Summary and recommenndation: The authors analysed multi-year observations from a mooring array deployed in the Argentine Basin, and focued on a few intense anticyclonic eddy events during when near-inertial waves were also excited and mixing was likely to occur. The manuscript is overall clear and well written, and in my opinion, only minor revisions are needed so that the manuscript may be considered for publication.

Thank you for your comments and your time

General comments:

Figure 3: It seems that there are other extreme events occurred around 04/15, 12/16, 03/17, 04/17. Are these also events of mesoscale structures? Could you add some descriptions these events as well?

Indeed, in these dates, the time series show large anomalies. However, the salinity anomalies at 180 m did not exceed the threshold (mean + 3 std) that we established to consider the events as extreme. The SSH maps for those dates also show anticyclonic mesoscale structures. Below are snapshots of the SSH corresponding to the dates when eddies approached the moorings. These events are also observed in the new EKE time series (new Figure 6).

We added the following sentence in the conclusion in line 315:"Indeed, other less extreme anticyclonic eddies crossed OOI moorings: they are seen as peaks in OOI hydrographic data and EKE time series"

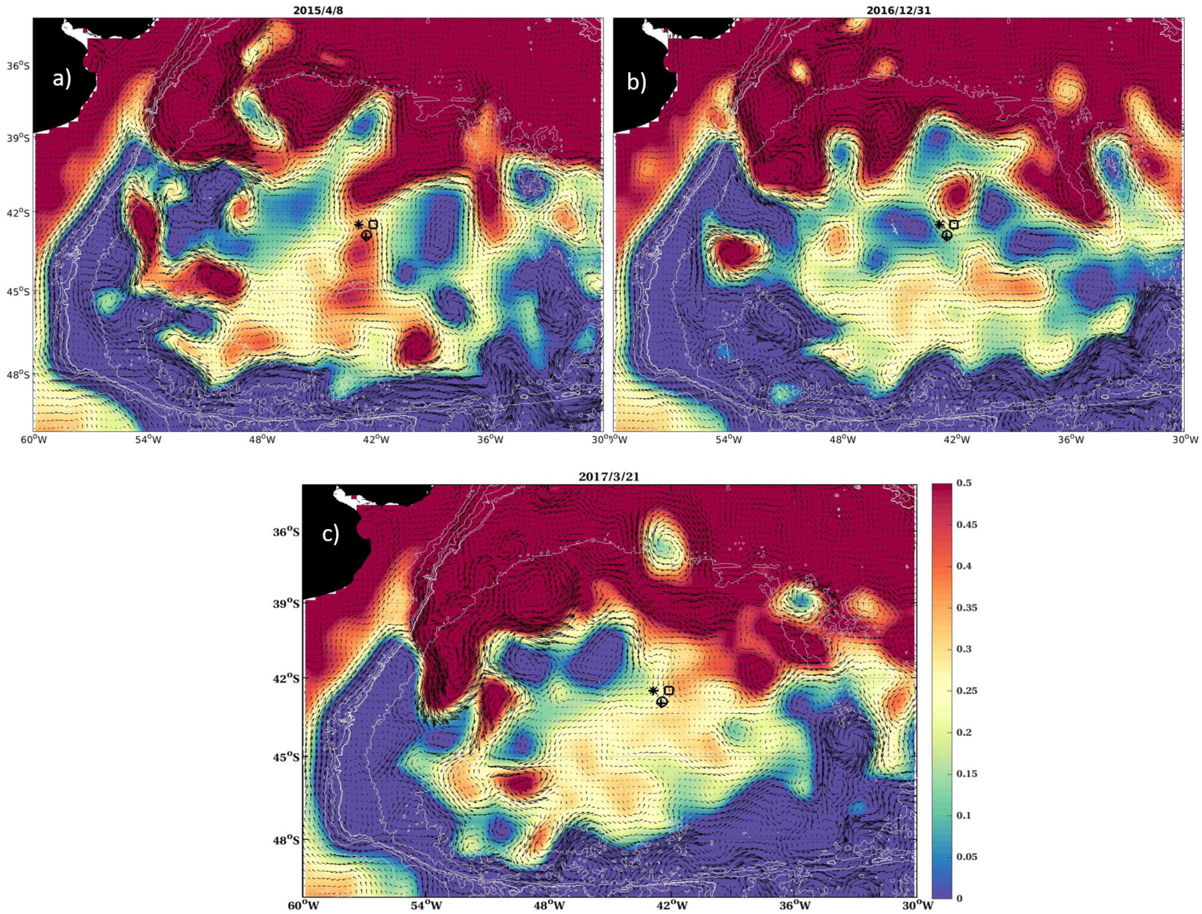

Figure 1: a-c) SSH (m) and geostrophic velocities (arrows) from satellite altimetry in April 8 2015, December 31 2016 and March 21 2017.

Figure 6: A large fraction of mesoscale signals would be filtered out when you used the a low-pass window of 180 days. Why don't you use a shorter temporal window like 30 days? Also, is there a mean flow in this region?

Thank you for your comment. We modified the figure using a low-pass window of 30 days (see figure below). We also observe that the year 2016 had the largest EKE values, which lasted for a long time. Indeed, there is a small mean flow. The surface mean flow is small and westward (-0.02 m/s) from altimetry (line 34) and from in situ data (line 104 cf Table 1 in the Annex).

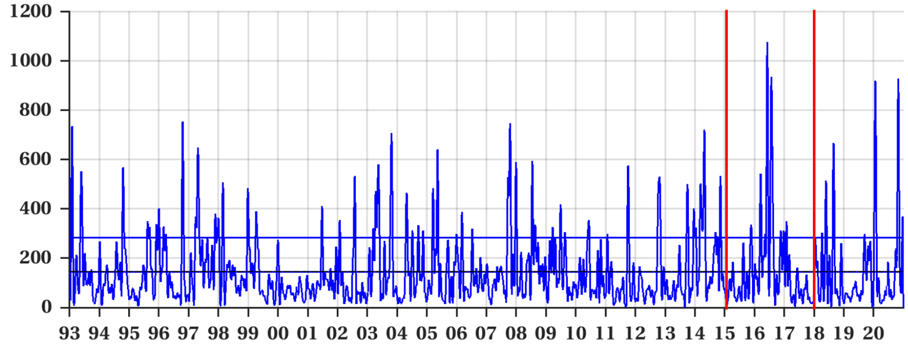

Figure 2: 30-day low-passed filtered altimetry derived EKE at the mooring array location. The horizontal black dashed line indicates the mean, the blue line marks the value of the mean plus 1.5 standard deviation. The vertical red lines show the period of the mooring deployment.

Figure 7: It would be interesting to superimpose on the Figure 7(a-c) the isopycnals obtained from the moorings to better show the passage of the eddy.

Thank you for your comment and suggestion. Below, is the figure with the isopycnals. Please note that the isopycnals could only be added over the SUMO time series since the other moorings underwent large vertical excursions during the extreme events. We have chosen not to include isopycnals in this figure: isopycnals are derived from vertically interpolated data, which is presented later in the manuscript in Figure 9.

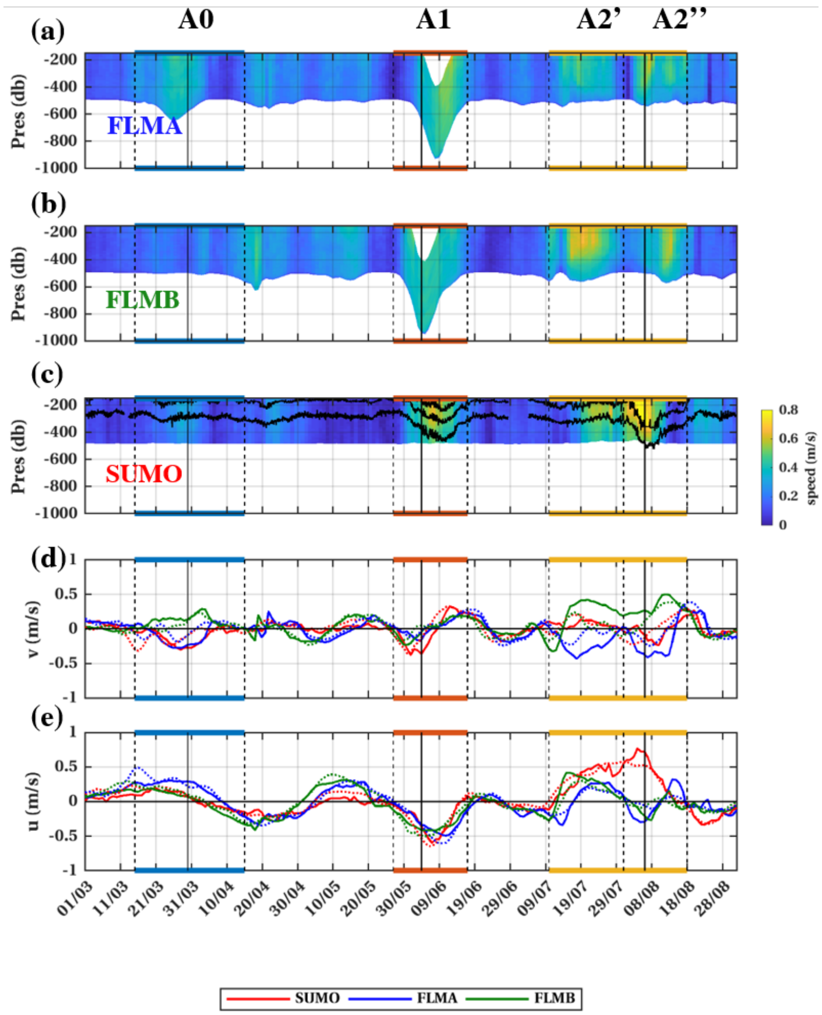

Figure 3: Daily averaged time series of velocity amplitude (m/s) from FLMA (a), FLMB (b) and SUMO (c). The black contours correspond to isopycnals 26.65, 26.85 and 27 kg/m^3 computed from the vertically interpolated data. d-e) vertically averaged velocity time series from SUMO (red), FLMA (blue) and FLMB (green) : d) meridional component, e) zonal component. The dashed lines in d-e) are surface geostrophic velocities derived from satellite altimetry co-localised at the mooring locations. X-axis is time (mm/yy). Vertical dashed lines bound A0, A1 and A2' and A2". Black vertical lines correspond to dates considered in Figure 8

Line 224: Is there any direct evidence to show the NIW event was generated by local winds? I cannot find it in the paper. What is the tau signal during each event? It would be good to give estimates of wind energy into NIW, and also try a slab model to demonstrate the wind-driven NIWs.

Thank you for your comment. It was not clear in the manuscript. We rewrote this section as follows: "NIWs are generated by a variety of mechanisms, including winds, nonlinear interactions with waves of other frequencies, lee waves over bottom topography, and geostrophic adjustment; the partition among these is not known, although the wind is likely the most important (e.g., Alford et al. 2016). The mechanism at the origin of the trapped NIWs at depth was not identified. There is no connection between strong winds and the presence of NIWs at depth at OOI (Figure 12 d). "

Figure 11: It's really hard to see the downward energy propagation of NIWs from the figure? The vertical propagation of NIWs may be estimated directly by fitting a curve to the near-inertial KE maxima (it could also be obtained by fitting the curve to the averaged near-inertial KE values above a threshold value. Tests should be carried out to decide which method is the best).

Thank you for your comment, we agree with you. We modified Figure 11 removing the black dashed lines and added the band-pass filtered KE (see figure below). We also added ticks at the inertial period following reviewer 2 suggestion. We modified the text as follows:

"As an example of the wave activity, we show the vertical shear of the horizontal velocity components as A1 crosses the SUMO mooring (Figure 11 a and b). The vertical shear features clear wavy patterns close to the inertial period with vertical wavelength of about 50 m (Figure 11 a and b). The kinetic energy of the band-pass filtered velocities (14-20 h) shows local maxima along isopycnals 26.65 and 27.00 kg/m^3 between June 1 and 14 with no obvious connection to the surface (Figure 11 c)."

Vertical propagation is unclear.

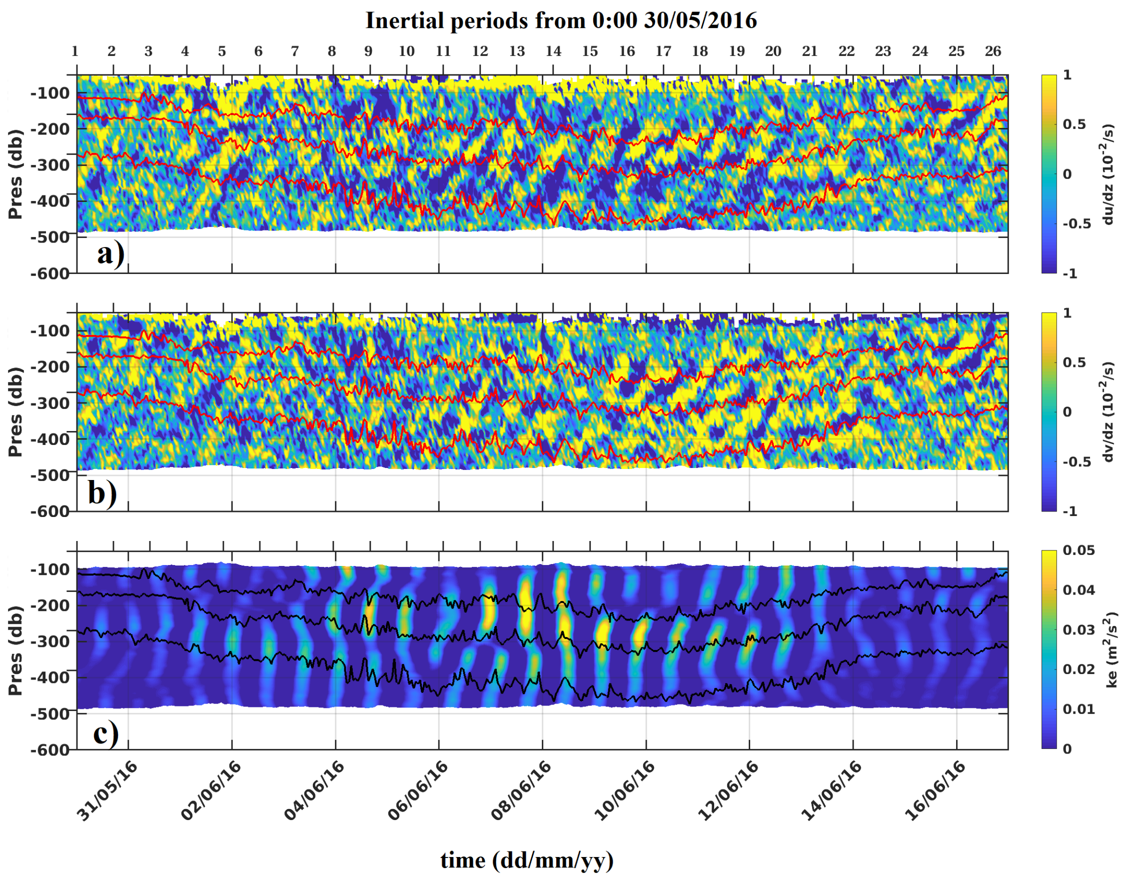

Figure 4: a-b) Vertical shear of velocity components for SUMO during event A1. c) 14-20 h band-pass filtered Kinetic Energy for SUMO during event A1. Contours correspond to isopycnals 26.65, 26.85 and 27 kg/m^3 computed from the vertically interpolated data. Top x-ticks indicate inertial periods from 0:00 30/5/2016 and bottom x-ticks days in dd/mm/y.