The Gulf Stream Near the Rhumb Line Newport-Bermuda May 13, 2026
An Analysis of Conditions

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Well, as I've said many times, with slightly more than a month to go until the start of the 2026 Newport Bermuda Race it's none too early to begin careful evaluation of existing Gulf Stream conditions and the rate and form of their probable evolution over the next four to five weeks. For those just starting this process I'd recommend reviewing my Gulf Steam Primer posted on the Race website https://bermudarace.com/ . This provides an introduction to the basics of Stream structure and dynamics. The referenced links are updated on the Race website. I would also recommend looking at the Race Prep Webinars posted on the Race website and YouTube channel. Two deal specifically with the Gulf Stream and weather.

The Gulf Stream in the vicinity of the Newport-Bermuda rhumb line has, over the past few months, been dominated by relatively high frequency changes in structure with meanders forming progressively before disappearing within days. The expected progressive northeasterly migration of the meanders in the north wall of the main body of the Stream was on several occasions abruptly terminated. In mid-April, for example, an evident meander pattern, developed over the preceding two weeks or so was affecting flows both east and west of the rhumb line (Fig.1). Within three days (20-23 April) this pattern disappeared (Fig. 2) resulting in a substantial change in the direction of Gulf Stream flow crossing the rhumb line. The potential for such rapid change represents a particular navigational challenge particularly since cloud cover can limit satellite observations for periods well in excess of three days.

By May 1st a new meander pattern was in the process of developing (Fig.3). Over the next week it displayed a classic form with individual wavelengths progressing regularly to the northeast (compare Fig. 3 to Fig. 4). By May 8 however, this progression slowed and there was a substantial change in the meander pattern to the west of the rhumb line (Fig. 5). An evident crest was in place on the rhumb line while to the west the north wall form was nearly linear leading to a prominent wave near 75^0 W (Fig.5). Over the next five days Fig. 6-7) this pattern showed little change but for the progressive development of the prominent western feature along the edge of the U.S continental shelf. Flows in the vicinity and across the rhumb line showed little change. Again relatively unusual rates of change.

To the south of the main body of the Gulf Stream the satellite sea surface temperature (SST) images from Rutgers (Figs. 1-7) provide only minimal indication of coherent flows such as warm or

cold core rings. This is due primarily to the effects of cloud cover and the methods used to process the satellite images. Only Figure 5 shows some indication of an area of cold water centered near 36^0 N 68^0 W. just to the west of the rhumb line. A better view of conditions to the south of the Stream is provided by the NOAA's altimetry based model (http://tinyurl.com/y93ku8m8). This all weather system eliminates cloud interference and has been shown over the years to be quite accurate. The plot of May 10 (representing May 8 conditions - allowing two days for date reduction) shows a counterclockwise rotating feature centered at 36^0 N 68^0 30′ W (Fig. 8) characteristic of a cold core eddy. This ring is centered just west of and in close contact with the rhumb line. It looks to be causing flows to the north and west on the order of 2 +/- knots over a distance of approximately 40nm. An adverse flow for those proceeding from Newport to Bermuda. Review of archived altimetry plots going back to April 10 (Fig. 9) shows two cold core features one west of the rhumb line and the other to the east. In time the easterly ring was entrained in the main body of the Stream and dispersed. The westerly ring however remained essentially unchanged in position. This unusual condition appears to be the result of the effects of the expected westerly drift being offset by some easterly entrainment from the Stream. How long these conditions will persist is impossible to predict. If the ring remains in place over the next month ,of course, it likely will have an effect on strategic planning for those enroute to Bermuda.

The conditions observed over the past few months in terms of the form and figure of the main body of the Stream and the positioning and migration of eddies south of the main body is unusual and have the potential to produce significant navigational challenges. As has so often been the case, the best way to accommodate such a challenge is by careful observation using a variety of data sources over the next month. Such study in combination with an understanding of vessel characteristics and crew capability provides the foundation for a successful, enjoyable Race.

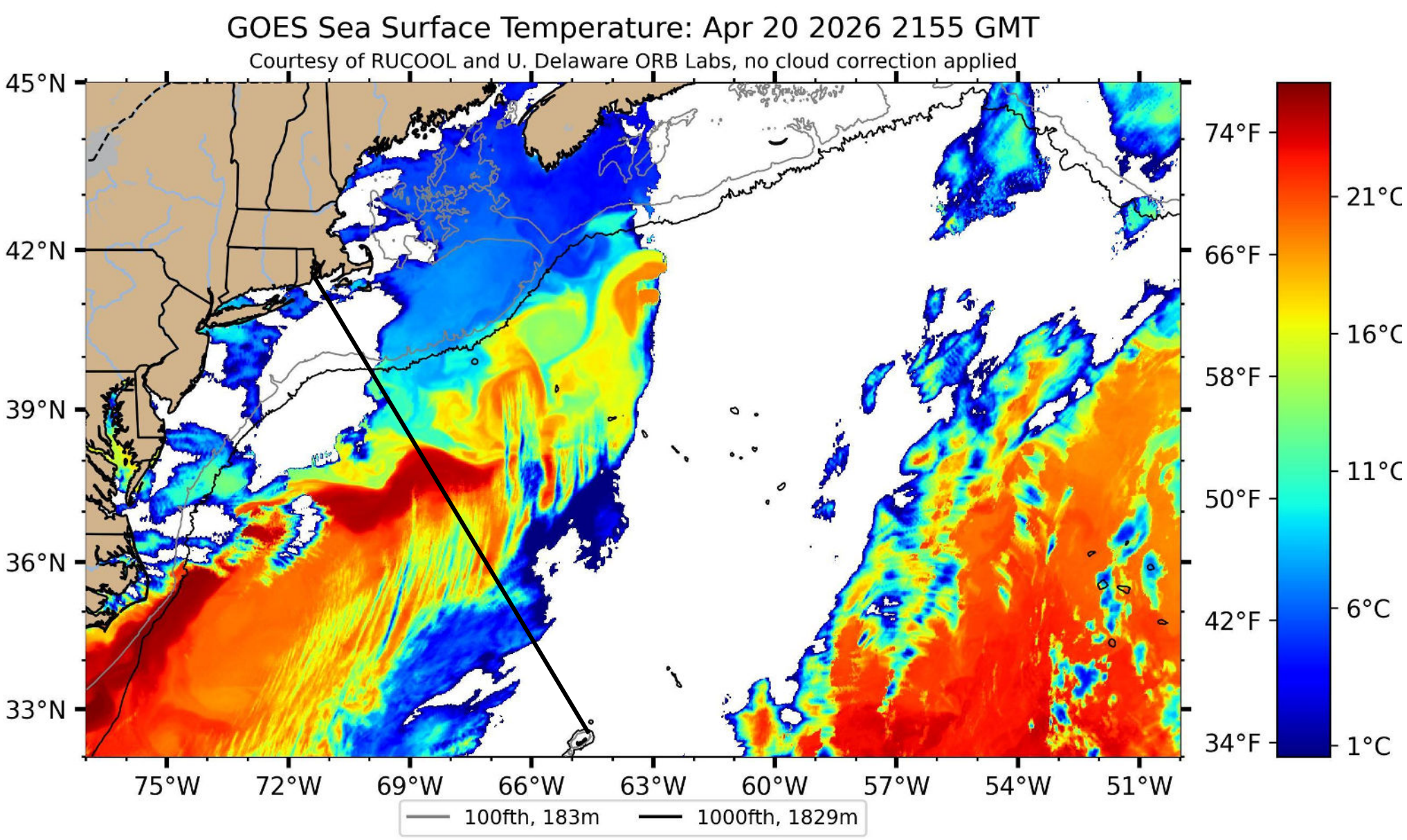

Figure 1 Gulf Stream Sea Surface Temperatures showing meander crossing rhumb line
Black line represents Newport to Bermuda rhumb line

http://rucool.marine.rutgers.edu

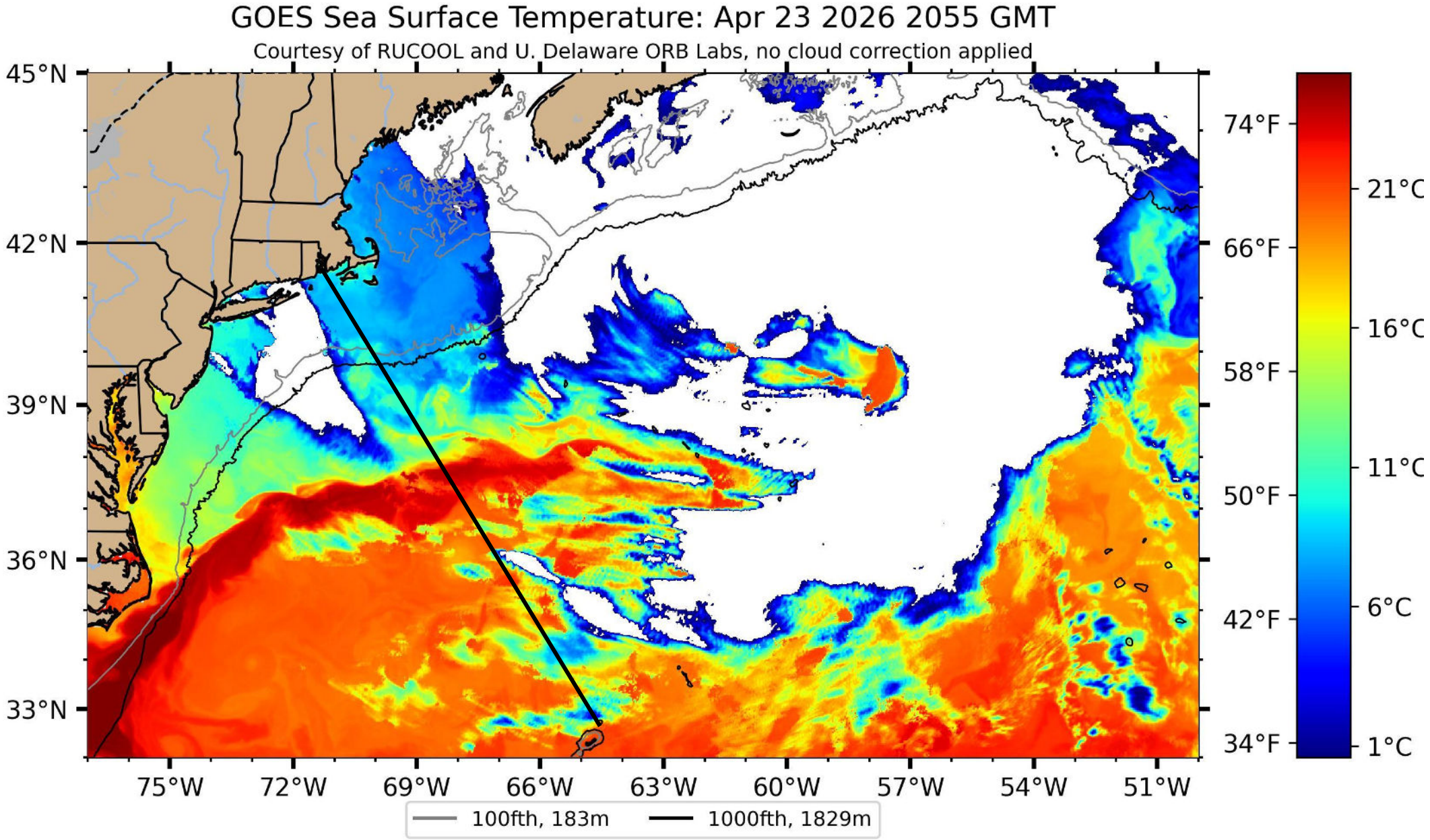

Figure 2 Gulf Stream Sea Surface Temperatures showing absence of meander crossing rhumb line
Black line represents Newport to Bermuda rhumb line

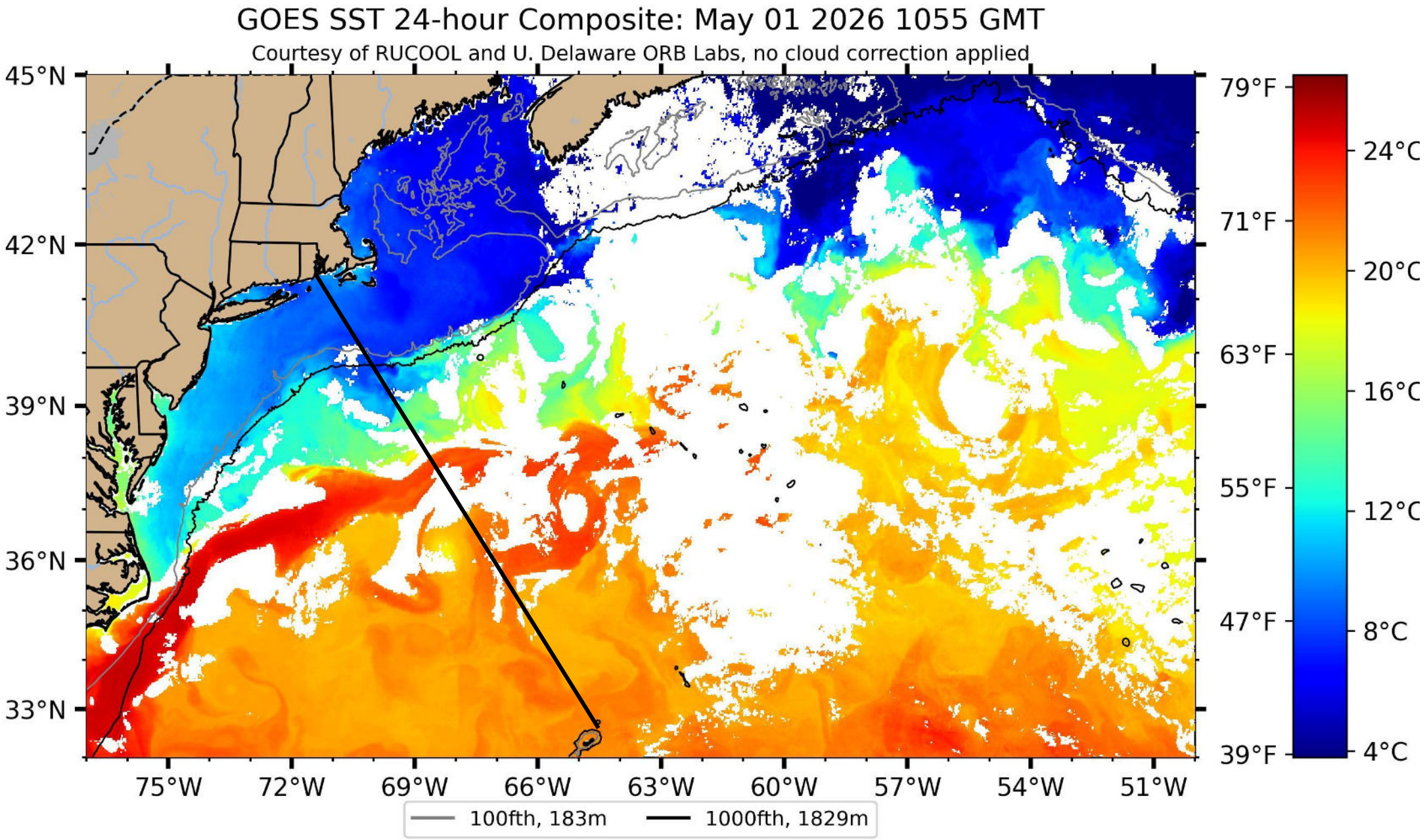

Figure 3 Gulf Stream Sea Surface Temperatures showing meander development
Black line represents Newport to Bermuda rhumb line

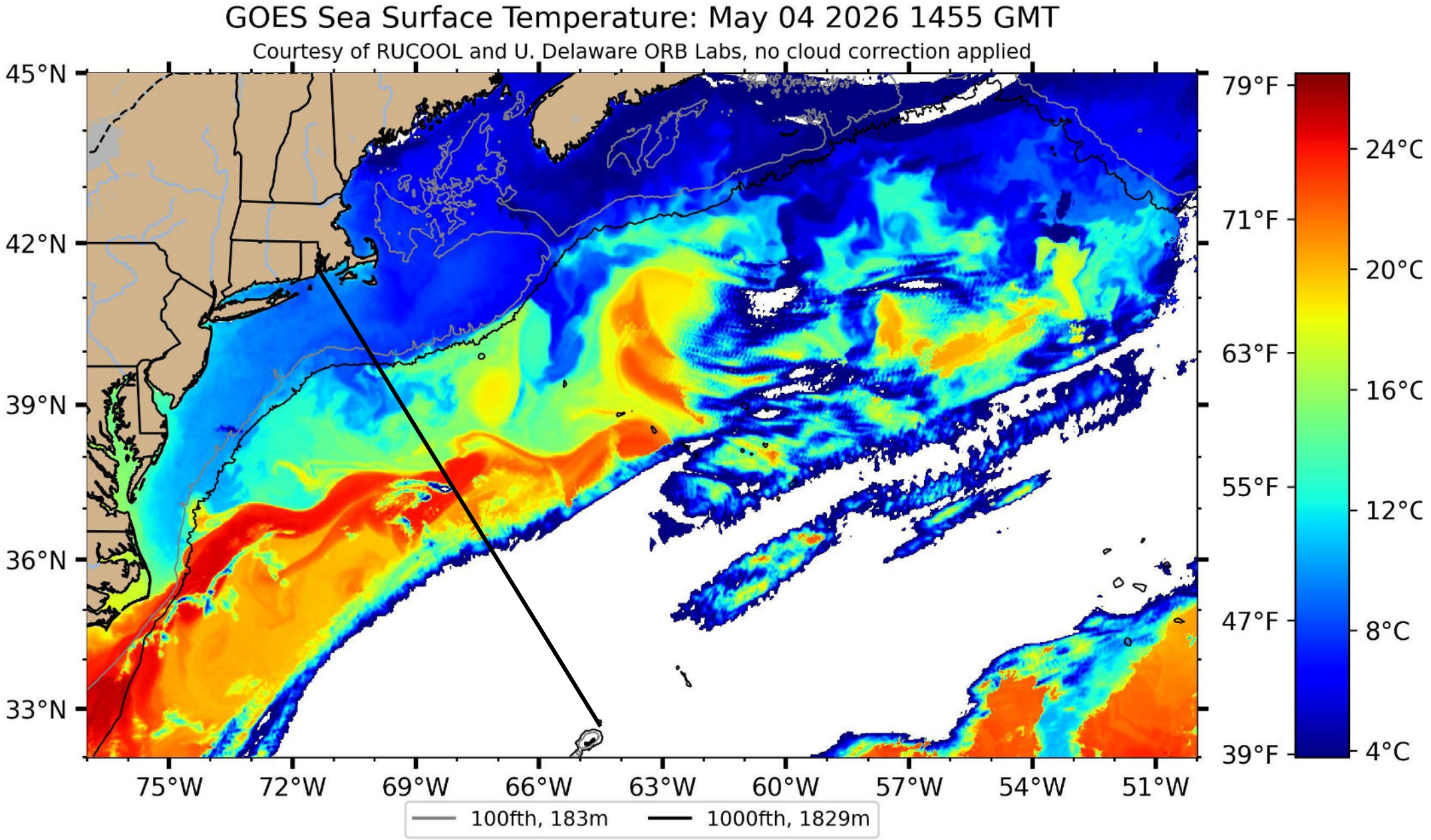

Figure 4 Gulf Stream Sea Surface Temperatures showing meander development/migration
Black line represents Newport to Bermuda rhumb line

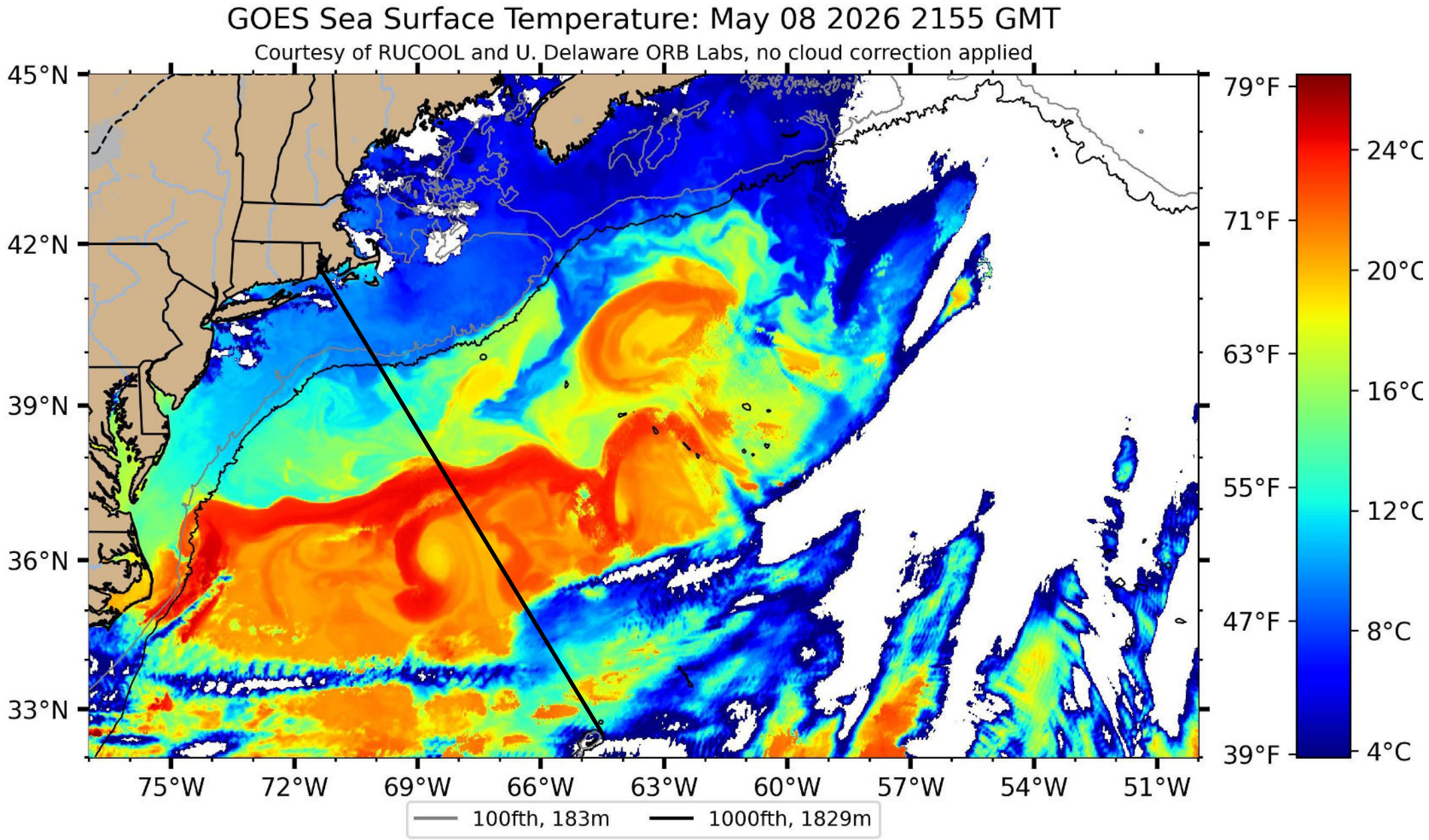

Figure 5 Gulf Stream Sea Surface Temperatures showing changing form of North Wall
Black line represents Newport to Bermuda rhumb line

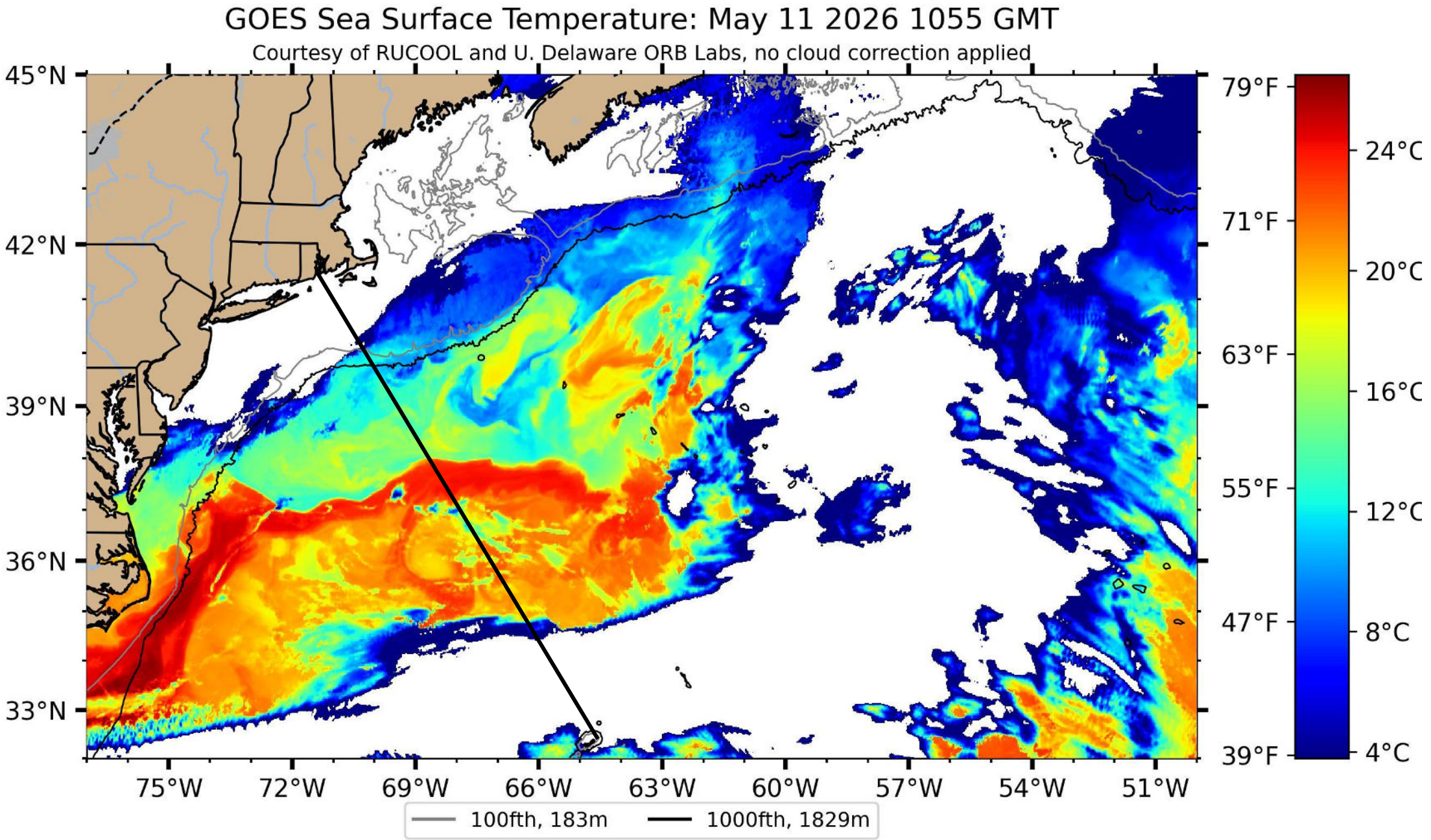

Figure 6 Gulf Stream Sea Surface Temperatures showing minimal change in North Wall Structure Black line represents Newport to Bermuda rhumb line

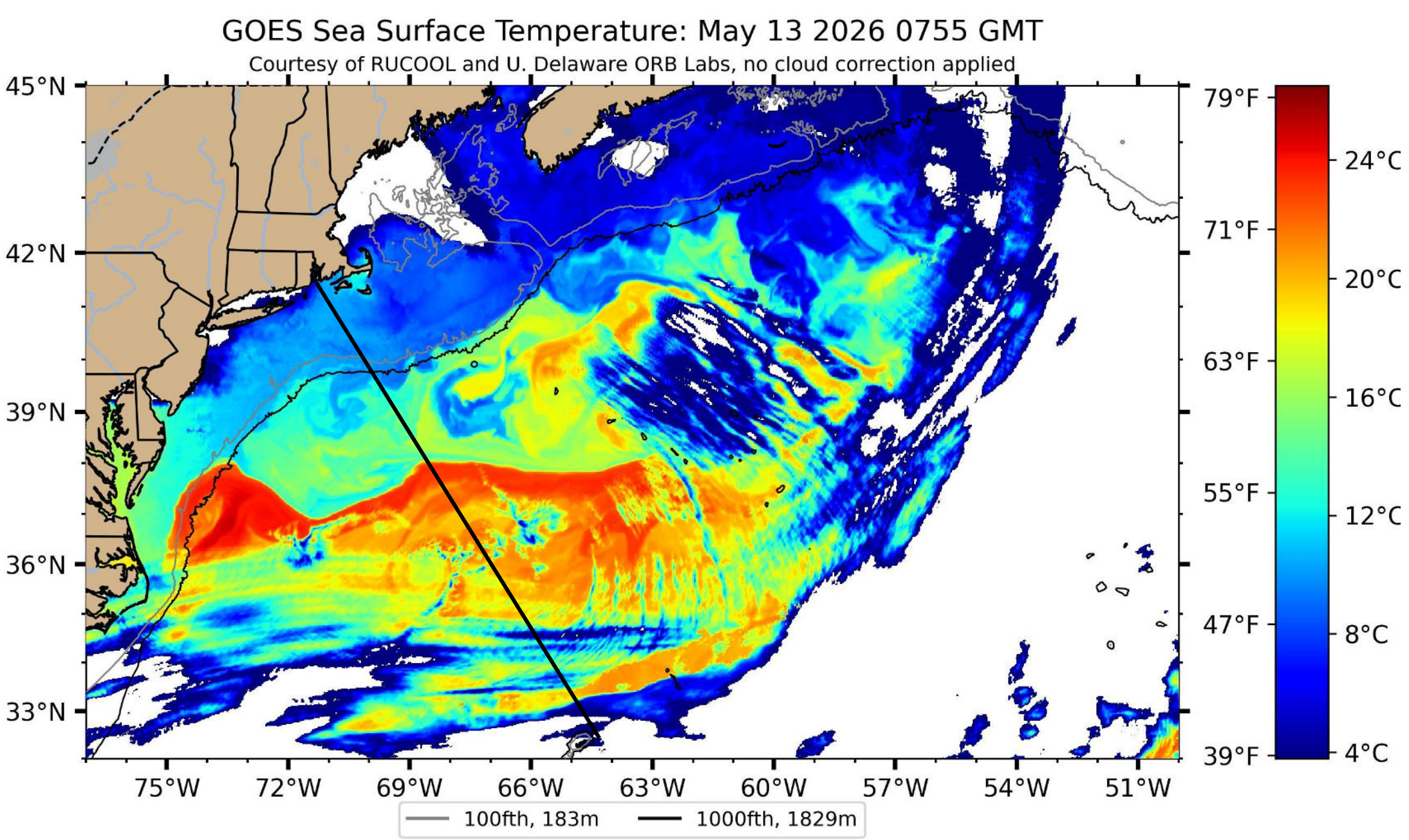

Figure 7 Gulf Stream Sea Surface Temperatures showing continuing minimal change
Black line represents Newport to Bermuda rhumb line

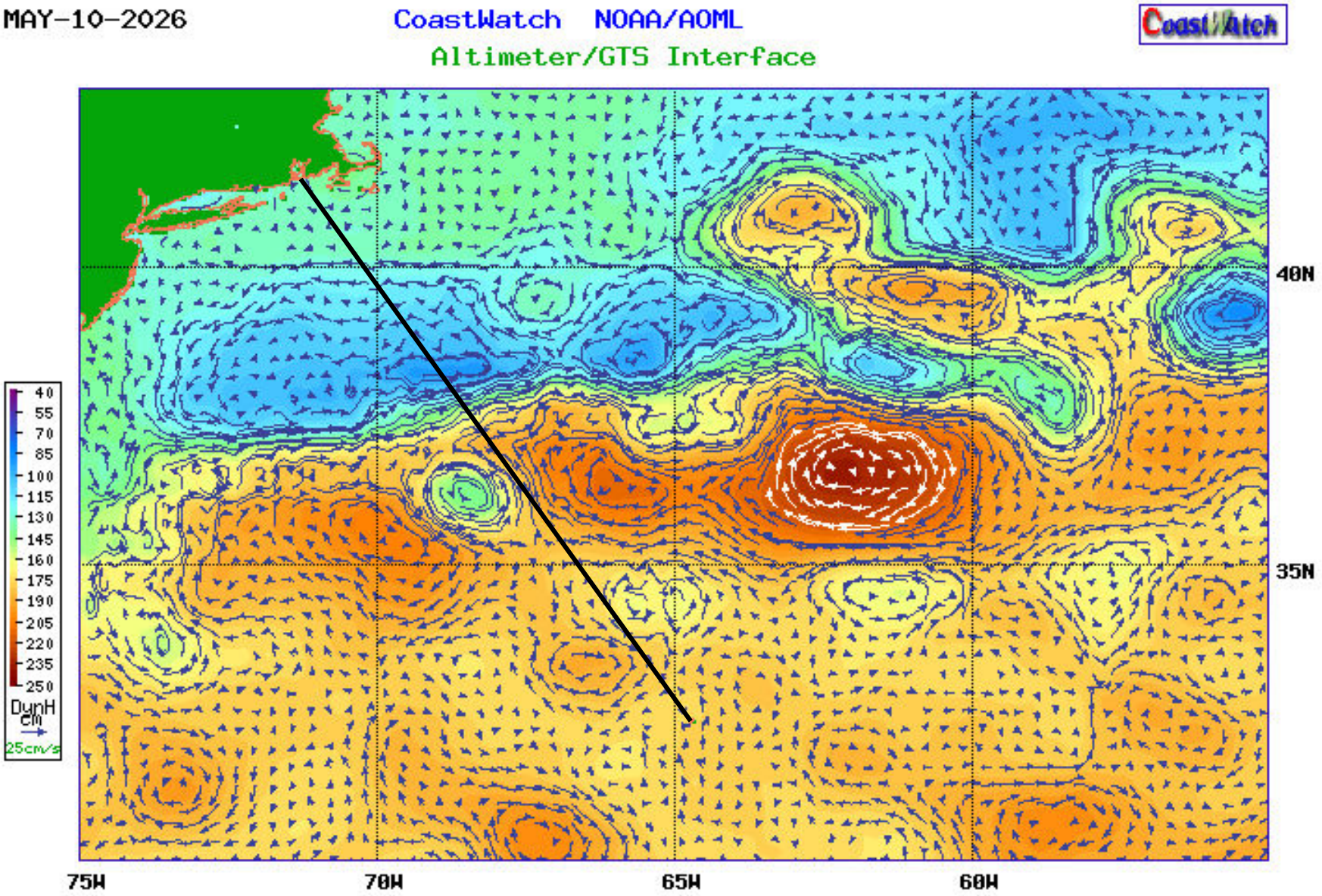

Figure 8 Northwest Atlantic Surface Currents- Altimetry Based Model May 10, 2026
Black Line Represents The Newport to Bermuda Rhumb Line

http://tinyurl.com/y93ku8m8

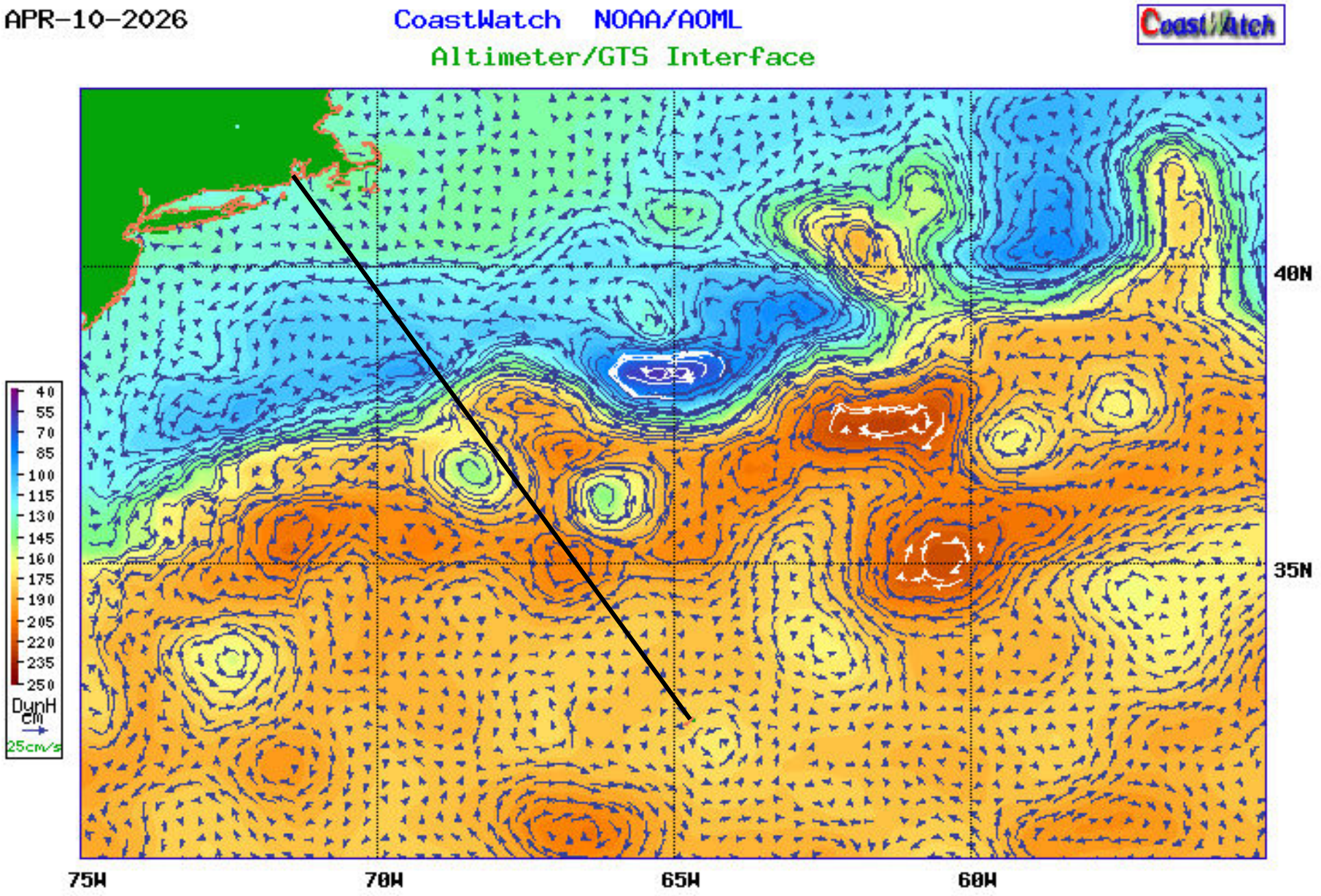

Figure 9 Northwest Atlantic Surface Currents- Altimetry Based Model April 10, 2026
Black Line Represents The Newport to Bermuda Rhumb Line