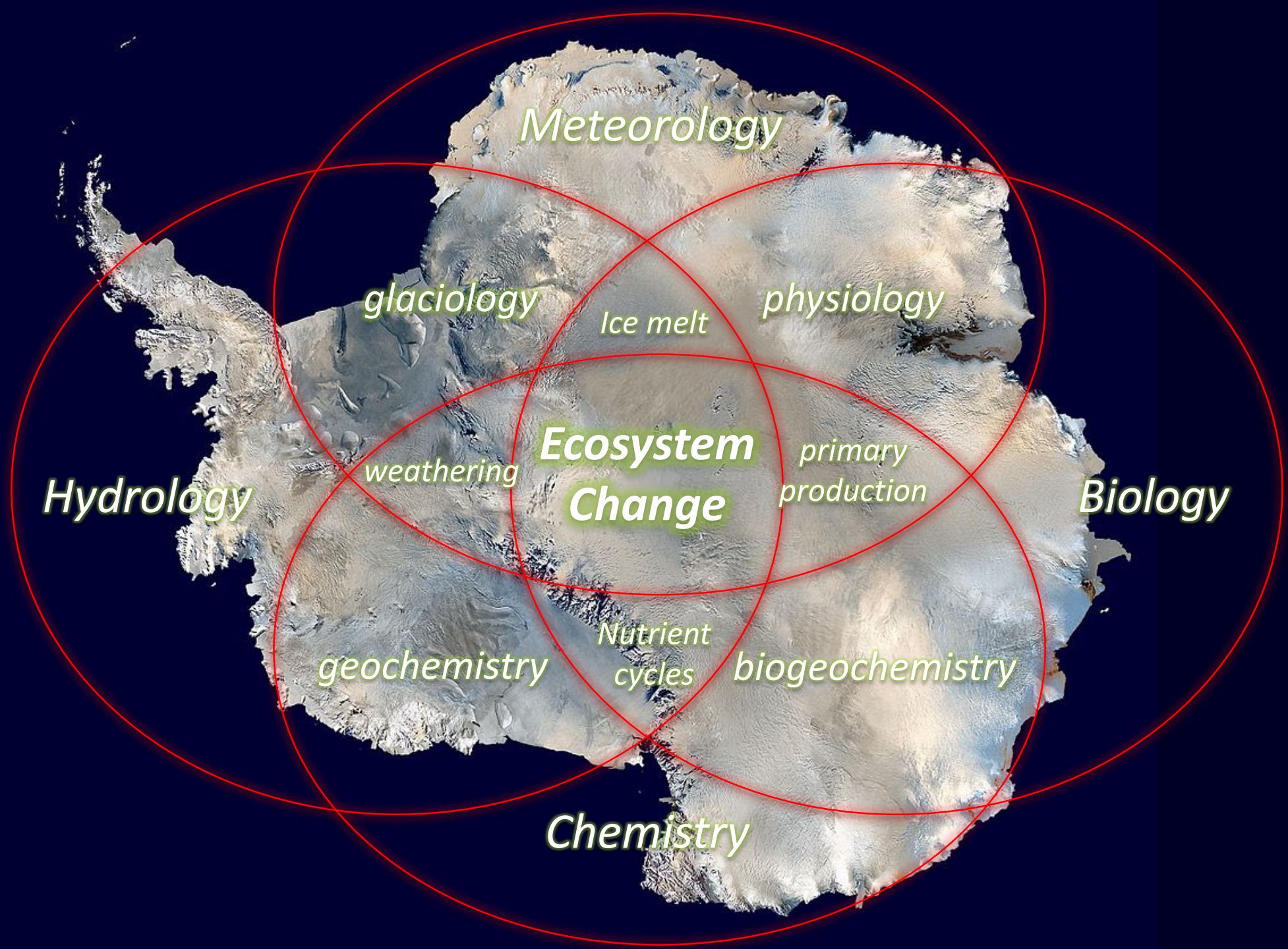
What is the **McMurdo LTER**?

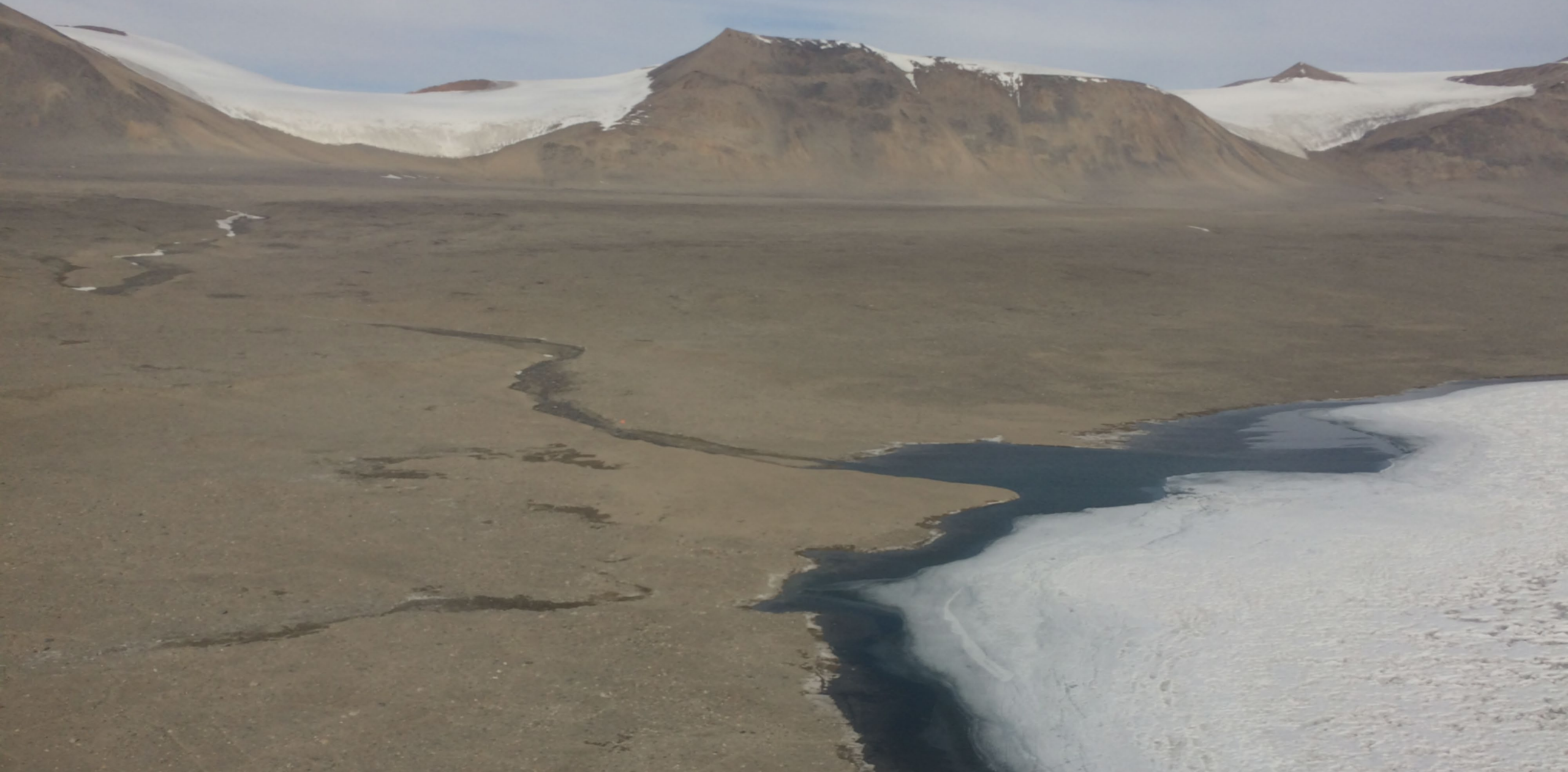
What is the McMurdo LTER?

Long-Term Ecological Research

- Science + Monitoring
- 6-yr grants
- Short and long-term perspectives
- Network → synthesis

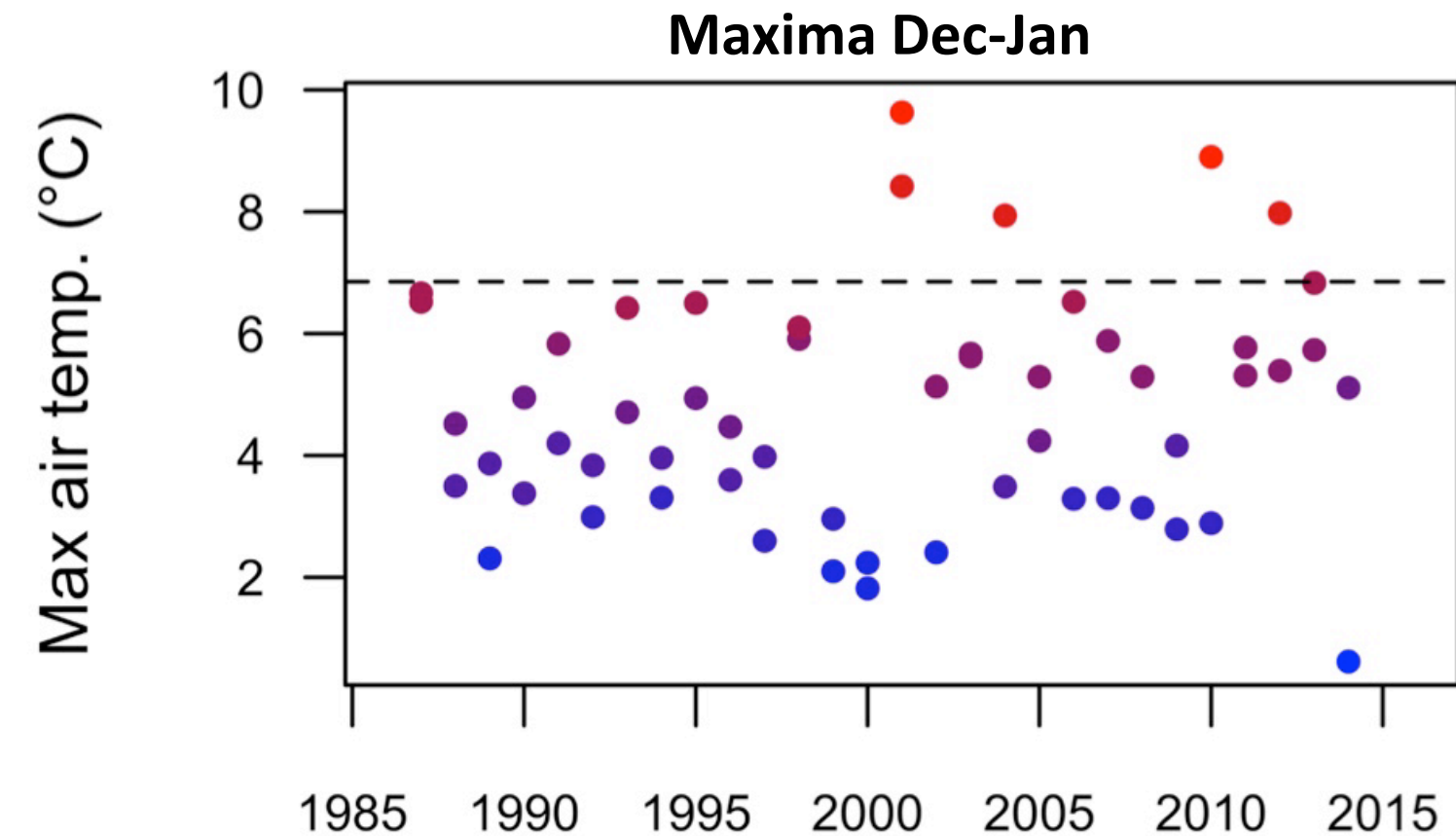






The Dry Valleys have entered a new climatic phase

More frequent “heat waves” and pulses of water availability





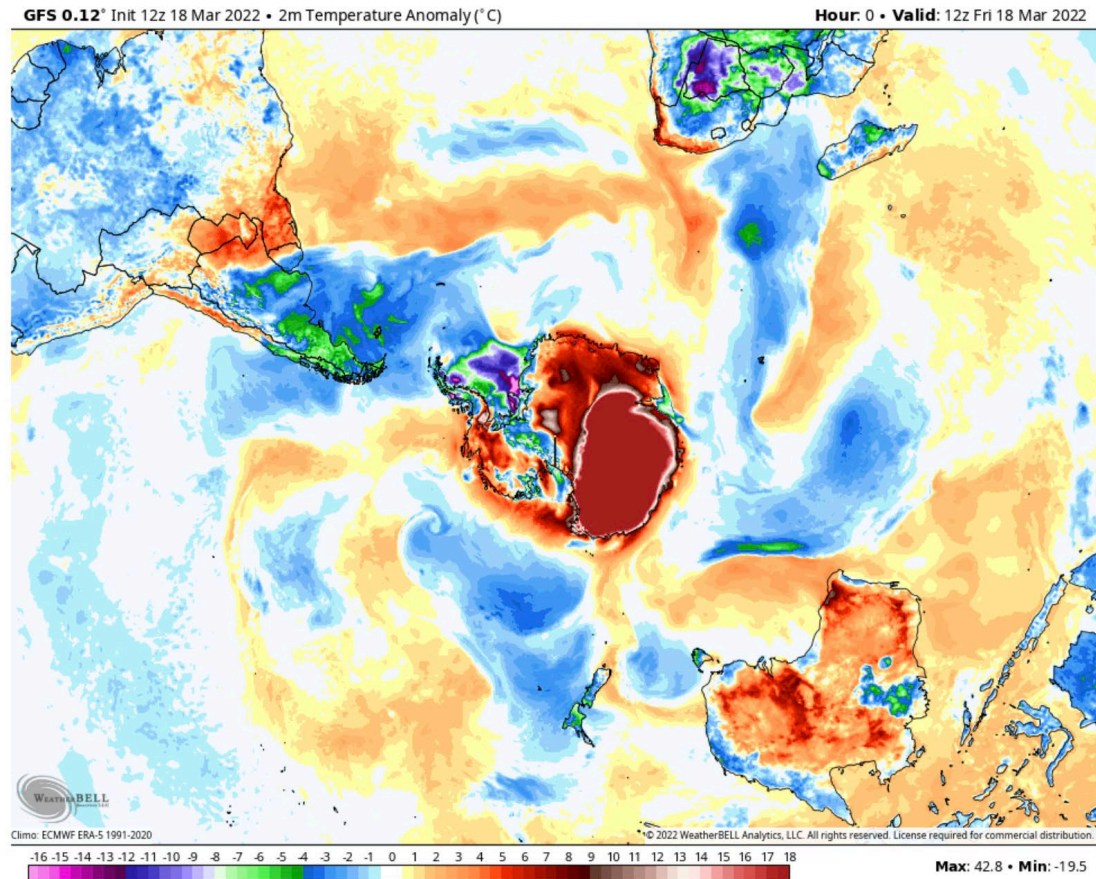
CAPITAL WEATHER GANG

It's 70 degrees warmer than normal in eastern Antarctica. Scientists are flabbergasted.

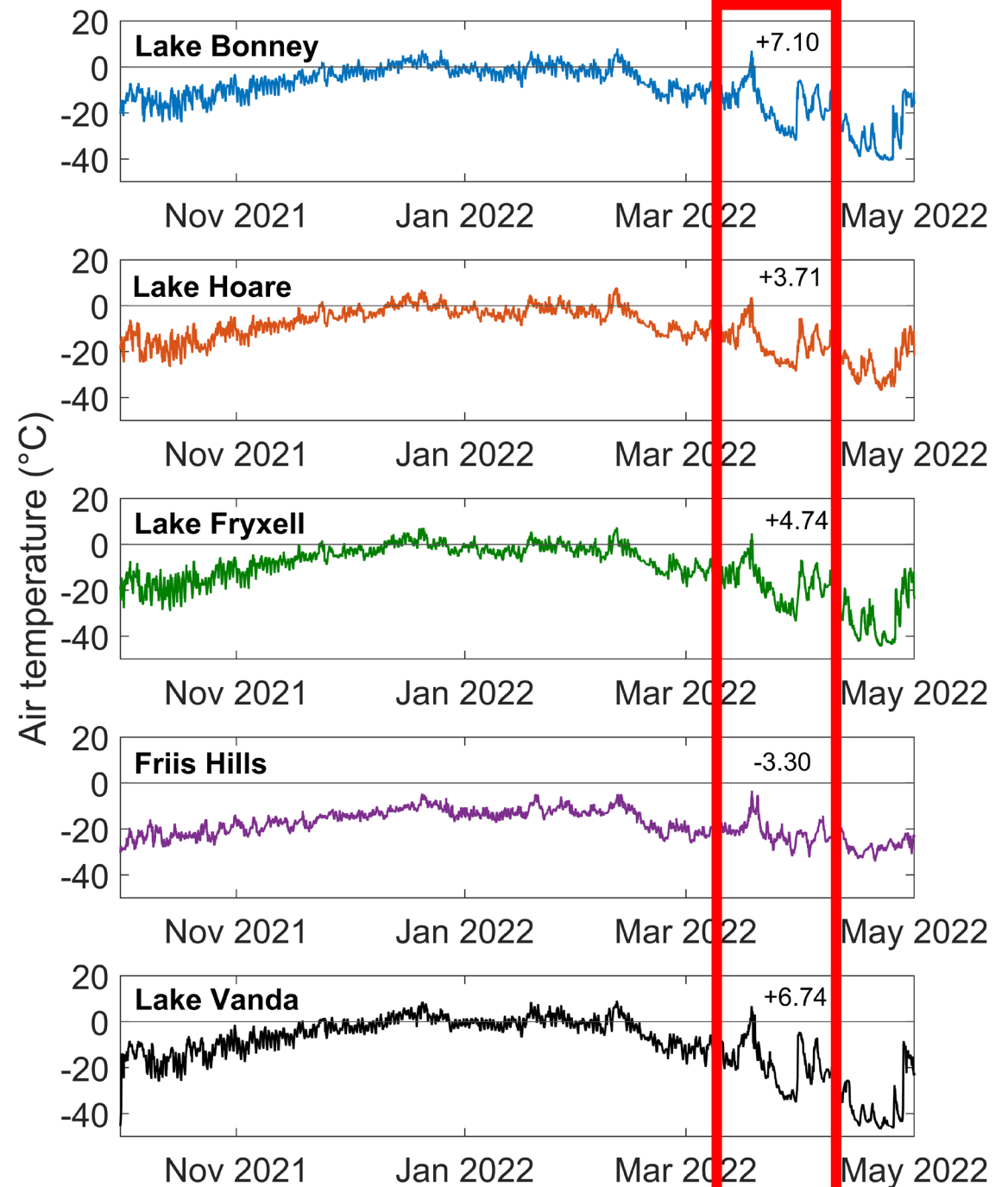
'This event is completely unprecedented and upended our expectations about the Antarctic climate system,' one expert said

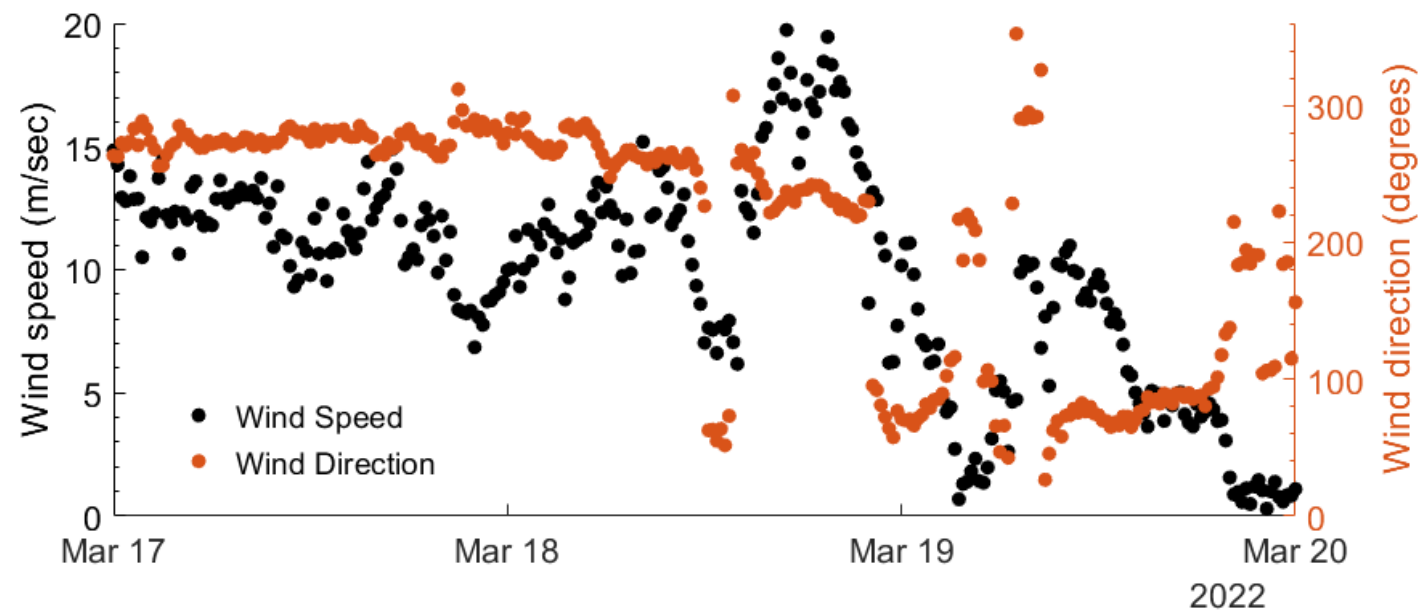
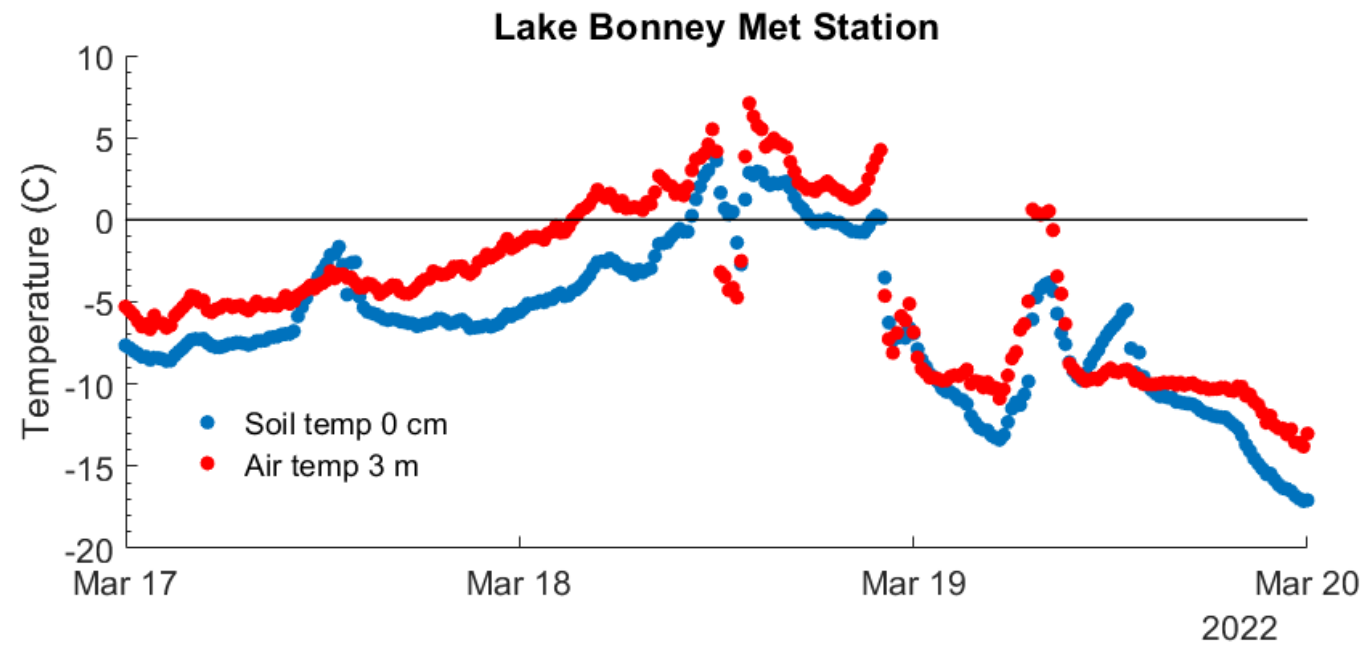
By [Jason Samenow](#) and [Kasha Patel](#)

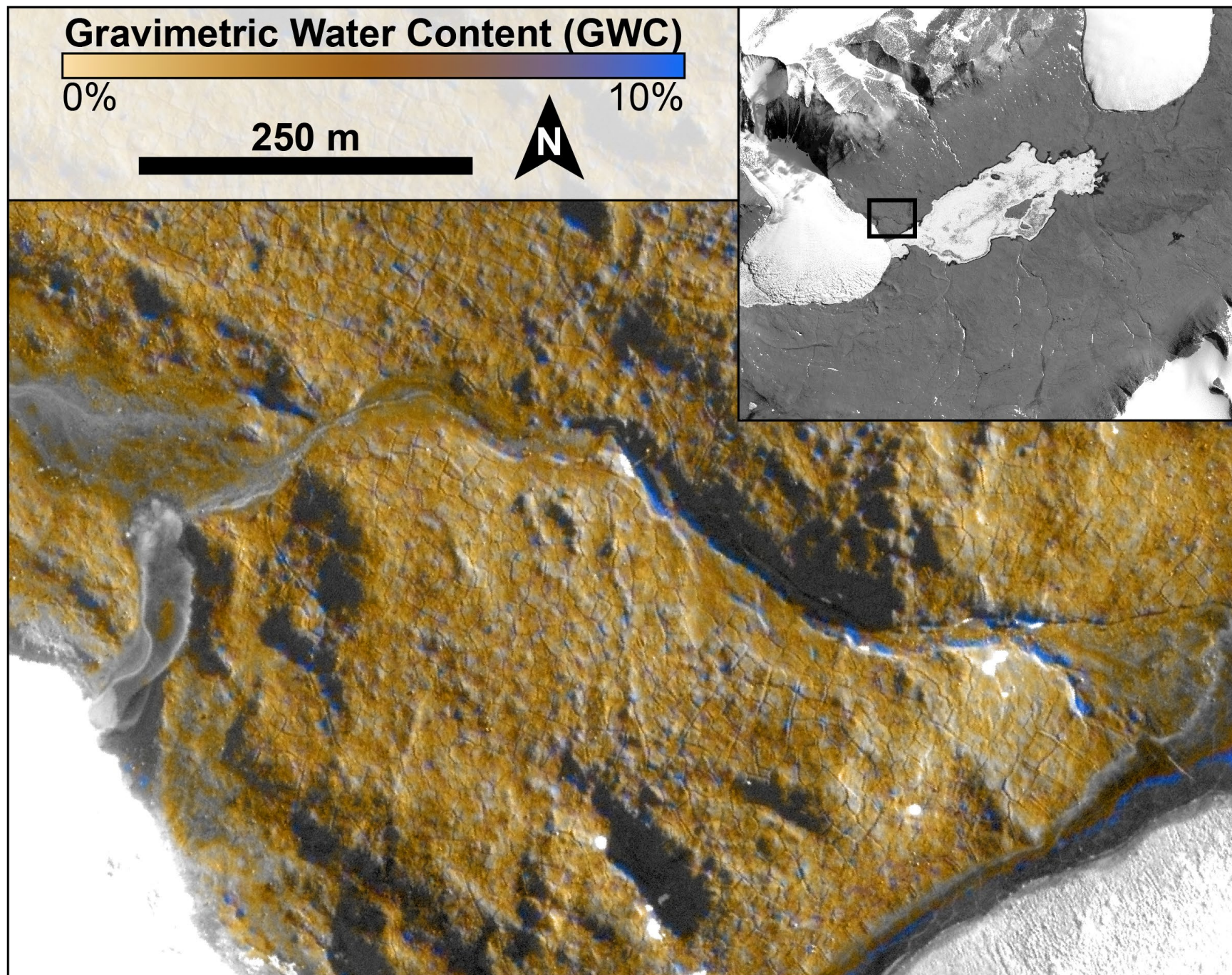
March 18, 2022 at 5:06 p.m. EDT



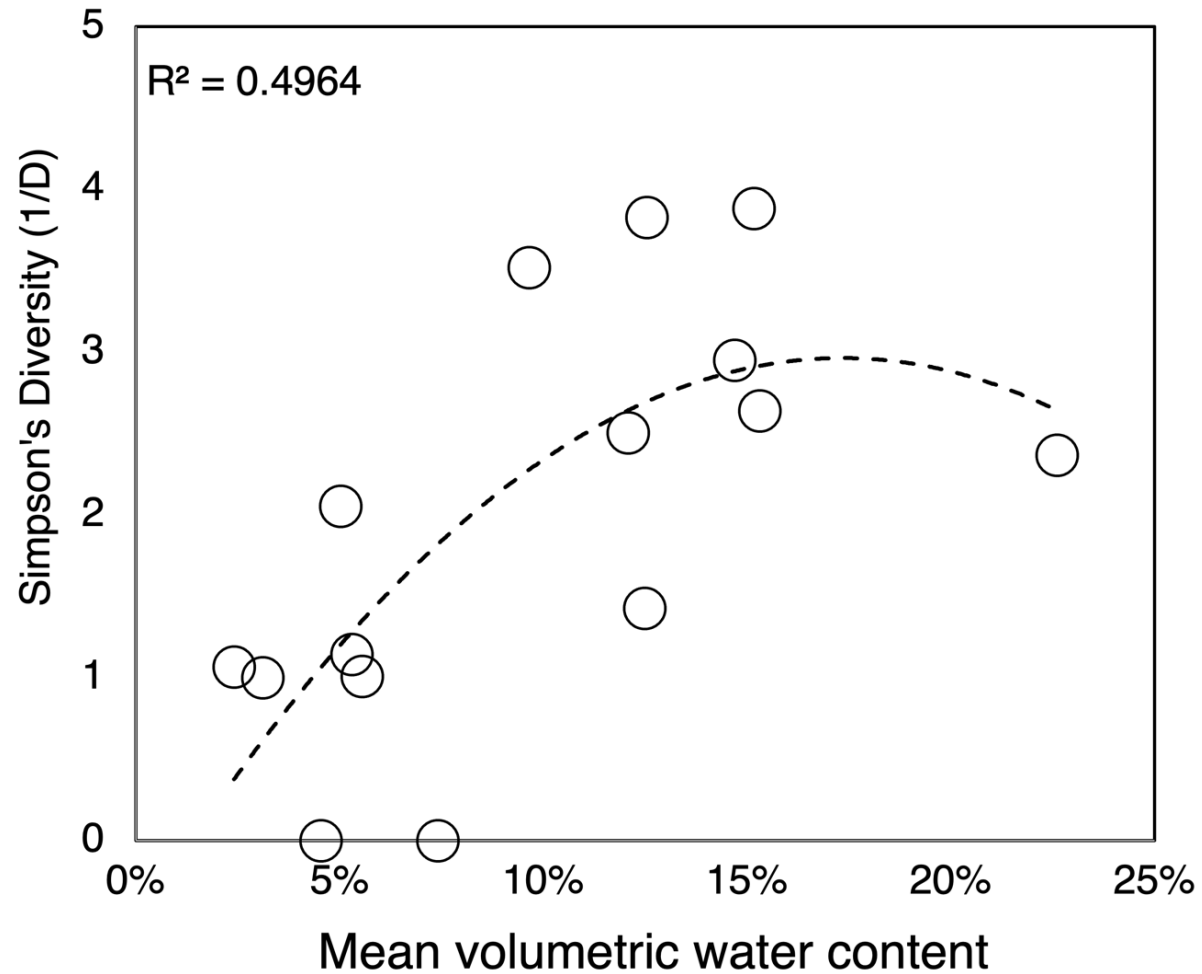
Simulation of temperature differences from normal centered over Antarctica from the American (GFS) model. (WeatherBell)





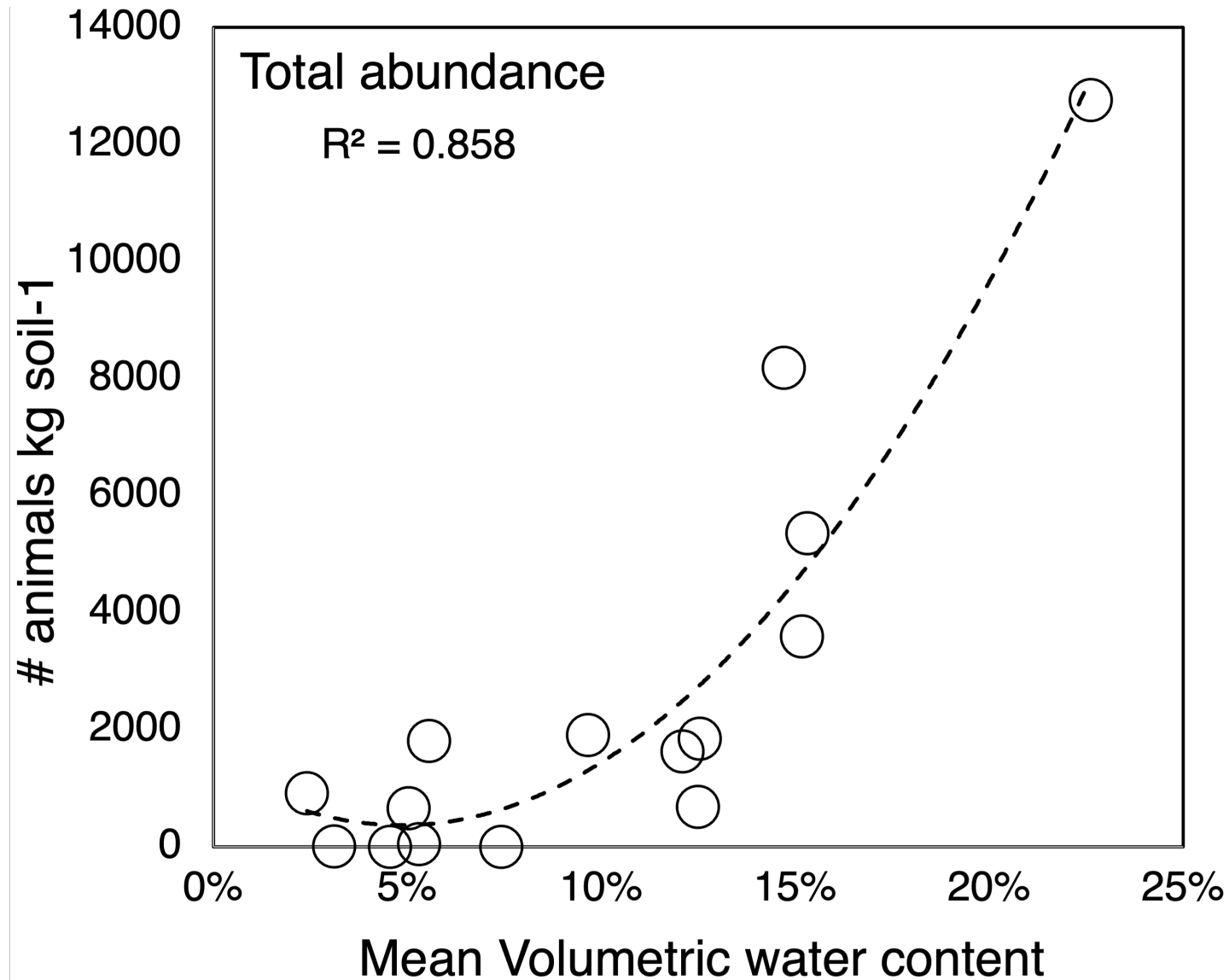


March 20, 2022
WordView-2
DigitalGlobe.



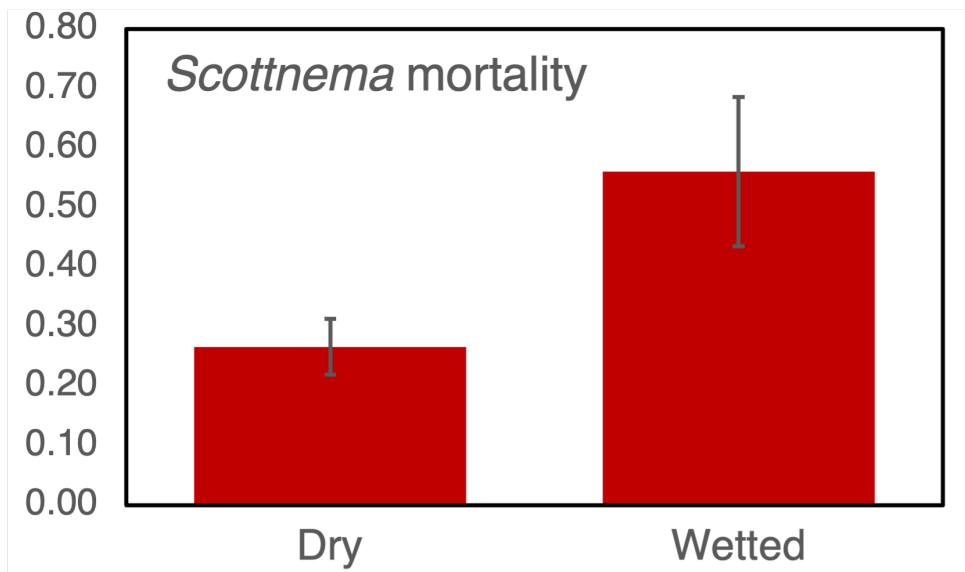
Simpson's Diversity (1/D) for soil and sediment invertebrate communities in the Canada Stream Antarctic Specially Protected Area.

Invertebrates typically revive from anhydrobiosis in soils above 10% soil water content typically, as was observed following the March 18th weather anomaly.

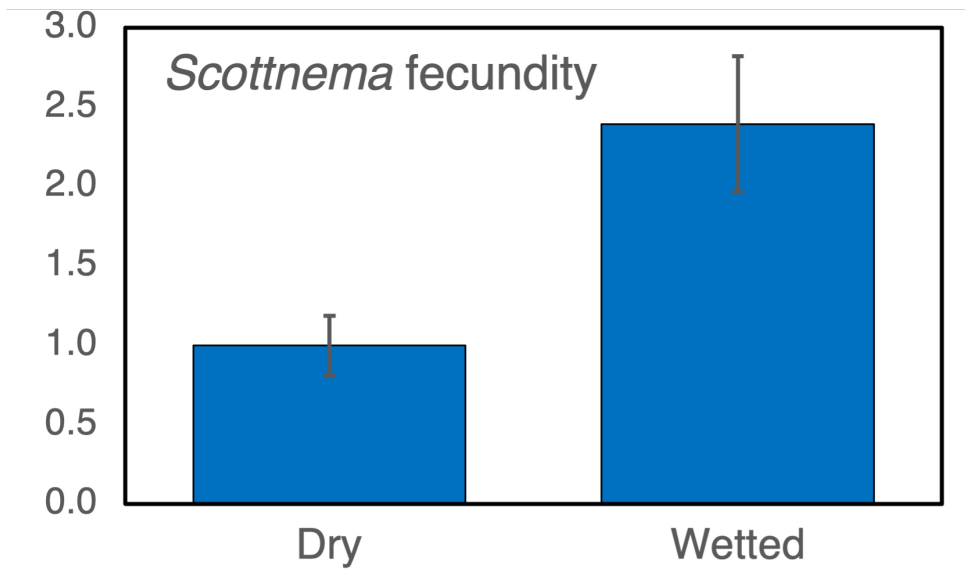


Total invertebrate abundance for soil and sediment invertebrate communities in the Canada Stream Antarctic Specially Protected Area.

Invertebrate abundance increased following the March 18th weather anomaly.



Warming event resulted in significant mortality



.... but also increased fecundity