September 2018

MESSAGE TO ARGO USERS ABOUT AN INCREASED OCCURRENCE OF SALINITY ERRORS IN THE REALTIME ARGO DATA STREAM

Due to a manufacturing problem that occurred a few years ago, a larger than normal number of SeaBird Scientific CTD cells (SNs 6000-7100) used in Argo developed a high salinity bias within 2 years of deployment. Many of these CTDs are still active in Argo, and as result, a higher portion than normal of Argo real time data are subject to salinity errors larger than Argo's 0.01 accuracy target (Figure 1). Our best estimate is that, at present, about 25% of real time profiles might be subject to this bias (Figure 2). The Argo national Data Assembly Centers are working on identifying the affected cells and grey-listing their salinity channels to ensure they are flagged bad. While this process is occurring we strongly advise that for real time applications sensitive to these salinity errors, users ensure they check the grey list, read and apply all the QC flags, use the adjusted fields and carefully check their results. For climate analyses, we strongly recommend only using delayed-mode data.

The Argo project is working as fast as possible to identify and flag data from these cells, and correct it where possible. We are also working closely with the manufacturer (SeaBird Scientific) to understand the source of the drift in order to more confidently correct the errors and prevent a re-occurance of this problem.

For more information about the discovery and cause of this problem please see:

https://argo.ucsd.edu/wp-content/uploads/sites/361/2020/10/salt_drift_summary_7Mar2018.pdf
https://argo.ucsd.edu/wp-content/uploads/sites/361/2020/10/DM_report_ArgoPositiveDrifters8Mar2018.pdf
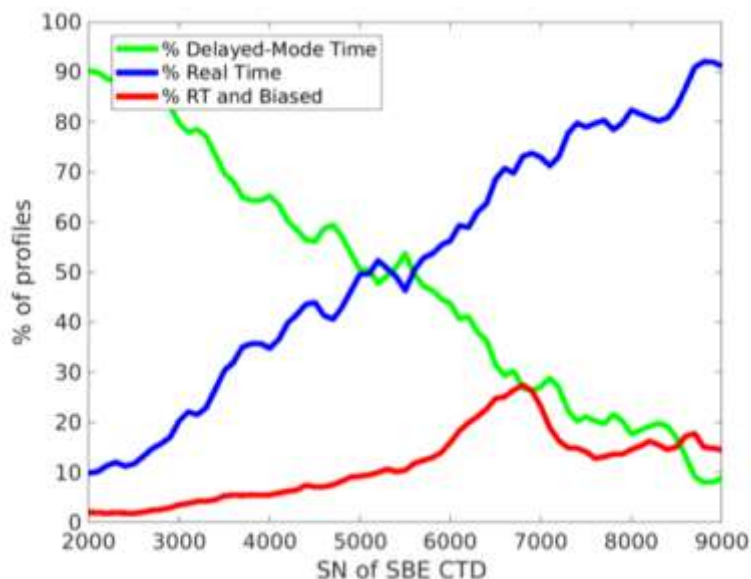https://argo.ucsd.edu/data/data-faq/#sbepsal

Figure 1: Percentage of Argo profiles by sensor serial number (SN) that have been delay-mode QC'd (DMQC - green), that have not been delayed-mode QC'd and are still in real-time format, and those that are suspected of being biased and that are still in realtime mode. The increase in the occurrence of bias in the affected cells is clear as after serial number 6000.
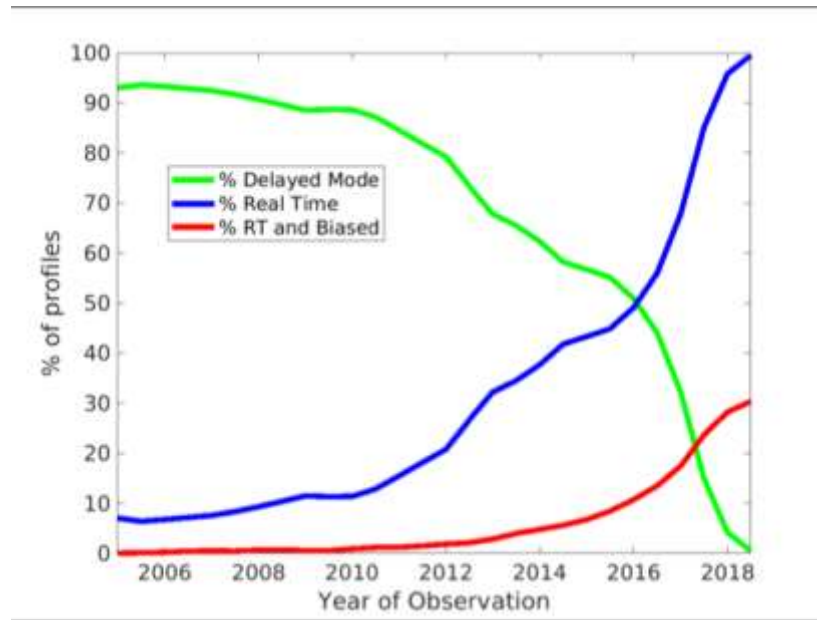

Figure 2: Percentage of Argo profiles by year of observation that have been delay-mode QC'd (green), that have not been delayed-mode QC'd and are still in real-time format, and those that are suspected of being biased and that are still in realtime mode. Due to the long life of Argo floats and the delay in DMQC, uncorrected profiles from the affected cells make up a larger than normal percentage of total profiles.