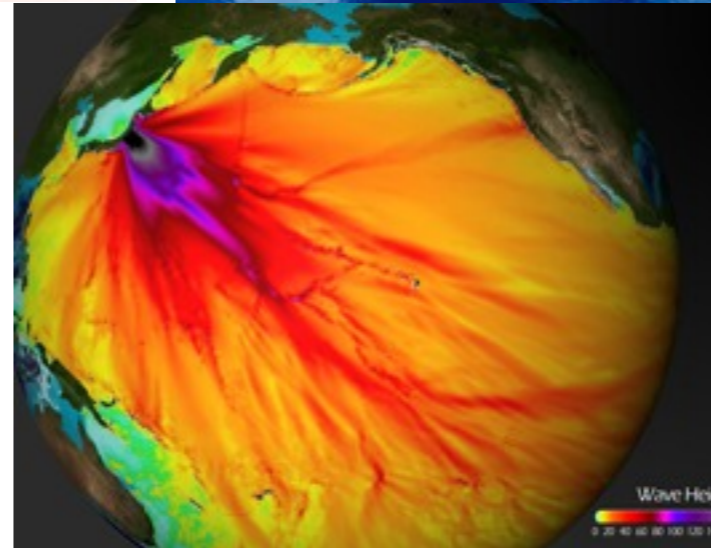


# US East Coast Tsunami Analysis



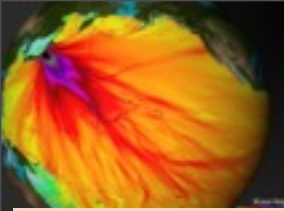
**Christopher Moore**  
**Vasily Titov**  
**Mick Spillane**



**NOAA Center for Tsunami Research**

Pacific Marine Environmental Laboratory

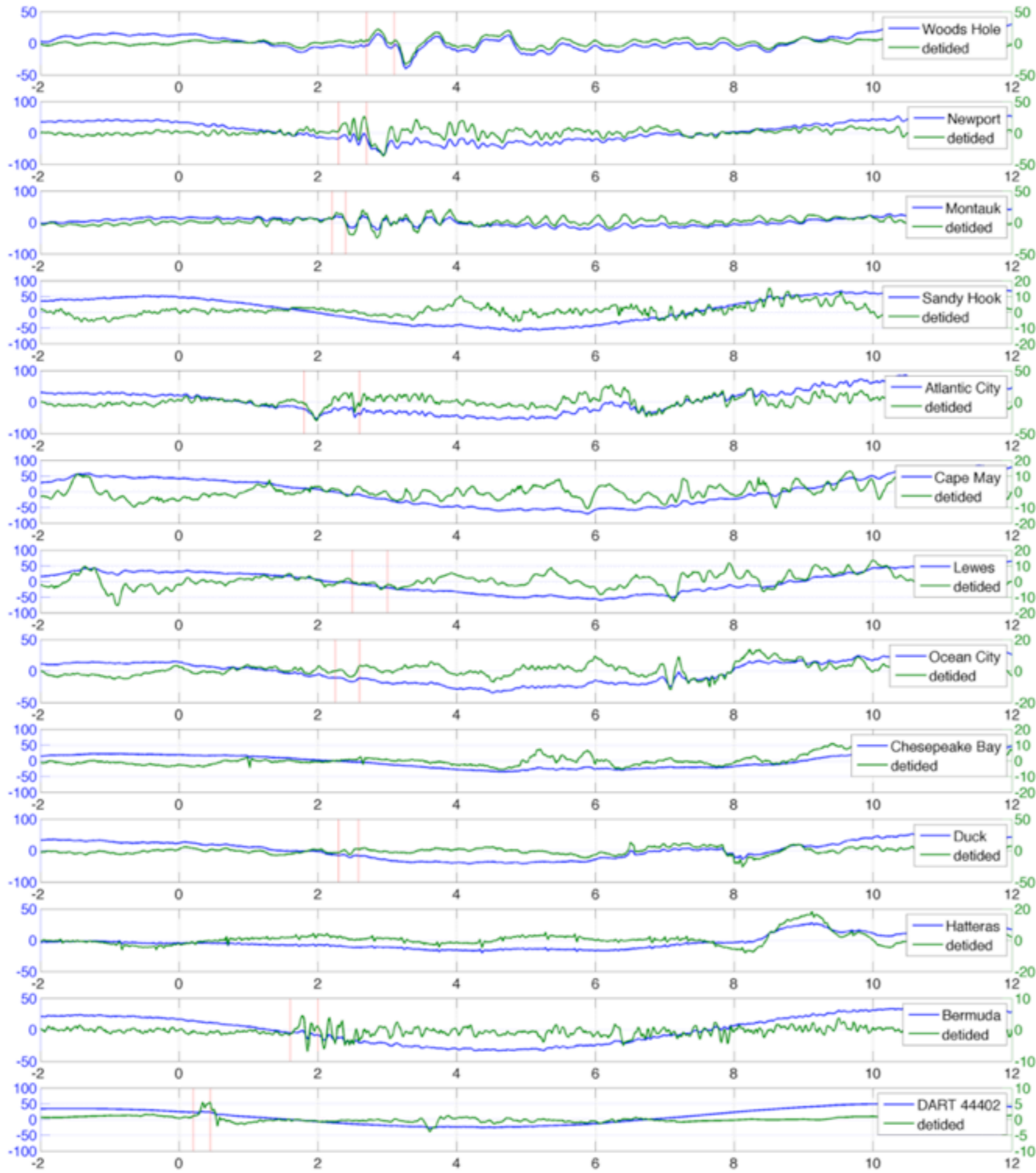




# DART 44402 triggers

- DART shows clear arrival time
- tide gauges show larger, diverse arrival times
- amplitudes suggest forcing near Atlantic City
- arrival time estimates were made (vertical red lines)

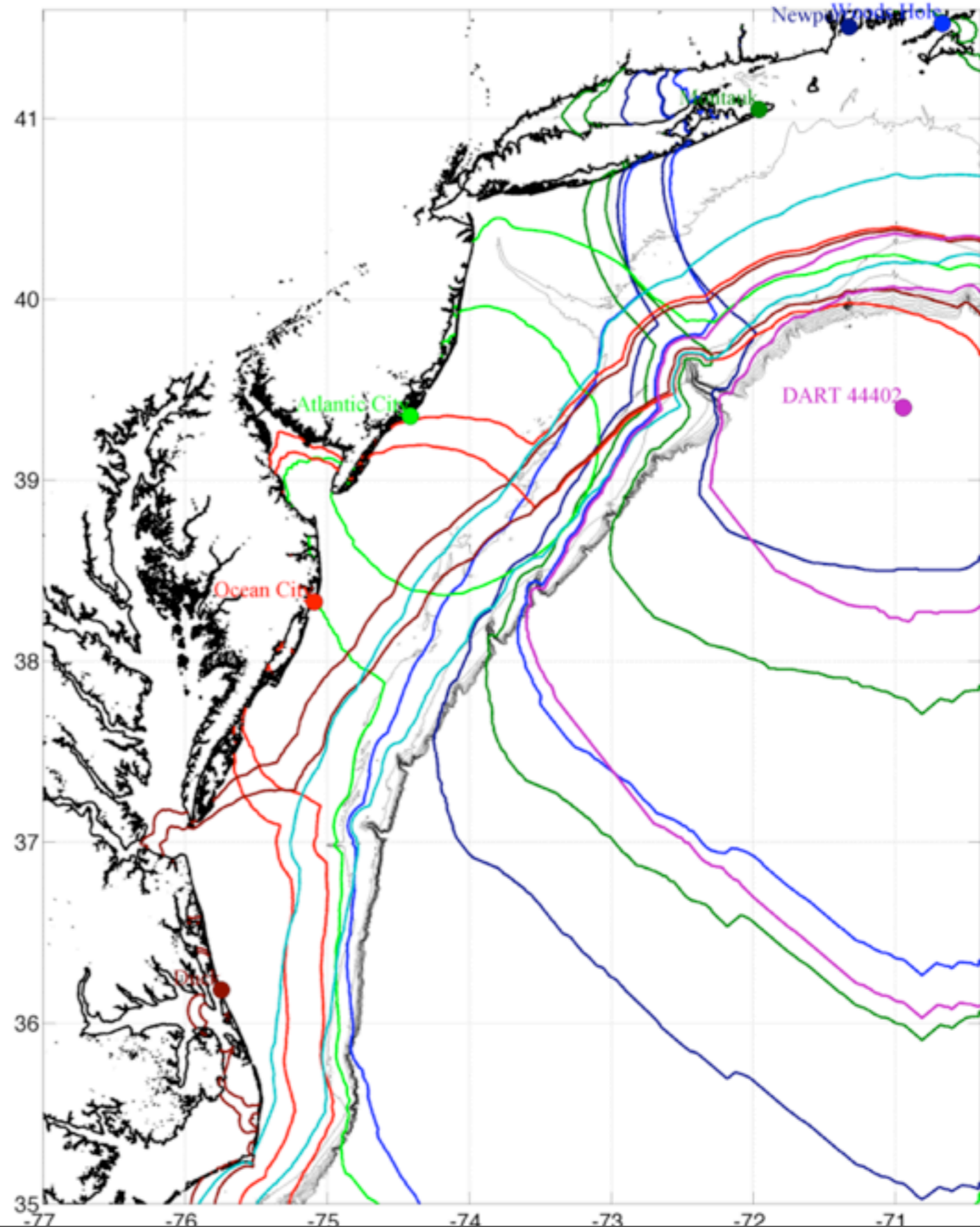




# Identifying Forcing Region



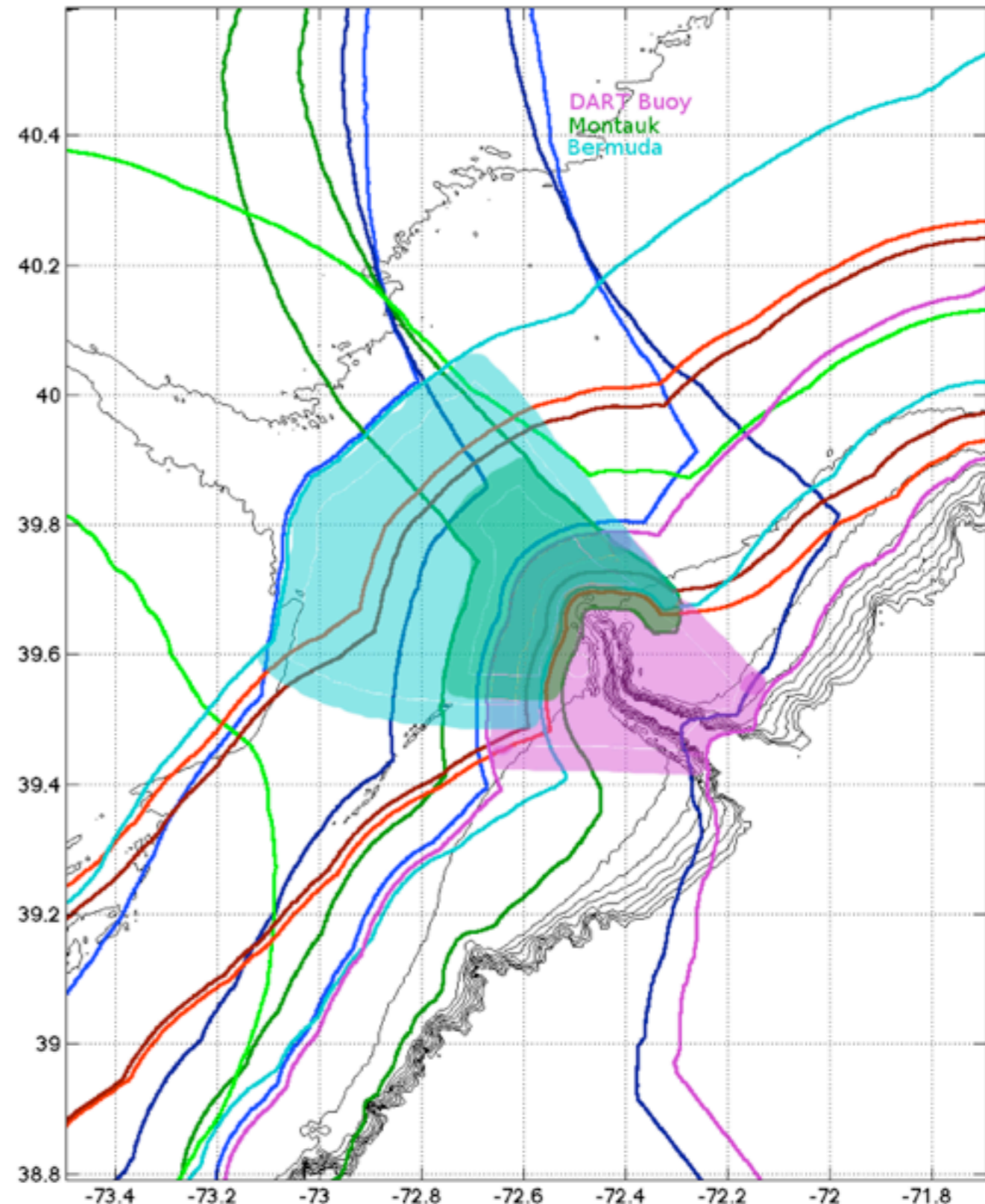
- Reverse isochrons calculated from each gauge and DART
- Contours of time from arrival time estimates
- Overlap shows probably forcing region



# Identifying forcing region



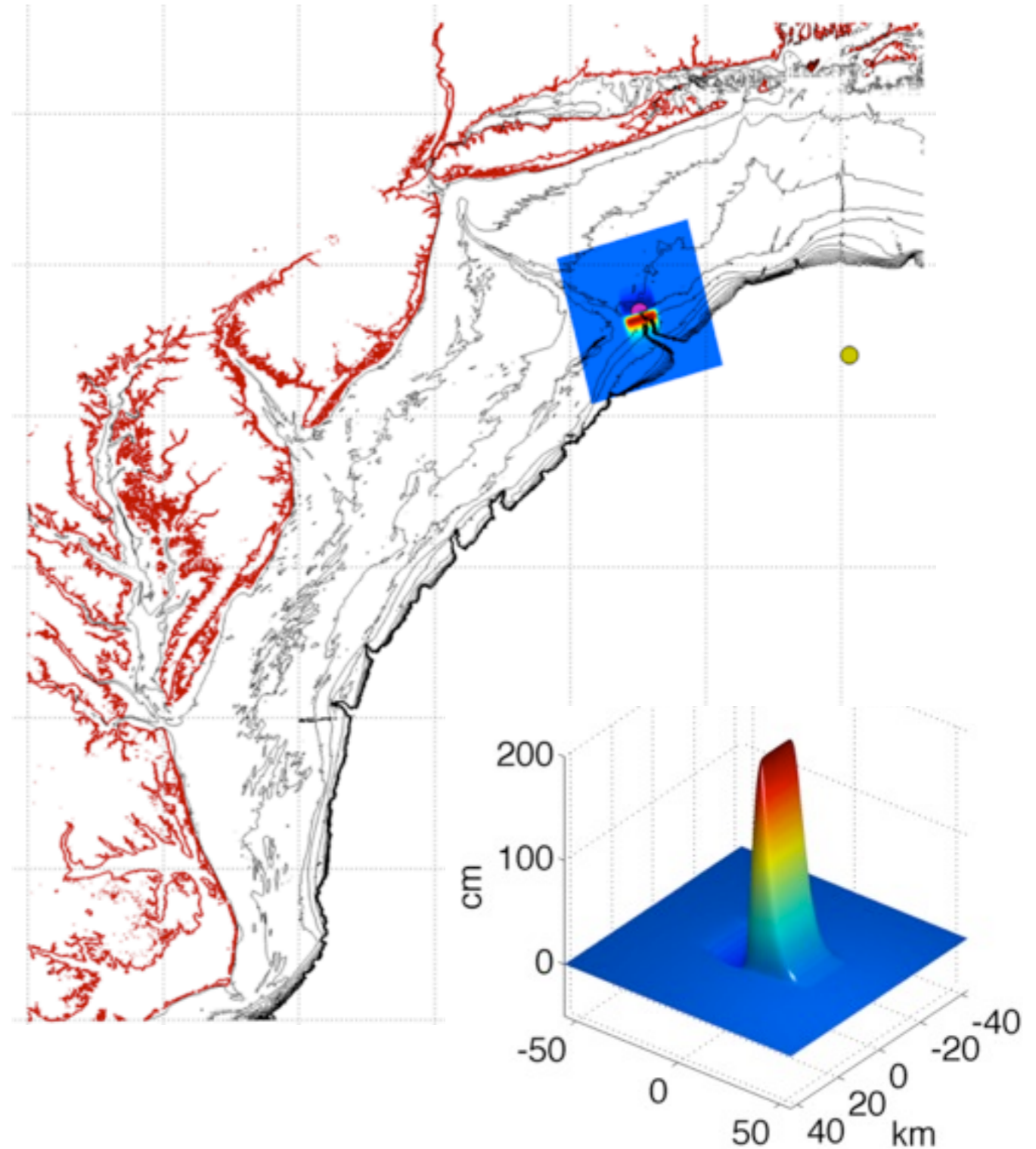
- Start and end times shaded for major gauges
- All gauges overlap at head of Hudson Canyon



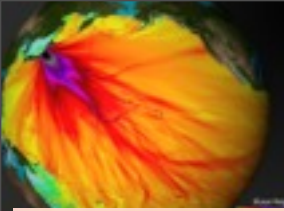
# Small landslide source



- A small landslide was simulated at the forcing region
- wavelength = 10km
- length = 20km
- max amp = 200 cm



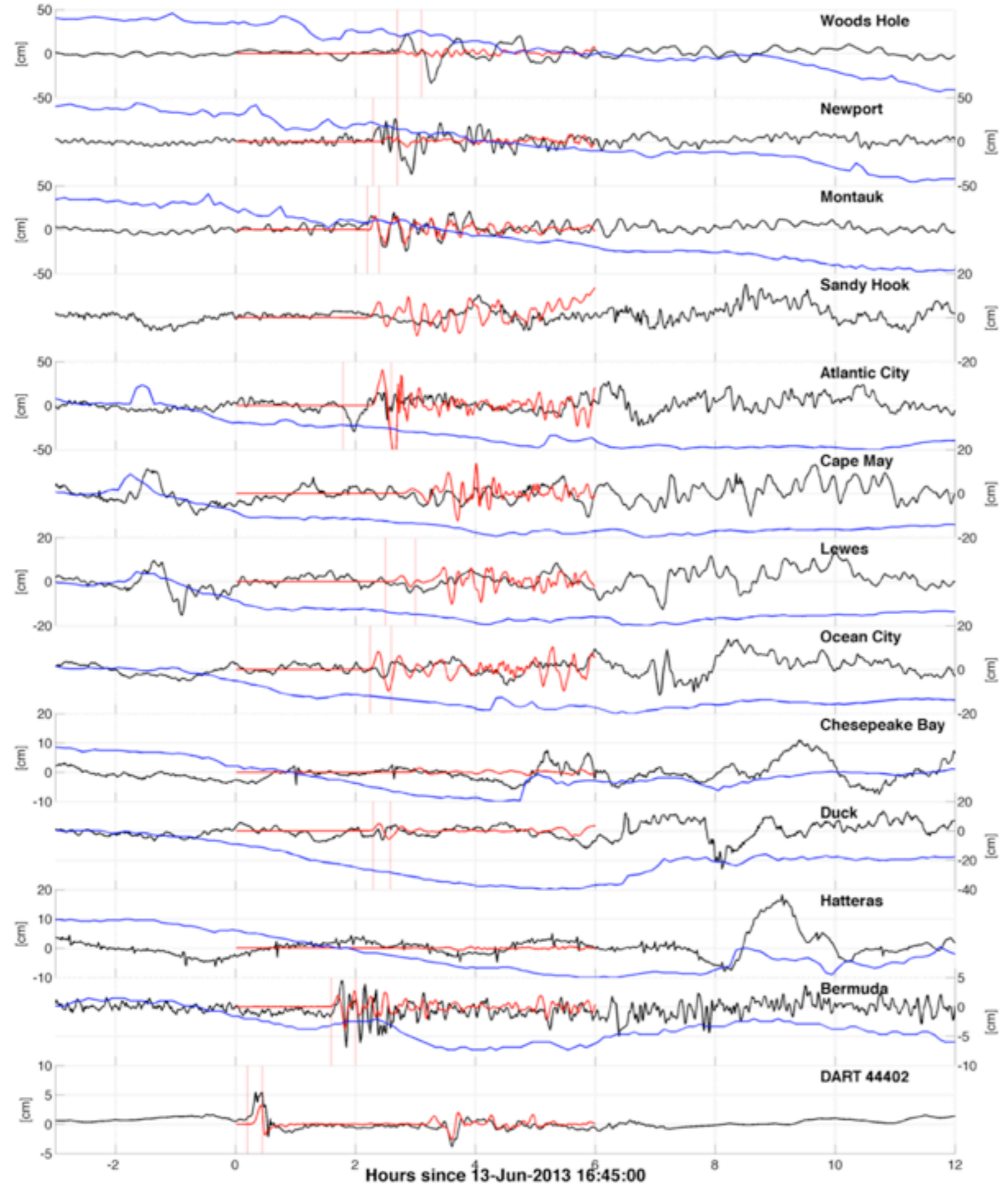
# Model results



- DART arrival and reflection match well
- Arrivals match at Woods Hole, Newport, Montauk, Atlantic City, Ocean City, Bermuda and DART
- Amplitudes match well at Montauk, Sandy Hook, Lewes, Bermuda, and DART



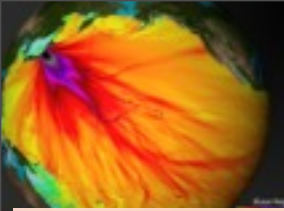
Run=19,  $\lambda$  =10.00 [km], len=20.00 [km], maxamp=200.00 [cm], aspect=0.2500



Black = Gauge  
Red = Model  
Blue = Atmos press



# Meteotsunami?



- a clear signal can be seen at  $t = -1.5$  hours at Atlantic City, Cape May, Lewes
- Forcing large within Delaware Bay, Chesapeake Bay, Cape Hatteras
- No apparent pressure signal north of Long Island (Montauk, Newport, Woods Hole)



# Landslide?



- Landslide source fits data well at several locations
- Offshore locations match very well (DART, Bermuda)
- Montauk a very good fit.



# Conclusions

- No conclusive evidence either way
- Perhaps meteotsunami triggered landslide
- Perhaps meteotsunami was forced over entire shelf width near Hudson canyon

