SUNCOAST OBSERVER

A quarterly newsletter brought to you by the National Weather Service Tampa Bay Area, FL

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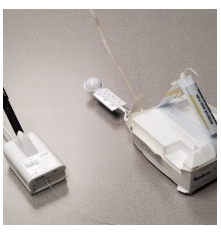
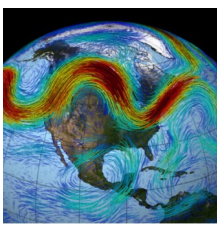
Top stories in this newsletter

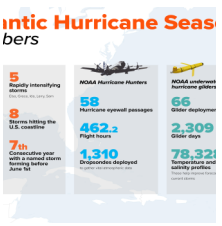


New Upper Air and Radiosonde System for NWS Tampa Bay

NWS Autumn of Service



What is a Jet Stream?



2021 Hurricane Season In Review

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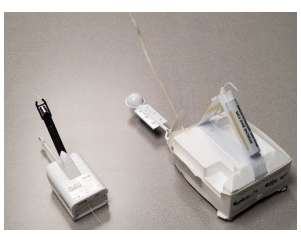


By: Stephen Shiveley

As an OT&E (Operational Test and Evaluation) site, the NWS Office in Tampa Bay was one of the selected few offices to receive the new MROS (Manual Radiosonde Observing System) GRAW system. This new upper air system included new radiosondes and new software to track it (GRAWMET). This new system was installed just over a month ago and provides many benefits.

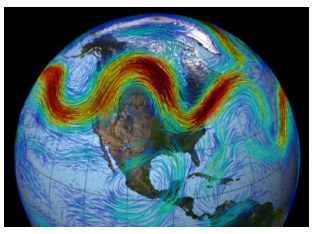
The biggest benefit with the new system is how it tracks the radiosondes. The old system involved tracking the radiosonde with a big satellite dish located above our upper air shelter. This dish had many moving parts and took a lot of maintenance and upkeep to work properly. The new system now uses a set of three small antennas with help from satellites in space. This helps to reduce maintenance to the system and lowers risk of missing flights. If you look at the picture attached you can see the other big change is an obvious one. We will be working with a much more compact radiosonde. This radiosonde will not only reduce the amount of hydrogen we have to put in the balloon to lift it, but it also has the ability to be connected directly into the GRAWMET system before releasing to ensure the data is flowing properly. This system will continue to be rolled out across the NWS through 2022.

NWS Autumn of Service

By: Jen Hubbard

Every year for the last decade, the National Weather Service hosts what was originally a “Week of Service”, but since COVID, has evolved into an “Autumn of Service” to help keep efforts socially distanced. Local Weather Forecast Offices across the nation participate in various community service activities during this period, doing things such as knitting hats for NICU patients, running in 5Ks, and community clean-ups. The TBW office hosted a Food and Pet Supply Drive this year, and between collecting donations in our office and online donations, we were able to give 77lbs of food to a local food bank, and over $130 in goods to a local Humane Society!

What is a Jet Stream?



By: Dan Noah

Jet streams are narrow bands of strong wind that generally blow from west to east all across the globe. They impact weather, air travel and many other things that take place in our atmosphere. Earth has four primary jet streams: two polar jet streams, near the north and south poles, and two subtropical jet streams closer to the equator. On average, jet streams move at about 110 miles per hour. But dramatic temperature differences between the warm and cool air masses can cause jet streams to move at much higher speeds — 250 miles per hour or faster. Speeds this high usually happen in polar jet streams in the winter time.

Jet streams form when warm air masses meet cold air masses in the atmosphere. The Sun doesn’t heat the whole Earth evenly. That’s why areas near the equator are hot and areas near the poles are cold. So when Earth’s warmer air masses meet cooler air masses, the warmer air rises up higher in the atmosphere while cooler air sinks down to replace the warm air. This movement creates an air current, or wind. A jet stream is a type of air current that forms high in the atmosphere and jet aircraft can gain a boost in speed when flying to the east.

The fast-moving air currents in a jet stream can transport weather systems across the United States, affecting temperature and precipitation. However, if a weather system is far away from a jet stream, it might stay in one place, causing heat waves or floods. Weather satellites, such as the Geostationary Operational Environmental Satellites (GOES), use infrared radiation to detect water vapor in the atmosphere. With this technology, meteorologists can detect the location of the jet streams. Monitoring jet streams can help meteorologists determine where weather systems will move next. But jet streams are also a bit unpredictable. Their paths can change, taking storms in unexpected directions. So satellites like GOES-16 can give up-to-the-minute reports on where those jet streams are in the atmosphere — and where weather systems might be moving next.

Can you spot today's jet stream on a loop of the GOES Water Vapor image? https://www.star.nesdis.noaa.gov/GOES/conus_band.php?sat=G16&band=09&length=12

2021 Hurricane Season In Review

By: Jen Hubbard

The 2021 Hurricane Season was another active one, having produced 21 named storms (winds of 39 mph or greater), including seven hurricanes (winds of 74 mph or greater) of which four were major hurricanes (winds of 111 mph or greater). This above-average season was accurately predicted by the Climate Prediction Center in their May and August Outlooks.

This year was the third most active year on record in terms of named storms, it marks the sixth consecutive above-normal Atlantic hurricane season, and this was the first time on record that two consecutive hurricane seasons exhausted the list of 21 storm names. It was also the seventh consecutive year with a named storm forming before the official start to the season on June 1, and held the earliest fifth named storm on record. As to why, climate factors, which include the Atlantic Multidecadal Oscillation, La Niña, above-normal sea surface temperatures earlier in the season, and above-average West African Monsoon rainfall were the primary contributors for this above-average hurricane season.

Locally, Elsa was the main storm to impact west central and southwest Florida last year, though there were brief concerns also for Fred, Grace, and Ida as the area made it into some of the 4 and 5 day cones before the tracks shifted away from the area. Tropical Storm Elsa lifted north from Cuba over the coastal waters, paralleling our local coastline July 6-8, briefly intensifying to a hurricane as it was offshore of Tampa, then made landfall in Steinhatchee, just to the north of our area in the Florida Big Bend. Elsa caused up to 3 feet of storm surge along the west Florida coastline, and heavy rainfall with flooding caused major impacts for weeks following the storm. One area in southern Sarasota County/northern Charlotte County saw 6-10 inches and had neighborhoods stranded from the flood waters.

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