

Plenaries: Steve Rintoul and Eileen Hofmann**Key Topics:**

- Brief history of SOOS + need for sustained ocean observations.
 - SOOS was developed in response to the lack of data in the SO.
 - It has facilitated integration + disseminating of data across a range of circumpolar, national and regional observational programs (e.g. Argo, MEOP).
- Ultimately, helped international community to understand the central Southern Ocean's role.

Main Developments:

- Scientifically, lots has been learnt but much to still understand.
- Sustained obs more important than ever (human use of the Southern Ocean growing, changing climate).
- Maintain disseminating of information (e.g UN Ocean Decade).
- Value add comes when scientist interpret data and disseminate to community.

Open Questions/Future Directions:

- Pressing need for observations of Antarctic continental, of ocean-shelf exchange, deep ocean, air-sea fluxes, under ice.

Plenary: Andrew Meijers**Key Topics:**

- The southern ocean is changing:
 - Zonal winds are strengthening; surface warming over most of Antarctica; mostly, ocean warming and freshening; overall ice shelves losing area.
- The case for circumpolar in situ observations: historical schematic of circulation are a bit misleading, there is regional variability (e.g. mode water) and spiral-like circumpolar obs.

Main Developments:

- Observations need to be made in service to a defined scientific or societal objectives, observations are key to define processes and keeping models honest.
 - OCEAN:ICE Case Study: large program coming out of Horizon Europe trying to get at Antarctic Ice Sheet and Ocean warming; it is an example of obs with a directed objective as opposed to a collection of data sets.
- Not enough to just be circumpolar, scale is critical for important processes.

Open Questions/Future Directions:

- The size and complexity of the SO necessitates coordinate multi-national efforts.
- Autonomous revolution happening now but challenge with compiling and integrating these quickly evolving instruments.

