The E-tech Element Submarine Ferromanganese Crusts Research Workshop



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Theme 2

Potential Hydrodynamic Conditions Adjacent to the Polimetallic Deposits

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Bottom Topography

b)



Surface Ocean Circulation





Main Goal: To investigate/to describe the hydrodynamic conditions under which the polimetallic deposits are found

The investigation should be carried at multiscale level:

- Large Scale (Gyre-related patterns)
- Mesoscale (Currents, rings, eddies)
- Small scale (internal waves, boundary layer)



Large Scale (I) Surface Circultion

AVISO Climatology (Absolute Dynamic Topography)





Large Scale (II) The Brazil Current Recirculation



Biló et al. (in prep.)



Large Scale (III) The Brazil Current Variability



Biló et al. (in prep.)



Large Scale (II) The Brazil Current Variability



The WOCE Array ACM3 at 28° S Principal Component Analysis



Biló et al. (in prep.)





Brazil Current Meanders and Eddies

The CARBOM Mesoscale Cruise – Nov. 2013 (ADCP-derived streamfunction and LADCP sections)





Mesoscale (II)

Brazil Current Meanders and Eddies



Sea Surface Temperature



Mesoscale (III)

Brazil Current Meanders and Eddies



Courtesy of V. Harlamov



Ocean Glider Transects



Chlorophyll-a

Courtesy of M. Dottori



Small Scale (I)

Internal Gravity Waves



Modis Ocean Color

Chlorophyll-a

Instituto Oceanográfico

Small Scale (II)

Benthic Boundary Layer



Dell and Pratt (2015)





- <u>Large Scale</u>: AVISO Data Set calibrated with in situ data Analysis of global model reanalyses
- <u>Mesoscale</u>: Quasi-synoptic oceanographic cruises CTD/ADCP/LADCP Process Numerical Modeling
- <u>Small Scale</u>: Bottom-mounted, High-vertical Resolution, ADCP Mooring Analytical Modeling