Drifter/Altimetry/Wind synthesis product

Rick Lumpkin, NOAA/AOML

This product synthesizes observations from drogued and undrogued drifters, geostrophic velocity estimates from altimetry, and wind vector measurements in order to create gridded, daily velocity fields. The data sources are:

**DRIFTER**: NOAA’s Global Drifter Program

**ALTIMETRY**: AVISO multi-satellite delayed mode product

**WIND**S: ERA Interim winds

Data: data are stored in files with the naming convention “merged\_YYYY.mat” where YYYY is the year, starting with 1993. Variables contained within are:

(The following are identical for each year, and need only be loaded once)

Lon, Lat: longitude and latitude grid points

Uek\_bar, Vek\_bar: time mean zonal and meridional wind-driven velocities (m/s)

Ug\_bar, Vg\_bar: time mean zonal and meridional geostrophic velocities (m/s)

(The following variables change in each yearly file)

T: time in Julian days. 2448989.00 = 1 January 1993, 0000 UTC.

Uek\_a, Vek\_a: daily wind-driven current anomalies (m/s)

Ug\_a, Vg\_a: daily geostrophic current anomalies (m/s)

Uslip\_d, Vslip\_d: daily slip velocities for drogued drifter (m/s)

Uslip\_ud, Vslip\_ud: daily slip velocities for undrogued drifters (m/s)

erH: errors in sea level anomaly (m)

The total zonal speed of the water at 15m depth is Uek\_bar+Uek\_a+Ug\_bar+Ug\_a. If the term Uslip\_d is also added, then the zonal speed of a drogued drifter is reproduced. If instead the term Uslip\_ud is added, this matches as closely as possible the zonal speed of an undrogued drifter.