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# 2013 TROPICAL CYCLONE SEASON SUMMARY

**Canadian Hurricane Centre  
Meteorological Service of Canada**

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Dartmouth, Nova Scotia, Canada**

Canada 

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## 2013 TROPICAL CYCLONE SEASON SUMMARY

During 2013, two weak post-tropical low pressure systems entered the Canadian Hurricane Centre (CHC) Response Zone. On June 8<sup>th</sup> the remnant low from Tropical Storm Andrea merged with a frontal system as it approached Nova Scotia, causing some minor flooding. All was quiet until the remnants of Tropical Depression Gabrielle approached Nova Scotia from the south on September 13<sup>th</sup> bringing heavy rain and resulting in minor flooding.

A summary of bulletins issued by the CHC is shown below, including a history of previous years. Clearly, 2013 was the quietest in this list of seasons. In fact, it was CHC's least active season since 1997, when only 26 information statements were issued.

<b>BULLETIN SUMMARIES</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>
<b>Unique Hurricane Information Statements (WOCN3X/4X CWHX)</b>	<b>32</b>	<b>64</b>	<b>99</b>	<b>79</b>	<b>37</b>	<b>90</b>	<b>48</b>	<b>93</b>	<b>87</b>	<b>104</b>
<b>Number of Storms Represented by these Bulletins</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>8</b>

Below is a summary of the two events of tropical origin that affected Canadian territory in 2013.

## **“Andrea”**

### **Storm and Synoptic History**

Tropical Storm Andrea formed from the remnants of Hurricane Barbara in the East Pacific Ocean. Andrea moved from the southern Gulf of Mexico and crossed Florida as a tropical storm with winds near 40 kts (74 km/h). Pockets of very heavy rain flooded parts of Florida as Andrea interacted with a frontal system. Heavy rain continued to fall along the eastern Seaboard of the U.S. as it tracked northeastward on June 7<sup>th</sup> and 8<sup>th</sup>. By the time the remnants of Andrea reached Nova Scotia the system transformed to a frontal area of low pressure. The final position for Andrea’s minimum pressure centre was just west of Nova Scotia, in the Gulf of Maine, while a separate low pressure centre formed over the Annapolis Valley of Nova Scotia to the east within the warm front. That low continued to move due-eastward and tracked south of the island of Newfoundland.

### **Conditions**

This weather system was not much different than any other heavy rain-producing low pressure system that may form during the spring period. Winds were not high enough to cause damage. Due to local topographic effects, the strongest winds occurred over Cape Breton Island, Nova Scotia and southwestern portions of the island of Newfoundland. Gusts in these regions were between 115 and 130 km/h which are not unusual. Below is a summary of the highest rainfall amounts associated with Andrea and the remnant/secondary low.

<b>Station</b>	<b>Rainfall (mm)</b>		<b>Station</b>	<b>Rainfall (mm)</b>
Tantallon, NS*	132		Greenwood, NS	76
Fall River, NS*	95		Point Lepreau, NB	75
Sydney Mines, NS*	95		Halifax Stanfield Airport, NS	73
Grand Manan, NB	95			
Spanish Ship Bay, NS*	88			
Dartmouth, NS*	85			

\* Reputable volunteer site

### **Impacts**

For the most part, impacts were limited to street flooding and motor vehicle accidents.

### **Warnings and Information Statements**

The CHC issued 14 unique information statements for this event. There were no tropical storm watches or warnings required; however, rainfall warnings were issued by the Atlantic Storm Prediction Centre (ASPC) and the Newfoundland and Labrador Weather Office (NLWO). Those warnings verified for about three-quarters of the warned areas. Rainfall over Prince Edward Island and southern Newfoundland generally fell short of the warned amounts of 50 mm. The ASPC and NLWO issued gale force wind warnings, which verified correctly with some buoys measuring 35 kts (65 km/h).

## Coordination and Communications Efforts

CHC conducted approximately 20 media interviews. One of the more challenging aspects, in terms of coordination, was determining the adequate monitoring period for this storm. Through close coordination with the NLWO, bulletins were terminated when the centre of the remnant low dissipated just south of Newfoundland.

## “Gabrielle”

### Storm and Synoptic History

Tropical Depression Gabrielle formed in the Caribbean Sea on September 4<sup>th</sup> and moved north-northwestward bringing heavy rainfall to parts of the northern Caribbean before degenerating to a tropical disturbance. Several days passed before the remnants of the depression redeveloped south of Bermuda on September 9<sup>th</sup>. The system attained tropical storm status the next day and passed over Bermuda. Gabrielle then tracked northward and gradually weakened as it interacted with a cold front over the Eastern United States. Gabrielle entered CHC’s Response Zone as a tropical depression, but continued to produce bursts of deep cloud convection as it merged with the front. The depression/post-tropical low was barely discernible as it approached the Halifax area. It had completely dissipated just before reaching land, at which time most of the remaining rainfall was exiting Prince Edward Island to the north.

### Conditions

This weather system was not much different than any other heavy rain-producing low pressure system that may form during the late summer. Only moderate wind gusts of 50 to 70 km/h occurred over eastern Nova Scotia and thus no damage was observed. Below is a summary of the highest rainfall amounts associated with Gabrielle.

Station	Rainfall (mm)
Parrsboro, NS	73
Western Head, NS	71
Charlottetown, PEI	55
Yarmouth, NS	53

### Impacts

For the most part, impacts were limited to street flooding and motor vehicle accidents.

### Warnings and Information Statements

The CHC issued 18 unique information statements for this event. There were no tropical storm watches or warnings required; however, rainfall warnings were issued by the ASPC for central Nova Scotia and Prince Edward Island. Many of the forecast regions did not receive warning criteria, and some shorter-lead-time rainfall warnings had to be issued

over western Nova Scotia as the weather system developed. Gale force wind warnings were issued and verified correctly with some buoys measuring 35 kts.

### **Coordination and Communications Efforts**

There were about a dozen media interviews conducted by the CHC.

The CHC and the National Hurricane Centre coordinated closely during the late stage of Gabrielle to maintain a consistent message and ensure the rainfall threat was highlighted until the remnant core of Gabrielle passed. After some extended conversations, both Centres agreed to extend forecast information statements an additional six hours, as the remnants approached Nova Scotia on September 13<sup>th</sup>.

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