

I believe the answers given by the authors to the latest round of comments, together with their revisions to the manuscript, are sufficient to allow publication. However, I suggest a number of changes to the wording as a way of improving the English. Many of these relate to the need for additional articles (“a” and “the”), which do not exist in Chinese. Line references are to those in the latest version of the manuscript.

- Line 39 – “in agreement with enhancement of the hydrological”
- Line 44 – “lies within the potential density”
- Line 52 – “isopycnals” not “isopycnal”
- Line 55 – “entirely” not “entire”
- Line 63 – “west of the Antarctic peninsula”
- Line 70 – “on the variability of AAIW”
- Line 74 – “from the 1950s”
- Line 82 – “reports” not “reported”
- Lines 89-90 – “period 2005-2014 have been produced”
- Lines 94-95 – “isopycnal surfaces, T and S profiles were first interpolated onto 1 m vertical depth intervals using a spline method....and a linear method”
- Line 97 – “comparing them with the other”
- Line 103 – “conducted during the “
- Lines 108-109 – “These two transects not only occupied almost identical station positions in the subtropical”
- Lines 111-112 – “very similar to the period covered by the IPRC data (Jan 2005-Dec 2014)”
- Line 125 – “of the Quick Scatterometer”
- Line 126 – “and the Advanced Scatterometer”
- Line 132 – “to the ocean surface”
- Line 136 – “Analysis” not “analysis”
- Line 138 – “provided by SODA makes it possible to evaluate”
- Line 145 – delete “of” before “theta-S diagram”
- Line 149 – delete “of it”
- Line 150 – “at the 95% confidence level”
- Line 153 – “surfaces” not “surface”
- Line 158 – “parcel in the mixed layer”
- Line 159 – “”decrease of the AAIW core indicates”
- Line 163 – “product from JAMSTEC, are also shown”
- Line 164 – “not only was the same”
- Line 165 – delete “was” before “found”
- Line 166 – “The isoneutral salinity increases of both IPRC and JAMSTEC”
- Line 168 – put the phrase in brackets after “confidence level” on line 169
- Lines 172-173 – “is estimatedsource region. This assumes that the South Atlantic”
- Line 174 – “2014 per unit area”
- Line 175 – delete “)” after “period.”
- Line 194 – “the sectional mean”
- Line 200 – “has a continuous time series”

Line 204 – “”criteria and considering the number”
 Line 215 – delete comma after “data”
 Line 226 – “souorce regions, which consist of the southeast”
 Line 232 – “In modeling studies, it is widely accepted to quantify the leakage using a Lagrangian approach”
 Lines 235-236 – “which was shown to result in a similar”
 Line 237 – “Good Hope” not “Goodhope”
 Line 239 – “line of the barotropic”
 Lines 242-244 – “hydrographic data show the same freshening of AAIW as other datasets. AAIW in the South Atlantic was also found to have freshened”
 Line 245 – “”computation within the AAIW layer was carried out for the period”
 Line 247 – “middle and late 2000s, forming a decreasing trend”
 Line 248 – “consistent with the indirect estimate of AL transport given below.”
 Line 250 – delete “above”
 Line 252 – “time period, assuming that this rate”
 Line 254 – delete full stop before bracket
 Lines 259-260 – “This results in a salinity reduction of 0.0064, which could”
 Lines 261-262 – “Though our estimate here is quite rough, we can state that, dsuring 2005-2014, the AL significantly influenced the salinity change”
 Lines 265-267 – “An earlier study...a poleward shift of the westerly winds [Beal et al”
 Lines 271-272 – “with an equatorward rather than a poleward shidt”
 Line 275 – “westerly wid intensity”
 Line 277 – “westerly qwind strength”
 Line 280 – “from the ERA-interim wind product”
 Line 282 – “WS has increased considerably”
 Line 308 – “end of the time series”
 Lines 314-315 – “contributions from both the source region and the AL were only quantitative”
 Line 324 – “ water layer is thought to be”
 Line 332 – “ transport is proposed”
 Line 334 – “Good Hope”
 Line 342 – “Our estimate further suggests that such an induced”
 Line 345 – “one might ask if”

 Line 347 – insert “level” before “(around 27.2...”
 Line 348 – “which explains 55.4% of the variance.”
 Line 350 – “shows” not “displays”
 Lines 352-353 – “South Indian Ocean. In addition rto these salinity changes, we also note that the salinity...Pacific was considerably less”
 Line 355 – delete “at least”
 Lines 358-359 – “these two contributors, and the influence they have on the world ocean circulation, through modeling studies.”