

Sea Surface Salinity Variability in the Gulf of Anadyr, Bering Sea

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Jung et al., 2026, JGR: Oceans



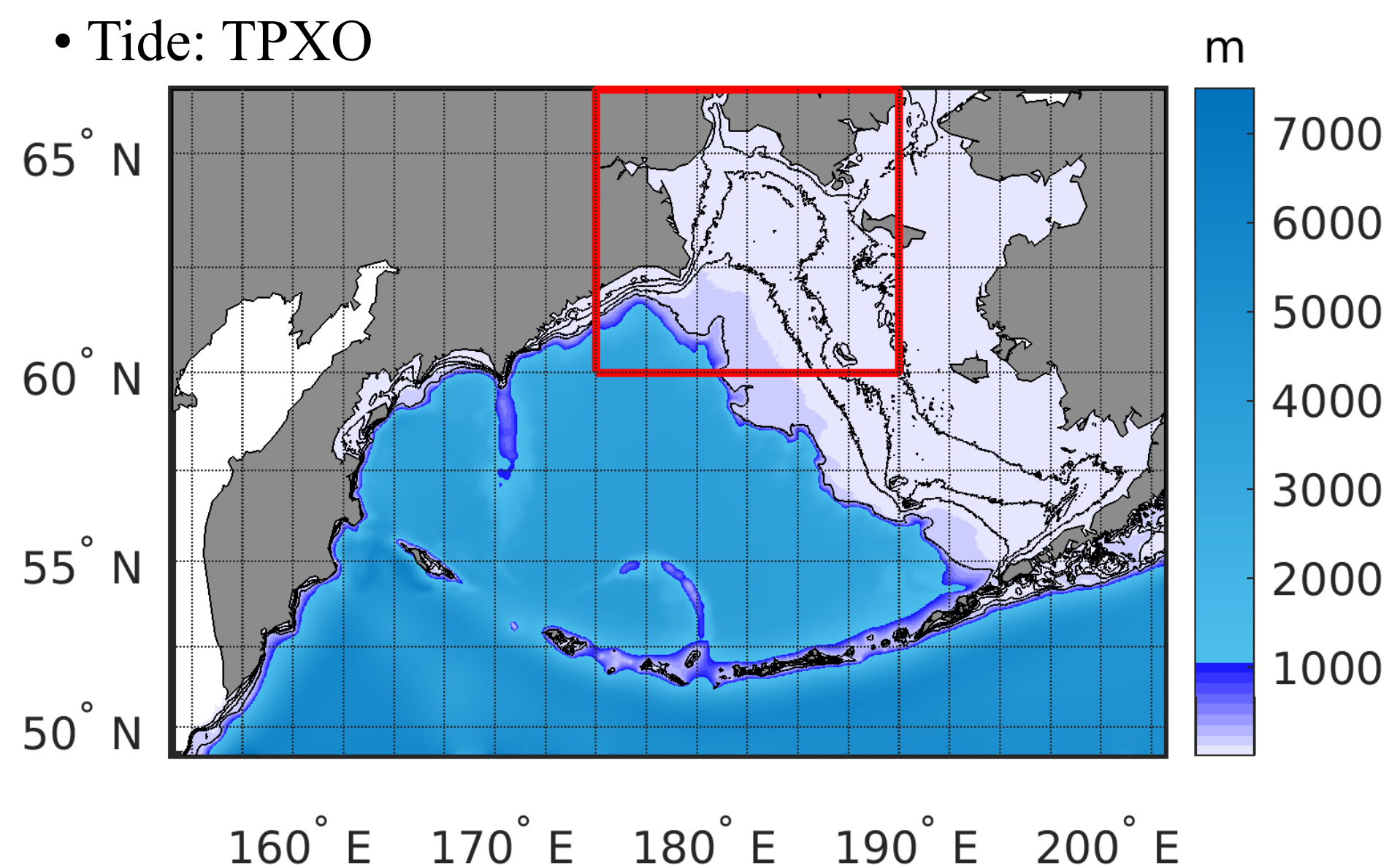
Goals and finding

- Demonstrate the capability of satellite-derived SSS products to capture seasonal and interannual variability in a high-latitude coastal region (Gulf of Anadyr)
- Examine mechanisms driving salinity variability in the Gulf of Anadyr
- Weaker winds in 2021 led to persistent sea ice in the Gulf of Anadyr, and delayed ice melting resulted in a negative sea surface salinity anomaly

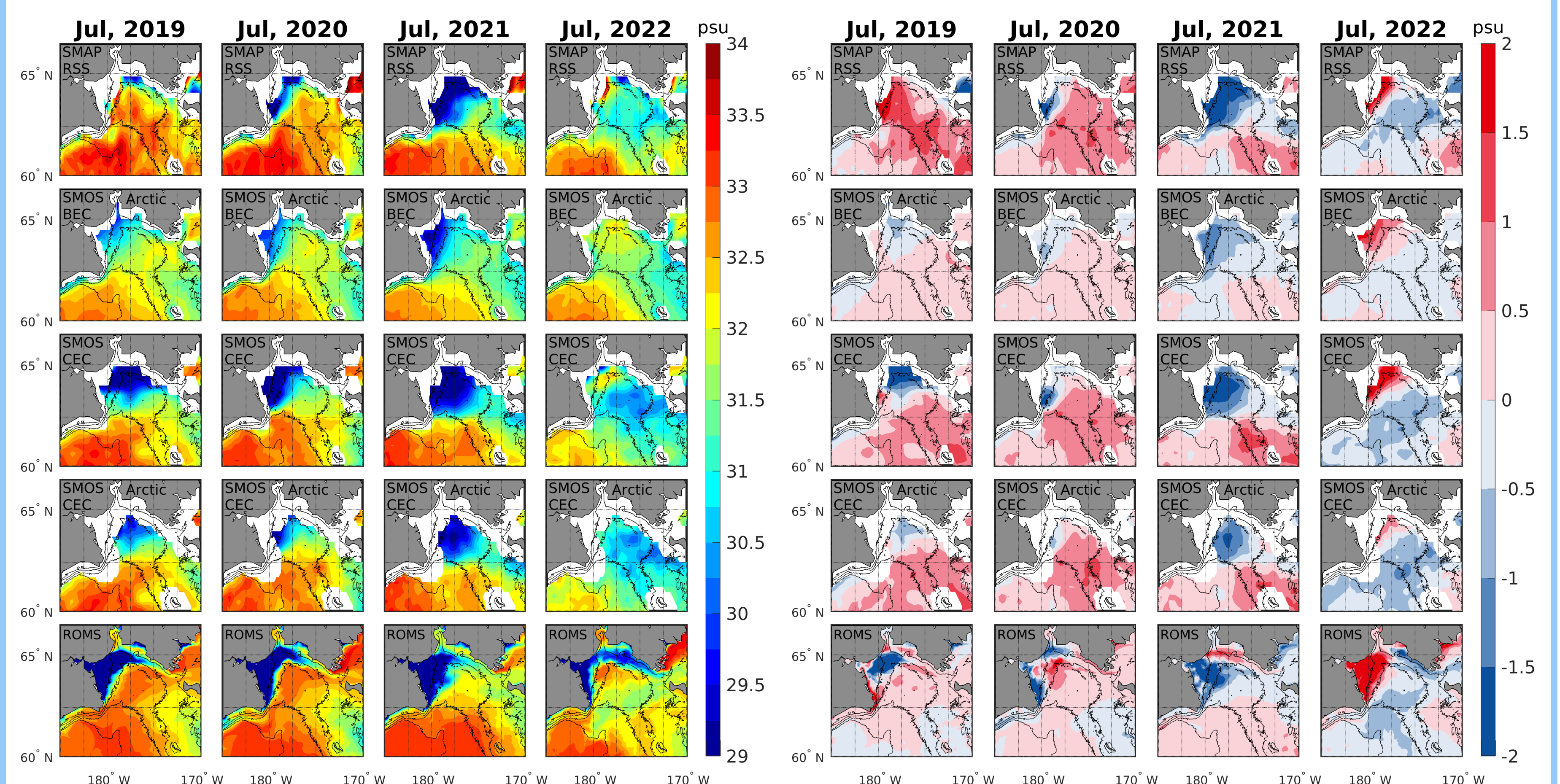
Coupled ice-ocean model

Durski and Kurapov (2019), Durski and Kurapov (2020)

- Model: Regional Ocean Modeling System (ROMS)
- Grid: Horizontally 2 km and vertically 45 layers
- Surface forcing: ECMWF ERA5
- Initial and boundary: HYCOM
- River: GloFAS
- Tide: TPXO



Strong negative SSSA in July 2021 consistently observed across products



SMAP RSS: Remote Sensing Systems SSS L3 v6.0

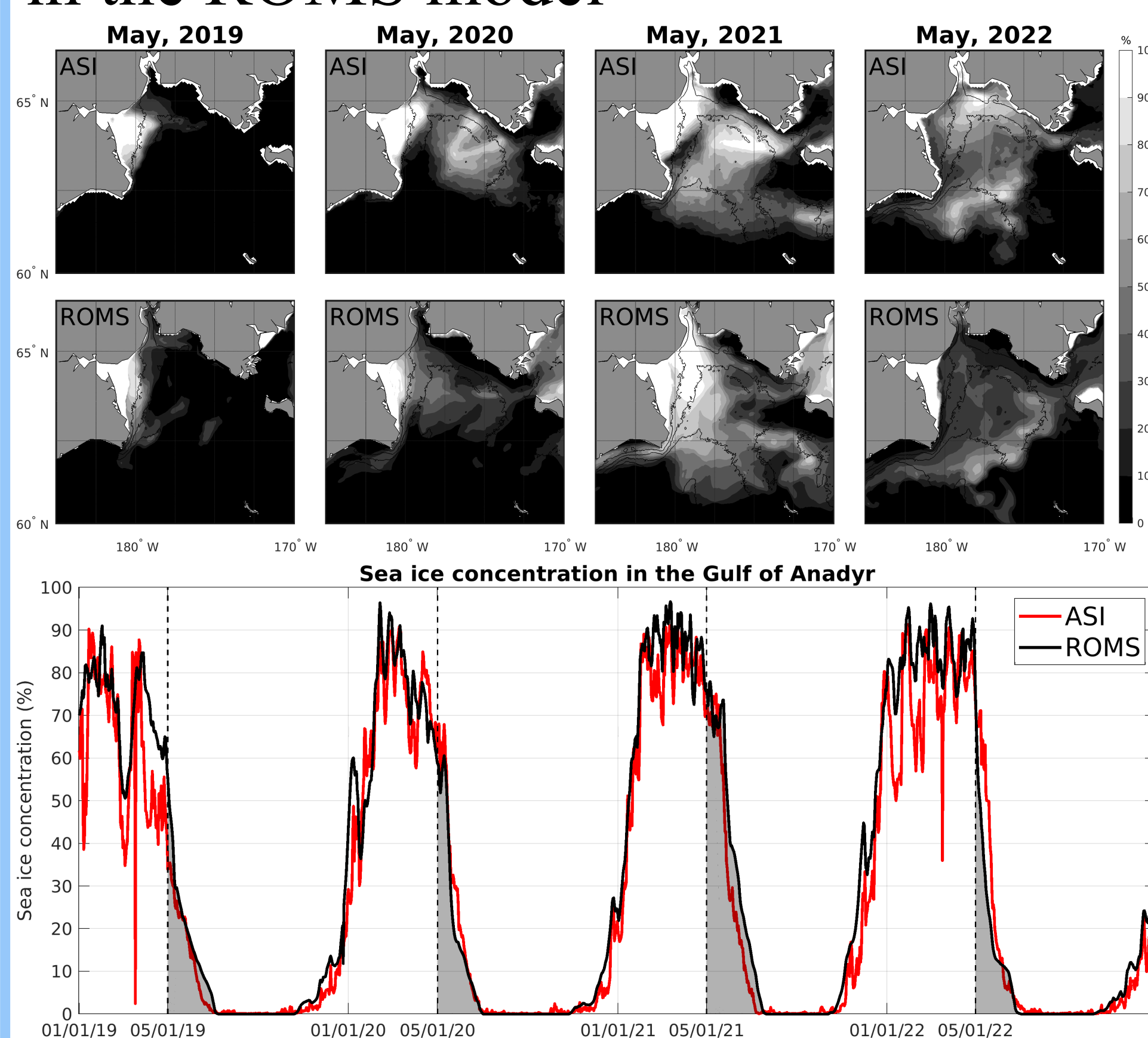
SMOS BEC Arctic: Barcelona Expert Center Arctic SSS L3 v4.0

SMOS CEC: CATDS CEC LOCEAN SSS L3 v10.0

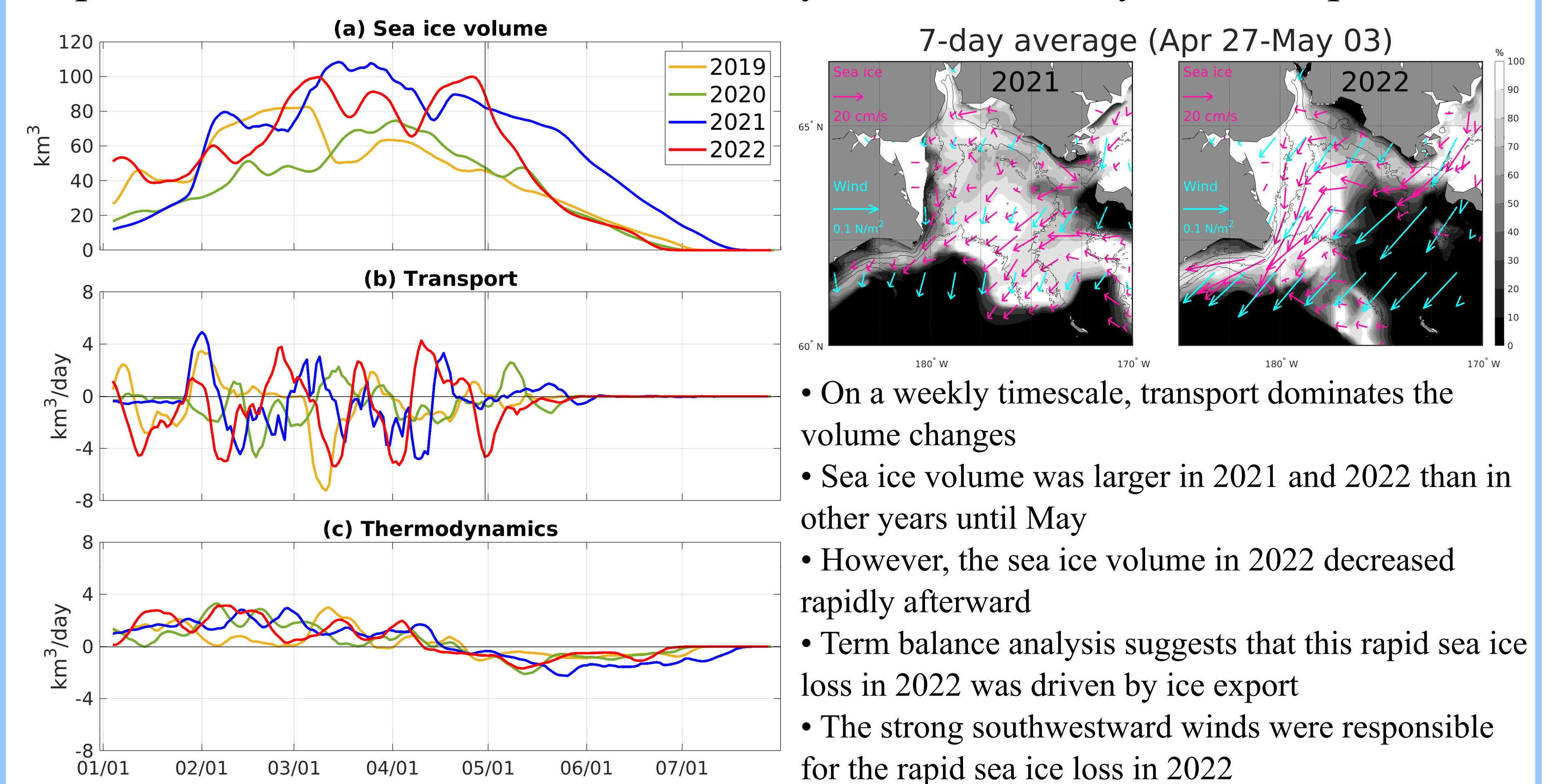
SMOS CEC Arctic: CATDS CEC LOCEAN Arctic SSS L3 v2.0

For the SSSA calculations, a 9-year mean (2015-2023) is used except for SMOS-BEC Arctic, where an 8-year mean (2015-2022) is used, and for ROMS, where a 4-year mean (2019-2022) is used.

Well-simulated sea ice concentration in the ROMS model



Rapid decrease in sea ice volume in May 2022 caused by an ice export event



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