



Country Report from Bermuda for the 41st Session of the WMO Regional Association IV Hurricane Committee

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1. Review of 2018 Season

Bermuda was once again spared any direct tropical impacts during the 2018 hurricane season. This continued the trend of a return to quieter seasons, which began during 2017. Prior to this, the three previous seasons were very busy, with four impactful hurricanes across the 2014, 2015 and 2016 seasons. Despite some local 'Potential Threat' advisories (essentially a heads-up to keep an eye on a particular tropical cyclone) being issued to the community for Hurricane Florence, no official tropical cyclone watches or warnings were issued by Bermuda Weather Service for the second year running.

Although a quiet season from an impact perspective, the pre-season preparations were as busy as ever, with multiple briefings to various stakeholders, as well as an annual hurricane preparedness week event at the end of May. As with the previous season, a comprehensive hurricane season update was provided to the local Emergency Measures Organisation (EMO) and other invited stakeholders, including the media, during mid-August. This has proved to be a well-attended and received event ahead of the climatological height of hurricane season for Bermuda (September and October).

Early season predictions of an El-Nino developing were emphasised by various agencies (including NOAA's Climate Prediction Center) by the time of the local EMO briefing event. With the main area of suppression being in the deep Caribbean, Bermuda remained on high alert for the threat of significant tropical activity through the rest of the season. The first and arguably most significant threat to Bermuda was major Hurricane Florence in early September. The long-range models were initially recurving Florence to our east as it approached from the distant southeast. However, some model runs (notably one run of the ECMWF) put Bermuda in the bullseye for a direct impact by a major hurricane towards mid-September. That one particular run of the ECMWF was caught by social media, and the issuance of a non-official post regarding a significant impact to Bermuda by a major hurricane at a time range of over 1 week out was entirely unhelpful and unfounded. This is one of the modern challenges that NMHSs are having to deal with, what with the advent of social media, and certain individuals wanting to get impactful messages (e.g. Tweets) out first to society. The Bermuda Weather Service was able to calm the initial 'excitement' this post drew, emphasising the fact that a near 10-day forecast cannot be relied upon and certainly not to the extent of focusing on a direct impact of major hurricane over such a small isolated landmass. Nevertheless, the community and stakeholders including the EMO were kept up to date on this subsequent 'Potential Threat' to Bermuda. As time progressed, models gradually came more in line with a southward passage of Bermuda, which ultimately came to fruition, before Hurricane Florence approached the US eastern seaboard. During Hurricane Florence's closest point of approach, around 300nm to the south-southwest of Bermuda during the evening of 11 September local time, the Island was under a small craft warning for strong winds (20-33 knots sustained) and rough seas (seas/swells of 9ft or more). Hurricane Florence's outer rain bands were also

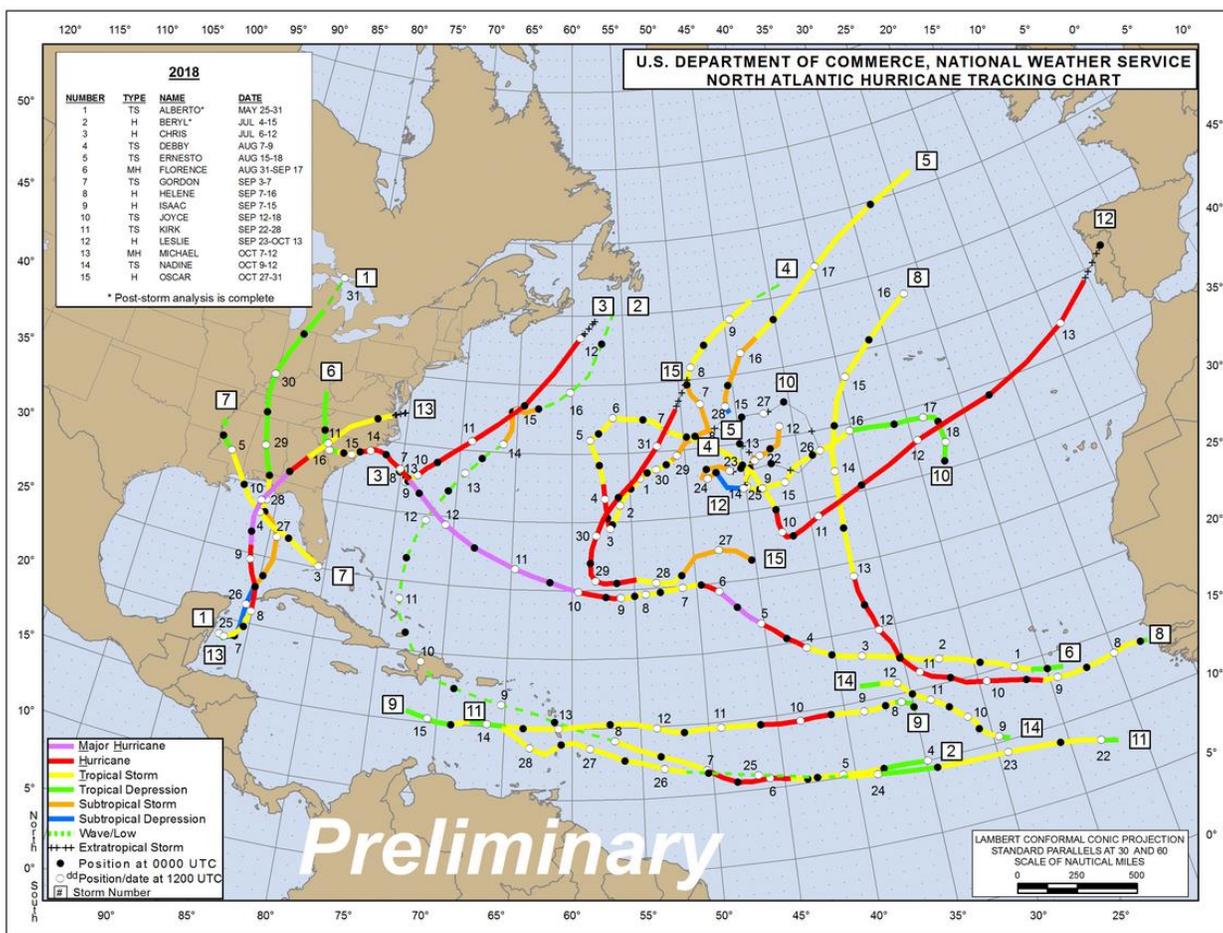


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evident on Bermuda's S-Band Doppler Radar imagery during the 11-12 September, coming within around 60nm of the Island to the south and southwest.

Other than that, two distant hurricanes, Leslie (late September into October) and Oscar (late October), brought some minimal impacts to Bermuda. Hurricane Leslie warranted a small craft warning, with some rough northeast swells and occasional strong winds on 2 October. Hurricane Oscar also warranted a small craft warning, this time primarily for rough long-period easterly swells, which caused some significant beach erosion (several feet of sand) along the South Shore, most notably at the popular Elbow Beach location.

As always, the two-way communication with the NHC provided invaluable guidance, especially whilst managing the early uncertainty with Hurricane Florence. The Bermuda Weather Service are very grateful for this guidance the NHC hurricane specialists provide throughout the season.





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2. Summary Table – 2018 Tropical Systems that affected Bermuda

Storm Name	Month & Date(s)	Watch/Warning Issued for Bermuda	Maximum Wind Speed at LF Wade (10min averaging)	Maximum Wind on/near Island	Significant Surge, Swell, Rainfall &/or Flooding	CPA & other notes	Verification
Hurricane Florence (Cat 4)	Sept. 11-12 th	Potential Threat Small Craft Warning	17G24KT	Crescent: 22G26KT	SW Swells 5'-15', decreasing later on the 12 th	00UTC 12 Sept 2018 308nm SSW	A mid-level ridge to the northeast of Bermuda and High centre to NW of Bermuda (on 11 Sept) steers Florence quickly W-NW to NW, Models were initially poor with both track and intensity, but improved once Florence was to the south of Bermuda
Hurricane Leslie (Cat 1)	Sept 28 th – Oct 5 th	No Threat Small Craft Warning	RWY12: 23G31KT RWY30: 21G33KT Oct 2nd	Crescent: 28G38KT Oct 2 nd	NE Swells start building up Sept 28, reaching a max of 10 -16' Oct 2 nd , then slowly diminishing through the next few days	CPA changed often due to Leslie's unusual track, final CPA Oct 4th at 9pm local 370 nm ENE	An upper ridge over Bermuda caused Leslie to stall to the distant east on the 3 rd , overall model performance has been excellent with the track and intensity
Hurricane Oscar (Cat 2)	Oct 29 th -31 st	No Threat Small Craft Warning			Long period (up to 14 secs) E Swells start building overnight on the 29 th , reaching a max of 12-13'. Significant beach erosion along the south shore, especially at Elbow Beach – several feet of sand washed away towards eastern end of beach.	CPA 402 nm ESE 9am Oct 30 th	High pressure steered Oscar northerly until an upper trough picked it up on the 30 th , steering to the NNE to NE and away from Bermuda