

Oceanographer refutes claims that climate change is slowing pace of Gulf Stream

March 5 2014, by Todd Mcleish

Several recent studies have generated a great deal of publicity for their claims that the warming climate is slowing the pace of the Gulf Stream. They say that the Gulf Stream is decreasing in strength as a result of rising sea levels along the East Coast. However, none of the studies include any direct measurements of the current over an extended period to prove their point.

But this is exactly what has been underway at the University of Rhode Island and Stony Brook University for the last 20 years: measurement of the strength of the Gulf Stream. And according to a paper published in *Geophysical Research Letters*, the researchers find no evidence that the Gulf Stream is slowing down. These new results reinforce earlier findings about the stability of Gulf Stream transport based on observations from as far back as the 1930s.

H. Thomas Rossby, a professor at the URI Graduate School of Oceanography, has spent much of his long career studying ocean circulation – especially the Gulf Stream – and how it makes its way across the Atlantic towards Europe and as far north as northern Norway. For the last 20 years he and his colleagues have measured the Gulf Stream using an acoustic Doppler current profiler (ADCP) attached to a ship, the freighter *Oleander*, which makes weekly trips across the Gulf Stream from New Jersey to Bermuda. The instrument, which measures the velocity of water moving beneath the ship down to more than 600 meters, has collected some 1,000 measurements of the Gulf Stream since it was installed in late 1992.

"The ADCP measures currents at very high accuracy, and so through the repeat measurements we take year after year, we have a very powerful tool by which to monitor the strength of the current," said Rossby.

"There are variations of the current over time that are natural—and yes, we need to understand these better—but we find absolutely no evidence that suggests that the Gulf Stream is slowing down."

The rapidly flowing Gulf Stream plays a major role in the global heat balance through its transport of very [warm water](#) from the Caribbean toward Europe.

For this reason alone, Rossby says, there is good reason to be concerned about the long-term stability of the Gulf Stream, since if the Gulf Stream were slowing, a decrease in the flow of warm water to the northern North Atlantic could cause significant cooling in parts of Europe. But the data tell him that there is no evidence that this is happening, contrary to recent claims in the literature.

Although he officially retired in 2011, Rossby is continuing his Gulf Stream research and hopes to install a new instrument on the *Oleander* in the coming years that will be able to profile currents to even greater depths.

"Once we do that, all of the water going north will be well within our reach," he said.

Provided by University of Rhode Island

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