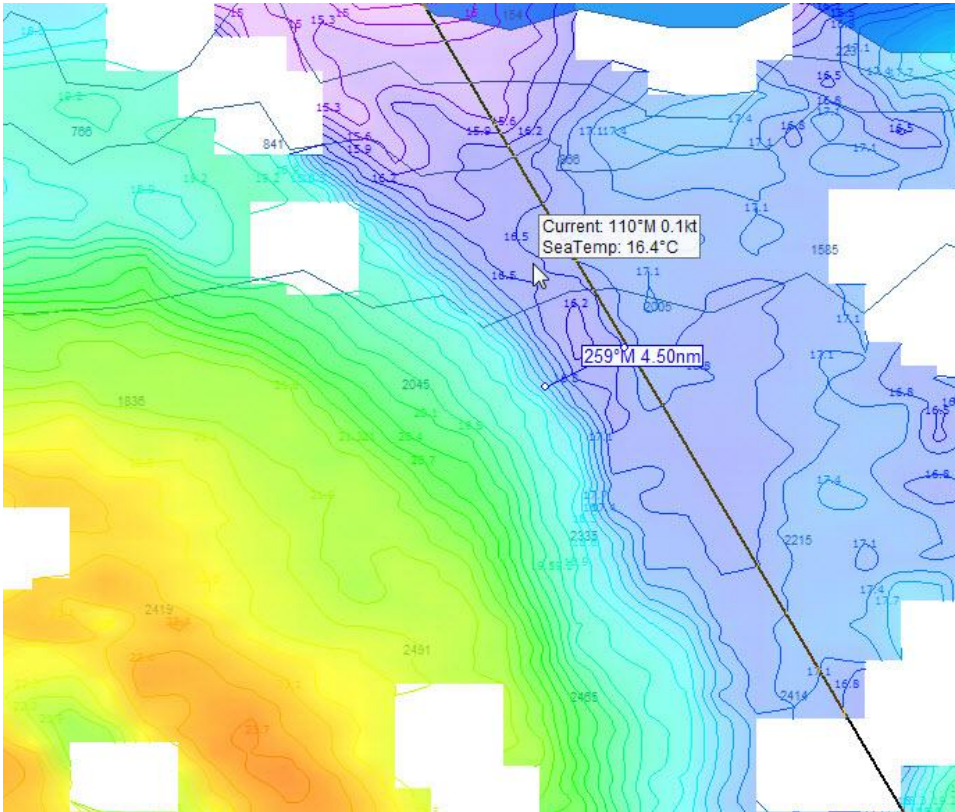


Tidetech Grib Products for the Bermuda Race

Rutgers latest is the very latest satellite pass of the 1km high resolution AVHRR POES, GOES and MODIS satellites - the same info as you see on the Rutgers website

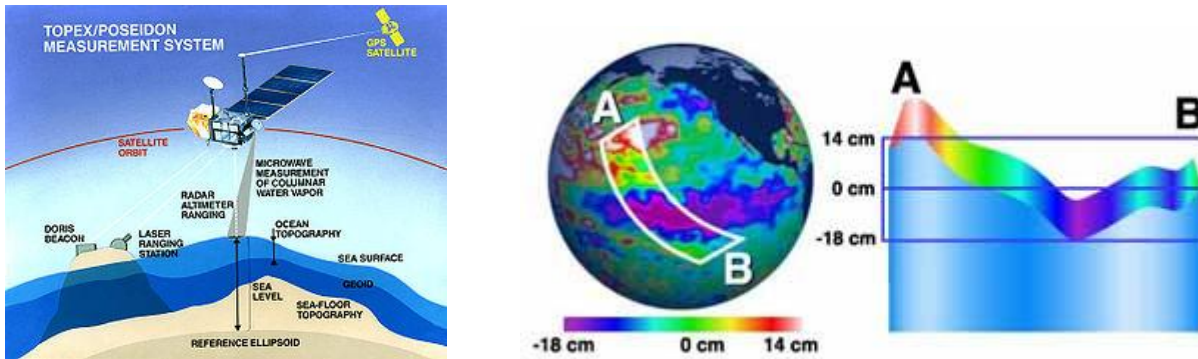
http://marine.rutgers.edu/mrs/sat_data/?product=sst®ion=bigbight¬humbs=0. It's hit and miss, in that some satellite passes don't cover all the area and they are always affected by cloud. When there is no cloud, the info is superb and absolutely up to date. We check for new data every 30mins. We also apply an algorithm that removes false values from clouds. There is no schedule for when we get the data, which can be anywhere from 30mins to 5-6 hrs apart. Check for new images every hour or so and download. The ability to zoom right in on the high res data in Expedition gives you exceptionally detailed and accurate information about the location of SST fronts:

NE entry to meander system

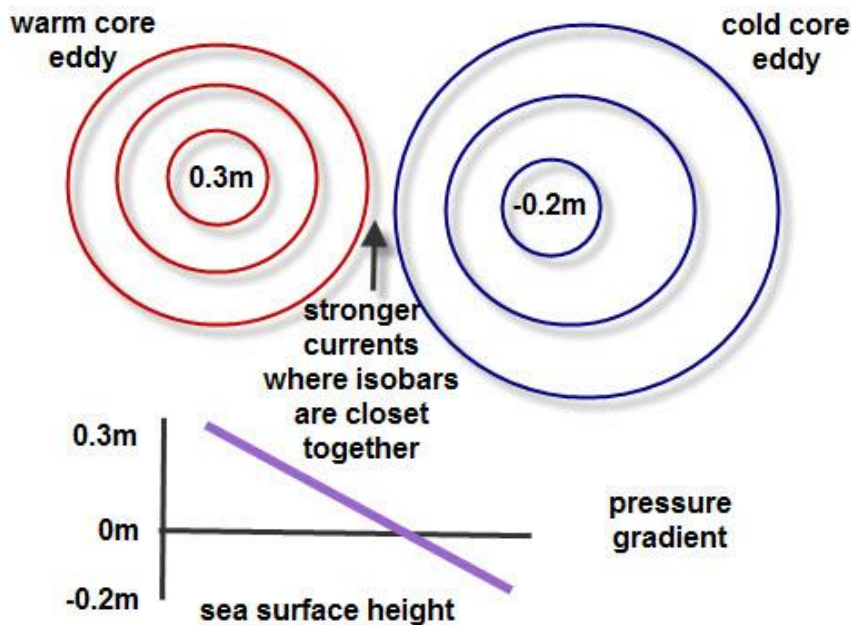


Rutgers 12hr composite is the mean temperature from all the AVHRR POES, GOES and MODIS satellite passes over the previous 12 hrs. It will provide a more complete image than Rutgers latest, whilst still providing very recent images. It is updated every 6hrs

New Altimetry currents This data is regarded by ocean scientists as the best available information about ocean currents. Sea surface height is measured by satellite which allows scientists to create a 'pressure map' of the oceans. Ocean currents are analogous to weather systems, (albeit very slow moving ones) and geostrophic flow can be calculated from the height of and distance apart of different parts of the ocean. It takes 7-10 days to accumulate the altimetry data to obtain a sufficiently complete picture of sea level anomaly from which to compute the currents. The anomalies are representative of water mass changes over several 10's (if not 100's) of metres of the water column, not just at the surface.



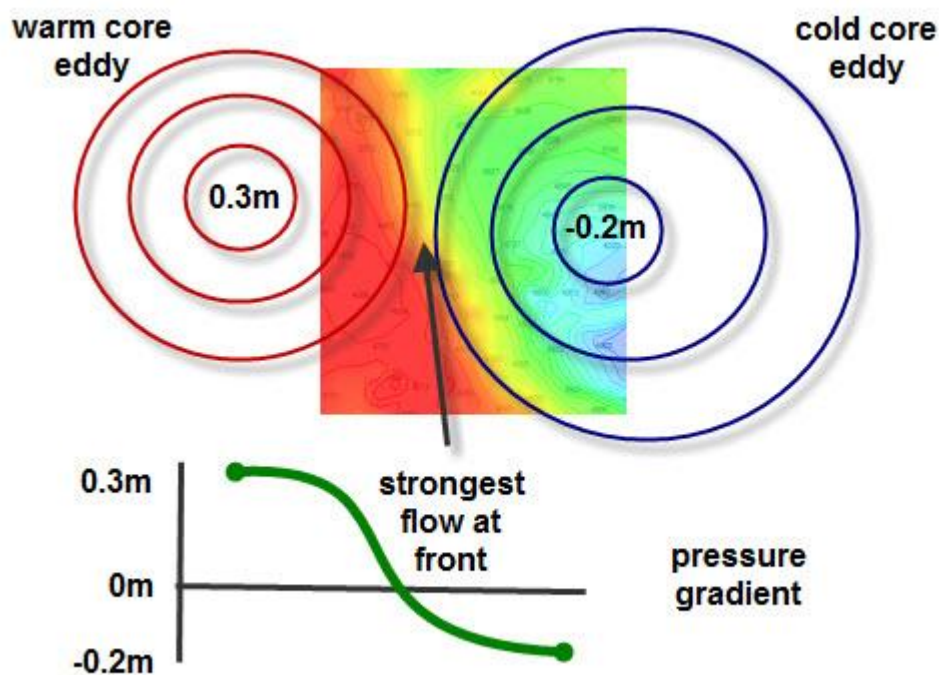
Geostrophic flow



Sea surface temperature in the ocean is a good proxy for the sea level anomalies (not so in shallow, <100m, water), but cannot alone be used to determine the currents, as these are determined by the sea surface slope. This is why the currents derived from altimetry are usually 4-5 days behind the present time. However, this is not usually a problem when dealing with large scale features as the inertia in the system means that the change over a few days is small. These small changes can be inferred from the sea surface temperature images which can be obtained in near real-time (Rutgers latest and 12hr composite), or with a day delay on composites (JPL). There are other current fields available (e.g. the miami university currents available that we made available previously), and these have a delay of 2-3 days, but the consequence of this shorter delay is less altimetry data has been used in the calculation, and so it is likely that the accuracy is also less.

SST Fronts

Like a weather system, the coming together of warm and cold produces fronts - in this case SST fronts as opposed to weather fronts. At these points the pressure gradient changes sharply, so look for steep sst contours to find the fastest flow, which may be significantly higher than indicated by the lower resolution Grib



JPL SST This is the most useful data to use for trends and you should download all these files every day and keep them in Expedition to replay and see which way things are developing. It is produced from 8 satellites and an algorithm applied to produce it at 0.5nm resolution

FOAM current forecast this is an operational model from the UK National Centre for Ocean forecasting. It has been performing better than other ocean models over the last couple of months, but now we have the new altimetry data it is less relevant.