Imaggeo on Mondays: An iceberg-sized issue
https://blogs.egu.eu/geolog/2019/02/04/imaggeo-on-mondays-iceberg-sized-issue/

This was taken during a study, undertaken by me and my colleagues, on the sea ice of McMurdo Sound, Antarctica. We designed the project to document how supercooled water carrying suspended ice crystals flows along its pathway towards the open ocean. Ultimately, this work aims to assess the Ross Ice Shelf's contribution of local melt to the long-term trend of increased sea ice cover around Antarctica – a signal which has been dominated by expansion in the Ross Sea.

However, over the winter prior to the field season an iceberg, 12 kilometres long and 1 kilometre wide that had calved from the Ross Ice Shelf, grounded itself across the middle of our intended study region. This created a significant constriction to the flow, as the iceberg forced the approximately 30 km-wide plume to squeeze into half of that space.

We quickly modified the objectives for the field season to take advantage of this, adding an element focusing on the fluid dynamics of accelerated large-scale flow around the tip of the iceberg, and another on the thermodynamics of the supercooled plume interacting with a deep wall of ice. These adjustments to our study required drilling several holes through the sea ice along lines that approached the iceberg from two different directions to collect the necessary oceanographic data.

The iceberg towers about 40 m above the frozen sea surface, with our field support team providing scale as they scope a route of safe approach. However, hidden from sight by the sea ice, the iceberg stretches a further 170 m below the surface to the point where it is grounded on the seafloor.

Conducting field science in Antarctica requires being able to adapt to a dynamic environment. In this case, our flexibility was rewarded with a unique data set – essentially a laboratory study in fluid mechanics on a real-world scale.

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