



Seasonal and interannual variability of the subtropical Atlantic western boundary current system

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Progress over the last few decades in understanding the seasonal and interannual variability of the Florida Current and adjacent Antilles western boundary regime is reviewed, honoring Prof. Fritz Schott's pioneering contributions in this area. Over 25 years of nearly continuous transport observations are now available from the operational submarine cable across the Florida Current at 27°N. The climatological seasonal cycle derived from the entire cable record shows a summer maximum and fall to early winter minimum, with an annual range of ~ 3 Sv, as identified in previous studies. However, certain subperiods of the record show qualitatively different behavior, particularly during the 1990's when a robust summer maximum was absent. A much larger seasonal transport cycle is identified in the "Antilles Current" boundary current regime east of the Bahamas, where long-term current meter records show a >20 Sv annual variation, contained mostly in the barotropic mode. On interannual time scales, the Florida Current variability, though weak, $O(\pm 2$ Sv), now appears to be linked to NAO-related wind stress curl variations in the western basin of the North Atlantic, with a lagged response consistent with forced Rossby wave propagation. The background mean Florida Current transport has remained stable at ~ 32 Sv since the 1960's, with no significant trend.