

Weather discussion email list

From: Weather discussion email list
Sent: Tuesday, September 3, 2019 3:34 PM
To: MAP@LISTSERV.ALBANY.EDU
Subject: Re: Forecast uncertainty in TC Dorian's turn to the north

I've had those same questions Ron! For each event, the key part of the continent to better sample could be in entirely different locations, and would shift with time. I would be very curious to see NWP forecasts with these extra soundings removed compared to them included, but my guess is that has been done at least for some of these events (I just haven't seen those presented). I can tell you we're going through helium quickly here at RNK and sampling some pretty dry air (which could be very useful information for the 06 and 18Z cycles)!

Steve

On 9/3/2019 3:15 PM, Ronald Miller - NOAA Federal wrote:

One other question I had. I know that the National Weather Service has been conducting extra weather balloon launches, presumably to help with the accuracy of the NWP forecasts for Dorian. This has been done in the past in similar situations, including Hurricane Sandy. Has anyone ever looked at what the impact of these special radiosonde releases was? I'm thinking not just mathematically (e.g. numerical accuracy of the NWP forecasts with/without the extra radiosonde data), but also decision-making. Did having the 06Z/18Z radiosonde releases actually result in forecasters or emergency managers making decisions that they wouldn't have made without this extra data set?

I'm not trying to say we shouldn't be doing these extra releases, so please don't take it that way. Just curious as to their impact. It's obvious that we can't just add new upper air locations at a moments notice. So we do the best we can, by adding the 06Z and 18Z soundings. But does that really gain us anything that is measurable and actionable?

Also, our human linear thinking tells us that for a hurricane near FL, we should be doing extra weather balloons in the eastern US. But is that really true? Or is there a better objective/numerical way to decide where additional data is needed? Maybe it's over Alaska. Or Mexico?

To my knowledge, the releases started 29 Aug at 18Z in mostly southeast-US locations.



After a similar set on the 30th at 06Z, extra locations were added for the 30th at 18Z:



And these special launches have continued through the weekend.

Ron Miller
NWS Spokane

On Mon, Sep 2, 2019 at 7:03 AM Sheldon Kusselson <(b)(6)>@gmail.com> wrote:

Lance,

The southern extent of the eastern Great Lake to West Virginia trough has shown a very weak shear-like axis press very slowly south and SE from Central NC to northern Louisiana as per <https://weather.cod.edu/satrad/?parms=continental-conus-08-24-1-100-1&checked=map&colorbar=undefined>. Until this southern extent gets closer and it does not look like it will till tonight or Tuesday morning, a very slow drift (west) is likely with Dorian. Only saving grace for the FL East Coast compared to what has been going on in the northern Bahamas is its slow movement, slow enough to wait for the effects of the southern extent of the upper trough. Others may have a different take on this and I suggest looking at CIRA's Advected Layered PW loop at: http://cat.cira.colostate.edu/sport/layered/advected/LPW_alt.htm for any more ideas.

Just my take,

Sheldon Kusselson
Retired NOAA/NESDIS

On Sun, Sep 1, 2019 at 1:49 PM Dan Lindsey - NOAA Federal <000006a2d176238-dmarc-request@listserv.albany.edu> wrote:

MAP,

Here's GOES-16's latest closeup - this starts with 30-sec imagery then switches to 1-min imagery. It's a VIS/IR "sandwich".

http://rammb.cira.colostate.edu/templates/loop_directory.asp?data_folder=dev/lindsey/loops/1sep19_sandwich&loop_speed_ms=40

Unfortunately I fear this is going to be devastating for the Bahamas, particularly the town of Marsh Harbour, population over 6000.

Dan

On Sun, Sep 1, 2019 at 11:30 AM Neil Stuart - NOAA Federal <0000087a1803eea-dmarc-request@listserv.albany.edu> wrote:

Lance and everyone,

The storm is making landfall on Great Abaco now (around 1 PM EDT) and attached is a small GOES-16 Mesoscale Sector Visible Satellite Loop with Earth Networks lightning data overlaid. It is 5 minute lightning data with 1 minute update. I don't even want to imagine the destruction going on there right now. The in-cloud and cloud-to-ground lightning has been around the eyewall for many hours.

Neil

On Sun, Sep 1, 2019 at 10:17 AM Bosart, Lance F <lbosart@albany.edu> wrote:

Hi all,

A speculative post....

A simple subjective $d(\text{prog})/dt$ analysis of the 500-hPa geopotential heights, vorticity, and vertical motion from Alicia Bentley's website of the deterministic GFS forecasts verifying 0600 and 1200 UTC 2 Sep 2019 suggests that uncertainty on the forecast northward turn of TC Dorian *may* be related to uncertainty of the forecast southern extension of a trough across the MidAtlantic region (see the below links).

A few takeaways....

1. The GFS didn't really "see" Dorian until the 6–7 day forecasts when the storm developed in the extreme northeastern Gulf of Mexico.
2. The GFS correctly shifted Dorian to east of Florida in the 5–6 day forecasts.
3. The GFS forecast Dorian to turn to the north farther east of Florida in the 3–4 day forecasts in conjunction with a SSW extension of the southern portion of a MidAtlantic trough.
4. Need to understand to what extent forecast uncertainty in the southern extension of the aforementioned MidAtlantic trough is related to forecast uncertainty with the western CONUS ridge and weak disturbances moving around the northern periphery of

this ridge across Canada.

Forecasts verifying 0600 UTC 2 Sep 2019: http://www.atmos.albany.edu/student/abentley/realtime/dprogdtd.php?domain=northamer&variable=rel_vort

Forecasts verifying 1200 UTC 2 Sep 2019: http://www.atmos.albany.edu/student/abentley/realtime/dprogdtd.php?domain=northamer&variable=rel_vort

Thoughts?

Lance

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Neil A. Stuart, Meteorologist
National Weather Service
Albany, NY (weather.gov/aly)
<https://www.facebook.com/NWSAlbany>
<https://twitter.com/NWSAlbany>
Ask me how to be a Weather Ready Nation Ambassador



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Daniel T. Lindsey, Ph.D.
Research Meteorologist
NOAA/NESDIS Senior Scientific Adviser for GOES-R
Fort Collins, CO 80523
970-491-8773
http://rammb.cira.colostate.edu/resources/personnel/lindsey_dan.asp

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Steve Keighton, Science and Operations Officer
National Weather Service – Blacksburg, VA
stephen.keighton@noaa.gov 540.552.1041 x 3
www.weather.gov/rnk
<https://www.facebook.com/NWSBlacksburg>

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