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Global deep waters: what we know, what we know we do not know, and what we should do about it

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Deep water masses are the driver of the global ocean circulation, critical for transporting oxygen and nutrients throughout the water column, and a crucial mitigator of current climate change. They are also notoriously hard to observe: they form in winter in ice-infested areas, and then travel around the globe too deep for most autonomous instruments to monitor them. Therefore, although they represent at least half of the ocean volume, we still know very little about their circulation and variability.

What we do know is that they are already changing, much faster than expected.

From a ship in the Southern Ocean to models in the Arctic, I will share with you my obsession for these fascinating deep waters; highlight the blind spots that remain; and describe recent and upcoming deep-water-targeting projects that get me excited.