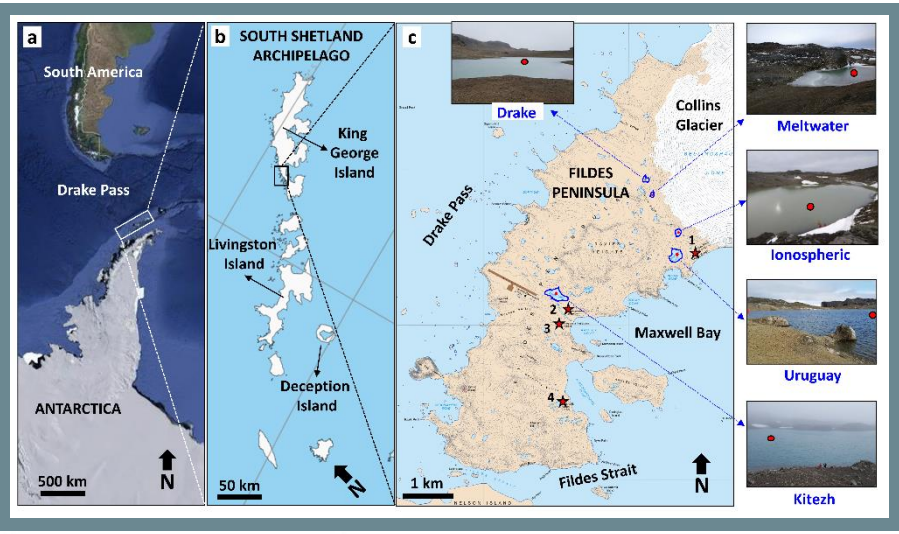
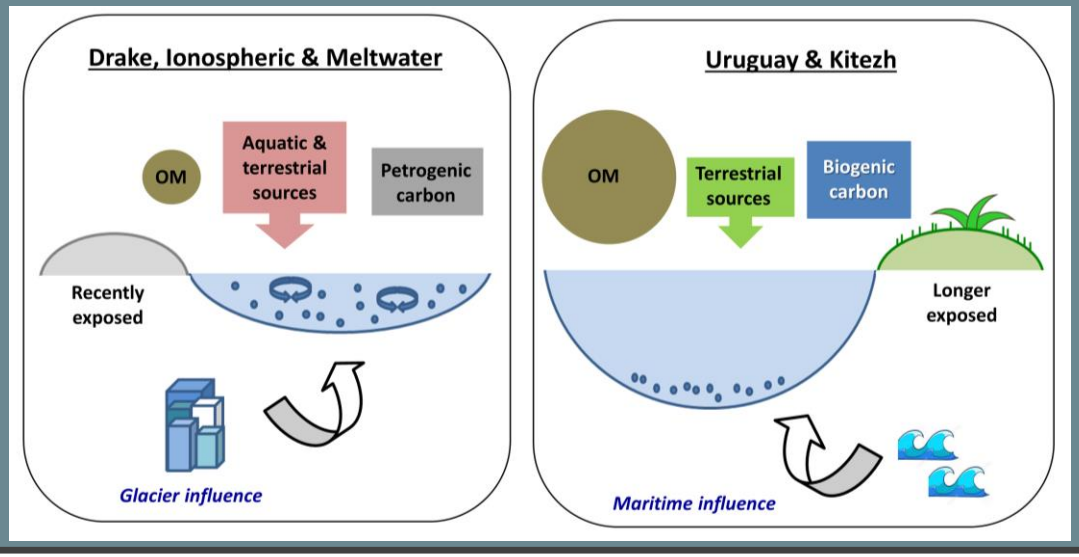
Discriminating sources and preservation of organic matter in surface sediments from five Antarctic lakes in the Fildes Peninsula (King George Island) by lipid biomarkers and compound-specific isotopic analysis





Lakes are important paleoenvironmental archives retaining abundant information due to their typical high sedimentation rates and susceptibility to environmental changes.

Antarctica is one of the most susceptible areas to climate and environmental changes due to the vast extensions of permanent ice, yet the most remote and unexplored continent on Earth.

A **biogeochemical** characterization of recent sediments from five glacial lakes in the Fildes Peninsula (Maritime Antarctica) were performed by combining bulk geochemistry and mineralogy with the use of lipid biomarkers and (bulk and compound specific) stable isotopic analysis.

Terrestrial lipid biomarkers were detected in all lakes, **aquatic-source** indicators were relatively abundant in mid-size lakes near the glacier. Biogenic carbon was dominant in deep lakes whereas petrogenic carbon in shallow lakes.
Distance to Collins Glacier, proximity to coast and lake depth are determinant factors in the biogeochemical signature.

The combination of lipids biomarkers, compound-specific isotopic analysis and bulk geochemistry allow us to reconstruct paleoenvironments and study **climate-sensitive regions**.

CREDIT: CAB (INTA-CSIC), MINECO/FEDER, IAU.

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