

## 2012 State of the Climate

A report released by the American Meteorological Society (AMS), which was compiled by 384 scientists from 52 countries and peer-reviewed with scientists from NOAA's National Climatic Data Center in Asheville, NC, serving as lead editors... [Read more](#)

### Notes from the EDITOR Part II

By Pablo González <sup>[1]</sup>

In the last issue of Disasters This Week, we looked into one of the highlights of the State of the Climate in 2012 that matters the most in our hemisphere, Sea Level Rise. In this one, we will look into another critical finding of the report for our hemisphere, cyclones and the North Atlantic hurricane activity.

And why do sea level rise and cyclones matter so much in our region? According to the US Census Bureau, in the US alone, in 2010, over 123 million people, or 39 percent of the nation's population, lived in Coastal Shoreline Counties, representing less than 10 percent of the US land area (excluding Alaska). US Coastal Shoreline County population experienced an increase of about 34.8 million people from 1970 to 2010. And while the expected increase in density for the entire US is 11 persons/mi<sup>2</sup>, according to Woods and Poole Economics, Inc. 2011, the increase in the US Coastal Shoreline County population density from 2010–2020 will be 37 persons/mi<sup>2</sup>. If we now consider the 580 million people living in Latin America and the Caribbean, with many in low coastal areas and low elevations susceptible to floods, and an urbanization rate that has doubled from 41% in 1950 to 80% in 2010 <sup>[2]</sup>, any sea level rise combined with active cyclonic seasons may mean a higher likelihood of disasters to many.

The State of the Climate in 2012 indicates that global tropical cyclone activity during 2012 was near average. Hence, the total 84 storms recorded in 2012 are actually below average when we compare it to the 1981-2010 average of 89

storms. The number of hurricanes/typhoons/cyclones (HTC) in the 2012 season was also below the 1981–2010 average of 44 (Knapp et al. 2010), with a total 41 HTC.

In our hemisphere, however, the North Atlantic experienced an above-normal activity. The report indicates that 2012 “marks the 13th above-normal season, since the current high activity era for Atlantic hurricanes began in 1995 (Landsea et al. 1998; Goldenberg et al. 2001). During 1995–2012, 13 (72%) seasons have been classified as above normal with eight (44%) being hyperactive (ACE exceeding 165% of the median), and only two seasons (11%) classified as below normal. These high levels of activity contrast sharply with the recent low-activity era of 1971–94, when 12 (50%) seasons were below normal, and only three (12.5%) were above normal with none being hyperactive.”

But before we rush into any conclusion, it is important to note that 1995, the year when the current high activity era for Atlantic hurricanes began, coincides with the beginning of a warm phase of the Atlantic Multi-decadal Oscillation (AMO), which will extend until about 2025. And not surprisingly, the low-activity era of 1971-94 coincides with a cool phase of AMO that started precisely around 1969. So, we could –by simple correlation, conclude that AMO is a significant factor in determining the level of activity in the North Atlantic.

Furthermore, statistics are being computed with historical data that has been collected since 1851, which suggests that averages are underestimated since short-lived storms that are being detected with modern satellite technology –since the 1970’s, went undetected in the past. For instance, records for the 2011 season include a short-lived, unnamed tropical storm that formed in early September between Bermuda and Nova Scotia. Activities such as this short-lived tropical storm would have gone undetected before satellite technology ([NOAA, November 28, 2011](#)), pulling the average lower than it may really be.

So, what do we know? We know that a warm phase of AMO presents favorable conditions for the formation of tropical storms and hurricanes, in the North

Atlantic basin, as we know that tropical storms gain strength with higher sea surface temperatures (SST), among other factors. And we also know that the average of total number of storms and hurricanes may be underestimated, which would result in false above-average seasons.

We know that multi-decadal oscillations such as AMO, and other oscillations, such the El Niño Southern Oscillation (ENSO), and the Pacific Decadal Oscillation (PDO), are critical factors in the recurrence of high activity seasons with a large number of hurricanes. Whether or not these oscillations might be masking longer term oscillations or more drastic changes in Climate associated with global warming, we don't know. And we will have to collect much more data than the current data sets that barely cover four decades and a few cycles of well-known oscillations. And that will take many more decades and even centuries.

In the mean time, we are certain that we can protect are communities and infrastructure, with today technology, construction techniques and planning approaches that integrate disaster risk assessment. So let's keep the eye on the ball. Let's get our communities better prepared, let's prevent and mitigate disasters by reducing exposure and increasing resilience to those natural hazards that we know with certainty will manifest sooner or later, while we continue to improve our knowledge about Climate.

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the Florida International University (FIU), and the Brookings Institute, among others. He is the co-author of or contributor to several DSD publications, and the author of several white papers presented at international conferences and symposiums. He has spent some time studying the differential roles and conditions of women and men in IWRM and DRM –defined around gender-related social constructions. He has also a special interest in geopolitical strategies that define relationships among States and joint approaches to sustainable development. He is a certified Emergency Medical Technician (EMT) with the State of Maryland.

[2] Source: UNHABITAT State of the World's Cities 2010/2011 - Cities for All: Bridging the Urban Divide.