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Velocity measurements from the deep ocean are scarce. Especially in the equatorial oceans, there is strong zonal current variability in space and time that has been measured only as temporal snapshots by occasional cruises or as timeseries at very few mooring locations. In contrast to this sparse data sampling, Argo floats have especially in the last few years collected a substantial amount of high-quality temperature and salinity data from the upper 2000 m of the equatorial oceans. Because much of the equatorial zonal current variability is approximately in geostrophic balance, it is possible to relate the velocity field to the density field that can be calculated from the Argo float measurements.
We present here a method for the reconstruction of the geostrophic zonal velocity variability in the deep equatorial Atlantic Ocean that is based on available hydrographic Argo float data, using Argo float displacement data as reference. At 23°W, where also moored zonal velocity measurements are available, our reconstruction compares well with the direct current measurements. We will present some specific results regarding the basin-wide equatorial zonal velocity in the Atlantic Ocean.
Meeting name
PIRATA-24/TAV Meeting
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