Introduction
The International Comprehensive Ocean-Atmosphere Dataset (ICOADS) Release 3.0 contains large volumes of marine observation data and covers the time period from 1662 to present. Observations from ships, drifting buoys, and moored buoys are transmitted through the Global Telecommunication System (GTS) and collected by NCDC for near-real-time ICOADS monthly updates. The GTS data from ICOADS are the key component of many analysis products including the NOAA/NCDC Optimum Interpolation Sea Surface Temperature (OISST). Traditionally the GTS data for ICOADS are in the ASCII-based Traditional Alphanumeric Code (TAC) format. The number of TAC drifting buoy reports have dropped since November 2016 due to a format switch from TAC to the Binary Universal Format for the Representation (BUFR) of meteorological data format. The drop in TAC based data affects the operational OISST quality; for example, a cold bias in OISST was reported for certain regions and time periods.

This poster describes the BUFR decoding process for drifting buoys, moored buoys, and ship data at NCEI, and the enhancements gained from the format change. It will also be demonstrated that with the BUFR decoding, the majority of the lost drifting buoy reports in the TAC stream have been recovered. The impacts of adding the BUFR data on OISST are assessed on global and local scales since 2016.

Data Availability:
The Drifting Buoy data are available as an Auxiliary dataset in archive ds359.5 at NCAR: (https://ral.ucar.edu/datasets/ds359.5/tac) until they can be incorporated into a new NRT product. Moored buoys, ships and coastal stations from BUFR are also becoming available. Please continue to check the ICOADS website for updates and data availability (https://icoads.noaa.gov).

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Conclusion: Adding more drifting buoy data to the OISST run eliminated most of the cold bias. OISST and OISST Product Ensemble (GMPE). The Reynolds OISST (green line) has a cold bias, especially between June and September 2018. Data courtesy of the NOAA/STAR for BUFR BUFR Product Ensemble (GMPE).