

Assessing the Great Whirl, despite all the pirates

January 29 2013



Credit: NASA

Each year, the powerful southwest monsoon ramps up in midsummer, bringing life-giving rains to the Indian subcontinent. The monsoon winds also drive dramatic changes in the regional ocean currents, including a reversal in the circulation of the Arabian Sea, an energetic eddy field, and strong coastal upwelling. Off the east coast of Somalia, a large (300 to 550 kilometer wide, or 186 to 342 mile wide) anticyclone appears—known since 1876 as the Great Whirl—with surface currents as strong as 2.5 meters per second (8.2 feet per second). The Great Whirl, while associated with the seasonal arrival of the southwest

monsoon, is not caused entirely by it; the circulation of the Great Whirl starts a month before, and persists for a month after, the monsoon.

Although the existence of the Great Whirl has been known for more than a century, rampant piracy in the waters off Somalia has prevented researchers from directly observing its behavior using modern oceanographic tools and techniques. To get around this limitation, Beal and Donohue used satellite observations of [sea surface height](#) to measure the intraseasonal evolution and interannual variation of the powerful [anticyclone](#). The satellite altimetry measurements, collected from 1993 to 2010, supplemented measurements made during five research cruises conducted in 1995.

The authors find that the Great Whirl persists for roughly 166 days each year, initiating around May, strengthening and intensifying with the June arrival of the monsoon, and dissipating by November. They find that the Great Whirl is often ringed by smaller anticyclones that travel clockwise around its outside edge. Further, they find that rather than evolving gradually over the summer season, the anticyclone's size and shape can vary quickly.

More information: The Great Whirl: Observations of its seasonal development and interannual variability, *Journal of Geophysical Research-Oceans*, [doi: 10.1029/2012JC008198](https://doi.org/10.1029/2012JC008198), 2013
onlinelibrary.wiley.com/doi/10.1029/2012JC008198/abstract

Provided by American Geophysical Union

Citation: Assessing the Great Whirl, despite all the pirates (2013, January 29) retrieved 26 April 2024 from <https://phys.org/news/2013-01-great-pirates.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.