



## Abstract View

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# A Comparison of the Annual Cycle of Two Sea Surface Temperature Climatologies of the World Ocean

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### ABSTRACT

A comparison of the annual cycle of two monthly sea surface temperature climatologies for the world ocean is presented. One set of the climatological fields used consist of one-degree objectively analyzed monthly means, based on approximately 1.5 million temperature soundings held by the National Oceanographic Data Center, Washington, DC. The second climatology used is based on monthly objective analyses of a subset of the 70 million historical merchant ship reports from the Cooperative Ocean–Atmosphere Data Set. The comparison is performed by examining the amplitude and phase of the first two harmonics of each climatology, as well as the percent variance contributed by each harmonic to the annual cycle. There is excellent agreement between the two sea surface temperature climatologies in the first two harmonics. In the Northern Hemisphere, maxima in the amplitude of the first harmonic are found off Japan (approximately 7.5°C–8.0°C) and off the east coast of the United States (8.0°C–9.0°C off Cape Hatteras) and Canada (8.0°C in the Gulf of St. Lawrence). In the Southern Hemisphere, open ocean maxima of 3.0°C–4.0°C are found at latitudes 28° to 32°S in the Pacific, Atlantic and Indian Oceans. In the tropics of the eastern Atlantic and eastern Pacific, maxima appear as tongues extending from the continents to the northwest. Another maximum is observed along the east coast of South America centered at 35°S, 58°W with a value of about 5.5°C. The results show large propagation of phase in the tropical Pacific and Atlantic. The results presented are the first global estimates of these quantities and are in agreement with previous results published in the literature for limited ocean domains.

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