



The Salvation Army

Emergency Disaster Services

Salvation Army Team Emergency Radio Network



05 April 2018

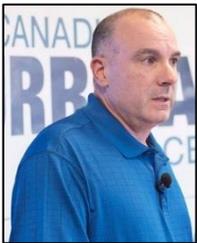


National Hurricane Conference Provides Four Days of Hurricane-Related Sessions

Orlando, FL (03/29/2018) - The annual National Hurricane Conference was held 26-29 March 2018, in Orlando, FL. It featured numerous training and information seminars including a nearly day-long series of reports by several national level Amateur Radio organizations on Tuesday, 27 April 2018.

What follows is a series of reports about many of the sessions:

Canadian Hurricane Centre:



Warning Preparedness Meteorologist Robert Robichaud (VE1MBR) presented about the Canadian Hurricane Centre and some background information about hurricane formation. The Canadian Hurricane Centre is co-located with the Atlantic Storm Prediction Centre in Halifax, Nova Scotia. Their meteorologists engage in training with the USA National Hurricane Center. It issues bulletins only for storms that will have an impact on Canada.

2017 was an historic hurricane season that set several new records, including a season with six major hurricanes, a hurricane (Harvey) that set new records for tropical cyclone generated rainfall and being the first season for two Category 4 hurricanes making landfall in the same year.

2018 Atlantic Hurricane Season Forecast Discussions:

The 2018 National Hurricane Conference featured numerous presentations about the activity of various organizations and the lessons learned from the 2017 Atlantic Hurricane Season. However, there was also some advance discussion about the upcoming 2018 Atlantic Hurricane Season as well.

During his presentation about the Canadian Hurricane Centre, Warning Preparedness Meteorologist Robert Robichaud (VE1MBR) was one of those who addressed this issue. Robichaud explained that there are some 21 to 24 different agencies that issue hurricane forecasts each year.



Colorado State University (CSU) hurricane researcher Dr. Phil Klotzbach warned that 2018 may be an active hurricane season. “If hurricane season started today, it would probably be pretty active, but a lot can change between March and the peak of the season. Very small changes in atmospheric patterns can cause big differences in how the oceans respond.” Klotzbach warned that early forecasts are notoriously low in confidence. The early forecast for 2017 fell well short of the season’s storm total.

The activity level of the 2018 Atlantic Hurricane Season will be influenced primarily by water temperature cycles (El Nino vs La Nina) in the Pacific and the water temperatures in the Atlantic. This year most forecast models are predicting a neutral climate pattern during the hurricane season, which means warmer temperatures in the Atlantic, fueling a potentially active season.

For the 2018 Atlantic Hurricane Season, Klotzbach presented four (4) possible scenarios with their percentage probabilities:

1. 25% chance of a season that produces 14-17 Named Storms, 9-11 Hurricanes and 4-5 Major Hurricanes.
2. 35% chance of a season that produces 12-15 Named Storms, 6-8 Hurricanes and 2-3 Major Hurricanes.
3. 15-20% chance of a season that produces 8-11 Named Storms, 3-5 Hurricanes and 1-2 Major Hurricanes.
4. 5% chance of a season that produces 5-7 Named Storms, 2-3 Hurricanes and 0-1 Major Hurricanes.

Klotzbach released the first of his quantitative forecasts for the 2018 Atlantic Hurricane Season on Thursday, 05 April, predicting “slightly above average activity.” with a slightly above-average probability of major hurricanes making landfall along the U.S. Coastline and the Caribbean. He does not expect a significant El Nino event this summer / fall which would have inhibited hurricane development and notes that the western Atlantic Ocean is “anomalously warm while the eastern and North Atlantic are anomalously cool.

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The Extended Range Forecast issued by Klotzbach at CSU with comparisons to this same Forecast and Actuals for 2017 and the 30 year median from 1980 through 2010 are below:

	2017 Forecast	2017 Actual	2018 Forecast	1980-2010 Median
Named Storms:	11	15	14	12.0
Hurricanes:	4	10	7	6.5
Major Hurricanes:	2	6	3	3.9

Also forecasted was the percentage chance that at least one major hurricane (Category 3, 4 or 5) would make landfall along different parts of the continental USA and the Caribbean:

	2018 Forecast	100 Year Average
Entire U.S. Coastline:	63%	52%
East Cost & Florida Peninsula:	39%	31%
Gulf Coast & Florida Panhandle:	38%	30%
The Caribbean:	52%	42%

The April forecast is a preliminary forecast that will be updated three more times on 31 May, 02 July and 02 August 2018. After 02 August, forecasts will be issued every two weeks during the climatological peak of the season (August–October).

The National Oceanic and Atmospheric Administration (NOAA) will release its first forecast sometime in May. The Tropical Storm Risk (TSR) Consortium of University College London released their first forecast in December 2017 which predicts 15 Named Storms, 7 hurricanes, 3 of which are Major Hurricanes. The European Consortium forecast is for 11 to 19 Named Storms, with 4 to 10 of those being hurricanes, and 1 to 5 of those being Major Hurricanes.

The National Hurricane Center (WX4NHC):



Assistant Amateur Radio Coordinator Jullio Ripol (WD4R) reported that WX4NHC was kept busy throughout the 2017 Atlantic Hurricane Season with Florida, Louisiana and Texas being the three states most impacted by hurricanes that year. At one point, the anemometer on top of the National Hurricane Center located on University of Miami campus recorded a wind gust of 133 mph during Irma.

The purpose of WX4NHC and the NHC amateur radio program is to collect weather data, enhance on-scene weather reporting and provide emergency communications for the NHC. It also broadcasts advisories to the public via amateur radio and works closely with other partners such as the VoIP Weather / Hurricane Net (VoIPWX.net), the Hurricane Watch Net (HWN), the ARRL and SATERN.

Voice-Over-IP Hurricane/Weather Net (VoIPWX.Net):



Rob Macedo (KD1CY), Director of Operations for the VoIP Hurricane/Weather Net (VoIPWX.net), reported that the primary purpose of the Net during each year’s hurricane season is to support WX4NHC using the same criteria as used for SKYWARN. The VoIP Hurricane/Weather Net activated for Hurricanes Harvey, Irma, Maria and Nate in 2018.

During Hurricane Harvey, reports from amateur radio and automated weather stations provided good situational awareness for the National Weather Service and the National Hurricane Center. Although normally terminated after landfall, the Net remained open for several days after Harvey’s landfall to handle emergencies and track the storm as it gradually moved inland dropping up to 65 inches of rain in some parts of Texas.

The VoIP Hurricane Net was activated again during Hurricane Irma passing on wind reports of up to 155 mph in Barbuda before the instruments went off-the-air. During Hurricane Maria, the VoIP Hurricane Net received a strong flow of information out of the island nations of Dominica and St. Lucia as the storm devastated those islands. Many of the reports were received overnight when HF Nets lacked coverage.

During the 2018 Hurricane Season, the VoIPWX.net website provided SATERN and The Salvation Army with valuable on-site, real-time situation awareness information about weather condition and damages as they were occurring.

Macedo stressed the idea that Amateur Operators can be multi-faceted and provide valuable services even “When All Else Doesn’t Fail” by providing situational awareness to served agencies such as local and state emergency management, the National Weather Service (SKYWARN), the National Hurricane Center and various non-profit partners such as the American Red Cross and The Salvation Army. “The Situational Awareness mission does not replace, but certainly augments the ‘When All Else Fails’ mission of Amateur Radio.”. Macedo stated.

Macedo reported that the VoIP Weather and Hurricane Nets are evolving and Amateur Radio operators are beginning to explore and use new non-amateur radio technologies such as Zello, Whatsapp, Telegram/Slack and HipChat. These apps give the storm spotters and reporting amateur radio operators the capability to send pictures and videos and allow for coordination chat rooms. He reported that more well-known social media platforms such as Facebook and Twitter are also powerful ways to collect and disseminate information and situational awareness.

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Currently the VoIP Weather / Hurricane and IRLP Nets are preparing for the 2018 Atlantic Hurricane Season by recruiting additional Net Control and other operators, especially along the coastal areas of the United States, the Caribbean, Mexico, Central America and Canada. They are also deepening coordination of their listen-only audio and livestreaming capabilities. They also will participate in the annual WX4NHC Communications Test.

Hurricane Watch Net (HWN):



Net Manager Bobby Graves (KB5HAV) reported that the Hurricane Watch Net was extraordinarily busy in 2017, having been activated for many days.

Graves said that the primary mission of HWN is to “disseminate tropical cyclone advisory information” to the Caribbean, Central America and the East and Gulf Coasts of the U.S.”. It also reports observed or measured weather data from amateur radio operators to NHC. This includes occasionally working directly with NOAA Hurricane Hunter aircraft. Post-storm, HWN provides damage reports from the impacted areas. HWN also provides backup communications for NHC and National Weather Service (NWS).

HWN activates on 14.325 MHz during the day and on 7.268 MHz at night when a hurricane is within 300 miles of making landfall. Sometimes both frequencies are activated at the same time. Activation notices are provided on www.HWN.org.

HWN works closely with numerous partners including the Maritime Mobile Service Net (MMSN), WX4NHC, ARRL, VoIPWX.net and SATERN. During the 2017 Season, HWN provided SATERN with significant help with additional Net Control and other operators during its marathon 22 days on-the-air during Hurricane Maria.

American Radio Relay League (ARRL):



ARRL Emergency Preparedness Manager Mike Corey (K1IU) reported that the busy Hurricane Season actually started with the Great American Eclipse on 21 August 2017. The American Red Cross asked the ARRL to activate ARES units all along the 75 mile wide path of total eclipse that spanned the continental U.S. Their concern

was that with 3.5 to 7 million people moving into that small area during the eclipse there was a serious threat of communication system overload during any emergencies that might occur. For example Wyoming’s population quadrupled that day. A town of 6,000 in Oregon had an influx of 100,000 people. SATERN was also activated that day to provide the ARRL with a nationwide network for any long distance communications that might be needed.

When Hurricane Harvey struck 5 days later, the ARRL found that there were no significant communications disruptions with cellular phone service remaining at 95% of normal. Disruptions that did occur were very short in duration. From a traditional “When All Else Fails” perspective, Harvey was a “non-event” for Amateur Radio. The massive communications failure that Harvey might have caused years earlier never materialized because government and the communications industry is better prepared now.

However, the shifting needs of served agencies for support during Search and Rescue and CERT (Community Emergency Response Team) activation, shelters, Points of Distribution (PODs) and damage assessment demonstrated the need for Amateur Radio to provide situational awareness communications in addition to the traditional “When All Else Fails” service. Corey also noted that the Harvey response showed that Amateur Radio needs to begin promoting the idea that it is there to serve the needs of survivors and not just first-response agencies.

Although Hurricane Irma did not have a major impact on communications in the continental U.S., it did have a major communications impact on the U.S. Virgin Islands. As a result, it became a more traditional “When All Else Fails” response. WIAW cancelled its regularly scheduled bulletins for several days to assist with emergency, priority and health-and-welfare messages and to assist its partners including WX4NHC, HWN, SATERN and the VoIPWX.Net.

Post-storm, the ARRL found that it was much more difficult than expected to move operators and equipment into the area from the continental U.S.

But if Irma had a significant impact, then Hurricane Maria had a catastrophic impact on the Caribbean, including several island nations, the U.S Virgin Islands and Puerto Rico which lost 100% of its power and 98% of its communication infrastructure. This included the Puerto Rican amateur radio community which valiantly provided major communications assistance in spite of their personal losses.

Hurricane Maria tested the ARRL’s ability to respond to a major catastrophic incident as no other disaster has in decades. For the first time in their 74 year relationship, the American Red Cross asked the ARRL to deploy operators to a disaster located outside of the continental U.S. Within 24 hours, the ARRL had offers from over 500 operators to deploy. Within 6 days, the ARRL had purchased and organized Ham Aid kits and credentialed and deployed 22 operators from 17 states ranging in age from 19 to 72 years to Puerto Rico to support the American Red Cross shelter mission.

And then the challenges *really* began! (Continued)

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The original mission had been to support American Red Cross shelters with communications to their headquarters in San Juan, with Safe and Well information and shelter statistics and needs.

But upon arrival in Puerto Rico, that original mission had to be expanded almost immediately. As ARRL operators were assigned to hospitals, fire stations and government headquarters in various communities around the island, most operators found that they were the only communications that community had! As a result, in addition to their work for the American Red Cross, they also had to support local, territorial, federal and military missions. They also had to provide support to local medical clinics and hospitals including helping to coordinate medical evacuations and acquisition of medical supplies. They also supported all of these served agencies as well as other NGOs by making resource requests for them and providing technical support. The ARRL also supported ESF 2 – the Emergency Support Function for Communications at the FEMA Joint Field Office (JFO) in San Juan.

Corey said there were numerous lessons learned from this historic deployment, including:

1. The importance of pre-identifying deployable operators or teams, including closely vetting volunteers through a thorough interview to determine their skill level and their ability to work as part of a team.
2. Semper Gumby!: The need for adaptability and preparation for multiple contingencies outside of the original plan. (e.g. the immediate adaptation to the new circumstances after deployment to Puerto Rico and the temporary cancellation of WIAW bulletins to support emergency communications.)
3. The importance of deploying at least one person to primarily serve as the Public Information Officer (PIO).
4. How quickly a major event like Hurricane Maria becomes old news as it is quickly replaced by the latest major event (e.g. the Las Vegas mass shooting).
5. The use of ICS (Incident Command System) including the ICS-205 (Communications Plan) Form.
6. The importance of being willing to deploy ARRL personnel to support (not direct) local personnel in a major disaster.

Corey noted that several other organizations utilized amateur radio in Puerto Rico including Team Rubicon and the Southern Baptists. Corey also noted the assistance from partners such as SATERN, VoIPWX.net, HWN, WX4NHC and MARS.

The ARRL has written an After Action Review (AAR) which can be found on the ARRL website.

Salvation Army Team Emergency Radio Network (SATERN):



After providing a very brief overview of SATERN, National SATERN Liaison Bill Feist (WB8BZH) reported on SATERN's response to the 2017 Atlantic Hurricane Season.

Like the ARRL, the season actually began with a one day activation for the Great American Eclipse on 21 August 2018 in support of the ARRL and the American Red Cross. During the 7 hour activation, the International SATERN SSB Net handled 10 to 15 Situation Reports.

Five days later, the Southern Territory SATERN Net was activated for the very first time for a disaster in response to Hurricane Harvey. The brief 5 hour activation was cut short due to a lack of communications disruption in the impacted area. However, The Salvation Army had a very strong response to the disaster in Texas and southwest Louisiana that is still ongoing.

Eleven days later, the International SATERN SSB Net was again activated – this time for Hurricane Irma. For the first time, SATERN monitored its 20 meter frequency during the day and the Southern Territory Net 40 meter frequency at night. The 8 day operation handled 38 messages from impacted areas in the Caribbean, Florida and Georgia. SATERN also put the Southern Territory Communications Trailer and 11 SATERN operators on standby for deployment to Florida. There were no deployments.

Six days later, the International SATERN SSB Net was activated for Hurricane Maria. During the 22 day activation – the longest activation in SATERN's 30 year history – SATERN handled over 250 messages – mostly from Puerto Rico. The Net also supported the ARRL's deployment of 22 operators to Puerto Rico in support of the American Red Cross. SATERN operator Joe Bassett (WIWCN) was part of the ARRL deployment and served as a coordinator at American Red Cross Headquarters in San Juan. SATERN also put 10 SATERN operators on standby for deployment to Puerto Rico but the team was not deployed.

In the After Action Review (AAR), Feist noted several things:

1. Advance preparation for team deployments, including pre-registration, skill vetting, credentials and training is essential
2. Partnerships were absolutely vital to SATERN's success.
3. Understanding the mission for a deployment is critical.
4. Being adaptable and prepared for multiple contingencies is also essential.
5. SATERN must develop standard protocols for message handling.

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Kenneth Graham (WX4KEG) Introduced As New National Hurricane Center Executive Director



Kenneth Graham (WX4KEG) was introduced as the new Executive Director for the National Hurricane Center at the beginning of the Amateur Radio Workshop. He was most recently the Meteorologist-In-Charge at the Slidell, LA, office of the National Weather Service.

Prior to becoming the Meteorologist-In-Charge at NWS-Slidell, he was the Meteorologist-In-Charge at NWS-Birmingham (AL) and NWS-Corpus Christi (TX). He also headed the systems operations division of the National Weather Service Southern Region in Forth Worth, TX, where he led the agency's recovery efforts following Hurricane Katrina.

While stationed at NWS-Slidell, Graham provided innovative meteorological support for two command centers following the 2010 Deepwater Horizon oil spill in the Gulf of Mexico. He also helped to develop SWERV (Significant Weather Emergency Response Vehicle) which was NWS's first mobile command incident response vehicle.

"Ken Graham has done a wonderful job serving those of us along the central Gulf Coast," said Jim Waskom, Executive Director for the Louisiana Governor's Office of Homeland Security & Emergency Preparedness (GOHSEP). "His passion for his job is second to none."

Graham is also an active Amateur Radio operator and fully supports the work of amateur radio in providing emergency communications support through programs such as SKYWARN.

National Hurricane Center Review Of The 2017 Atlantic Hurricane Season



Ed Rappaport, Ph.D., retiring Acting Executive Director of the National Hurricane Center, provided a review of the surprisingly active 2017 Atlantic Hurricane Season. He served as the Acting Executive Director during that season.

Rappaport said that the 2017 Atlantic Hurricane Season was the seventh most active year for tropical weather in the Atlantic basin in the 150 years that records have been kept. It was the first time that there were four (4) major hurricane landfalls back-to-back within a 26 day period of time.

There were some 1,000 hurricane-related fatalities overall in the 2017 season. But, despite this, there were no storm surge related deaths in the United States.

2017 was also the costliest season on record – greater even than 2005 (Katrina/Rita/Wilma) - with a current estimated damage cost of \$200 Billion. Hurricanes Harvey, Irma and Maria were the second, third and fifth costliest hurricanes in history.

The hurricanes of 2017 were also prodigious rainmakers with Harvey dumping 65.5 inches of rain on Texas and lesser amounts on southwestern Louisiana and Maria dumping 40 inches on Puerto Rico.

The 2017 Season also demonstrated a number of improvements in weather forecasting capabilities. In 1972, the infamous cone-of-error for a forecasted hurricane track could be off by as much as 350 nautical miles. In 2018, that error has been reduced to only 8 nautical miles.

There was also a 20% drop in the error margin for the forecasted intensity of storms. This has allowed government officials to improve their ability to make decisions about such things as evacuation and issuing warnings.

There's An App For That!

Whether we like it or not, social media and other communication apps are here to stay – at least until the next "new-fangled" idea comes along!

Jeff Linder, Meteorologist for the Harris County (Houston, TX) Flood Control District gave a presentation on how to use some of these new media forms to our advantage.

For example, during the 2017 Hurricane Season, there were 6 million sign-ups for Zello which is an app that allows smart phones to be used as walkie-talkies around the world. Zello is being used by amateur radio operators in the northeastern U.S. to help provide situational awareness reports during major storms.

Other forms of social media such as Twitter, Facebook or simple texting is regularly used by emergency managers and public safety to gain situation awareness in a disaster or other incident. It can just as easily provide situational awareness information to Amateur Radio operators and their served agencies. It can also be used to send pictures that emphasize the message.

Linder pointed out that social media engagement can be critical. It is always ON, operating 24 hours a day, seven days a week. But that can also mean that organizations that want to fully utilize social media may need to dedicate one or more people to manage that. Incoming messages need to be reviewed and sorted as to their importance and relevancy. And messages need to be monitored to help control rumors and misinformation.

Linder recommended that groups that want to use social media should build that use into their plans, their training and their exercises so that those using social media can gain experience.

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