

Bluelink ReANalysis, version 2020 (BRAN2020): impact of Near-Real-Time data

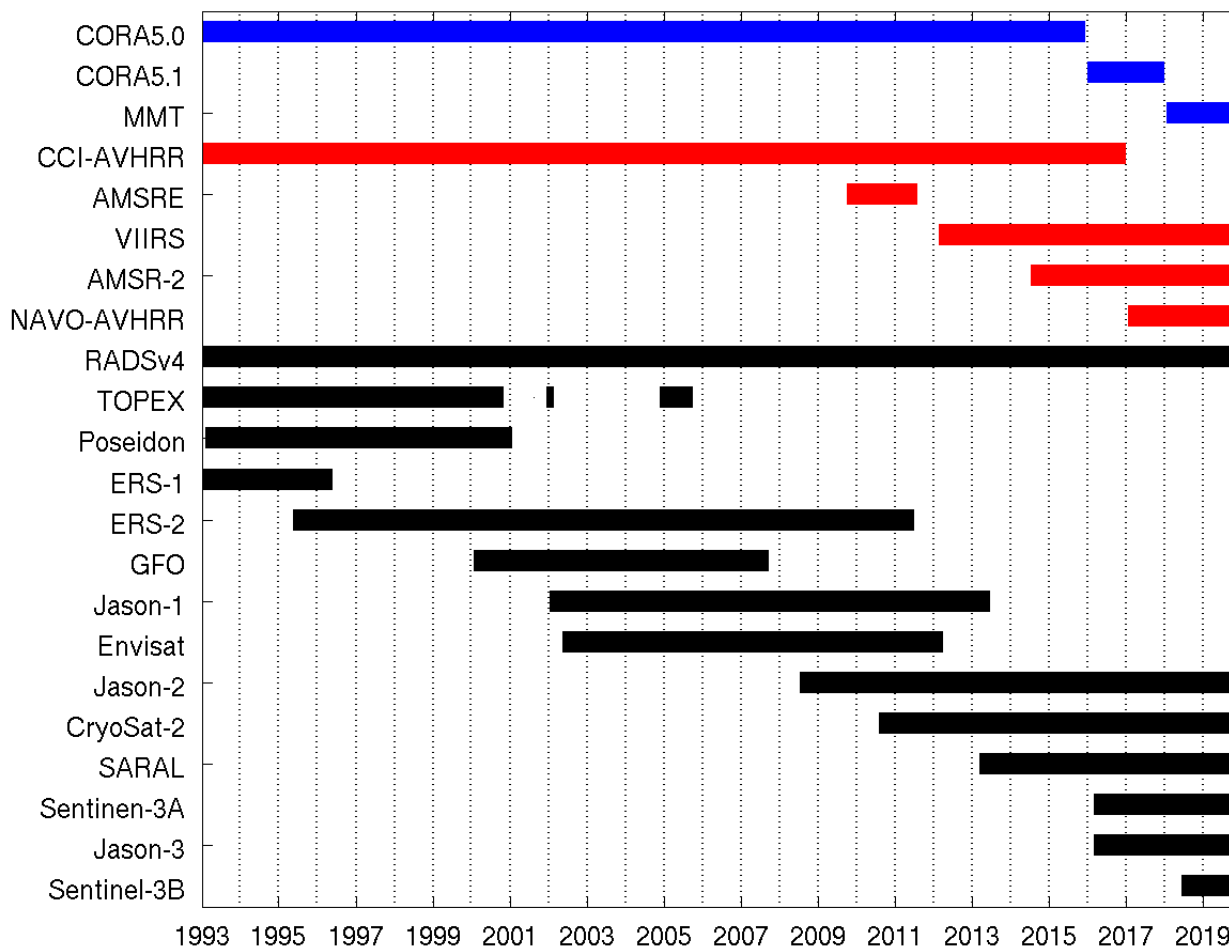
Peter Oke, Matt Chamberlain, et al

CSIRO Oceans and Atmosphere, Hobart, Australia

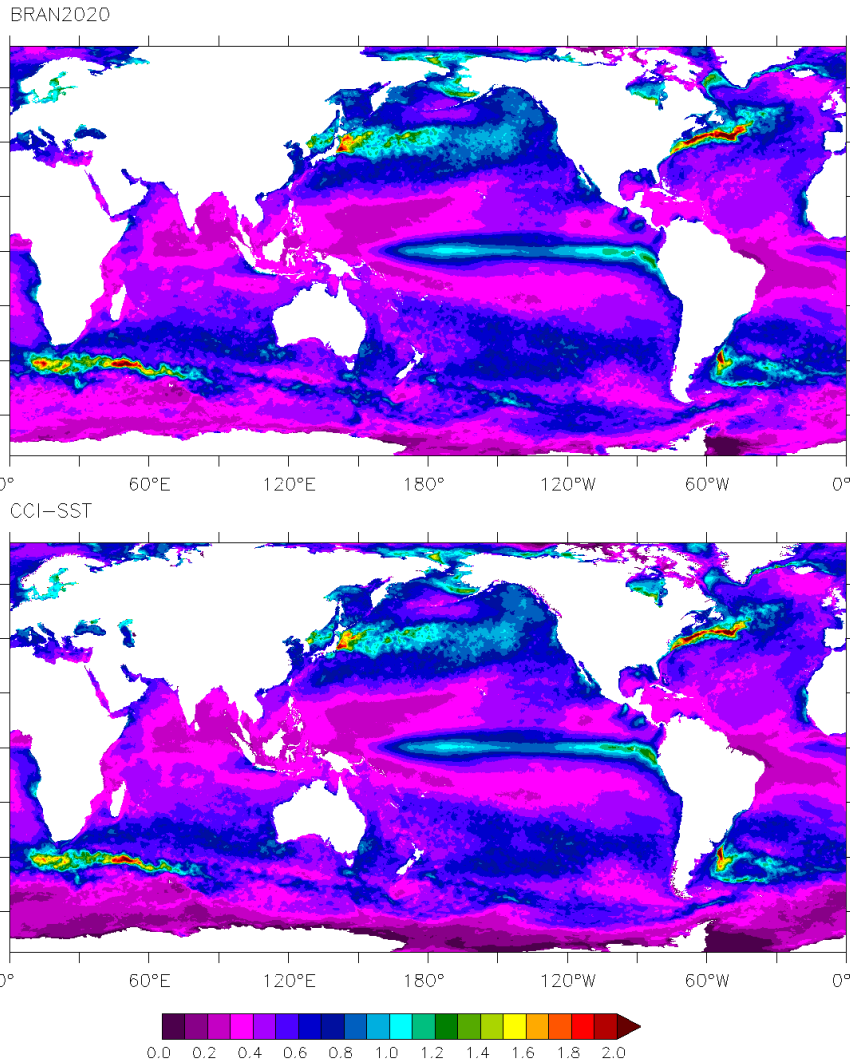
March 2021

Impact of R-mode and D-mode data (from BRAN2020)

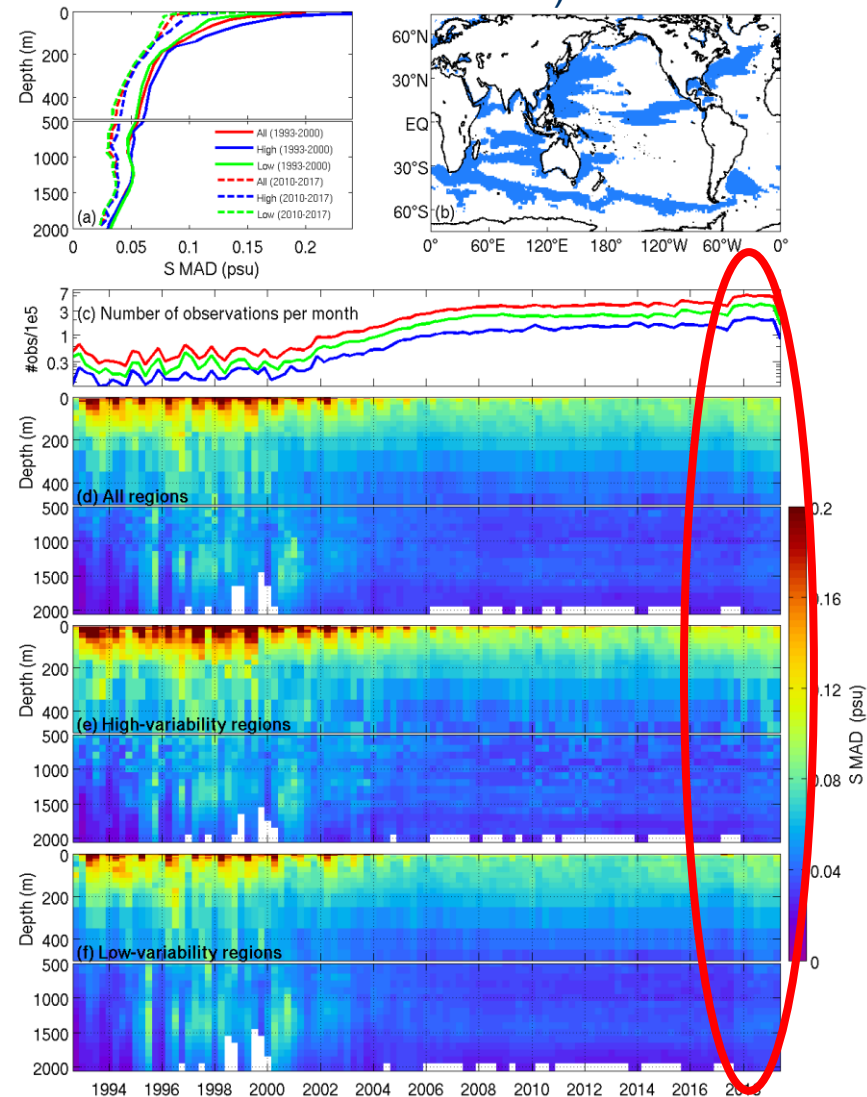
- BlueLink ReANalysis, version 2020 (completed in November 2020)
- Ensemble Optimal Interpolation, using a two-step multi-scale assimilation system
- Assimilates all available data; switches to R-mode data in 2018



SST variability (standard deviation of anomalies from seasonal cycle)



Salinity mis-fits (comparing daily-averaged re-analysed fields to all observations)

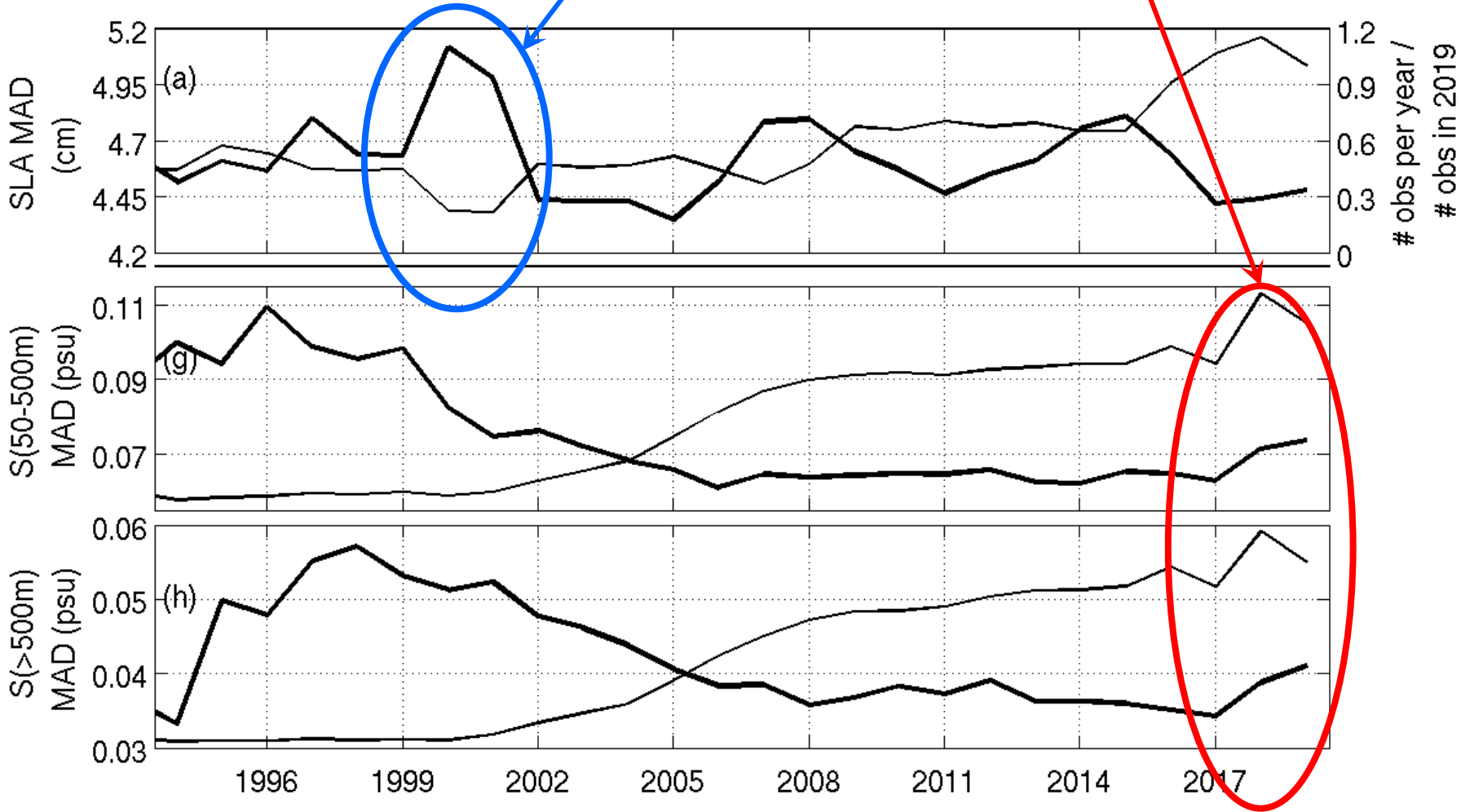


Impact of R-mode and D-mode data (from BRAN2020)

Time-series of Mean Absolute Differences (MAD) between daily-averaged reanalysed fields and observations.

Sea-level

Salinity

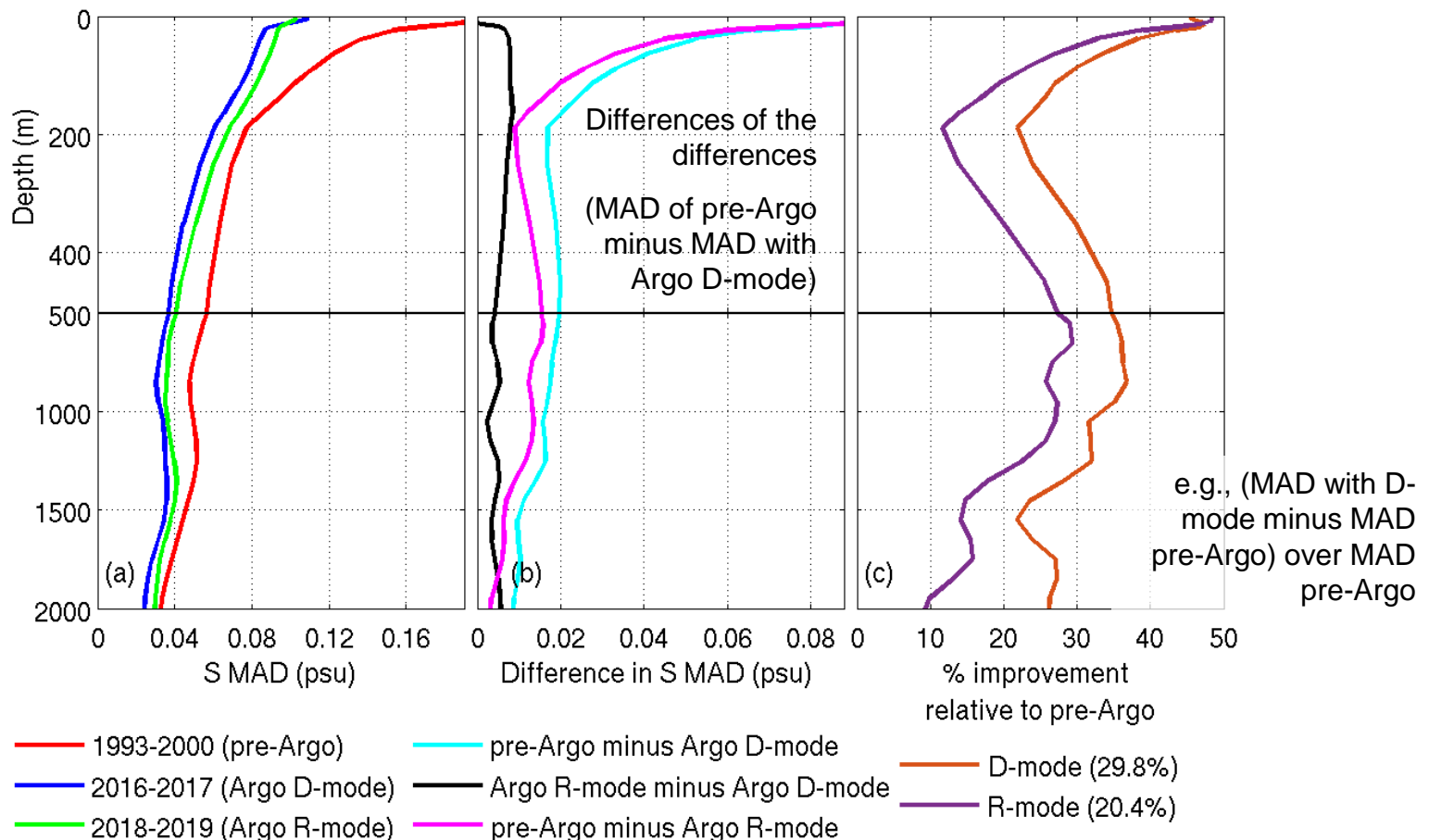


Impact of R-mode and D-mode data (from BRAN2020)

➤ Model-data mis-fits for salinity reduced by ~30% by assimilating Argo data

... almost one third of that gain is lost if R-mode data are used

... at 200 m depth, half of that gain is lost



- It's worth updating our observational database to include D-mode data

- Argo (and I'm sure other programs) pay careful attention to delayed-mode quality-control, and it appears that the benefits extend to high-resolution ocean reanalyses.

- Next question:
 - Is it the elimination of bad data that helps? or
 - Is it the tedious correction of data from drifting salinity sensors?
(perhaps both)