

New England Effects from the Hurricane Sandy Hybrid Storm

Weather Synopsis

Sandy, a hybrid storm with both tropical and extratropical characteristics, brought high winds and coastal flooding to southern New England. Easterly winds gusted to 50 to 60 mph for interior southern New England; 55 to 65 mph along the eastern Massachusetts coast and along the I-95 corridor in southeast Massachusetts and Rhode Island; and 70 to 80 mph along the southeast Massachusetts and Rhode Island coasts. A few higher higher gusts occurred along the Rhode Island coast. A severe thunderstorm embedded in an outer band associated with Sandy produced wind gusts to 90 mph and concentrated damage in Wareham early Tuesday evening, a day after the center of Sandy had moved into New Jersey. In general moderate coastal flooding occurred along the Massachusetts coastline, and major coastal flooding impacted the Rhode Island coastline. The storm surge was generally 2.5 to 4.5 feet along the east coast of Massachusetts, but peaked late Monday afternoon in between high tide cycles. Seas built to between 20 and 25 feet Monday afternoon and evening just off the Massachusetts east coast. Along the south coast, the storm surge was 4 to 6 feet and seas from 30 to a little over 35 feet were observed in the outer coastal waters. The very large waves on top of the storm surge caused destructive coastal flooding along stretches of the Rhode Island exposed south coast.

Sandy grew into a hurricane over the southwest Caribbean and then headed north across Jamaica, Cuba, and the Bahamas. As Sandy headed north of the Bahamas, the storm interacted with a vigorous weather system moving west to east across the United States and began to take on a hybrid structure. Strong high pressure over southeast Canada helped with the expansion of the strong winds well north of the center of Sandy. In essence, Sandy retained the structure of a hurricane near its center (until shortly before landfall) while taking on more of an extratropical cyclone configuration well away from the center. Sandy's track was unusual. The storm headed northeast and then north across the western Atlantic and then sharply turned to the west to make landfall near Atlantic City, NJ during Monday evening. Sandy subsequently weakened and moved west across southern Pennsylvania on Tuesday before turning north and heading across western New York state into Quebec during Tuesday night and Wednesday.

In the Taunton Weather Forecast Office warning area, Rhode Island was hardest hit. A peak wind gust of 86 mph occurred in Westerly, and nearly the entire Rhode Island shoreline experienced moderate to major coastal flooding. Numerous power outages occurred with winds gusting to 60 mph over the interior and to 80+ mph along the south coast. Major coastal flooding struck the Rhode Island ocean exposed south coast during the Monday evening high tide. This storm tide, especially destructive across shorelines in Westerly, South Charlestown, South Kingston, Narragansett, and Block Island, rivaled the impact from Hurricane Bob in 1991. Along the Rhode Island south coast, the damaging coastal flooding was fueled by a storm surge around 5 feet and waves of 30+ feet that propagated on a long fetch into Block Island and Rhode Island Sounds. A survey of impact along Misquamicut Beach revealed an inundation extent consistent with the upper boundary of a category 1 Hurricane and very severe erosion. It should also be noted that the previous high tide during Monday morning produced minor to moderate impacts along the Rhode Island coast and likely weakened dunes and other coastal structures in advance of the more destructive Monday evening high tide.

Lowest Barometric Pressure in NWS-Taunton's area – Oct. 29, 2012

Westerly, RI	KWST	979.2 mb (41.34N 71.80W)	353 PM
Hartford, CT	KHFD	980.1 mb (41.73N 72.65W)	453 PM
Willimantic, CT	KIJD	980.6 mb (41.74N 72.18W)	452 PM
Windsor Locks, CT	KBDL	981.5 mb (41.93N 72.68W)	551 PM
Newport, RI	KUUU	982.3 mb (41.53N 71.28W)	353 PM
Vineyard Haven, MA	KMVY	983.3 mb (41.39N 70.61W)	253 PM
Westfield, MA	KBAF	983.7 mb (42.15N 72.72W)	453 PM
Nantucket, MA	KACK	984.0 mb (41.25N 70.06W)	253 PM
New Bedford, MA	KEWB	984.2 mb (41.67N 70.96W)	353 PM
Warwick, RI	KPVD	984.2 mb (41.72N 71.43W)	351 PM

Highest Wind Gusts – Oct. 29, 2012

Westerly, RI	Citizens WxObs	86 mph	244 PM	
Buzzards Bay Tower	BUZM3	83 mph	300 PM	Elevation 80 feet
Point Judith, RI	Mesonet	81 mph	240 PM	Elevation 18 meters
West Island, MA	Mesonet	80 mph	335 PM	
Marstons Mills, MA	Amateur Radio	79 mph	447 PM	
Barnstable, MA	Amateur Radio	79 mph	101 PM	
Mattapoisett, MA	Amateur Radio	76 mph	unknown	
Blue Hill – Milton, MA	KMQE	74 mph	332 PM	
Pleasure Bay, MA	Mesonet	73 mph	300 PM	
Warren, RI	Spotter	73 mph	410 PM	
East Falmouth, MA	Spotter	72 mph	200 PM	
Kalmus-Hyannis, MA	Mesonet	72 mph	325 PM	
Conimicut, RI	NOS PORTS	71 mph	324 PM	CPTR1
Brookline, MA	Clay Center	69 mph	354 PM	
Westerly, RI	KWST	69 mph	321 PM	
Children's Island, MA	Mesonet	68 mph	300 PM	
Vineyard Haven, MA	KMVY	68 mph	157 PM	
Bedford, MA	KBED	67 mph	555 PM	
Milford, MA	Spotter	67 mph	148 PM	
Rose Island, RI	Mesonet	67 mph	320 PM	
Quonset Point, RI	NOS PORTS	63 mph	400 PM	QPTR1
Boston, MA	KBOS	62 mph	416 PM	
Duxbury, MA	Mesonet	62 mph	520 PM	
Jamestown, RI	NOS PORTS	62 mph	254 PM	PTCR1
Fairhaven, MA	Amateur Radio	62 mph	126 PM	
Falmouth	AWOS	62 mph	415 PM	
Wakefield, MA	Amateur Radio	62 mph	341 PM	
Windsor Locks, CT	KBDL	62 mph	708 PM	
Barrington, RI	Amateur Radio	61 mph	1239 PM	
Hyannis, MA	KHYA	61 mph	339 PM	
Lawrence, MA	KLWM	61 mph	226 PM	
New Bedford, MA	KEWB	61 mph	420 PM	

Worcester, MA	KORH	61 mph	531 PM
Randolph, MA	Spotter	60 mph	unknown
Nantucket, MA	KACK	60 mph	241 PM
Pepperell, MA	Spotter	60 mph	unknown
Beverly, MA	KBVY	59 mph	600 PM
Newport, RI	KUUU	59 mph	113 PM
Warwick, RI	KPVD	59 mph	451 PM
Burlington, CT	Spotter	58 mph	422 PM
Harwich, MA	Amateur Radio	56 mph	1010 AM
Plymouth, MA	KPYM	56 mph	414 PM
Bridgewater, MA	Public	55 mph	134 PM
Manchester, NH	KMHT	55 mph	822 PM
Hartford, CT	KHFD	54 mph	634 PM
Norwood, MA	KOWD	54 mph	530 PM
Southbridge, MA	Spotter	54 mph	315 PM
Chicopee, MA	KCEF	53 mph	447 PM
Jaffrey, NH	KAFN	53 mph	455 PM
Willimantic, CT	KIJD	53 mph	615 PM
Chatham, MA	KCQX	52 mph	451 PM
Westfield, MA	KBAF	51 mph	255 PM
Taunton, MA	KTAN	47 mph	350 PM
Smithfield, RI	KSFZ	45 mph	415 PM
Orange, MA	KORE	43 mph	543 PM

Highest Sustained Winds – Land Sites – Oct. 29, 2012

Point Judith, RI	Mesonet	65 mph	235 PM	Elevation 18 meters
Westerly, RI	CitizensWxObs	64 mph	244 PM	
West Island, MA	Mesonet	59 mph	335 PM	
Pleasure Bay, MA	Mesonet	58 mph	235 PM	
Revere Beach, MA	Mesonet	54 mph	345 PM	
Children's Island, MA	Mesonet	54 mph	300 PM	
Kalmus-Hyannis, MA	Mesonet	53 mph	325 PM	
Duxbury, MA	Mesonet	51 mph	520 PM	
Scituate, MA	Mesonet	50 mph	425 PM	
Sagamore Beach, MA	Mesonet	49 mph	225 PM	
East Falmouth, MA	Spotter	48 mph	200 PM	
Blue Hill - Milton, MA	KMQE	48 mph	522 PM	
Burrillville, RI	Public	48 mph	216 PM	
Boston, MA	KBOS	46 mph	814 PM	
Bedford, MA	KBED	45 mph	555 PM	
Plymouth, MA	Public	45 mph	914 AM	
Vineyard Haven, MA	KMVY	45 mph	109 PM	
Rose Island, RI	Mesonet	44 mph	315 PM	
Nantucket, MA	KACK	43 mph	417 PM	
New Bedford, MA	KEWB	43 mph	421 PM	
Block Island, RI	Mesonet	42 mph	1019 AM	At Jetty

Warwick, RI	KPVD	41 mph	450 PM
Beverly, MA	KBVY	40 mph	942 PM
Plum Island, MA	Mesonet	40 mph	320 PM
Windsor Locks, CT	KBDL	40 mph	708 PM
Worcester, MA	KORH	40 mph	631 PM
Jamestown, RI	Mesonet	39 mph	230 PM Beavertail Park
Chatham, MA	KCQX	38 mph	305 PM
Manchester, NH	KMHT	38 mph	822 PM
Willimantic, CT	KIJD	38 mph	1247 PM

Highest Sustained Winds – Water Sites – Oct. 29, 2012

Conimicut Point, RI	NOS PORTS	53 mph	548 PM CPTR1
Quonset Point, RI	NOS PORTS	49 mph	442 PM QPTR1
Buoy 44020 – Nantucket Sound		47 mph	350 PM
Buoy 44013 – 16 NM E of Boston		45 mph	250 PM
Jamestown, RI	NOS PORTS	44 mph	212 PM PTCR1
Buoy 44029 – Mass. Bay/Stellwagen		43 mph	304 PM
Fox Point-Providence, RI	NOS PORTS	39 mph	430 PM FOXR1

Highest Significant Wave Heights

Buoy 44008 – 54 NM SE of Nantucket	36 Feet	500 PM
Buoy 44097 – Block Island, RI	31 Feet	600 PM
Buoy 44029 – Mass. Bay/Stellwagen	23.3 Feet	300 PM
Buoy 44013 – 16 NM E of Boston	23 Feet	900 PM
Buoy 44020 – Nantucket Sound	10.3 Feet	300 PM