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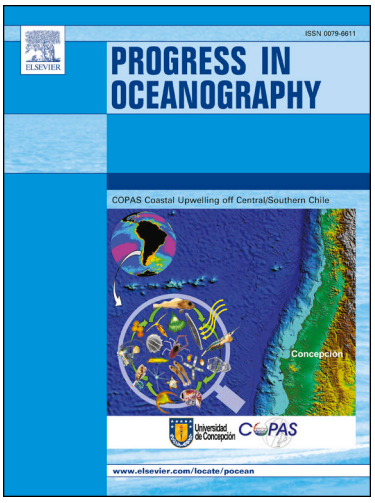

Increases in the Pacific inflow to the Arctic from 1990 to 2015, and insights into seasonal trends and driving mechanisms from year-round Bering Strait mooring data

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Increases in the Pacific inflow to the Arctic from 1990 to 2015, and insights into seasonal trends and driving mechanisms from year-round Bering Strait mooring data

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Highlights: 3-5 pots, each max 85 characters

The Bering Strait inflow to the Arctic increased from 2001 (~0.7Sv) to 2014 (~1.2Sv)

This is due to increasing far-field, pressure-head forcing, not local wind changes

Concurrently heat and freshwater fluxes strongly increased (3-5x10^{20}J, 2300-3500km^3)

Seasonal data show winter freshening, pre-summer warming, summer/fall flow increase

A new climatology (1Sv) for the strait, including seasonality for heat and freshwater

Keywords:

Water currents

Water properties

Annual variations

Seasonal variations

Arctic Freshwater

Arctic heat

Regional index terms: Arctic Ocean, Pacific Ocean, Chukchi Sea, Bering Sea, Bering Strait

Abstract:

Year-round *in situ* Bering Strait mooring data (1990-2015) document a long-term increase (~0.01Sv/yr) in the annual mean transport of Pacific waters into the Arctic. Between 2002 and 2015, all