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## A Lagrangian study on the structure and pathways of the Irminger Current

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The Irminger Current (IC), located over the western flank of the Reykjanes Ridge, is a contributor to the northward volume transport related to the Atlantic Meridional Overturning Circulation.

Previous studies showed that the IC is associated with a region of enhanced eddy kinetic energy. Using high-resolution mooring data from 2014–2020 combined with satellite altimetry, a strong intensification in volume transport of the IC in August 2019 could be attributed to the presence of mesoscale eddies in the vicinity of the moorings. At this time, altimetry showed an anticyclone lingering next to a cyclone in the mooring array, which intensified northward velocities within the IC. This example shows that mesoscale variability can directly impact the transport variability of the IC.

Further research presented here uses the high-resolution model POP (Parallel Ocean Program,  $1/10^\circ$ ) to investigate the pathways of the IC up- and downstream of the mooring array. Here, the focus lies on determining the origin of waters feeding the IC and the role of mesoscale eddies in shaping the current and its pathways using Lagrangian particle tracking with the Ocean Parcels software. First results from a backtracking experiment reveal different origins for the water masses feeding the respective cores of the IC. Waters of the eastern core mostly originate from the eastern side of the Reykjanes Ridge. The western core appears to contain a substantial amount of waters from the interior Irminger Sea that partly recirculate from the Labrador Sea.

### Topic

Value of AMOC observing –what have we learned?

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