Tropical cyclone names
Two tropical cyclone names in the Atlantic were retired from the official name rotation by the World Meteorological Organization’s hurricane committee because of the deaths and damage they caused in 2010. This committee issues the potential names for tropical cyclones to be used every six years for both the Atlantic and eastern North Pacific basins.

Igor and Tomas in the Atlantic would have appeared again in 2016 but will no longer be used. In their places will be Ian and Tobias. Details of the retired 2010 named storms are shown below.

Igor was a classic Cape Verde hurricane, reaching Category 4 strength with 155 mph winds on 14th September, while located about 600 miles east of the northern Leeward Islands. The storm weakened to a Category 1 hurricane when it struck Bermuda on 19th September. Igor grew in size, with the area of tropical-storm-force winds becoming roughly 750 nautical miles wide. Igor made landfall on 21st September near Cape Race, Newfoundland. It was the most damaging hurricane on that island in 75 years. Igor killed three people along its path. Damage in Newfoundland was placed at almost $200 million.

Tomas became a hurricane on 30th October shortly after striking Barbados. It strengthened to a Category 2 storm striking St. Vincent and St. Lucia, becoming the latest hurricane on record (from 1851 to the present) to strike the Windward Islands. After weakening to a tropical depression over the central Caribbean Sea, Tomas regained Category 1 strength on 5th November and moved between Jamaica and the southwest peninsula of Haiti, through the Windward Passage. It weakened just below hurricane strength before reaching the Turks and Caicos Islands. Fourteen people are confirmed as dead, or missing, on St. Lucia. Total damage there was estimated to be around $500 million. Heavy rains associated with Tomas triggered floods and landslides in Haiti where it was reported that the death toll was 35.

Tsunamis
In the wake of Japan’s tsunami disaster, NOAA has urged Americans who live and vacation at the coast to take the threat of tsunamis seriously. With more coastline than any other country and proximity to several major fault lines, the Pacific, Atlantic, Gulf and Caribbean coasts of the United States are vulnerable to tsunamis. NOAA’s National Weather Service, which operates the US tsunami
detection and warning system, has said that the key to surviving a tsunami is staying informed and moving quickly to higher ground when a tsunami threatens.

In a message issued by the White House in mid-March, President Barack Obama acknowledged that although the danger posed by tsunamis cannot be eliminated, NOAA’s efforts within the National Tsunami Hazard Mitigation Program to work with local communities on hazard assessment, evacuation planning, and educational outreach can help save lives by equipping citizens to effectively respond to emergency situations. The President also said the heartbreaking loss of life from the recent earthquake and tsunami in Japan reflects the catastrophic damage these unexpected disasters can cause. He commented, “As we offer our assistance to those impacted by this tragedy, we also renew our commitment to ensuring preparedness along our shores, efficient warning systems and awareness in coastal communities are vital to protecting Americans in at-risk areas of the country.”

Following the deadly 2004 Indian Ocean tsunami, Congress provided NOAA with more than $150 million to expand the nation’s tsunami detection and warning capabilities, outreach and education and research, and provided support for a global tsunami warning and education network. As a result of this investment, the nation and world are better prepared for the next tsunami. For example, 83 US coastal communities have earned the National Weather Service TsunamiReady™ designation, up from only 11 in 2004. This programme prepares emergency managers to warn citizens during a tsunami emergency.

The National Weather Service operates two tsunami warning centres, in Palmer, Alaska, and Ewa Beach, Hawaii. The centres, staffed around the clock, week in, week out, issue tsunami alerts (watches, warnings, advisories and information statements) as early as two minutes after an earthquake. Upon receipt of tsunami alerts, state and local emergency management agencies determine the appropriate response, including whether to clear the beaches, sound sirens or evacuate people.
NOAA gave advice on tsunami warning. Warning signs of a tsunami were given as (a) a strong earthquake, or one that persists for 20 seconds or longer; (b) the ocean withdraws or rises rapidly; (c) a loud, roaring sound (like an airplane or a train) coming from the ocean and (d) tsunami warnings broadcast over television and radio, by beach lifeguards, community sirens, text message alerts, National Weather Service tsunami warning centre websites and on NOAA Weather Radio All Hazards.

To follow there was an indication as to what one should do if one sees or hears the warnings above. One should (i) keep calm; (ii) immediately move to the local tsunami shelter using defined tsunami evacuation routes; (iii) if there are no evacuation routes defined, move to higher ground that is at least 100 feet in elevation, a mile inland, or to the highest floor of a sturdy building and stay there; (iv) if you are already in a safe location, stay there; (v) move on foot when possible, do not drive, keep roads clear for emergency vehicles; (vi) stay tuned to NOAA Weather Radio or news broadcasts for changes in tsunami alerts and (vii) stay away from the coast and low-lying areas until local officials say it is safe to return.

**NOAA’s Arctic Plan**

NOAA explained on 16th March how it will concentrate scientific, service, and stewardship efforts in the Arctic when it released its first ever Arctic Vision and Strategy. Jane Lubchenco, Under-Secretary of Commerce for Oceans and Atmosphere and NOAA administrator, made the announcement during a keynote address to the Aspen Institute in Washington. She said, “The Arctic is at once a majestic, harsh, and fragile environment. It is the region where we are seeing the most rapid and dramatic changes in the climate. And these regional changes have global implications. NOAA’s Arctic plan builds on our research history in that region to prepare us for a changing Arctic that will affect our economic, environmental, and strategic interests. The time to refocus our efforts is now and strong local, regional and international partnerships are required if we are to succeed.”

NOAA identified the Arctic as one of its priority areas in its 2010-2017 Strategic Plan and 2010 annual guidance memorandum, which serve to focus the agency’s efforts on key objectives.

The NOAA Arctic Vision and Strategy lists six goals to: (A) forecast sea ice; to strengthen foundational science; (B) understand and detect Arctic climate and ecosystem changes; (C) improve weather and water forecasts and warnings; (D) enhance international and national partnerships; (E) improve stewardship and
management of ocean and coastal resources in the Arctic and, finally, (F) advance resilient and healthy Arctic communities and economies.

These goals require co-ordination of all NOAA’s capabilities, including fisheries management, weather and sea forecasting, climate services, mapping and charting, oil spill readiness and response, observations by satellite, ship, and aircraft, and oceanic, atmospheric, and climate research.

Said Larry Hartig, Commissioner of the Alaska Department of Environmental Conservation. “I am glad to see NOAA’s Arctic Vision and Strategy recognizes the need in Alaska for expanded sea ice forecasting, weather observations, water level information and geodetic control. The Alaska Immediate Action Workgroup has identified the importance of these data in our efforts to protect Alaska communities already experiencing coastal erosion and flooding and in planning for possible future development in coastal areas.”

According Lubchenko, “NOAA envisions an Arctic where decisions to ensure that precious Arctic ecosystems and communities remain healthy and resilient, now and for future generations. To do that, we must better understand and predict the changes that are happening in the Arctic, in some cases faster than previously projected.”

The loss of summer sea ice is one such example of rapid change. Record minimum sea ice was recorded in 2007 and has remained low, suggesting that 2007 was not a single extreme event. With careful satellite measurements, scientists have documented an almost 9% decrease in ice extent per decade. In 2010 these trends continued making this year the third lowest sea ice extent ever measured by satellite, 22% below the average minimum of the past 30 years. This animation demonstrates this decrease and illustrates, for perspective, an equivalent loss of the contiguous US. The significant loss of summer sea ice is creating economic opportunities for resource extraction and maritime commerce, but it also creates challenges for environmental protection and national security. Arctic communities have long depended upon the unique characteristics of the region for food, livelihoods, cultural heritage and protection.

NOAA’s mission is to understand and predict changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and to conserve and manage our coastal and marine resources.