Carolina SkyWatcher

National Weather Service, Newport/Morehead City, NC

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Fall 2020 Edition

Hurricane Isaias Hits Eastern NC

By Chris Collins, Meteorologist

Hurricane Isaias originated from a vigorous tropical wave off the coast of Africa that was first identified by the National Hurricane Center on July 23, 2020. The tropical wave gradually became more organized, and became Tropical Storm Isaias on July 30. Isaias marked the earliest ninth named storm on record, surpassing 2005's Hurricane Irene by eight days. Isaias strengthened into a Category 1 hurricane the next day, reaching a peak intensity of 85 mph. On August 1, the storm made landfall on North Andros, Bahamas and subsequently weakened to a tropical storm before paralleling the east coast of Florida and Georgia. As it approached the Carolina coastline, it re-intensified to a hurricane shortly before making landfall near Ocean Isle Beach, North Carolina, at 11:10 PM EDT on August 3 as a high-end Category 1 hurricane, and proceeded to accelerate up the East Coast of the United States. Across eastern North Carolina, Isaias produced heavy rainfall, minor storm surge and tornadoes. Four tornadoes were observed in the NWS Newport/Morehead City County Warning Area (CWA). All were rated at EF-1 on the Enhanced Fujita Scale (Jamesville, Bayview, Pinetown and Kennel Beach). Peak winds in our area from Isaias included 75 mph at Jennettes Pier, 71 mph at the Alligator River Bridge and 69 mph at New River Air Station in Jacksonville. The peak rainfall total was 3.72 inches at Williamston in Martin County.

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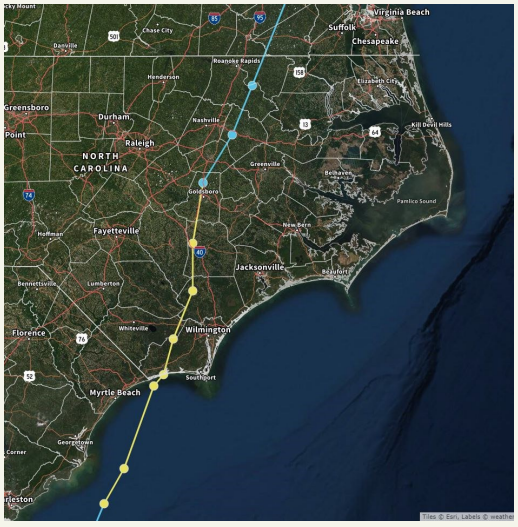


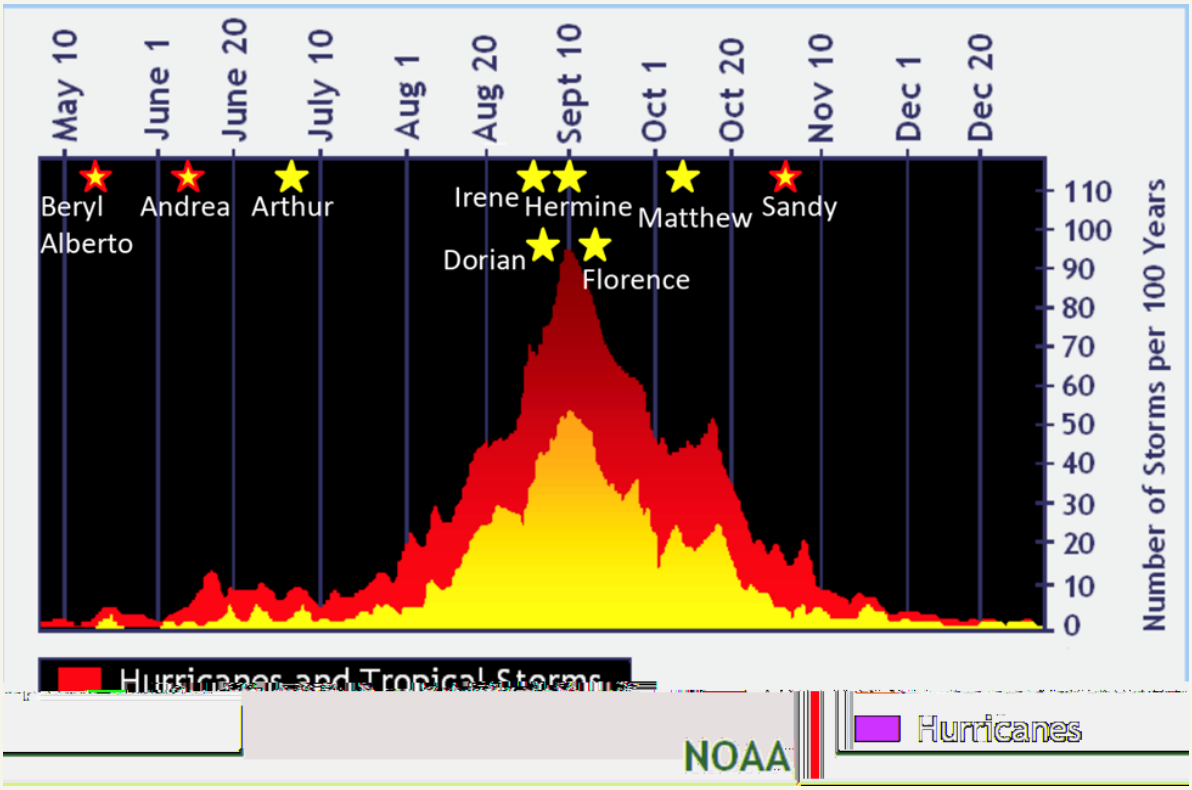
Path of Hurricane Isaias across eastern NC

Tornado Damage in Jamesville

Mid-Season Hurricane Review

By Ryan Ellis, Science and Operations Officer

As I type this article, NOAA Hurricane Hunters are flying a mission into what is currently Tropical Storm Laura near the Lesser Antilles and US Air Force Hurricane Hunters are flying into Tropical Depression 14 along the coast of Honduras. All the while, a new wave coming of the west coast of Africa, headed west. These are surefire signs that hurricane season is indeed in full swing and will continue to be for the next several months as sea surface temperatures remain high well into the fall. The climatological peak of the season is September 10th, but storms can form through November and sometimes beyond**.**

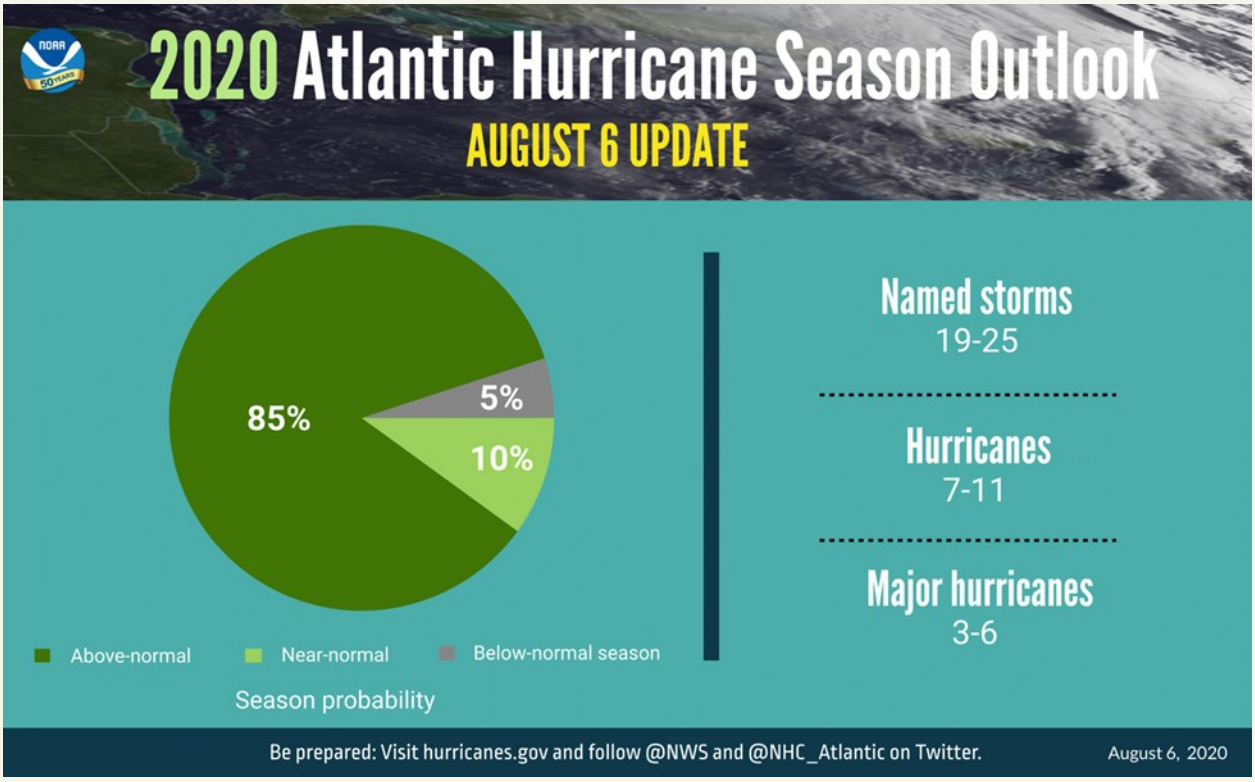


Seasonal Forecast Update

On August 6th, NOAA's Climate Prediction Center came out with their updated forecast for the remainder of the 2020 hurricane season. The updated outlook calls for an 85% chance of an above normal season with only a 10% chance for a near normal season and a 5% chance of a below normal season. The outlook called for 19-25 named stormes, 7-11 hurricanes and 3-6 major hurricanes, which is classified as category 3 and higher on the Saffir-Simpson Hurricane Wind Scale. While this outlook can tell us a lot for the Atlantic Basin as a whole, it really does not matter much in the fact that it really only takes one storm to create the damage and devastation we have seen in eastern North Carolina during storms like Florence, Matthew, and Floyd to name a few. What it certainly does tell us however is that we need to remain diligent and not become com-

Mid-Season Hurricane Review (Continued)

placent in our preparation for the remainder of the season. We also want to remind you to not focus on the Category of the storm as this only pertains to impacts from wind and does not take into account impacts from any other aspect of the storm which can range from storm surge to inland flooding to tornadoes. In fact, it is water that is the biggest cause of fatalities in hurricanes, not wind. It was found that between 2016 and 2018 83% of fatalities cause in a tropical system were due to water.



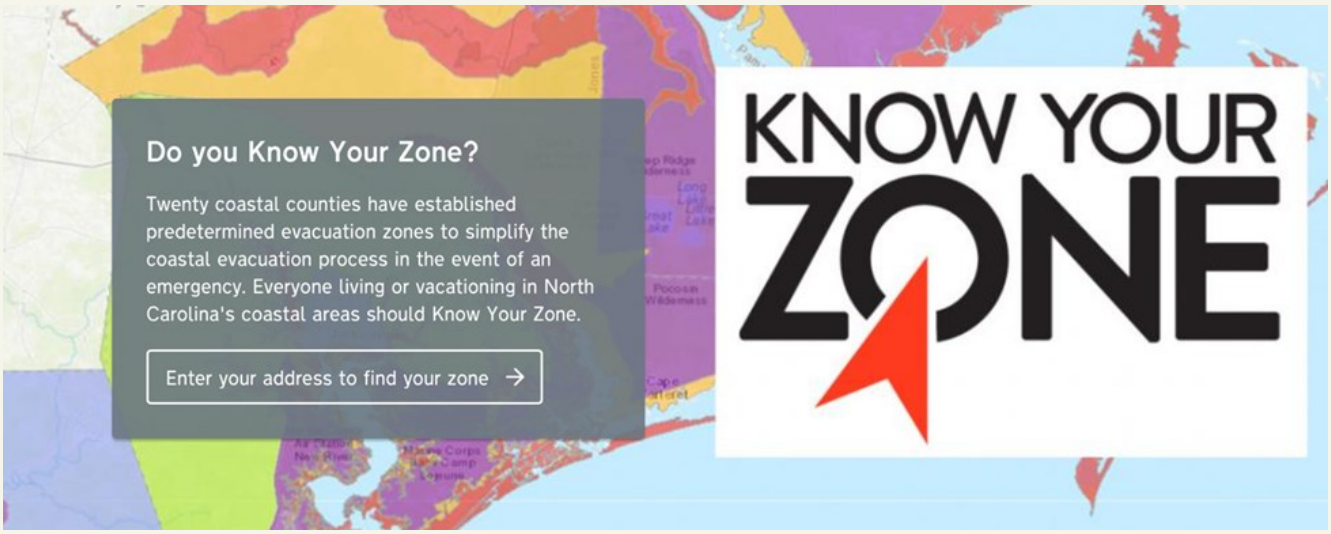
Now is the time to re-check your Preparedness Plan

Hurricane preparation is truly valuable when it comes to mitigating the loss of life and economic devastation that can come from these storms. Therefore, THIS is the time to check those hurricane preparedness kits and make sure they are well stocked. We have had a few tropical systems affect the area already this year in Tropical Storm Arthur and Hurricane Isaias. Therefore we have had a chance to evaluate our hurricane preparation plans and look for possible flaws. Do you have enough medication to get you through several days in the event you can't get to a pharmacy or if you get medication by mail and deliveries can't get to you for an extended period of time? Do you have an evacuation plan in place? Do you have a plan for your pets? All of these things need to be evaluated and adjusted if need be.

Mid-Season Hurricane Review (Continued)

Know Your Zone!

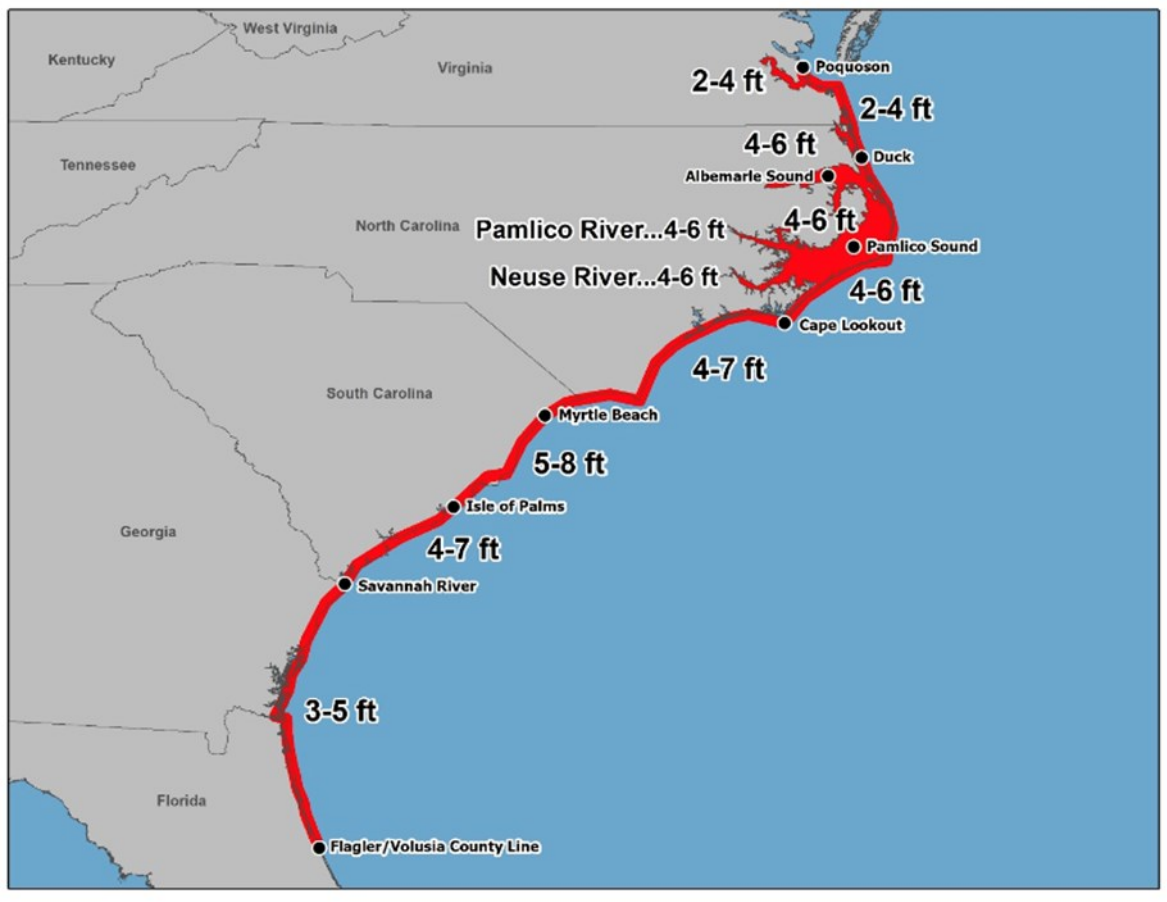
Did you know that the state of North Carolina has worked with 20 coastal counties to create predetermined evacuation zones to help coastal residents stay safe from the impacts of hurricanes, tropical storms and other hazards, while allowing for simple and orderly evacuations? To find your zone you can simply visit KnowYourZone.nc.gov and type in your address to find your evacuation zone. For more information you can reference this article from the NC Department of Public Safety.



Experimental Peak Storm Surge Graphics

Just a reminder that the Storm Surge Unit at the National Hurricane Center is putting out experimental peak storm surge graphics this year that give a visual representation of the peak storm surge values expected along portions of the coast. The graphics are primarily for media and social media applications where point probabilities and/or high-resolution inundation mapping is not easily displayed. This should be interpreted as a "worst-case scenario" graphic. An example follows:

Mid-Season Hurricane Review (Continued)



Example Experimental Peak Storm Surge Graphic from National Hurricane Center.

Where can I find more info?

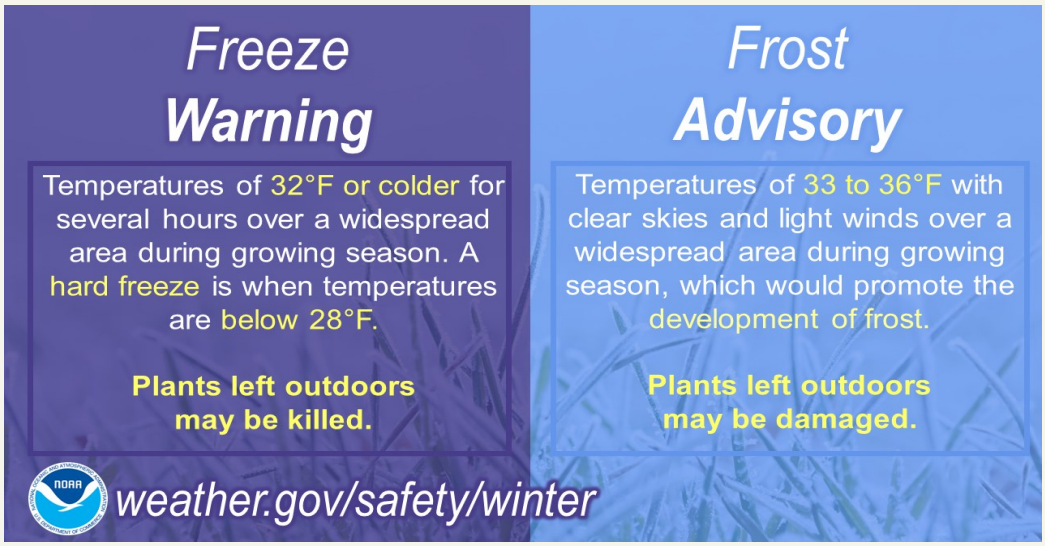
As always, head over to www.nhc.noaa.gov or our local website at www.weather.gov/mhx for more information about tropical weather. Our local page has a tropical section that can be found at www.weather.gov/mhx/tropical. For more info on preparedness you can visit www.weather.gov/safety/hurricane or www.readync.org.

Fall Weather Hazards

By Chris Collins, Meteorologist

The official Atlantic hurricane season runs from June 1 through November 30, so in our area, tropical weather will always be the most important fall weather hazard. However, as we transition into cooler weather, frost and freezing temperatures become more of an issue for eastern North Carolina. A Frost Advisory is issued when the minimum temperature is forecast to be 33 to 36 degrees on calm nights during the growing season. It is issued in the fall until the end of the growing season, which is marked by the occurrence of the first widespread freeze. During abnormally warm falls, the growing season may be extended past the normal end of the growing season. A Freeze Warning is issued when significant, widespread freezing temperatures are expected over a large part of a county within the next 24 to 36 hours. Climatologically, the normal first freeze in eastern North Carolina ranges from around October 30 in Greenville, to December 11 on Cape Hatteras, due to the influence of the warmer ocean waters.

Keep in mind, with the transition of seasons, strong cold fronts can occur, especially during the latter portions of Fall. This can lead to the potential for severe thunderstorms, and even tornadoes. Strong winds can also occur during late fall as the first Nor'easters of the cold season take place. While eastern North Carolina normally has some very nice weather during fall, always be weather aware!



NWS Hosts Two Hollings Scholars During Summer 2020

By Carl Barnes, Meteorologist

The NOAA Ernest F. Hollings Undergraduate Scholarship program recognizes outstanding students in NOAA mission fields, including meteorology. The students who are selected to participate in this very competitive program receive benefits including tuition support, networking access, and a full time summer internship with a NOAA facility between the first and second academic years of the program. In 2020, our office was fortunate enough to have Hollings Scholars join in on two research projects to improve the accuracy of forecasts and warnings for eastern North Carolina. While this program typically takes place in-person, restrictions put in place due to the COVID-19 pandemic required that the program be completed virtually this year, a challenge that the students embraced, resulting in a successful summer for all involved.

Liam Sheji, a rising senior majoring in Meteorology and Broadcast Journalism, and minoring in Mathematics at the University of Miami, completed research focused on evaluating the current guidance for issuing tornado warnings during tropical cyclones in eastern North Carolina. He analyzed tornado-warned cells from several hurricanes over the past decade, including Hurricanes Florence and Dorian, to evaluate potential strategies for improving the probability of tornado detection and increase the lead time of the warning. His findings will be applied going forward to improve our office's ability to warn people when these tropical cyclone tornadoes, which typically form very quickly and can bring locally devastating wind damage, are expected to occur.

Hollings Scholar
Liam Sheji

Hollings Scholar
Andrew Mardirossian

Andrew Mardirossian, a rising senior majoring in Meteorology and minoring in Energy Business and Finance at Penn State University focused his research on tidal water level prediction in eastern North Carolina. Andrew examined the effects of various weather patterns on storm surge, and developed innovative tools to help forecasters apply the results to local total water level forecasts. The complexity of the rivers, sounds, and oceanic water systems in eastern North Carolina makes water level prediction challenging, and Andrew’s work will improve our water level forecast accuracy, especially during significant coastal flooding events, with more lead time and better accuracy allowing

NWS Hosts Two Hollings Scholars (Continued)

residents along the coast more time to take action to protect themselves and their property.

Both students did an excellent job of presenting their research findings during the national Hollings Virtual Symposium at the end of July. In addition to their research, both students also participated in weekly operational forecasting training and leadership development experiences, building the foundation for what will undoubtedly be successful careers as meteorologists.

NWS Morehead City thanks Liam and Andrew for their contributions toward improving the service the NWS Morehead City provides for the people of eastern North Carolina.

DO YOU KNOW A COLLEGE STUDENT INTERESTED IN THE WEATHER?

If you know of a student studying Meteorology or a related field who is interested in learning more about a career with the National Weather Service, encourage them to monitor the Student Volunteer Program webpage for potential opportunities with NWS Morehead City in 2021. Students interested in learning more about the NOAA Hollings Scholar program can visit this webpage for more information on what the program involves and how to apply.

Winter Weather Spotter Season 2020

By Erik Heden, Warning Coordination Meteorologist

With cooler weather upon us, it's time for our winter weather spotter season to begin! If you've never been to a class before these are free and open to all ages, with no equipment required. All that we ask is you have a general interest in weather and would like to volunteer to report weather information to us throughout the year. The main focus of the winter classes will be on reporting snow and ice measurements. All classes will be virtual this fall and early winter. Throughout the class we will discuss a bit about who the National Weather Service is and what we do, along with discussing the types of winter weather that can impact Eastern North Carolina. The trained eye of the storm spotter is very valuable to us because you can confirm what is exactly happening or not happening on the ground at your location. We use this specific information to help in our warning process at the office. Your reports truly can save lives! We truly want you to become a year round spotter for us.

If you want more information please visit our website at www.weather.gov/mhx and click on the SKYWARN logo at the bottom. You will notice that most of our classes are during the evenings and include weekends and weekdays. If you can't find a class that fits your schedule we have recorded versions via our YouTube channel or by clicking the tab labeled "recorded training on our official SKYWARN website. Once you complete these, information follows on how to register to become a spotter.

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