

The 2010 Global and Northern Hemisphere Hurricane Season: A wrap up.

In late August, we'd written a piece discussing the fact that while the Atlantic hurricane season was projected to be quite active [1], [2], [3], throughout the Northern Hemisphere, the season had been quite quiet [4]. In this article, we'd compared 2010 to some of the years past going back to the late 1970s when more detailed records were being kept finally in all basins. The Southern Hemisphere was not included in [4] since the Southern Hemisphere annual cycle is six months out of phase with that of the Northern.

By that time, 2010 had been the third quietest year in the period of record, and this was due to the quiet season in the Pacific Ocean basin as a whole. As the nominal hurricane season comes to an end in the Atlantic on 30 November, it can be seen that in spite of the active Atlantic hurricane season [5] the Northern Hemisphere continued to be quiet. In fact, the year 2010 is poised to jump one more position as the second quietest year on record.

In a typical Northern Hemisphere year, there are 57 named storms, of which 34 become hurricanes, and 10 or 11 of these become the most intense storms (Category 4 or 5) [6]. With one month to go, this year's total comes in at only 46 named storms including 27 hurricanes, and 11 intense storms. This year is second only to 1977, in which only 39 tropical cyclones occurred. The year 1979 with 48 storms currently holds the number three spot. Recent research [6] has demonstrated that during La Niña years, tropical cyclone activity in the Pacific as a whole is confined to the continental margins, while during El Niño years the span of the entire tropical Pacific is active.

While many [5] have discussed the busy Atlantic season as being the third most active season and one in which there was no category five storms, the remainder of this article will focus on the quiet Pacific. Additionally, it should be noted that the Northern Indian Ocean lived up to expectations in that five storms typically occur, and five have occurred as of the end of November.

In the East Pacific, 2010 set a new standard this year for a quiet season and only seven named storms occurred. The previous minimum since 1970 was eight in 1977. Additionally, the last named storm occurred in late September which is the earliest end to a season in that basin. The season includes only three hurricanes (a record minimum) and one intense storm. During June and July, the cool SST's related to the onset of this year's strong La Nina began to set in. This is likely part of the reason for the slow season in this basin.

Largely overlooked to this point is the fact that the West Pacific has also been very quiet. Only 15 named storms have occurred here and this is the quietest season since the late 1970's and ties 1946 as the quietest overall. Recall, however, that 1946 would have been before the satellite era and thus, 2010 could be well the quietest season there in 65 years or more. This includes only eight hurricanes (a record minimum) and only two intense hurricanes in that basin. Only 1985 had fewer intense storms with one. Realistically, the West Pacific is the last basin left in the Northern Hemisphere in which tropical cyclones may occur in December.

Expanding our look to the Southern Hemisphere, no tropical activity has been noted since March 2010 in the South Pacific. Overall, 23 tropical cyclones have occurred in the entire Southern Hemisphere since January 1, including a rare event in the South Atlantic. The Southern Hemisphere averages 27 events per tropical season [6], thus, it is not possible that this part of the globe is offsetting a quiet Northern Hemisphere. Though, it is interesting to note that the South Pacific, like the North Pacific, has been quite quiet throughout most of this year.

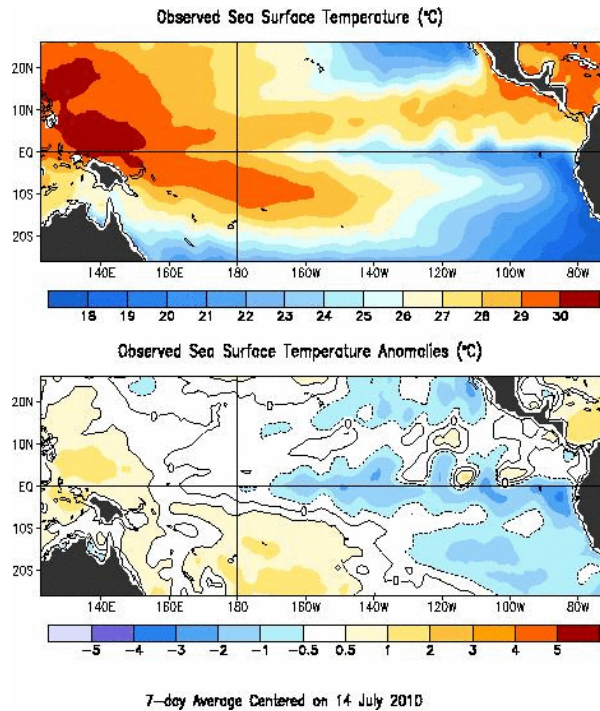


Figure 1. Global SSTs (top) and anomalies (bottom) for mid July 2010. Temperatures are shown in (°C). See: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/

All of this is consistent with recent drop in accumulated cyclone energy (ACE), which is at the lowest point globally [7] in about 30 years and shown to correlate well to tropical cyclone numbers. Then, it is no coincidence then that 2010 is competing with the late 1970s for the quietest seasons in the period of record. And what of the contention that anthropogenic global warming would lead to an increase in hurricane numbers and strength? Speculation on this point may be falling lower than the global ACE.

[1] <http://www.nhc.noaa.gov>

[2] <http://hurricane.atmos.colostate.edu/Forecasts/>

[3] <http://www.accuweather.com>

[4] Lupo, A.R., 2010: 2010 Hurricane season: Unusually quiet in the Northern Hemisphere. <http://icecap.us/images/uploads/2010Hurricaneseason.pdf>.

[5] NOAA, 2010: Extremely active Atlantic hurricane season a “gentle giant” for the U.S.. http://icecap.us/images/uploads/112910_Hurricane_Season_Wrap_Up_final.pdf

[6] Lupo, A.R., 2011: *Interannual and Interdecadal variability in hurricane activity*. *Hurricane Research*, ISBN 978-953-7619-X-X, Intech Publishers, Vienna (In preparation)

[7] Maue, R.N., 2010: <http://www.coaps.fsu.edu/~maue/tropical/> From Ryan N. Maue's 2010 Global Tropical Cyclone Activity Update