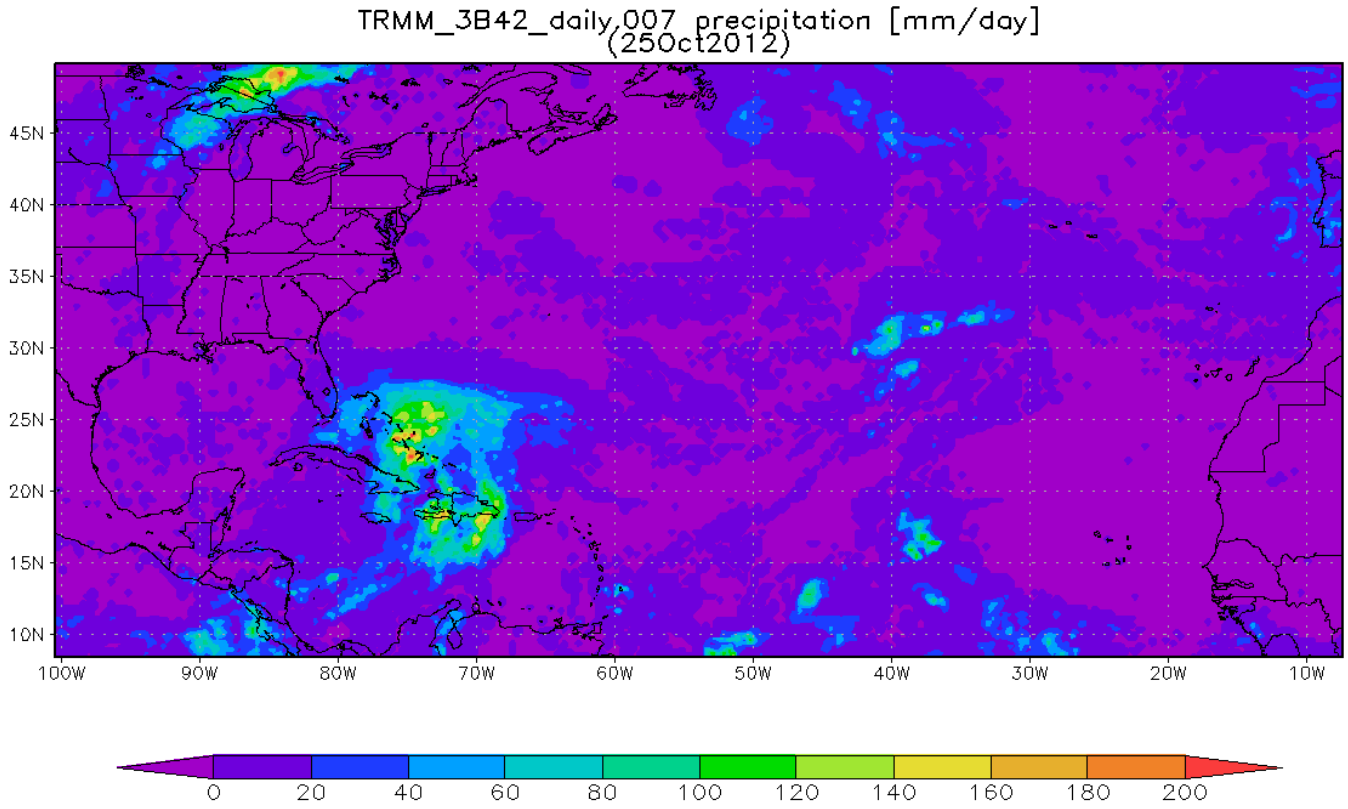
TRMM DATA

Problem 1. On a TRMM map (see image below) 1 degree of longitude (W) along the Eastern Coast of US is approx. 89 km and 1 degree of latitude (N) is approx. 111 km. Using this data (see slide 14 for the reference) estimate the size (i.e. approximate diameter, in km) of Sandy on October 25 (over Cuba, Dominican Republic, Puerto Rico and Bahamas). Make two-three measurements and calculate average. Use the precipitation threshold of > 20 mm/day (see blue color on the legend) to define the area of Sandy.



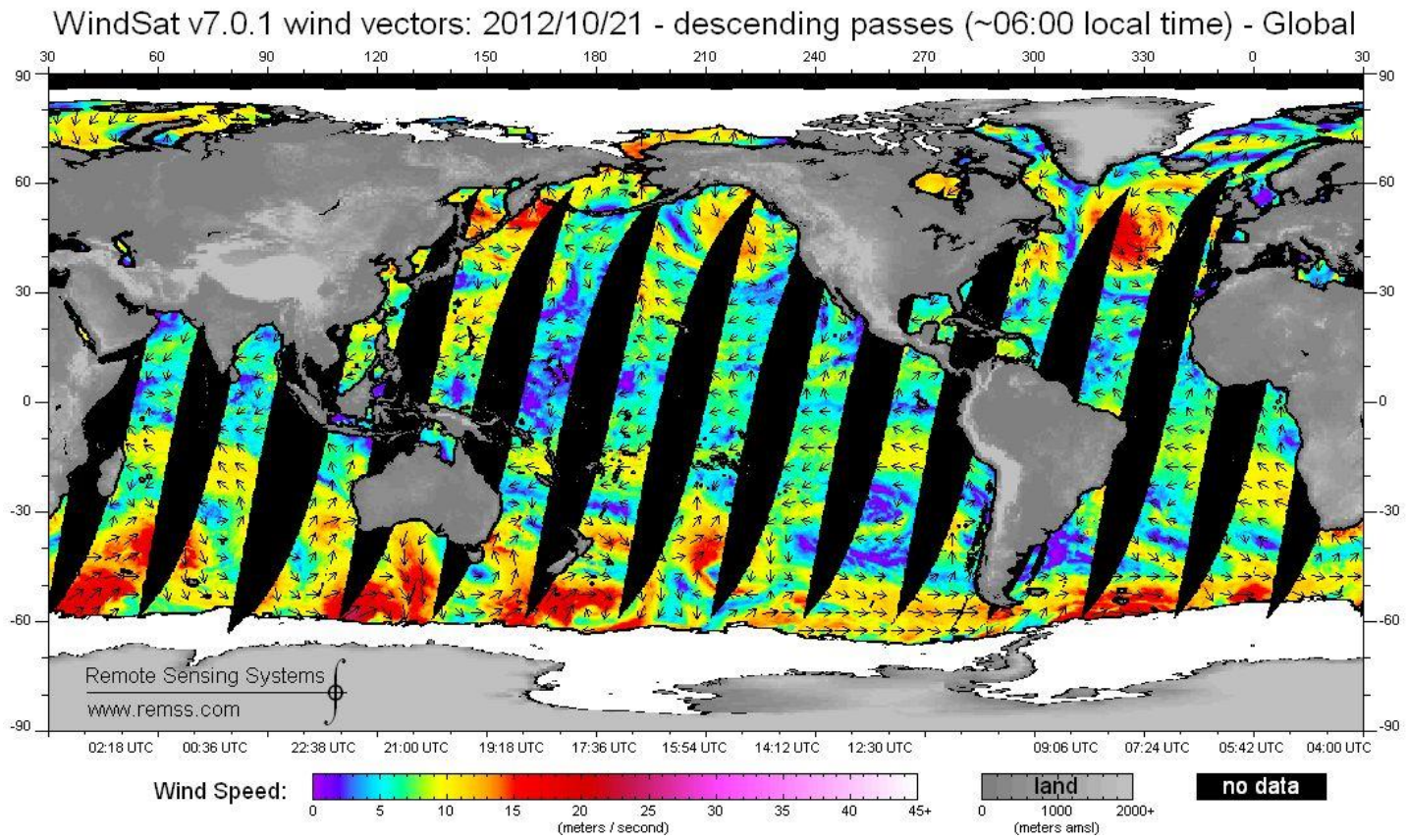
Problem 2. Using TOVAS (http://gdata1.sci.gsfc.nasa.gov/daac-bin/G3/gui.cgi?instance_id=TRMM_3B42_Daily&selectedMap=Blue%20Marble&) derive daily (i.e. one per day) images of Sandy for Oct 25 – 29. Compare the position of Sandy's center (i.e, geometric center of the area with the highest precipitation) for Oct 25 – 26 – 27 – 28 – 29. Using pencil mark positions of the centers on the attached sheet with longitude/latitude grid for the Atlantic. Using the same longitude/latitude scale as before and time interval (one day) calculate the approximate velocity of Sandy.

Problem 3: Use TRMM image of October 29 to estimate approximate daily rain depth (mm) in New York Metropolitan Area. Compare it with photo below. Does it correspond to the approximate water depth shown in on the photo? Justify your answer.

WINDSAT DATA

Task 1. Navigate to this site: http://images.remss.com/wind/wind_vector_data_daily.html

Specify these settings: 2012, October, 21, Morning**. Region**: Global; **Image Size**: Medium. You should see the following image:

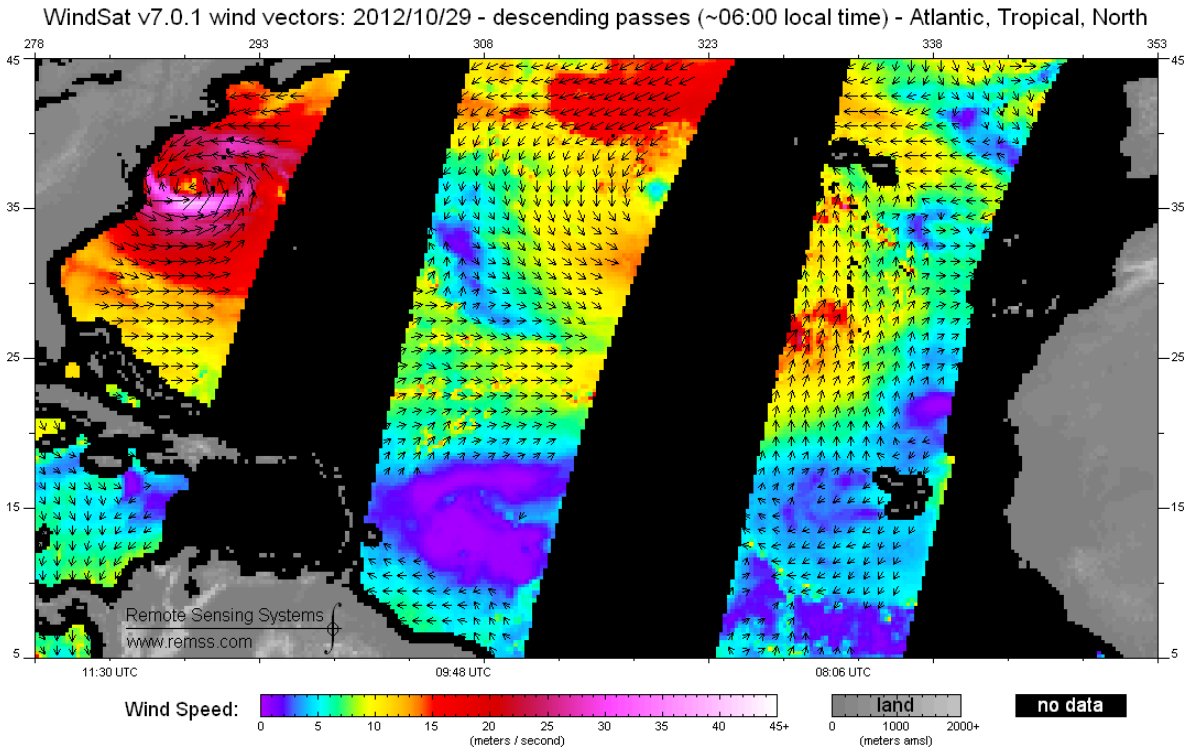


Task 1 Problem: Use wind directions and speed (color scale) to explain the Coriolis Effect and cyclonic activity. Use longitude (in degrees from Greenwich that is equal 0 to 360 degrees) and latitude (normal geographic) values to indicate centers of cyclonic activity in a particular area of interest. **For example**, the intersection of longitude = 120 and latitude = -60 shows a classic cyclonic activity in clockwise direction characteristical for the southern hemisphere.

Task 2. Navigate to this site: http://images.remss.com/wind/wind_vector_data_daily.html

Specify these settings: 2012, October, 29, Morning. **Region:** Atlantic, Tropical North; **Image Size:** Medium.

You should see the following image.



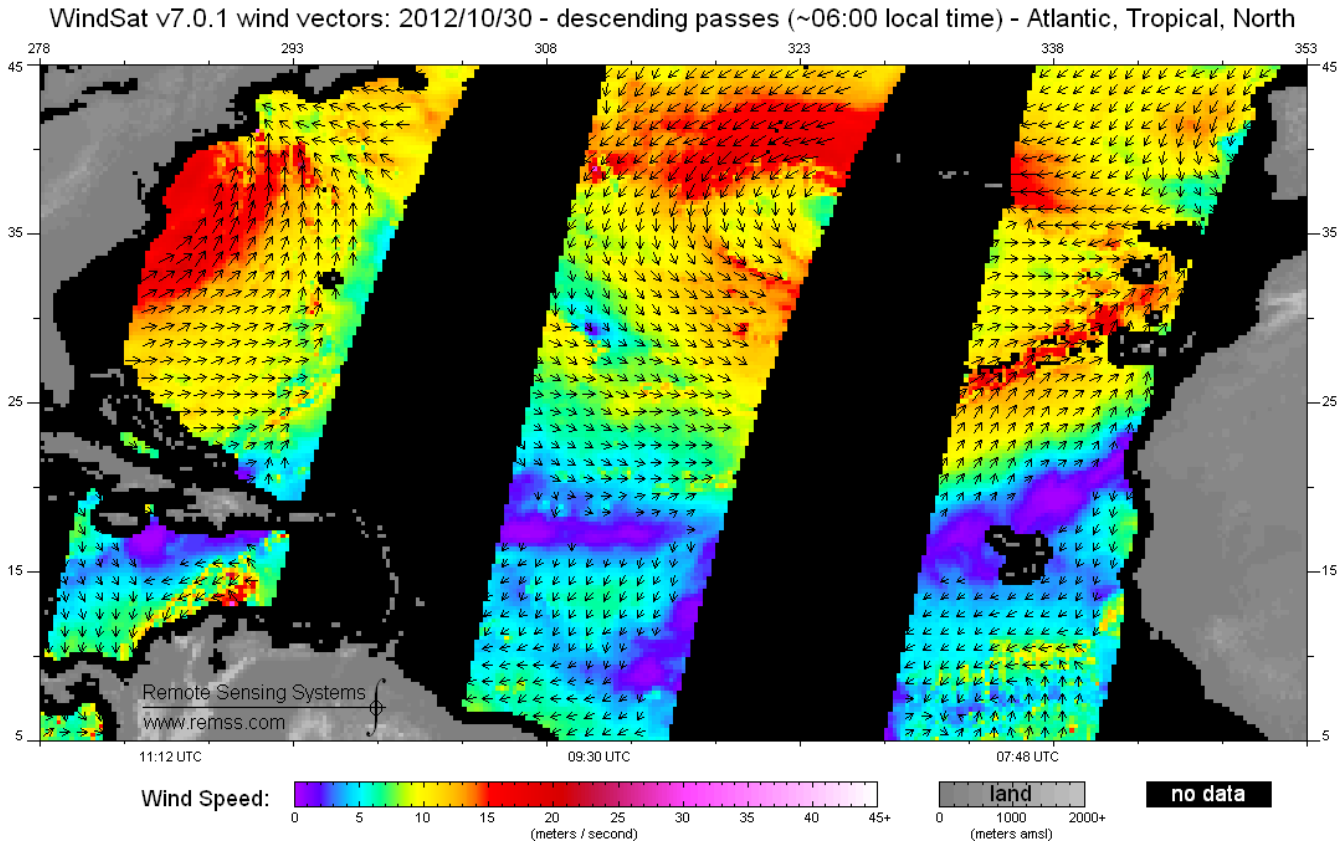
Task 2 Problems:

1. Examine the color codes for wind along the East coast of the US. What is the maximum speed of Sandy near Delaware, Maryland, and New Jersey shore?
2. Convert the answer obtained in the previous question into km/h units. (1 km = 1000 m; 1 hr = 3600 sec) What was the Sandy's category at that time according to your conversion? Show your calculations.

Hurricane Rating Scale		
Category	Wind Speed (km/h)	Barometric Pressure (millibars)
1	119–154	>980
2	155–178	965–980
3	179–210	945–964
4	211–250	920–944
5	>250	<920

Task 3. Navigate to this site: http://images.remss.com/wind/wind_vector_data_daily.html

Specify these settings: 2012, October, 30, Morning. **Region:** Atlantic, Tropical North; **Image Size:** Medium. You should see the following image:



Task 3 Problem: Examine the color coded wind speeds along the US East coast. Use the legend at the bottom of the image to identify the speed of Sandy after its landfall the previous day (the image above is "the morning after"). Did its speed reduce or increase? Why?