

SCAR2020 Parallel Session 05: Antarctic Sea ice Variability and change

Tuesday July 28th, 2020; 19:00 – 23:00 (UTC)

Convenors: Marilyn Raphael, Ariaan Purich, Will Hobbs, Andreas Klocker

Antarctic sea ice is undergoing rapid and prolonged changes. These changes are complex in their spatial distribution, their seasonality, and even in their timescale – a long term positive trend since the late 1970s has been followed by an unprecedented rapid decline in Spring 2016. Sea ice sits at the interface between the atmosphere and the ocean and changes in sea ice are the result of the complex interaction of any of these three components – ice, ocean, and atmosphere. These changes have global implications; Antarctic sea ice formation, export and melt are crucial for ocean ventilation through the formation of both Antarctic Bottom Water and Antarctic Intermediate Water, and potentially affect the inflow of warm Circumpolar Deep Water beneath ice shelves, promoting the retreat of the grounded portion of the ice sheet, and consequently sea level rise. In spite of the challenges associated with observing and modelling the Antarctic coastal and sea ice zones, recent observational programs and focused model development efforts are now rapidly advancing our understanding of these processes.

SEA ICE

7:15pm Stefanie Arndt - Sea-ice growth from the top: Meteoric ice and snow in the northwestern Weddell Sea, Antarctica

7:30pm Gunther Heineman - Sea-ice lead climatology for the Antarctic based on MODIS satellite data

7:45pm Ryan Fogt - Antarctic Sea Ice Extent Reconstructions during the 20th Century

8:00pm Jan Lieser - SIPN-South: Coordination of sea-ice predictions for the Southern Ocean

*******8:20 – 8:45 BREAK*******

ATMOSPHERE

8:45pm Xichen Li - Wind-driven Sea-Ice Change intensifies subsurface Ocean Warming near West Antarctic

9:00pm Adrian McDonald - Understanding the Relationships between Sea Ice Extent Variations and Surface Winds at Multiple Temporal and Spatial scales

9:15pm Edward Doddridge - Summertime winds, seasonal heat storage, and wintertime ice in the Southern Ocean

9:30pm Holly Ayres - Climate Response to Projected Antarctic Sea Ice Loss

*******9:45 – 10:00pm*******

OCEAN

10:00pm Andrew Stewart - Sea ice and tidal rectification drive the Antarctic Slope Front

10:15pm Stephy Libera - The Ocean's role in driving Antarctic sea ice variabilities

10:30pm Steve Ackley - Modeling new ice formation under the influence of ocean waves

10:45pm Andreas Klockner - Ocean-ice interaction in subpolar Southern Ocean generates internal pycnocline