

## Global Hawk #872 10/09/16 - 10/10/16

**Aircraft:** [Global Hawk - AFRC #872](#) ([See full schedule](#))

**Flight Number:** 872-0179

**Payload Configuration:** NOAA SHOUT HRR

**Nav Data Collected:** Yes

**Total Flight Time:** 24.8 hours

**Submitted by:** Frank Cutler on 10/17/16

**Flight Segments:**

<b>From:</b>	KEDW	<b>To:</b>	KEDW
<b>Start:</b>	10/09/16 03:00 Z	<b>Finish:</b>	10/10/16 03:47 Z
<b>Flight Time:</b>	24.8 hours		
<b>Log Number:</b>	<a href="#">17H006</a> - Completed as of this flight.	<b>PI:</b>	Gary Wick
<b>Funding Source:</b>	Robbie Hood - NOAA - UAS Program Manager		
<b>Purpose of Flight:</b>	Science		

NASA Global Hawk Conducts Third 24 Hour UAS Mission Over Hurricane Matthew and in front of Nicole NOAA SHOUT 2016 Science Flight #9 conducts multi-aircraft mission above Matthew and in front of Nicole. The NOAA UAS Program's SHOUT Team launched the NASA Global Hawk from NASA Armstrong at 2000 PT October 8th with the mission objective to sample Hurricane Matthew and model sensitivity areas (HWRP and ECMWF) east of the storm, near the storm environment, and in the Gulf of Mexico. As the flight evolved, the team in close coordination with the National Hurricane Center and manned aircraft the team also collected data in front of Hurricane Nicole. This was the first time that the NASA Global Hawk flew three hurricane missions in a row with minimum turn-around time. During the flight, the aircraft delivered data such as temperature, relative humidity, pressure and winds. This information was delivered in real-time to the National Hurricane Center in Florida, the NOAA National Centers for Environmental Prediction (NCEP) and numerous modeling centers around the world for use in forecast and model development. The dropsonde data was provided to the Global Telecommunication System which delivers it to NHC and the modeling centers for input to the NCEP HWRP, ECMWF, UKMet and other models. This mission's data was quickly used by the NHC in forecaster discussions 46 and 47 (attached): POST-TROPICAL CYCLONE MATTHEW DISCUSSION NUMBER 46 NWS NATIONAL HURRICANE CENTER MIAMI FL AL142016 1100 AM EDT SUN OCT 09 2016 Satellite data and surface observations indicate that a cold front has wrapped around the southwestern portion of Matthew's circulation and the post-tropical cyclone is now analyzed as an extratropical low. Despite the change in the cyclone's structure over the past 24 hours, Matthew continues to produce an area of very strong winds to the southwest and west of the center. Sustained winds of 55 to 60 kt with gusts above hurricane force were reported at several coastal marine observing stations near the Outer Banks of North Carolina this morning, and a recent dropsonde from the Global Hawk unmanned aircraft reported surface winds of 58 kt. Forecaster Brown These flights were especially important as record-breaking flooding was occurring in North Carolina after Hurricane Matthew dumped extreme amounts of rain on eastern parts of the state. The aircraft landed back in California at 2047 PT October 9th after launching 63 sondes. This is the third year of NOAA's SHOUT research project with NASA to evaluate the benefits of using the unmanned aircraft in routine operations to improve severe storm forecasts. The research also looks at whether unmanned aircraft can fill data gaps if there are interruptions in weather satellite coverage. -- John "JC" Coffey Cherokee Nation Company supporting: NOAA UAS Program Office National Oceanic and Atmospheric Administration SSMC3/ OAR-R/ Room 11100 1315 East West Highway Silver Spring, MD 20910 Email: John.J.Coffey@noaa.gov Office Telephone: 301-734-1104 Cell Telephone: 904-923-1709 WTNT44 KNHC 091456 TCDAT4 POST-TROPICAL CYCLONE MATTHEW DISCUSSION NUMBER 46 NWS NATIONAL HURRICANE CENTER MIAMI FL AL142016 1100 AM EDT SUN OCT 09 2016 Satellite data and surface observations indicate that a cold front has wrapped around the southwestern portion of Matthew's circulation and the post-tropical cyclone is now analyzed as an extratropical low. Despite the change in the cyclone's structure over the past 24 hours, Matthew continues to produce an area of very strong winds to the southwest and west of the center. Sustained winds of 55 to 60 kt with gusts above hurricane force were reported at several coastal marine observing stations near the Outer Banks of North Carolina this morning, and a recent dropsonde from the Global Hawk unmanned aircraft reported surface winds of 58 kt. Based on these data, the initial intensity remains 65 kt. The global models indicate that the post-tropical cyclone will gradually weaken during the next 24 to 36 hours, and be absorbed by a frontal boundary in about 48 hours. Matthew is moving eastward at about 13 kt. The low should continue moving eastward within the mid-latitude westerly flow during the next day or so. The NHC forecast track is close to a blend of the ECMWF, GFS, and UKMET models, and is similar to the previous advisory. Strong winds in the Tidewater Region of Virginia are being handled by non-tropical wind warnings. KEY MESSAGES: 1. Tropical-storm-force winds will continue over the North Carolina Outer Banks this afternoon, with gusts to near hurricane force possible during the next hour or two. Storm surge flooding continues over portions of the Outer Banks. Please see the Prototype Storm Surge Watch/Warning Graphic for a depiction of the areas at risk. 2. Although Matthew has become a post-tropical cyclone, NHC will continue to issue its full suite of advisory and warning products as long as the system remains a significant threat to land areas. FORECAST POSITIONS AND MAX WINDS INIT 09/1500Z 35.2N 73.7W 65 KT 75 MPH...POST-TROP/EXTRATROP 12H 10/0000Z 35.3N 71.2W 60 KT 70 MPH...POST-TROP/EXTRATROP 24H 10/1200Z 35.7N 68.0W 50 KT 60 MPH...POST-TROP/EXTRATROP 36H 11/0000Z 37.0N 64.0W 35 KT 40 MPH...POST-TROP/EXTRATROP 48H 11/1200Z...ABSORBED Forecaster Brown 000 WTNT44 KNHC 092042 TCDAT4 POST-TROPICAL CYCLONE MATTHEW DISCUSSION NUMBER 47 NWS NATIONAL HURRICANE CENTER MIAMI FL AL142016 500 PM EDT SUN OCT 09 2016 Dropsonde data from a NASA Global Hawk mission into Matthew today indicate that the post-tropical cyclone has not weakened. The observations continue to show a band of 60-65 kt winds to the southwest and west of the center. Matthew is moving east-northeastward at about 13 kt, and an east-northeastward motion within the mid-latitude westerlies should continue through tonight. Matthew is forecast by the global models to weaken and be absorbed within a frontal boundary on Monday, and the NHC forecast follows suit. It should be noted that a strong baroclinic low is expected to develop along the same frontal boundary near Nova Scotia on Monday. Winds over the Outer Banks of North Carolina are being handled by non-tropical wind warnings.

**Comments:**

**Flight Hour Summary:**

	16H004	17H006
<b>Flight Hours Approved in SOFRS</b>	220	
<b>Flight Hours Previously Approved</b>		54
<b>Total Used</b>	166	73.2
<b>Total Remaining</b>		-19.2

**17H006 Flight Reports**

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
<a href="#">10/05/16 - 10/06/16</a>	872-0177	Science	24.7	24.7	29.3	
<a href="#">10/07/16 - 10/08/16</a>	872-0178	Science	23.7	48.4	5.6	
<a href="#">10/09/16 - 10/10/16</a>	872-0179	Science	24.8	73.2	-19.2	

**Source URL:** [https://airbornescience.nasa.gov/flight\\_reports/Global\\_Hawk\\_872\\_10\\_09\\_16\\_-\\_10\\_10\\_16#comment-0](https://airbornescience.nasa.gov/flight_reports/Global_Hawk_872_10_09_16_-_10_10_16#comment-0)

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Page Editor: Brad Bulger

NASA Official: Bruce A. Tagg

*Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.*

**16H004 Flight Reports**

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
<a href="#">07/27/16</a>	872-0168	Check	4.9	4.9	215.1	
<a href="#">08/19/16</a>	872-0169	Ferry	10.3	15.2	204.8	
<a href="#">08/24/16 - 08/25/16</a>	872-0170	Science	23.9	39.1	180.9	
<a href="#">08/26/16 - 08/27/16</a>	872-0171	Science	23.8	62.9	157.1	
<a href="#">08/29/16 - 08/30/16</a>	872-0172	Science	23.8	86.7	133.3	
<a href="#">09/01/16 - 09/02/16</a>	872-0173	Science	22.8	109.5	110.5	
<a href="#">09/22/16 - 09/23/16</a>	872-0174	Science	24	133.5	86.5	
<a href="#">09/24/16 - 09/25/16</a>	872-0175	Science	22.8	156.3	63.7	
<a href="#">09/28/16</a>	872-0176	Ferry	9.7	166	54	