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## Is equatorial Atlantic variability resurging?

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The equatorial Atlantic is subject to interannual variability that is centered in the eastern cold tongue region and is known as the Atlantic Zonal Mode (AZM). Previous studies have indicated that AZM variability has declined over the recent decades and this tendency is projected to continue based on climate change simulations. The period 2000 to mid-2019 was arguably most conspicuous in this regard, as it did not contain any major AZM event. In late 2019, however, the strongest event in more than 40 years developed. This was followed, in 2021, by an equally warm event. In the present work we examine the mechanisms behind these recent events. We show that while the accompanying wind stress forcing was strong, it cannot account for the exceptional strength of the two events. Analysis suggests that Ekman pumping north of the equator contributed to the strength of the events by generating downwelling Rossby waves that were reflected into downwelling Kelvin waves at the equator. In addition, an examination of observed sea-surface height and ocean temperature from reanalysis and PIRATA buoys suggests that there was a steady buildup of heat in the eastern equatorial region (20W-10E, 10S-5N) since about 2015. This excessive heat content was discharged during the 2019 and 2021 events and may have contributed to their exceptional strength. Our results highlight the need for a close monitoring of oceanic conditions in the region. This will not only have implications for seasonal prediction but also for the long-term development of AZM variability.