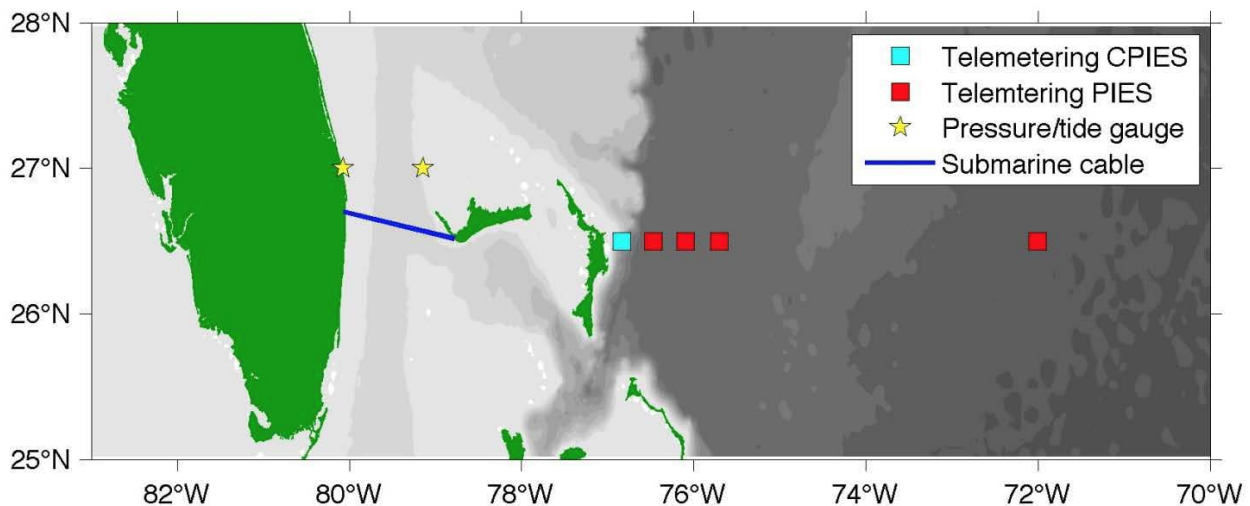# Western Boundary Time Series Program

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Climate studies using observational data require long time series in order to capture the interannual and decadal fluctuations associated with climate variability. One of the premier long-term time series for study of the Atlantic Meridional Overturning Circulation (AMOC) phenomenon is the record of transport and water mass variability in the Florida Current/Gulf Stream and the Deep Western Boundary Current (DWBC) collected as part of the NOAA Western Boundary Time Series (WBTS) program. This program began in 1982 by collecting daily estimates of the Florida Current transport via a submarine cable and via regular shipboard sections near 27°N in the Straits of Florida. In 1984 the program expanded to begin monitoring the DWBC east of the Bahamas along 26.5°N. Some of the technologies used in the intervening 25+ years have changed with time, but this program has produced a critical nearly-continuous time series of ocean transport that is used in validating nearly all ocean models used for study of climate variability. The important long records collected by this program have also proven invaluable for determining time scales of variability for phenomenon such as the AMOC – the bulk of which is carried in the Florida Current and DWBC at these latitudes. The Florida Current is presently still monitored using a submarine cable and routine shipboard measurements, while the DWBC is monitored using a line of four pressure-equipped inverted echo sounders (PIES) and one current-and-pressure-equipped inverted echo sounder (CPIES) along with annual hydrographic cruises. Furthermore, the WBTS project has served as the cornerstone of the international RAPID/MOCHA program to measure the basin-wide, full-water-column, transport of the AMOC at 26.5°N using a combination of cable, PIES/CPIES, tall subsurface moorings, and hydrographic sections..

Summary locations of continuous time series components of the Western Boundary Time Series program