Aotearoa New Zealand Antarctic Ocean Science in the Context of the YOPP Targeted Observing Periods (TOPs - mid-April to mid-July 2022)

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& [3]SOOS Ross Sea Working Group

- Context
- Present activity
- Future Plans

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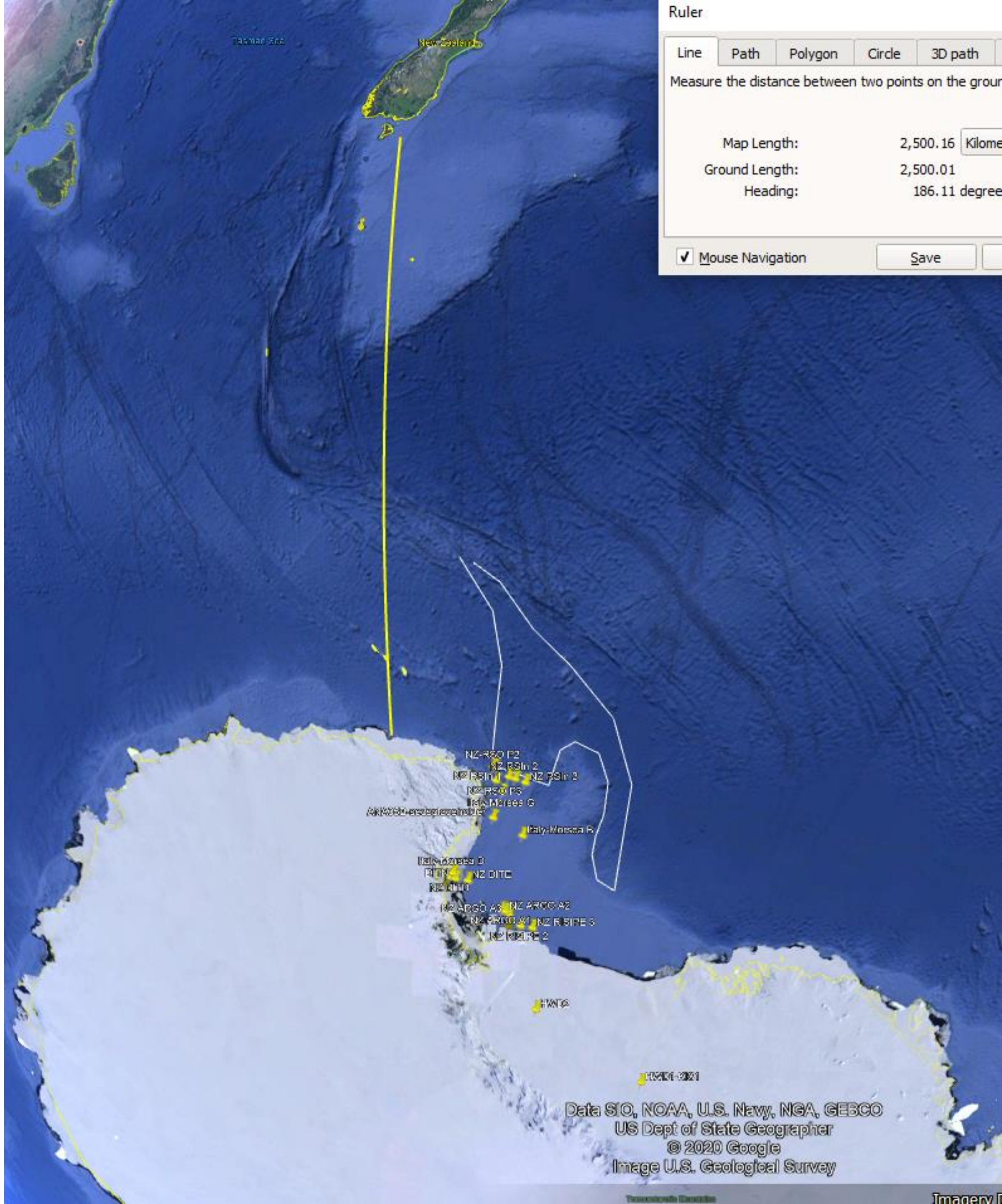

Aotearoa New Zealand Antarctic Science Platform (2019-2025)

Motivation: Antarctic ice-ocean-atmosphere system/Ross Sea Region ecosystem dynamics in a warming world

P1: WAIS
P2: Ross Sea Ocean fluxes
P3: Ecosystem Function
P4: Sea ice & Carbon
M: Modelling team

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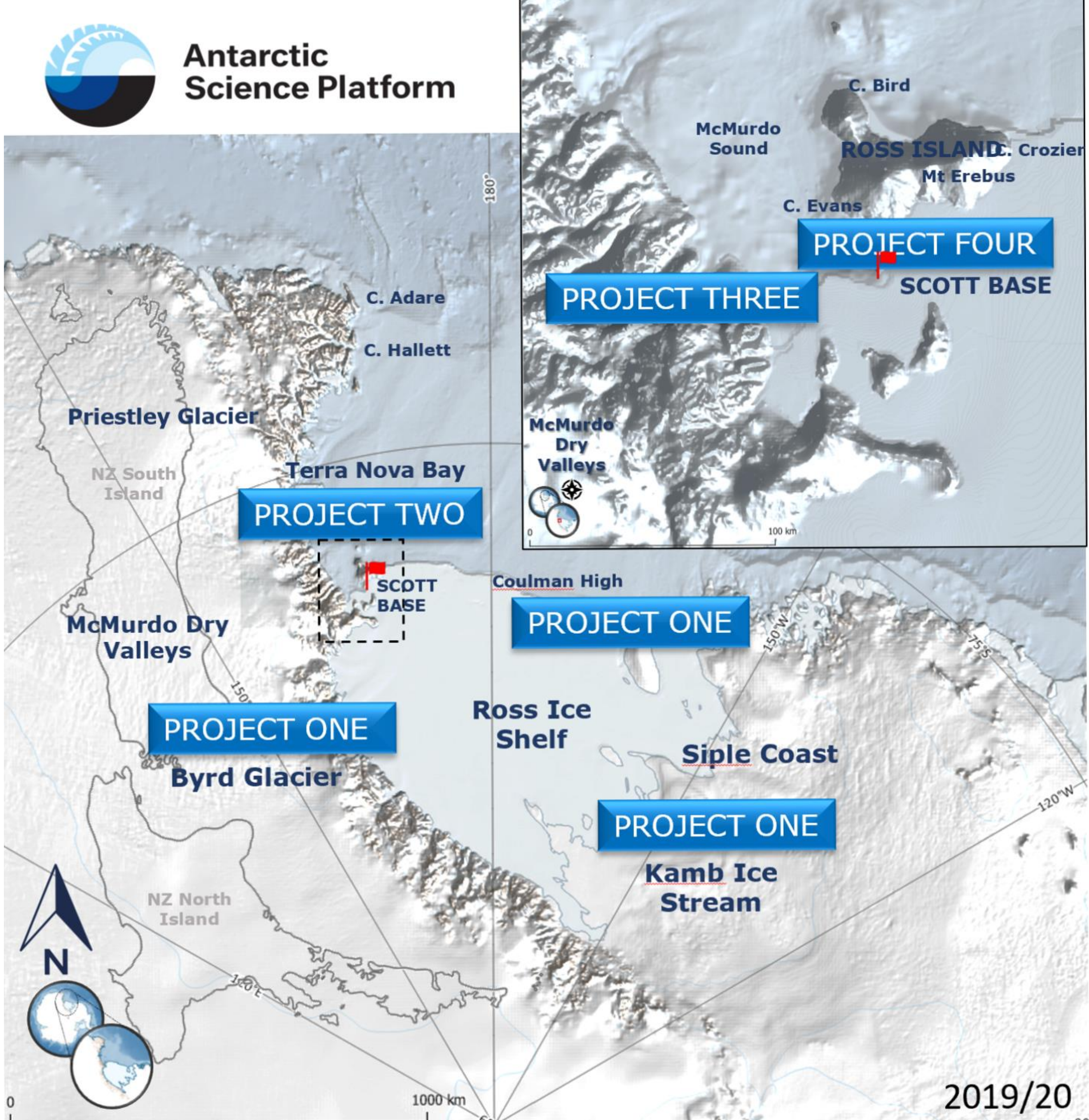

Why the Ross Sector?

Bottom Water Production

Budillon et al. 2011 DSR

(Orsi et al., 2001, Jacobs, 2004, Johnson, 2008). The total production rate of AABW is estimated at ~8 Sv (Orsi et al., 2002), with about 50% coming from the Weddell Sea, 25% from the Ross Sea, and the remainder from smaller sources including the Adélie Land coast and Prydz Bay. Recent observations along the Antarctic

Polynya name	Ice production (V_a; 10^{10} m^3)
Cape Darnley (CDP)	13.4 ± 1.3
Mackenzie Bay (MBP)	6.0 ± 0.6
Barrier (BaP)	6.2 ± 0.7
Shackleton (SP)	8.4 ± 0.8
Vincennes Bay (VBP)	6.4 ± 0.5
Dalton (DaP)	3.5 ± 0.4
Dibble (DiP)	5.7 ± 0.9
Mertz (MP)	13.2 ± 1.9
Terra Nova Bay (TNBP)	5.9 ± 0.6
Ross Ice Shelf (RISP)	30.0 ± 2.2
Amundsen (AP)	9.0 ± 1.4
Bellingshausen (BeP)	5.5 ± 1.2
Ronne Ice Shelf (RONP)	3.8 ± 1.6

~30%

Nihashi & Ohshima (2015) JoC.

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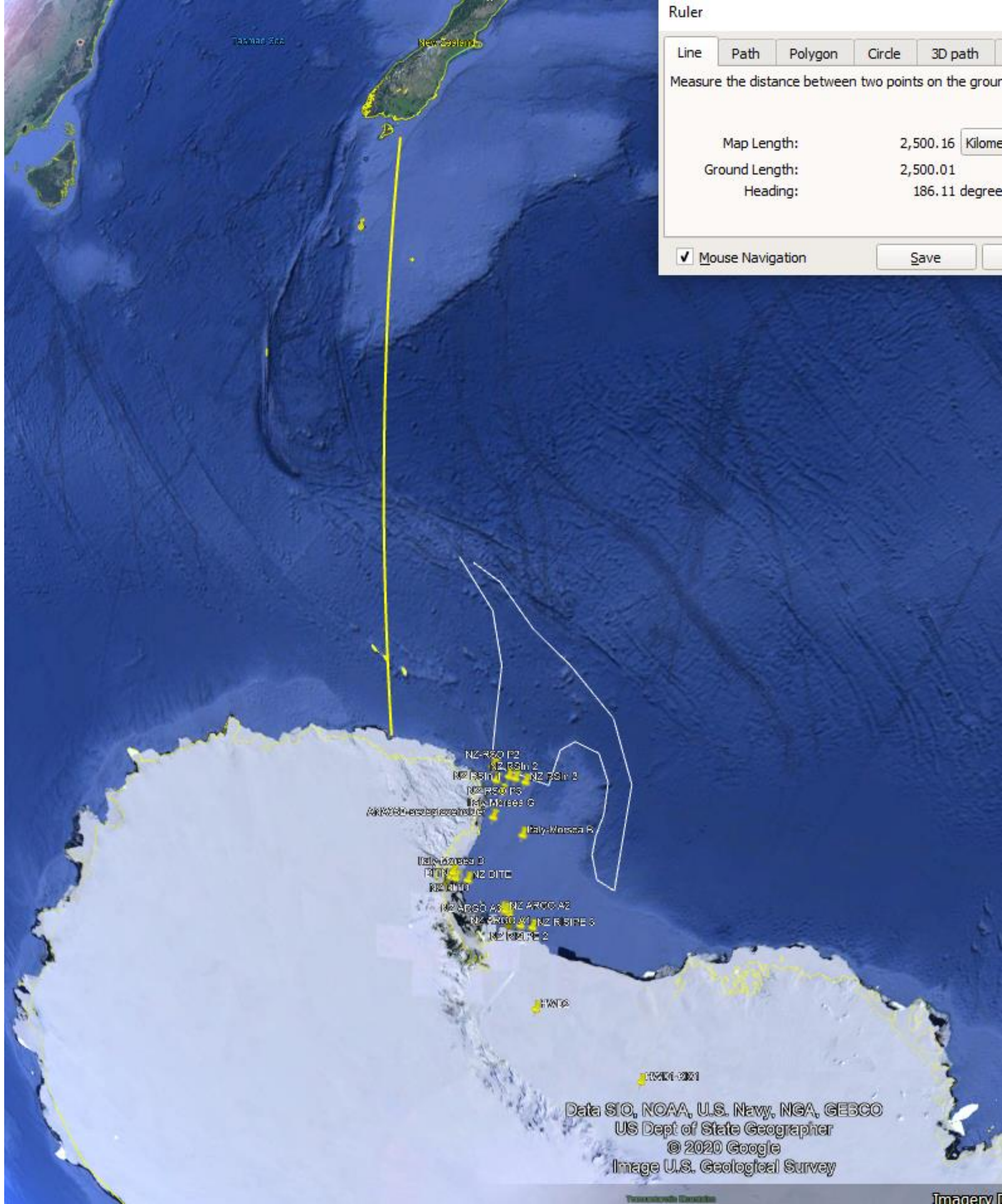
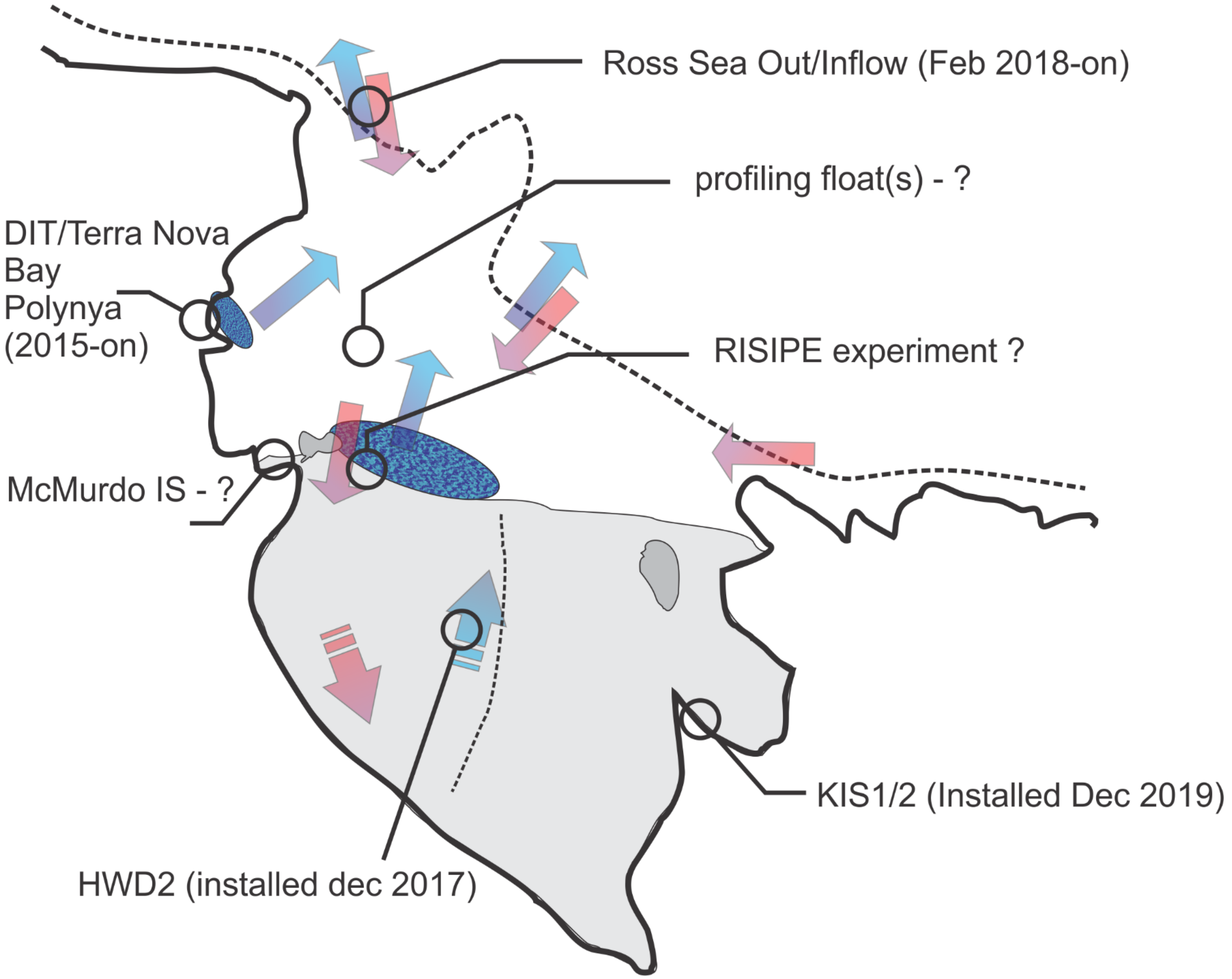


MASSEY FERGUSON


https://maoriantarctica.org/
Māori and Antarctica:
Ka mua, ka muri
Seminar Series 2020
Mon 27 July
1pm
Te Warihi Hetaraka & Priscilla Wehi
Te Whakairo
3pm
Sandy Morrison & Aimee Kaio
Te Tai Uka a Pia - Southern Ocean Voyaging
Tue 28 July
1pm
Dan Hikuroa
Mātauranga Māori and Antarctic Science
3pm
Pete Russell
Antarctic ice melt and sea level rise
Wed 29 July
1pm
Jack Fenaughty
Fishing the Southern Ocean
3pm
Matt Pinkerton
Researching The Ross Sea
Thu 30 July
1pm
Krushil Watene
Māori Philosophy and Antarctica
3pm
Priscilla Wehi & Billy van Uitregt
NZ Antarctic science, policy & governance

- Time series/ hydrography
- Process



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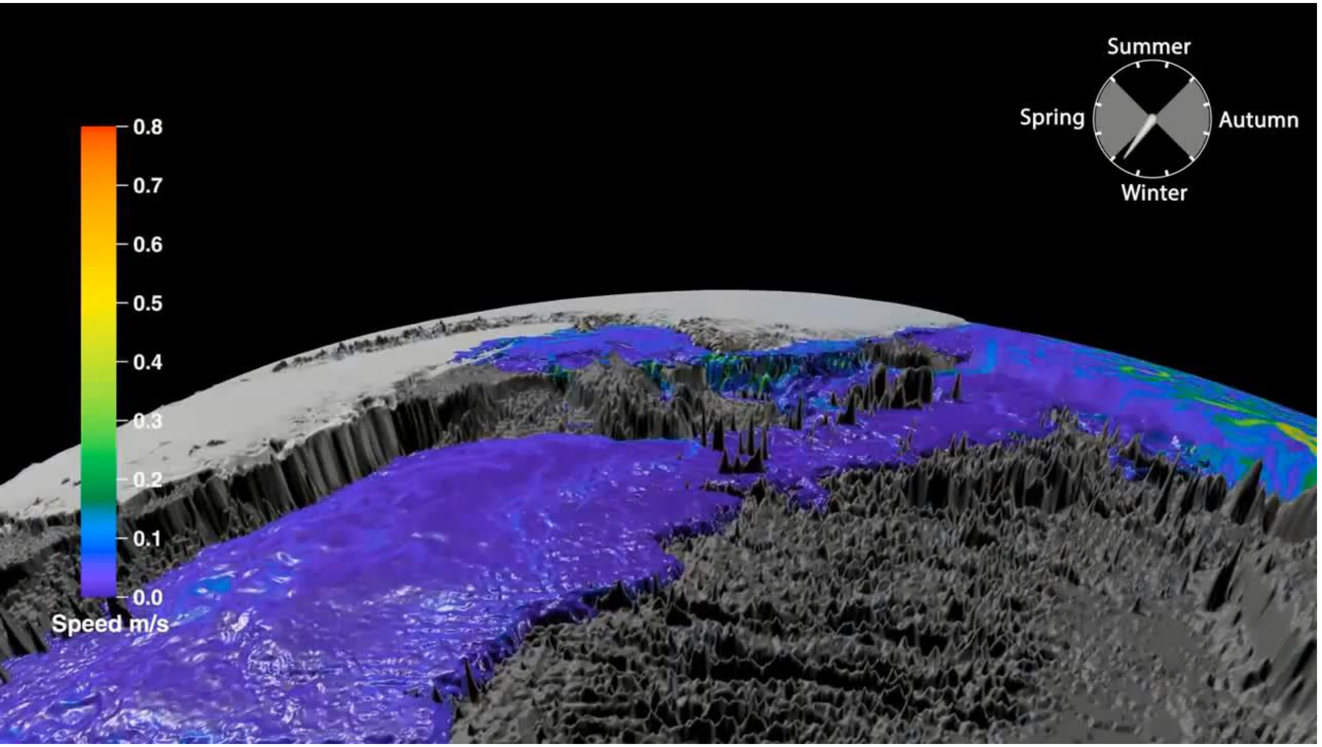
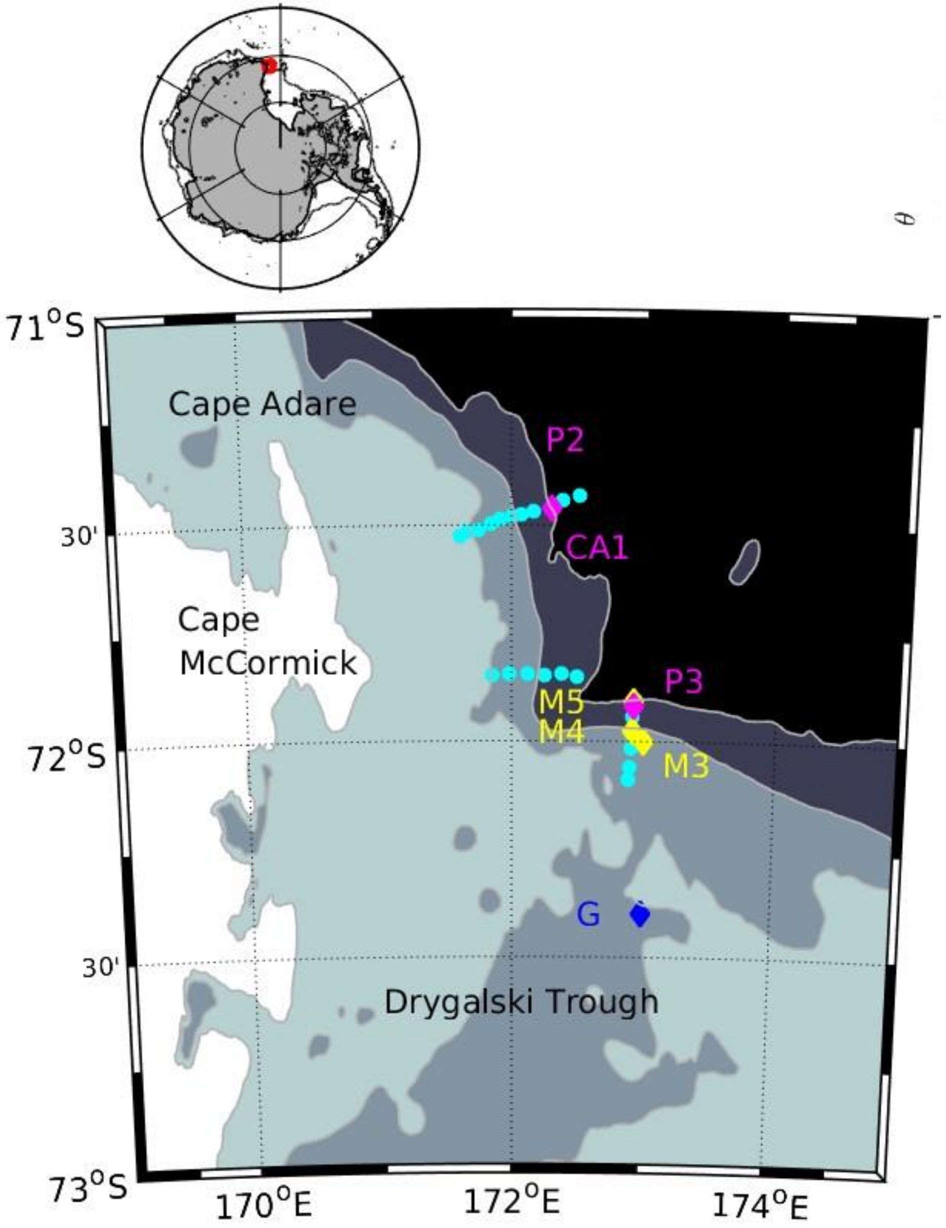
Ross Sea Outflow (Melissa Bowen & Denise Fernandez)

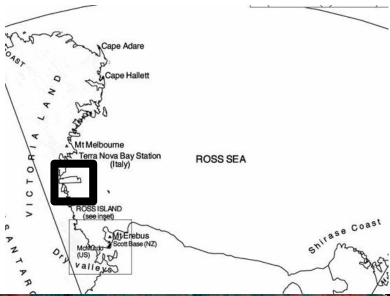
- Since Feb 2018
- Turn-around Feb 2021 (through to Feb 2023)
- New deployments include inflow



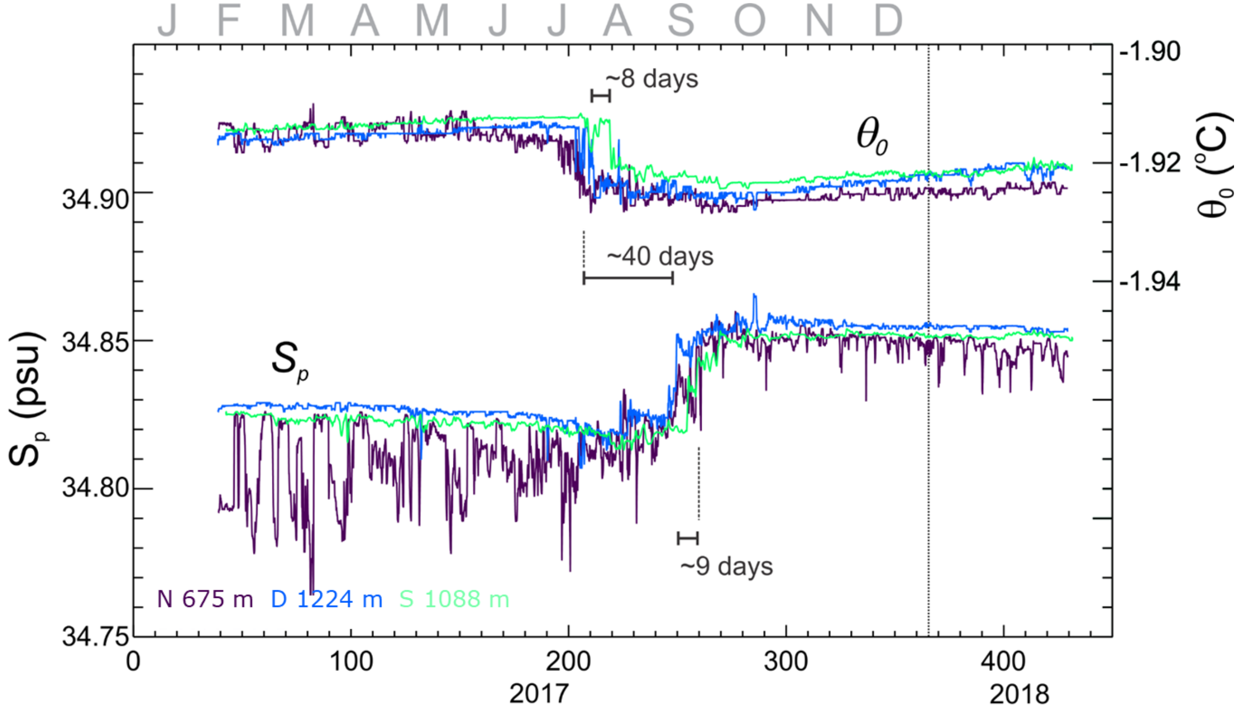
Hogg et al ANU MOM5

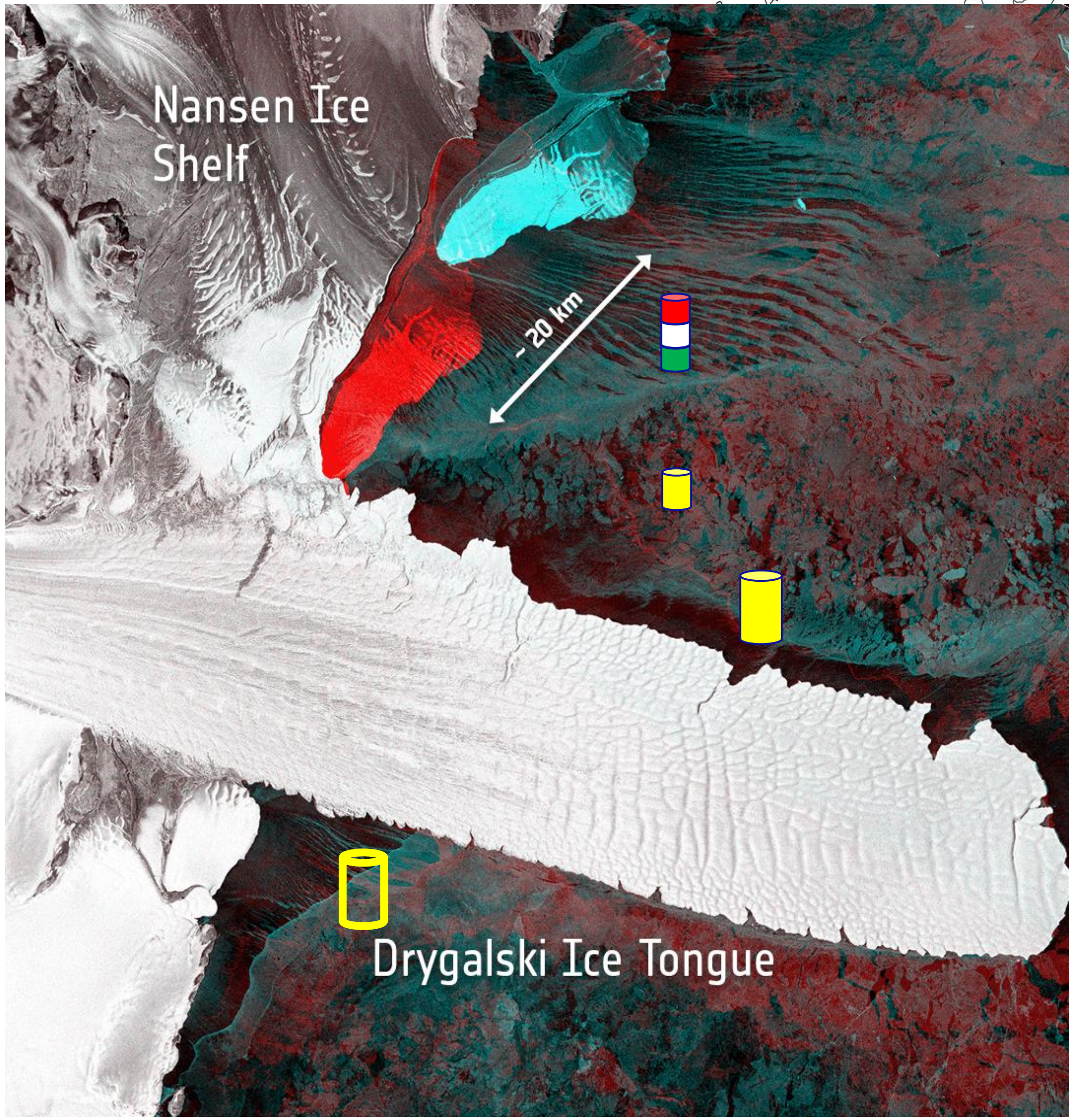


Drygalski Ice Tongue (Stevens/Yoon)



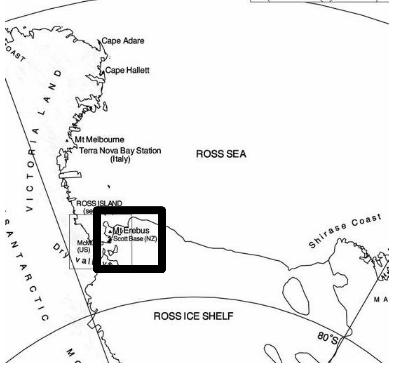
- Since 2015
- Turn-around Feb 2022 (to Feb 2023)





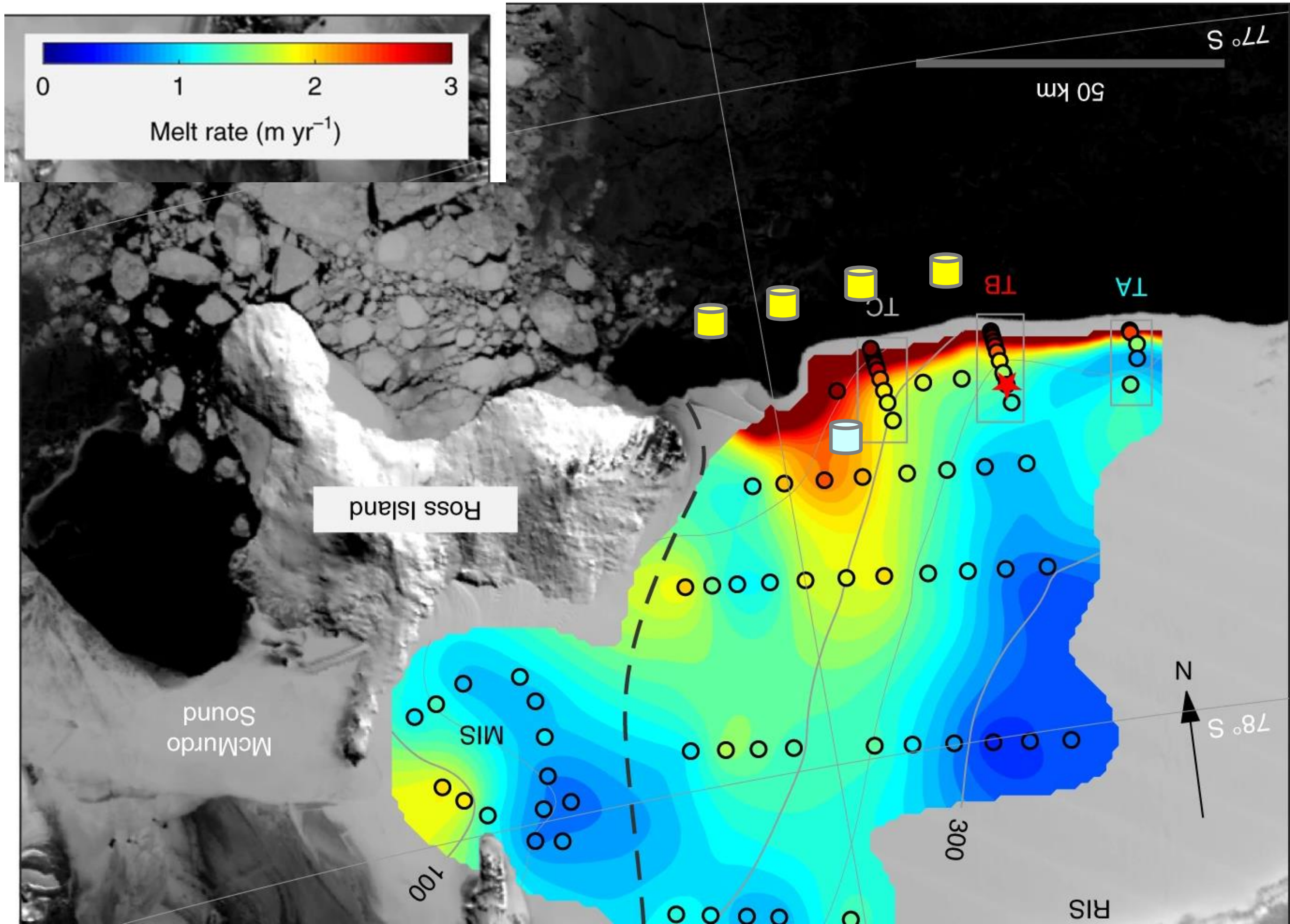
www.esa.int

Ross Sea Polynya (Stewart)



- Trial deploy Jan 2021 (thru Jan 2022)
- Jan 2022 (to Feb 2023)

- In conjunction with ApRES on-ice deployments



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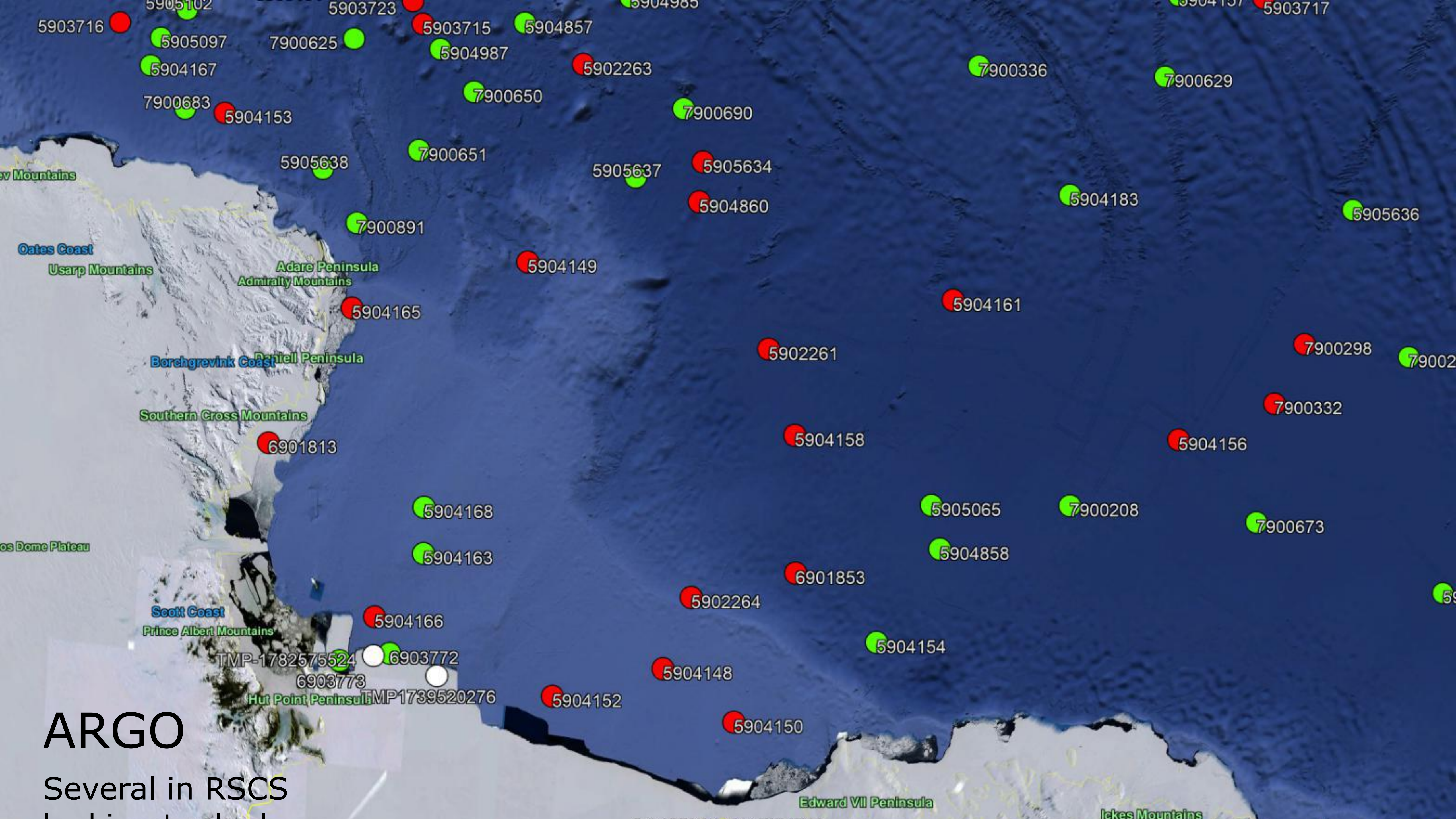
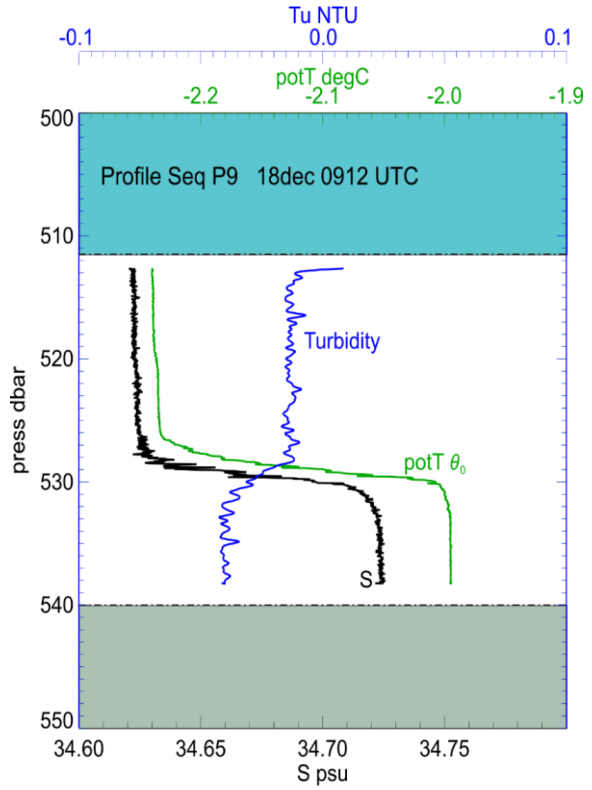


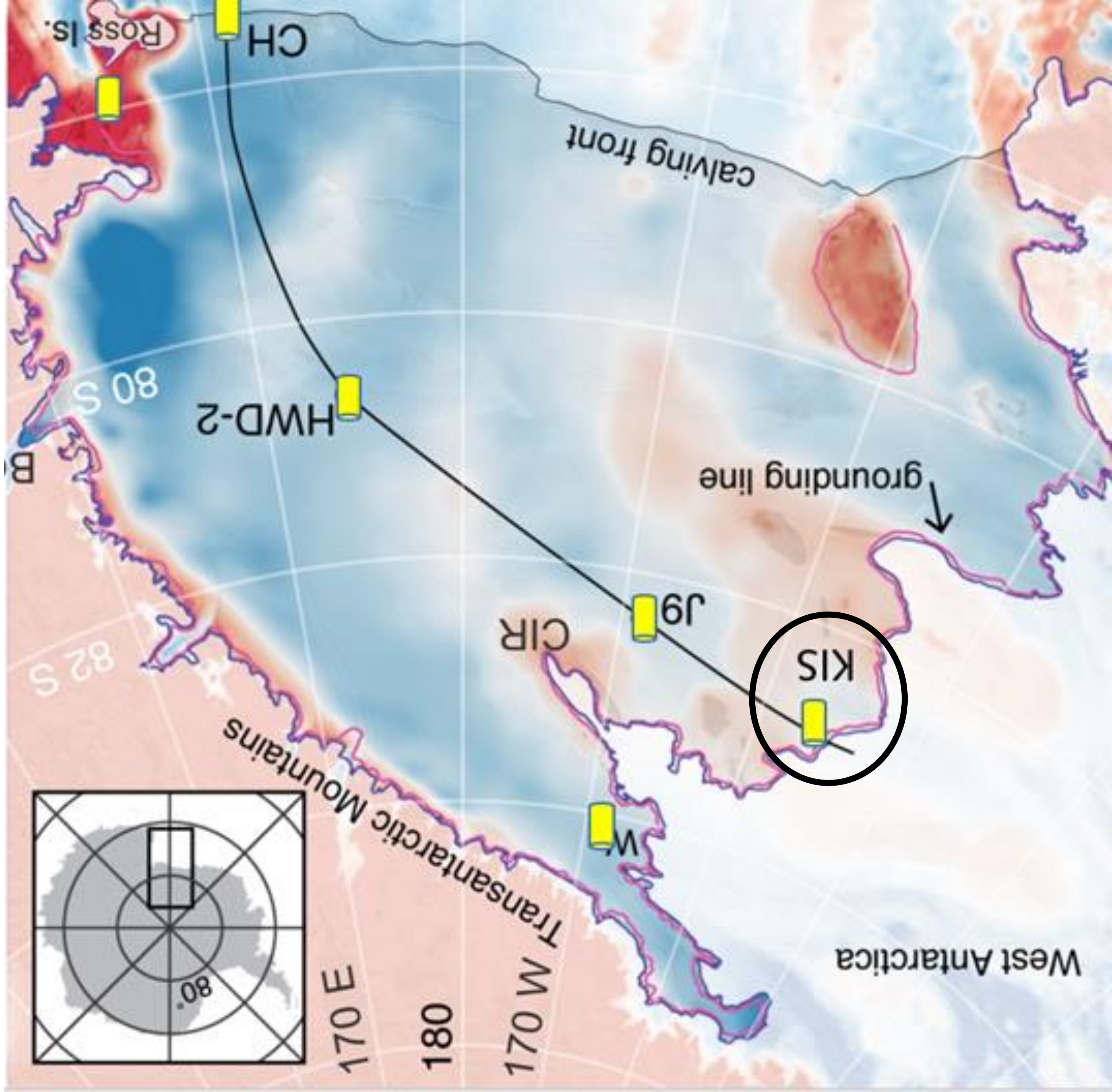
ARGO

Several in RSCS

Ross Grounding Line: HWD1/KIS1

HWD1 Dec 2019-?
KIS2 Dec 2021 ☺-





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Antarctica New Zealand

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Image: Brett Grant