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Post-2011 variability of the great Atlantic *Sargassum* belt attributed to changing winds and currents

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Since 2011, *Sargassum* seaweed has proliferated across the tropical North Atlantic, evident in Floating Algae Index (FAI) images for the Central Atlantic region (38-63°W, 0-22°N) over 2000-2020. To investigate the role of physical drivers in post-2011 *Sargassum* blooms, conditions are examined across the wider tropical Atlantic. Of particular consequence for the growth and drift of *Sargassum* are patterns and seasonality of winds and currents. In years when the FAI index is high (2015, 2018), the Intertropical Convergence Zone (where *Sargassum* accumulates) was displaced southward, towards nutrient-rich waters of the Amazon river plume and the equatorial upwelling zone. Strong enhancement of the North Brazil Current retroflexion and North Equatorial Counter Current circulation system in 2015 and 2018 may have increased nutrient availability/uptake for *Sargassum* in the North Equatorial Recirculation Region. To first order, these changes are associated with modes of natural variability in the tropical Atlantic, notably a negative phase of the Atlantic Meridional Mode in 2015 and 2018, and a positive phase of the Atlantic Niño in 2018. The influence of anomalous winds and currents on *Sargassum* drift during years of high and low FAI are explored with virtual particle tracking, using surface currents from an eddy-resolving ocean model hindcast and optional % windage, to quantify the variable partitioning between *Sargassum* that is westward-bound to the Caribbean and eastward-bound to west Africa.