

SILL DYNAMICS IN THE CENTRAL CANADIAN ARCTIC ARCHIPELAGO

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A conduit for Arctic water outflow

Rationale

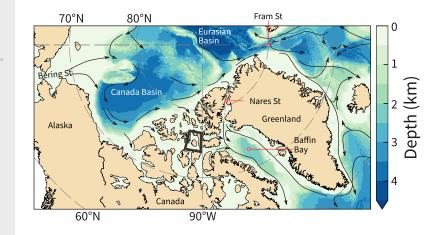
Method

- The MVP
- Survey summar

Results

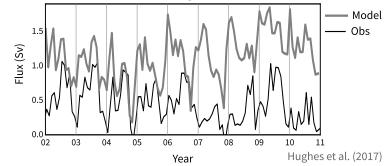
- T–S transition Northern influenc
- Energy budget

Open questions



Large-scale flow estimates disagree

Volume flux through Barrow Strait



Rationale

Metho

Survey summa

Results

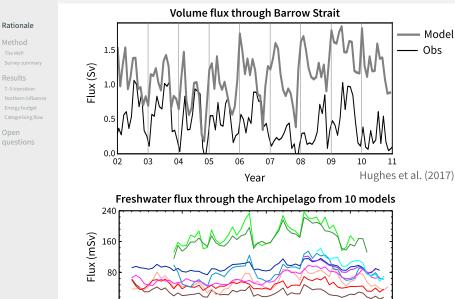
T–S transition

Energy budget

Categorising flow

Open auestion:

Large-scale flow estimates disagree



1980

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1960

Jahn et al. (2012)

2000

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Open question:

Ice conditions indicate strong mixing

May 3



NASA Worldview

Rationale

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Ice conditions indicate strong mixing

June 3



NASA Worldview

Mixing alters circulation

Rationale

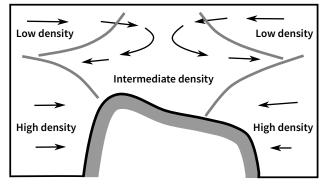
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After Valle-Levinson et al. (2001)

The MVP: moving vessel profiler

Rationale

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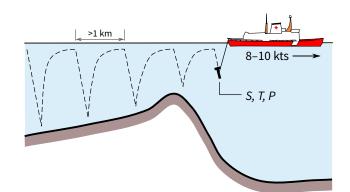
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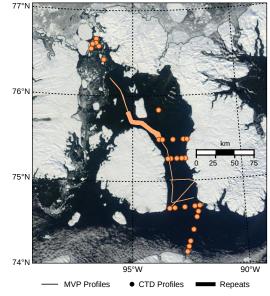
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NASA Worldview

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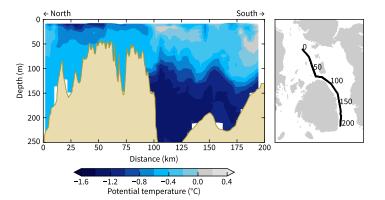
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An abrupt transition in properties



Rationale

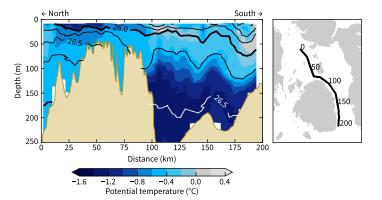
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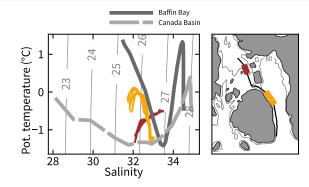
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An abrupt transition in properties



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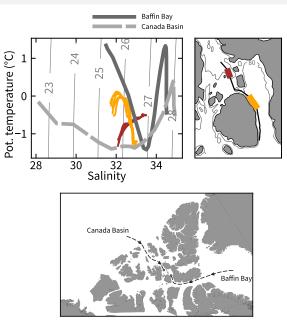
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How much influence do northern waters have?

Influence of northern waters

Rationale

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Influence of northern waters

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Influence of northern waters

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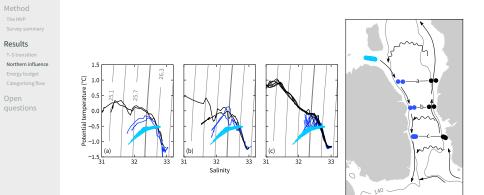
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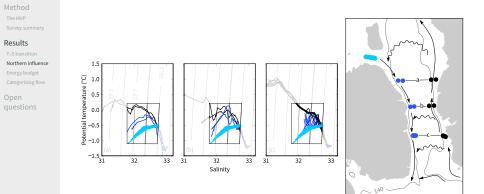
Open question



Influence of northern waters



Influence of northern waters



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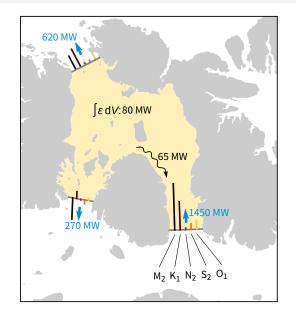
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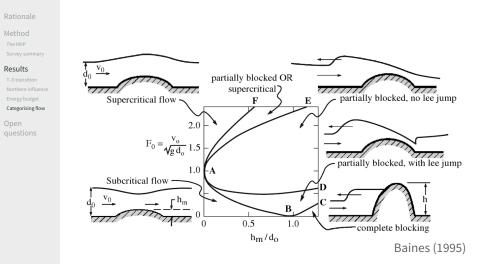
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Can we explain the tidal dissipation?



Flow state depends on the Froude number



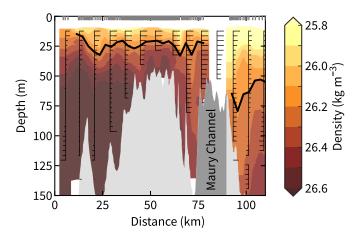
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A jump during strong tidal flow



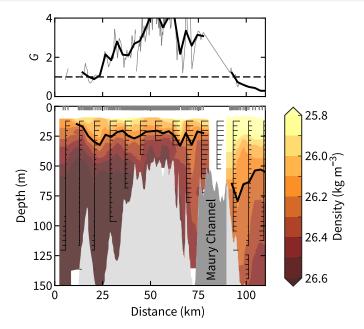
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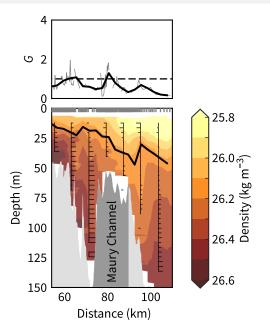
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No transition later in the tidal cycle



Open questions

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• Tidally averaged behaviour

- Eddy generation
- Critical latitude

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