



# WEATHERSTRIKE

"Severe" and "Significant Severe" Weather Data (Hail, Wind, & Tornado) documented by the NOAA/National Weather Service for the Continental US, Alaska & Hawaii

# WeatherStrike Forensic Report

**Property Name / ID** NASA LRC / A0001  
**Property Address** 1 Nasa Drive, Hampton, VA 23666  
**NWS Forecast Zone** Hampton/Poquoson  
**Latitude, Longitude** 37.086333, -76.380834



# Hail & Wind Report Summary Sheet

11/1/2016 through 10/31/2019

**Property Name / ID** NASA LRC / A0001  
**Property Address** 1 Nasa Drive, Hampton, VA 23666  
**NWS Forecast Zone** Hampton/Poquoson  
**Latitude, Longitude** 37.086333, -76.380834

Hail
T-storm Wind
Tornado

## Maximum Hail Sizes, and Maximum Storm & Tornado Wind Speeds

Summarized below are SED & SWDI Hail, and SED T-storm Wind & Tornado only.

For ASOS Surface Winds (Airport wind data from Thunderstorms & Hurricanes), SED High Winds, and SWDI Tornadoic Events, see detail data in this report following this Summary Sheet.

Storm Events Dates	SWDI (Radar) SED (Ground)	< 1 Mile	< 2 Miles	< 3 Miles	< 4 Miles	< 5 Miles	< 6 Miles	< 10 Miles
#1 2/25/2017	SWDI Hail†	—	2" (100%)	3" (100%)	1.75" (100%)	—	n/a	n/a
	SED Hail	1"	—	—	1"	1"	n/a	n/a
#2 5/31/2017	SWDI Hail†	—	—	—	—	2" (100%)	n/a	n/a
	SED Hail	—	—	1"	—	1"	n/a	n/a
	SED Wind	60 mph	—	—	58 mph	—	—	—
#3 5/14/2018	SED Wind	—	—	—	—	58 mph	—	—
#4 7/22/2018	SED Wind	—	—	—	—	—	58 mph	—
#5 7/27/2018	SWDI Hail†	—	1.5" (50%)	—	—	—	n/a	n/a
#6 4/15/2019	SED Wind	—	—	—	58 mph	71 mph	58 mph	—
#7 4/19/2019	SED Wind	—	—	—	60 mph	—	58 mph	—
	SED Tornado	—	—	—	—	—	—	EFO (65–85 mph)
#8 5/31/2019	SED Wind	—	—	—	—	—	58 mph	—
#9 7/11/2019	SED Wind	—	—	—	58 mph	—	—	—
#10 8/4/2019	SED Wind	—	—	—	—	—	58 mph	—
#11 8/7/2019	SED Wind	—	—	—	—	58 mph	—	—
#12 8/13/2019	SED Wind	—	—	—	—	—	58 mph	—

†Note: SWDI Hail percentages are Probabilities of Large Hail (0.75" min.) at the Surface.

## Report Parameters

---

Date Range	11/1/2016 through 10/31/2019	
SED - Hail (Ground Truth)	Minimum Size: <b>0.75"</b>	Maximum Distance: <b>5 mi. R</b>
SWDI - Hail (Radar)	Minimum Size: <b>1"</b>	Maximum Distance: <b>5 mi. R</b>
SED - Thunderstorm Wind (Ground Truth)	Minimum Wind Speed: <b>50 mph</b>	Maximum Distance: <b>10 mi. R</b>
SED - High Wind (Ground Truth)	Minimum Wind Speed: <b>70 mph</b>	NWS Zone: <b>Hampton/Poquos</b>
ASOS - Surface Wind (Ground Based Weather Sensors)	Minimum Wind Speed: <b>50 mph</b>	1st nearest sensor; +2nd if <20 mi
SED - Tornado (Ground Truth)	Maximum Distance: <b>10 mi. R</b>	
SWDI - Tornadoic Events (Radar)	Maximum Distance: <b>5 mi. R</b>	

---

### From NOAA Weather Site

*"With the mission to protect property, and enhance the United States' economy, **NOAA's National Weather Service** is the sole official voice of the U.S. government for issuing warnings during life-threatening weather situations."*

The **NWS** defines:

A "**Severe**" thunderstorm as any storm that produces one or more of the following elements: A tornado, damaging winds over 50 knots (58 mph), and/or 1" diameter or larger hail.

A "**Significant Severe**" thunderstorm as any storm that produces one or more of the following elements: A EF2 tornado or greater, wind speeds of 65 knots (75 mph) or greater and/or 2" diameter or larger hail.

Since hail is formed in a thunderstorm, hail and high winds typically occur during the same storm event.

---

The **Storm Events Database (SED)** contains the records used to create the official **NOAA Storm Data Publication**, documenting the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. It includes rare, unusual weather phenomena that generate media attention, such as snow flurries in South Florida or the San Diego coastal area; and other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occur in connection with another event. The data contained in the **SED** are observed occurrences only, and reported through channels to the **National Weather Service**. The lack of a report in the **SED** does not mean a specific weather event did not occur. It only means that it wasn't observed and/or reported through government channels.

**Automated Surface Observing System (ASOS)** Surface Data, which is meteorological data, includes air temperature/dew point, wind speed and direction, visibility, cloud height, cloud layer thickness, pressure, and precipitation accumulation. This data is recorded on an hourly and criteria based interval. Wind speeds are a 2 minute average, while other measurements are spontaneous.

The **Severe Weather Data Inventory (SWDI)** includes information critical to the detection and evaluation of severe weather derived from radar, such as features related to general storm structure, hail, tornadoic events, tornadoes, preliminary and verified reports of storm damage, and **National Weather Service Warning** areas. The data included in the **SWDI** comes only from the network of **NEXRAD** and **Terminal Doppler Weather Radars** across the country, and are part of the national **NOAA** network.

---

**SED Information (Observed Events)**

**SED - Hail (Ground Truth)**

Minimum Size: **0.75"** | Maximum Distance: **5 mi. R**

Item # (ID)	Location	Time	Source	Hail Size	Azimuth (Site to Event)	Distance (Lat,Long)
2/25/2017 (Hail Event - 1)						
#1 (679467)	Harpersville, VA (Newport News (c) County)	17:49 EST	Trained Spotter	1"	263°	3.84 mi. (37.08°, -76.45°)
#2 (679492)	Harpersville, VA (Newport News (c) County)	17:49 EST	Trained Spotter	1"	263°	3.84 mi. (37.08°, -76.45°)
#3 (679503)	Hilton Vlg, VA (Newport News (c) County)	17:51 EST	Trained Spotter	1"	244°	4.23 mi. (37.06°, -76.45°)
#4 (679499)	Hampton, VA (Hampton (c) County)	17:54 EST	Trained Spotter	1"	220°	3.31 mi. (37.05°, -76.42°)
#5 (679498)	Hampton, VA (Hampton (c) County)	17:59 EST	Trained Spotter	1"	122°	3.34 mi. (37.06°, -76.33°)
#6 (679486)	Hampton, VA (Hampton (c) County)	18:01 EST	Public	1"	67°	0.65 mi. (37.09°, -76.37°)
#7 (679494)	Hampton, VA (Hampton (c) County)	18:11 EST	Trained Spotter	1"	106°	4.07 mi. (37.07°, -76.31°)
5/31/2017 (Hail Event - 2)						
#1 (703332)	Hampton, VA (Hampton (c) County)	16:59 EDT	Trained Spotter	1"	220°	4.20 mi. (37.04°, -76.43°)
#2 (703333)	Hampton, VA (Hampton (c) County)	17:05 EDT	Trained Spotter	1"	178°	2.51 mi. (37.05°, -76.38°)

## SED Information (Observed/Measured Events)

SED – Thunderstorm Wind (Ground Truth) Minimum Wind Speed: 50 mph | Maximum Distance: 10 mi. R

Item # (ID)	Location	Time	Source	Event	Azimuth (Site to Event)	Distance (Lat,Long)
5/31/2017 (Thunderstorm Event - 1)						
#1 (703341)	Hampton, VA (Hampton (c) County)	19:52 EDT	ASOS	60 mph (52 kt.) <b>Type:</b> Measured Gust <b>WFO:</b> AKQ	67°	0.65 mi. (37.09°, -76.37°)
#2 (703335)	Hampton, VA (Hampton (c) County)	19:53 EDT	County Official	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	108°	3.54 mi. (37.07°, -76.32°)
#3 (703336)	Hampton, VA (Hampton (c) County)	20:01 EDT	Public	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	108°	3.54 mi. (37.07°, -76.32°)
5/14/2018 (Thunderstorm Event - 2)						
#1 (759903)	Tabb, VA (York County)	21:02 EDT	911 Call Center	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	318°	4.94 mi. (37.14°, -76.44°)
7/22/2018 (Thunderstorm Event - 3)						
#1 (776024)	Tabb, VA (York County)	15:50 EDT	911 Call Center	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	314°	5.32 mi. (37.14°, -76.45°)
4/15/2019 (Thunderstorm Event - 4)						
#1 (820451)	Harpersville, VA (Newport News (c) County)	03:42 EDT	Broadcast Media	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	255°	4.51 mi. (37.07°, -76.46°)
#2 (820450)	Hilton Vlg, VA (Newport News (c) County)	03:42 EDT	Broadcast Media	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	240°	5.04 mi. (37.05°, -76.46°)
#3 (820453)	Bethel Manor, VA (York County)	03:45 EDT	Public	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	296°	3.65 mi. (37.11°, -76.44°)
#4 (820461)	Messick, VA (York County)	04:00 EDT	Mesonet	71 mph (62 kt.) <b>Type:</b> Measured Gust <b>WFO:</b> AKQ	57°	4.20 mi. (37.12°, -76.32°)
4/19/2019 (Thunderstorm Event - 5)						
#1 (822322)	Oyster Pt, VA (Newport News (c) County)	20:15 EDT	Fire Department/Rescue	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	272°	5.48 mi. (37.09°, -76.48°)

Item # (ID)	Location	Time	Source	Event	Azimuth (Site to Event)	Distance (Lat,Long)
#2 (822332)	Hampton, VA (Hampton (c) County)	21:10 EDT	Public	60 mph (52 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	236°	3.27 mi. (37.06°, -76.43°)
5/31/2019 (Thunderstorm Event - 6)						
#1 (829559)	Oyster Pt, VA (Newport News (c) County)	00:00 EDT	Utility Company	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	257°	5.05 mi. (37.07°, -76.47°)
7/11/2019 (Thunderstorm Event - 7)						
#1 (845402)	Hampton, VA (Hampton (c) County)	20:50 EDT	911 Call Center	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	227°	3.70 mi. (37.05°, -76.43°)
8/4/2019 (Thunderstorm Event - 8)						
#1 (848615)	Ft Monroe, VA (Hampton (c) County)	16:34 EDT	Trained Spotter	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	134°	5.52 mi. (37.03°, -76.31°)
#2 (848616)	Ft Monroe, VA (Hampton (c) County)	16:34 EDT	Trained Spotter	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	116°	5.61 mi. (37.05°, -76.29°)
8/7/2019 (Thunderstorm Event - 9)						
#1 (850870)	Hampton, VA (Hampton (c) County)	16:15 EDT	Public	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	192°	4.71 mi. (37.02°, -76.40°)
8/13/2019 (Thunderstorm Event - 10)						
#1 (851743)	Hilton Vlg, VA (Newport News (c) County)	18:13 EDT	Utility Company	58 mph (50 kt.) <b>Type:</b> Estimated Gust <b>WFO:</b> AKQ	228°	5.85 mi. (37.03°, -76.46°)

## SED Information (Observed/Measured Events)

### SED - High Wind (Ground Truth)

Minimum Speed (mph): **70**  
NWS Forecast Zone: **Hampton/Poquoson (VA)**

Item # (ID)	Time	Source	WFO	Wind Type	Speed
10/11/2018 (High Wind Event - 1)					
#1 (791105)	19:30 EDT	Emergency Manager	AKQ	Measured Gust	74 mph (64 kt.)

SAMPLE REPORT - Illustrative Data Only



**SED Information (Observed Events)**

**SED - Tornado (Ground Truth)**

Maximum Distance: 10 mi. R

Item # (ID)	Location	Time	Source	Event	EF-Scale	Distance Start: (Lat,Long) End: (Lat,Long)
4/19/2019 (Tornado Event - 1)						
#1 (822002)	Menchville, VA (Newport News (c) County)	20:07 EDT	NWS Storm Survey	<b>Length</b> 1.8 (mi.) <b>Width</b> 100 (yd.) <b>Azimuth</b> NW	<b>EF0</b> Minor Damage (65–85 mph)	9.08 mi. (37.10°, -76.55°) (37.12°, -76.54°)

SAMPLE REPORT - Illustrative Data Only

## ASOS - Surface Wind (Ground Based Sensors) - Closest Sensor (Thunderstorms and Hurricanes)

<u>KLFI</u> Name: LANGLEY AFB AIRPORT		Distance: 1.17 mi. Lat, Long: 37.08°, -76.36° Bearing: 101°	
Time	Wind Direction	Wind Speed (2-Minute)	Wind Gusts (5-Sec)
3/2/2018 (Wind Event - 1)			
09:56 EST	310°	37 mph	51 mph
10:15 EST	300°	39 mph	55 mph
10/11/2018 (Wind Event - 2)			
23:56 EDT	310°	34 mph	51 mph
10/12/2018 (Wind Event - 3)			
00:21 EDT	310°	38 mph	62 mph
3/22/2019 (Wind Event - 4)			
19:10 EDT	300°	37 mph	51 mph
19:12 EDT	300°	36 mph	51 mph
4/15/2019 (Wind Event - 5)			
03:55 EDT	240°	41 mph	53 mph
03:56 EDT	240°	39 mph	53 mph
04:05 EDT	240°	31 mph	51 mph

## ASOS - Surface Wind (Ground Based Sensors) - 2nd Closest Sensor (T-storms and Hurricanes)

<u>KPHF</u> Name: NWPT NEWS/WIMBURG INTL APT		Distance: 6.95 mi. Lat, Long: 37.13°, -76.49° Bearing: 297°	
Time	Wind Direction	Wind Speed (2-Minute)	Wind Gusts (5-Sec)
5/19/2017 (Wind Event - 1)			
16:29 EDT *	320°	39 mph	51 mph
3/2/2018 (Wind Event - 2)			
08:54 EST	300°	28 mph	51 mph
09:54 EST	300°	29 mph	55 mph
5/14/2018 (Wind Event - 3)			
20:52 EDT	350°	-	53 mph

Time	Wind Direction	Wind Speed (2-Minute)	Wind Gusts (5-Sec)
20:54 EDT	330°	25 mph	53 mph
10/11/2018 (Wind Event - 4)			
23:16 EDT	330°	33 mph	57 mph
10/12/2018 (Wind Event - 5)			
00:10 EDT	340°	33 mph	51 mph
4/19/2019 (Wind Event - 6)			
20:13 EDT	190°	38 mph	54 mph
20:16 EDT	200°	34 mph	54 mph
6/5/2019 (Wind Event - 7)			
18:10 EDT *	240°	29 mph	52 mph
7/17/2019 (Wind Event - 8)			
21:20 EDT *	260°	34 mph	55 mph
21:27 EDT	-	7 mph	55 mph

\* Not yet passed through NOAA's National Weather Service quality control procedures.

SAMPLE REPORT - Illustrative Data Only

## SWDI Information (Remote Sensing Events)

### SWDI - Hail (Radar)

Minimum Size: 1" | Maximum Distance: 5 mi. R

Item #	Site	Time	Range	Azimuth (Site to Event)	Severe Probability*	Max. Size	Distance
2/25/2017 (Hail Event - 1)							
#1	KAKQ	17:49 EST	29 nm	247°	100%	3"	2.05 mi.
#2	KDOX	17:53 EST	115 nm	236°	100%	2"	2.18 mi.
#3	KAKQ	17:55 EST	32 nm	70°	100%	2"	1.46 mi.
#4	KDOX	17:59 EST	112 nm	86°	100%	1.75"	3.71 mi.
5/31/2017 (Hail Event - 2)							
#1	KAKQ	16:53 EDT	28 nm	214°	100%	2"	4.61 mi.
#2	KDOX	16:56 EDT	117 nm	187°	90%	1.75"	4.28 mi.
7/27/2018 (Hail Event - 3)							
#1	KLWX	20:11 EDT	124 nm	308°	40%	1.5"	1.04 mi.
#2	KLWX	20:16 EDT	124 nm	308°	50%	1.5"	1.04 mi.

\* The NWS defines "**Severe Probability**" (Probability of Severe Hail: POSH) as the Probability of Large Hail (0.75" min.) at the Surface.

## SWDI Information (Remote Sensing Events)

### SWDI –Tornadic Events (Radar)

Maximum Distance: 5 mi. R

Item #	Site	Time	Range	Azimuth (Site to Event)	Max. Shear ( $\times 10^{-3} \cdot s^{-1}$ )	MXDV	Distance
7/6/2017 (Tornadic Event - 1)							
#1	KAKQ	06:42 EDT	37 nm	82°	42	98 kt.	7.21 mi.
5/11/2019 (Tornadic Event - 2)							
#1	KAKQ	15:17 EDT	25 nm	226°	33	52 kt.	8.20 mi.
8/13/2019 (Tornadic Event - 3)							
#1	KAKQ	18:11 EDT	28 nm	219°	34	60 kt.	4.20 mi.

These Tornadic Events show High Winds in the Atmosphere by NEXRAD & Other Radar but **do not** denote whether or not Tornado(es) touched down on the Ground.

SAMPLE REPORT - Illustrative Data Only

## Appendix

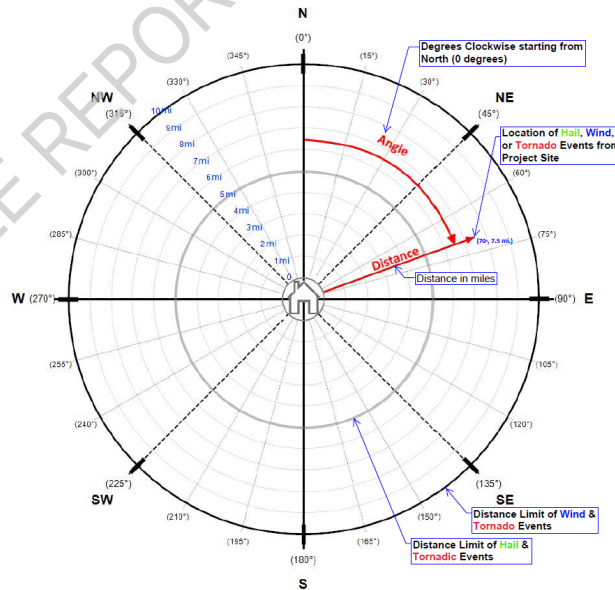
### Abbreviations Used in this Report

Symbol	Description	Conversion
°	degrees	
"	inch	1" = 2.54 cm
kt.	knot	1 kt. = 1.15078 mph = 1.852 kmh
mi.	mile	1 mi. = 1.60934 km
nm	nautical mile	1 nm = 1.15078 mi. = 1.852 km
R	radius	
yd.	yard	
1 mph = 0.868976 kt. = 1.60934 kmh = 0.44704 m/s		

### UTC Offset Time Conversions

Time Zones	Hawaii	Alaska	Pacific	Mountain	Central	Eastern
<b>Standard</b>	HST (-10)	AKST (-9)	PST (-8)	MST (-7)	CST (-6)	EST (-5)
<b>Daylight</b>	HDT (-9)	AKDT (-8)	PDT (-7)	MDT (-6)	CDT (-5)	EDT (-4)
<b>Example City</b>	Honolulu	Anchorage	Los Angeles	Salt Lake City	Houston	New York

Example: Houston 09:00 (CDT) = 14:00 (UTC).



**Disclaimer:**

WeatherStrike accumulates and compiles reporting data from various sources including, but not limited to: **National Weather Services (NWS), Storm Prediction Center (SPC), and National Centers for Environmental Information (NCEI)**. This report and the reports we provide represent the most accurate approximation for storm activity based upon such resources. Although extra steps have been taken to ensure the accuracy of these reports, the data used in our products are directly from the **National Weather Service (NWS)** and have undergone Federal Quality Control Standards. There may be omissions of data due to the collection procedures of the **NWS**.