This year will mark the 20th anniversary of the start of the modern record of global mean sea level (GMSL) from satellite altimetry. Over the past two decades, the GMSL has risen by approximately 6 cm while under the watchful eye of eight altimeter measurement systems. However, precisely monitoring the rise of the GMSL would not be possible without the careful calibration of the instruments that are a part of the altimeter measurement system. In particular, the microwave radiometers on the altimeter satellites have been shown to be one of the largest sources of error in the long term stability of the GMSL measurement. Microwave radiometers have flown on all ocean altimeter missions over the past 20 years to provide a correction for the delay of the radar signal (relative to the speed in a vacuum) due the refractivity of water vapor in the troposphere. Over the years, the radiometer instrumentation has steadily improved as well as the algorithms used to retrieve wet path delay (PD) from the radiometer’s brightness temperature (TB) measurements and we have correspondingly seen a reduction in the radiometer derived PD error, particularly the geographically and temporally correlated components of the error. But, the effort that has gone into ensuring a stable long term PD record, free from drift, is among the most important.

Here, results are presented from the climate calibration effort for the Jason series radiometers. The GDR calibration for the Jason-2 AMR was derived using a new inter-satellite calibration approach (Brown, 2012). The resulting drift in the PD record is estimated to be less than 1 mm/yr with no regional component. The GDR-C calibration for the JMR has shown a recent decrease in PD due to a small drift in the 23.8 GHz channel. An updated calibration is being developed and tested in preparation for an end of prime mission calibration. These climate quality calibrations join the end-of-mission climate calibration produced for the Topex Microwave Radiometer (Brown et al., 2009) to enable a 20-year climate data record of GMSL.

**Abstract**

The final drift in the PD record is estimated to be less than 1 mm/yr with no regional component. The GDR-C calibration for the JMR has shown a recent decrease in PD due to a small drift in the 23.8 GHz channel. An updated calibration is being developed and tested in preparation for an end of prime mission calibration. These climate quality calibrations join the end-of-mission climate calibration produced for the Topex Microwave Radiometer (Brown et al., 2009) to enable a 20-year climate data record of GMSL.