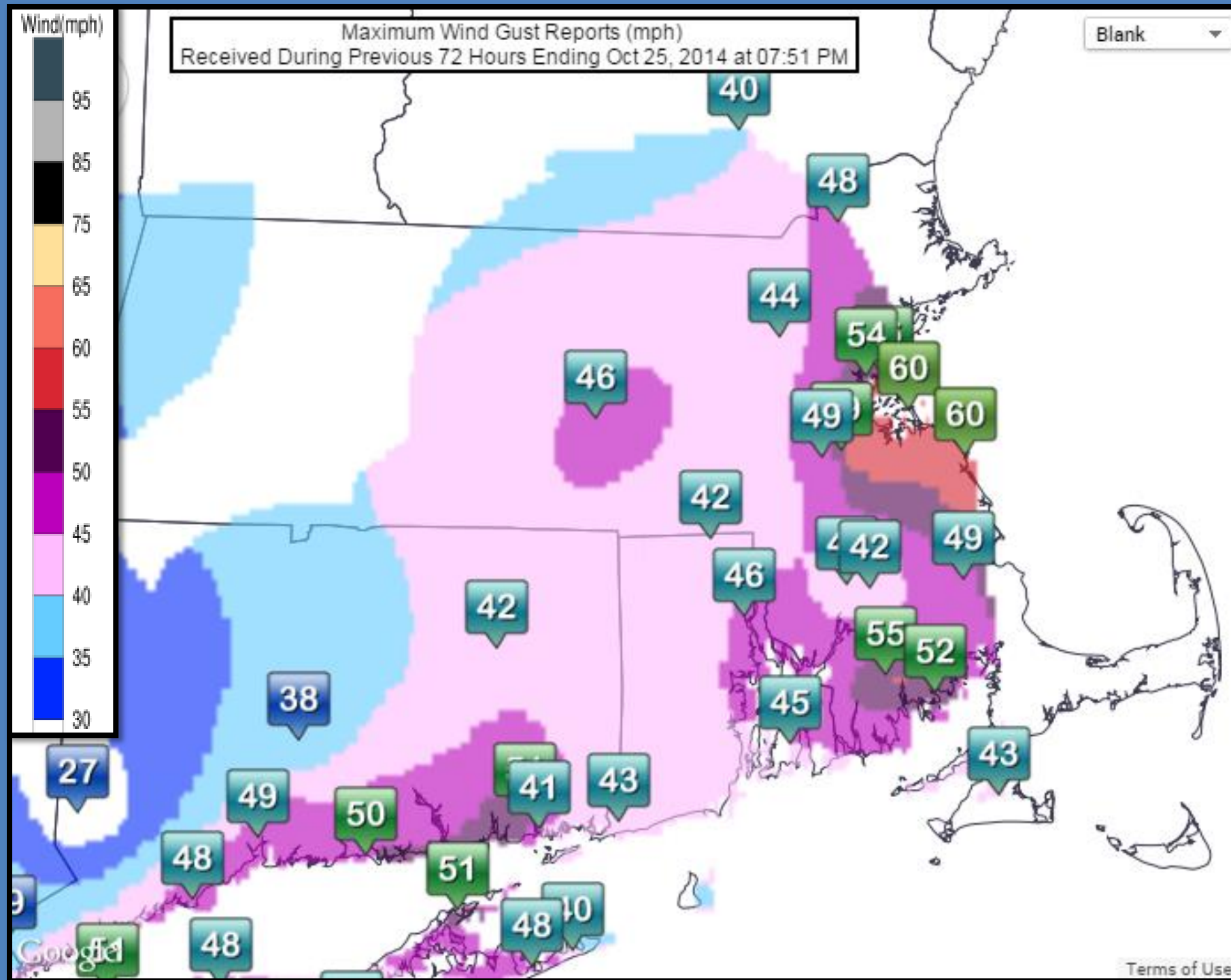


***Eastern Massachusetts High Wind & Coastal Flood Event
10/22-23/2014***



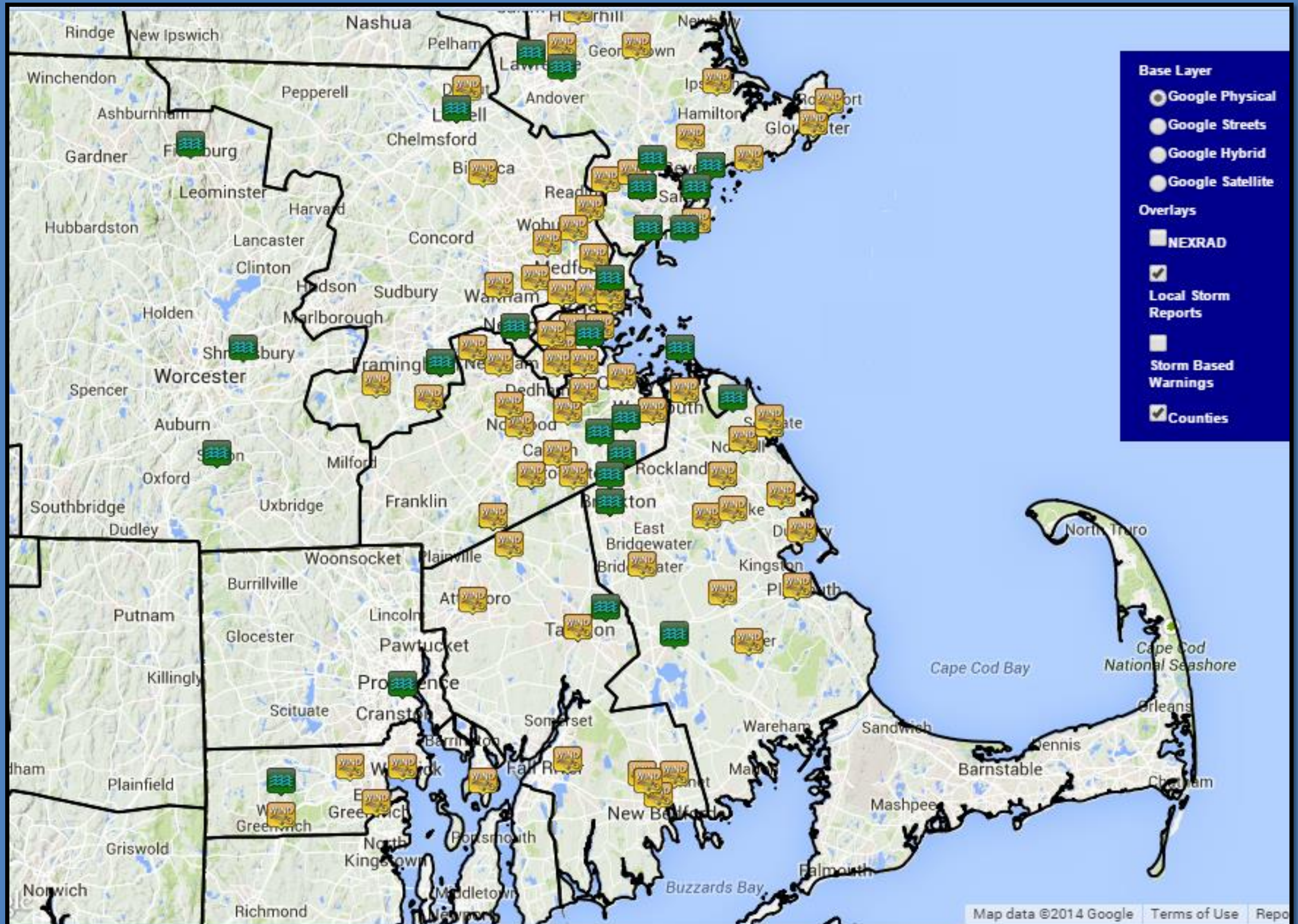
East Boston, MA

Peak Wind Gusts 10/22-23/2014

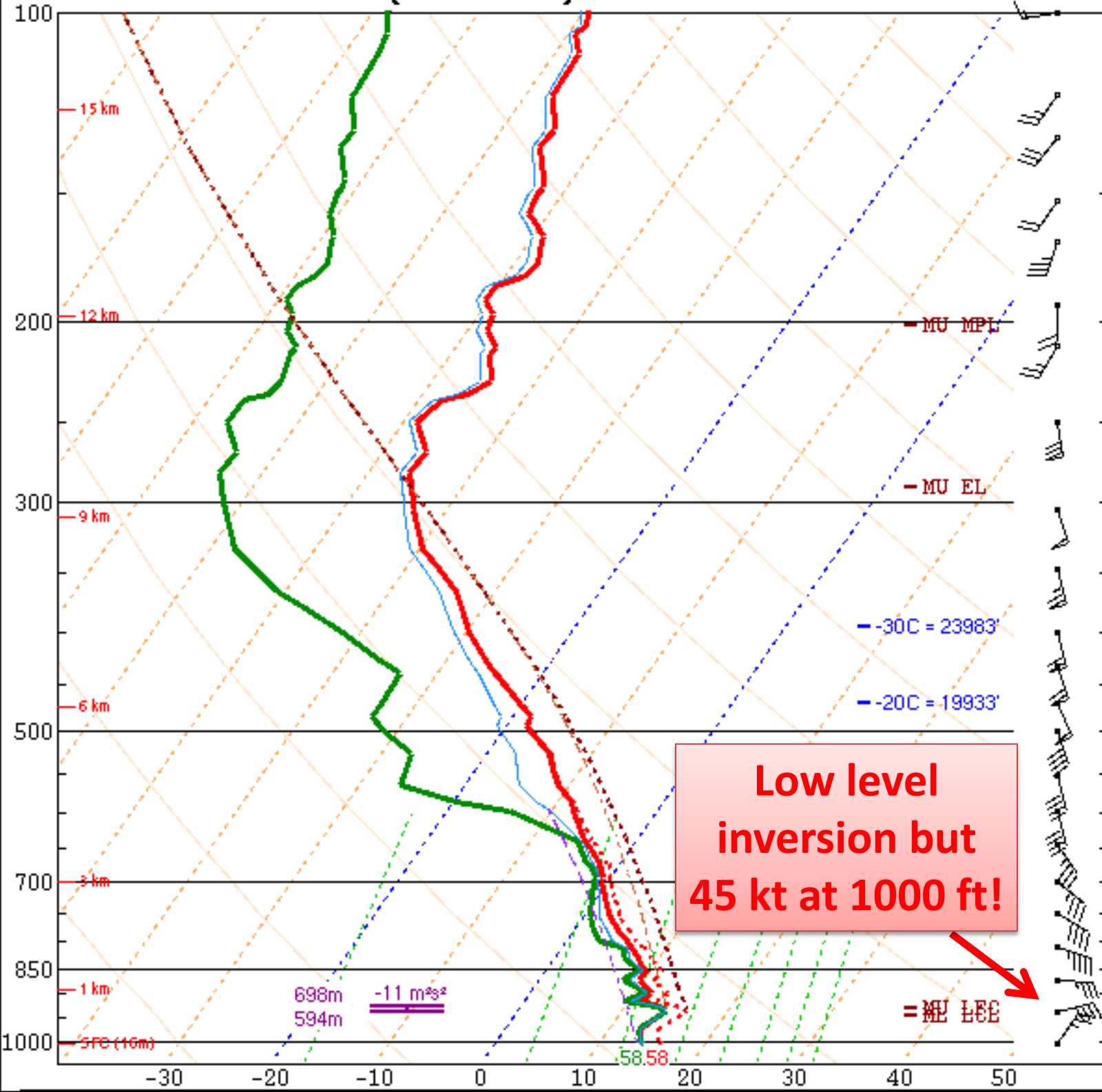


- **Widespread wind damage in Eastern MA including downtown Boston**
- **Wind speeds at most locations were less than High Wind criteria**
- **Fully leaved trees lowered the threshold for wind damage**
- **High impact event especially with onset (3 pm) of damaging winds during the late day commute**

Wind Damage (beige) & Flood Reports (green)

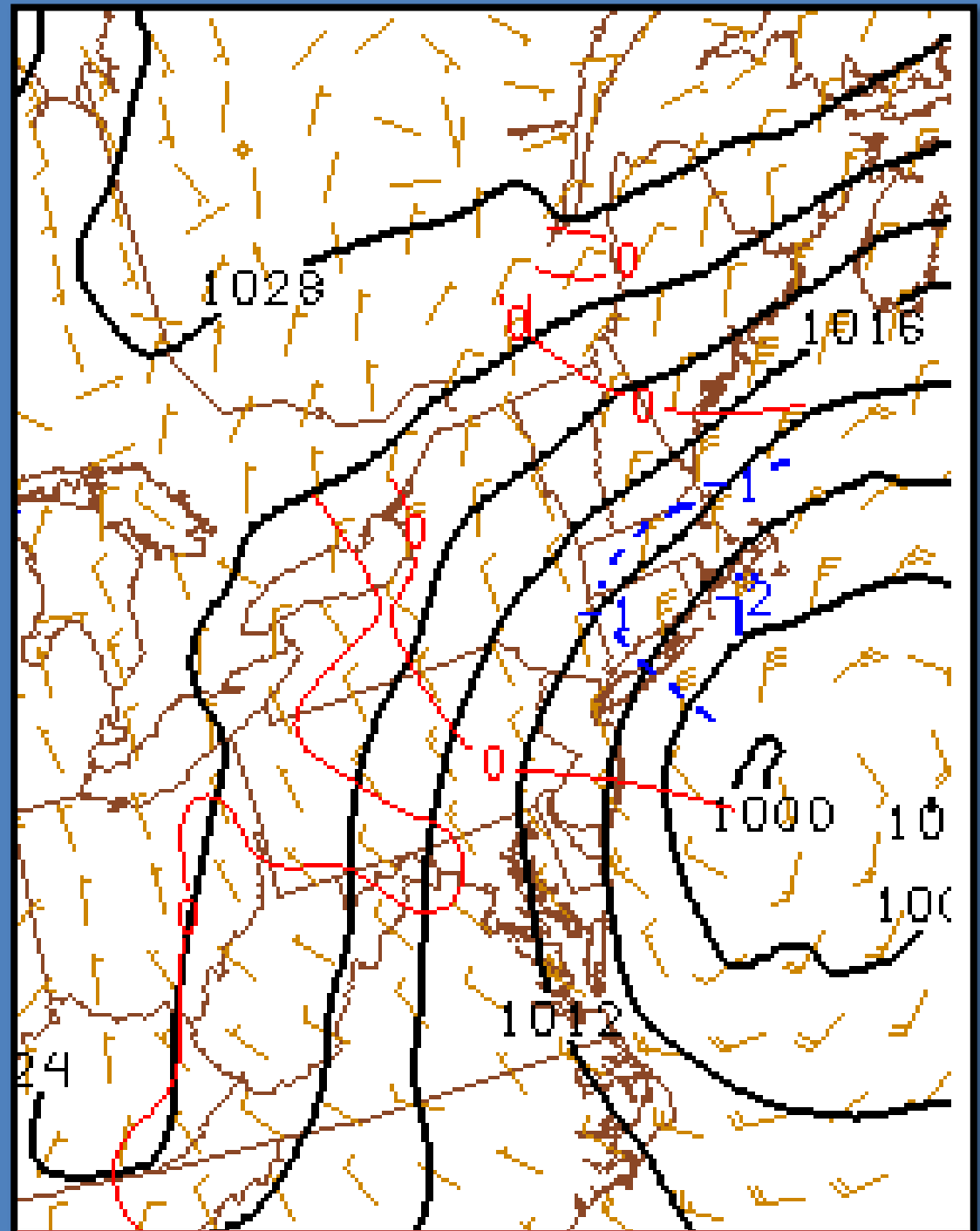


CHH 141023/0000 (Observed)

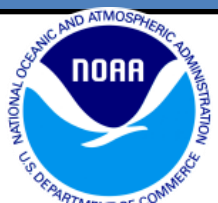


Low level inversion but 45 kt at 1000 ft!

22Z MSLP & 2 HR Pressure Falls



Pressure falls may have enhanced wind gusts via isallobaric component



Website: www.weather.gov/boston

Twitter: @NWSBoston

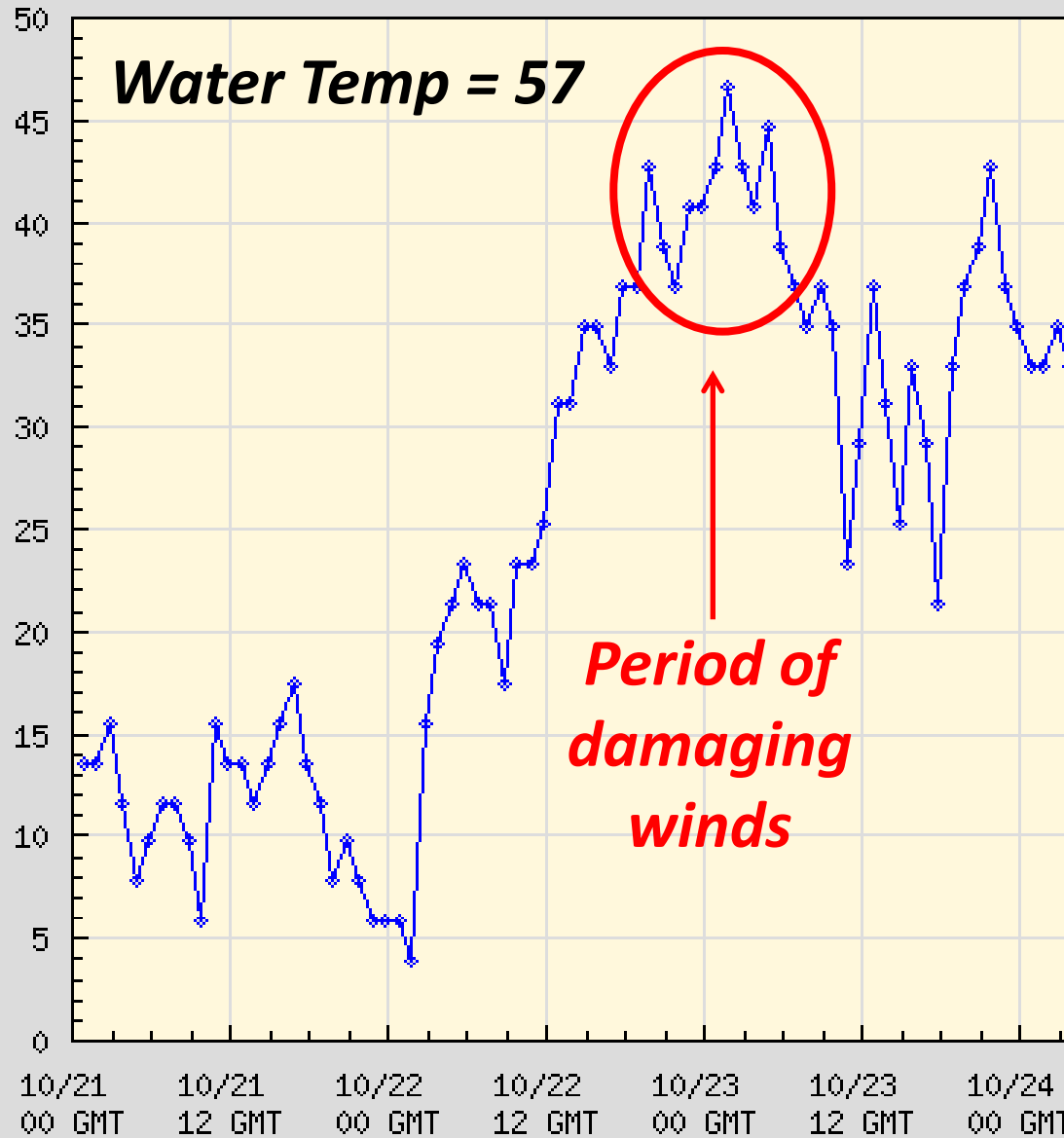
Facebook: <http://www.facebook.com/NWSBoston>



Wind Gust at 44013

Image Credit: NOAA/NWS/NDBC

Water Temp = 57



Hourly Observations from Logan & Blue Hill

Stn	Date	Time	Clouds	Vsby	Wx	Temp	DP	Wind Gs	Pw
KBOS	2014-10-22	19:54	BKN010 OVC014	2	-DZBR	51	49	0222G30	G035
KBOS	2014-10-22	20:39	BKN011 OVC017	1.5	-DZBR	50	48	0225G34	G035
KBOS	2014-10-22	20:54	FEW009 OVC011	1.5	-DZBR	51	49	0325G35	G035
KBOS	2014-10-22	21:39	BKN009 OVC015	1.25	-DZBR	52	48	0328G39	G044
KBOS	2014-10-22	21:54	OVC009	1.25	-DZBR	51	50	0329G37	G044
KBOS	2014-10-22	22:49	BKN009 OVC013	2	-DZBR	52	52	0429G38	G042
KBOS	2014-10-22	22:54	OVC009	2	-RABR	52	51	0429G41	G042
KBOS	2014-10-22	23:54	OVC007	2	RABR	52	50	0428G39	G042
KBOS	2014-10-23	00:49	FEW007 OVC011	2	-RABR	52	50	0330G41	G045

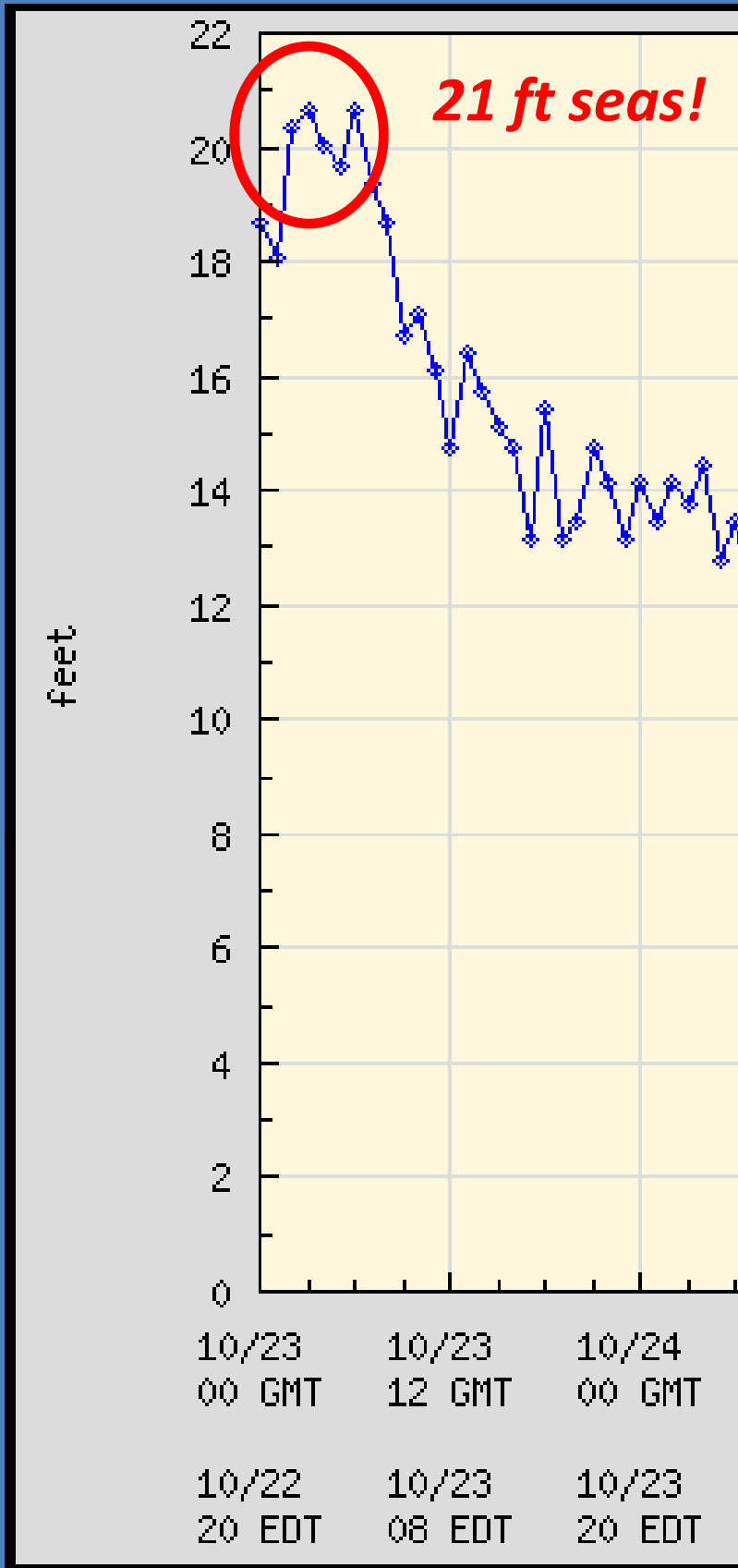
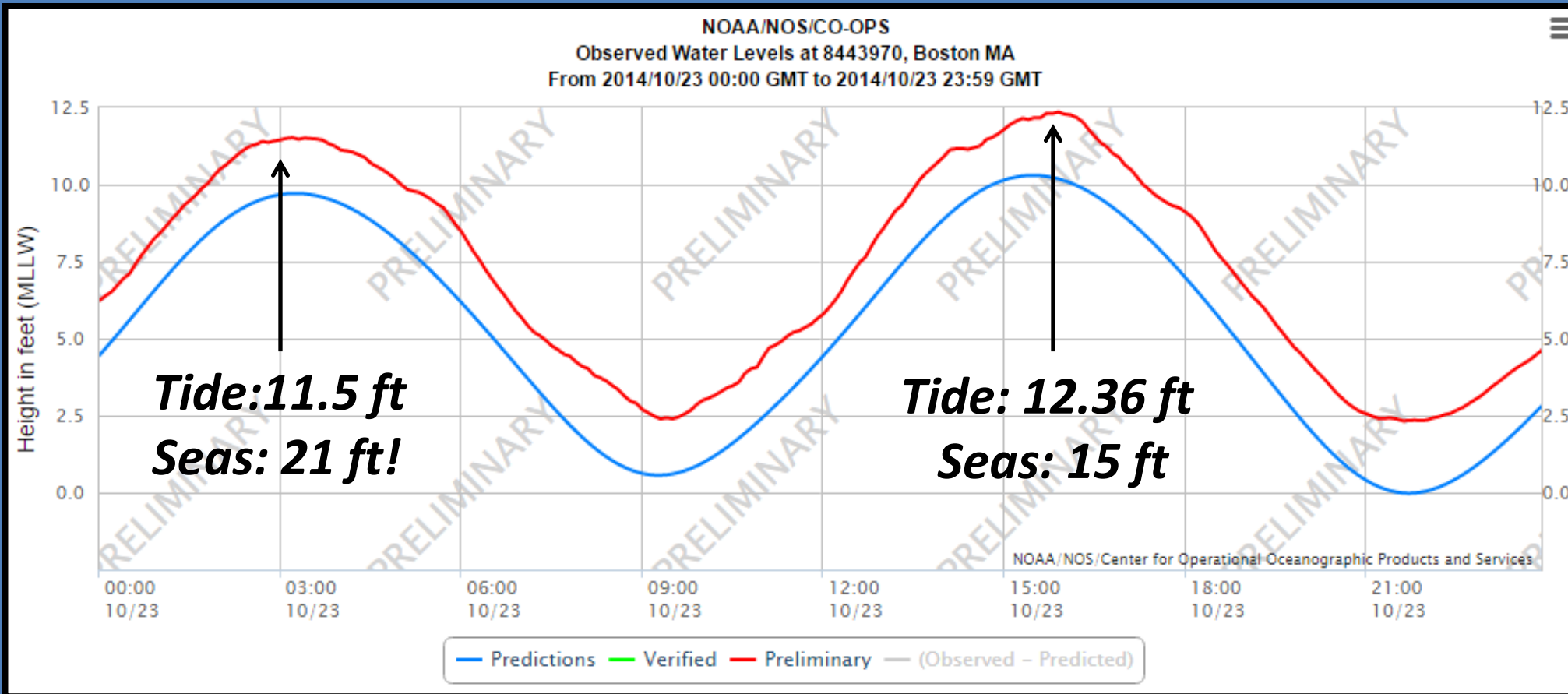
Stn	Date	Time	Clouds	Temp	DP	Wind Gs	Pw
KMQE	2014-10-22	19:54		49	48	0318G36	G036
KMQE	2014-10-22	20:54		48	48	0322G37	G039
KMQE	2014-10-22	21:54		49	49	0320G43	G043
KMQE	2014-10-22	22:54		50	50	0423G41	G041
KMQE	2014-10-22	23:54		50	50	0426G51	G051

- **Forecast dilemma was strong low level jet not mixing to the surface given inversion. However winds increased rapidly just above the surface per the 00z CHH sounding**
- **Relatively warm ocean (water temp of 57 at buoy 44013) likely enhanced low level lapse rate**
- **Low level jets from the Northeast typically mixing to the surface given cool maritime regime (i.e. airmass is typically colder than the ocean especially in the autumn & early winter)**
- **Forecasters may need to focus on winds just above the surface, not 925 mb wind speeds**

Observed Water Level @ Boston Tide Gage

Significant Wave Height at 44013

Image Credit: NOAA/NWS/NDBC



- **Despite the higher water levels on the 2nd tide, the larger wave action on the 03z tide yielded more widespread minor flooding**
- **Per Bob's email 20+ seas regardless the height of water levels typically results in at least some minor coastal flooding across Plymouth County**
- **Somewhat anomalous having 20+ seas with total water levels less than 12 ft. Perhaps seas increased more rapidly than surge**