This is a nice study discussing the changing relationship between the subtropical dipoles in the southern Atlantic and Indian Oceans. The manuscript is generally written well, but I have a few minor concerns that the authors need to respond to.

The relationships discussed in the manuscript are mostly based on statistics. The causality as mentioned in line 176 needs to be supported by some analyses with dynamical models or further diagnostics. It is possible that the convective activities in the subtropical western Atlantic could be triggering a wavetrain, but how that wavetrain influences the subtropical high of the Indian Ocean, leading to the formation of the Indian Ocean subtropical dipole, is not clear in the present study. The authors need to add more diagnostics to clarify that relationship and hence the causality.

We have added more diagnostics regarding the SAOD-SIOD relationship (Lines 200-233, Figures 7, 8)

Furthermore, the triggering/development of the Indian Ocean subtropical dipole could be associated with other factors besides the one originating in the Atlantic Ocean as discussed in the manuscript. That also needs to be discussed to clarify how the Indian Ocean subtropical dipoles continued to develop after 2000.

We added explanation about the continuous development of the Indian Ocean Subtropical Dipole after 2000.

Please also discuss the number of dipoles observed in both basins prior to and after the year 2000.

Prior to 2000, there were 9 positive (12 negative) phases of the SIOD mode and 11 positive (10 negative) phases of the SAOD mode. After 2000, there are 10 positive (11 negative) phases of the SIOD mode and 9 positive (12 negative) phases of the SAOD mode. There is no significant difference in the phase of the two indices between the two periods before and after 2000.

I found a few typos. Authors should carefully check the manuscript.

We have carefully checked and edited the entire manuscript several times, which hopefully have fixed all the typos.

Ln 140; relateda => related a

Changed

Sometimes SIOD is mentioned as IOSD in the manuscript. Either of them should be used consistently.

We have done a consistency check and fixed all the inconsistencies.

The manuscript by Lejiang Yu et al. investigated the change in the relation of SIOD and SAOD in recent decades. They suggested that this change is related to the convective activities over the subtropical southern Atlantic Ocean and eastern Brazil . Most of the results presented in this paper are based on statistical analyses. The authors did not provide a convincible physical mechanism behind this statistical connection. I recommend this manuscript might be considered for publication in ACP after a major revision. Please find below the suggestions I have for this manuscript.

Major comments:

1. Fauchereau et al. (2003) suggested that the covariabilty is due to an atmospheric wavenumber-4 pattern in the globe. In contradiction, this study suggests the linkage to the south Atlantic Indian Ocean wave Lin (2019). Why such contradictory results?

Figure 4e in our study also shows an atmospheric wavenumber-4 pattern in the globe, which is similar to Figure 11c in Fauchereau et al. (2003). We considered that the linkage to the south Atlantic Indian Ocean wave (Lin, 2019) is a part of the atmospheric wavenumber-4 pattern in the globe. The atmospheric wavenumber-4 pattern in the globe can be seen in Figure 2b and 2c of Lin (2019). Our results are consistent with the results of Fauchereau et al. (2003).

2. The South Atlantic Indian Ocean atmospheric wave was seen active even after the year 2000 (Lin, 2019). Then, why SIOD and SAOD became unrelated after 2000?

Lin (2019) examined the linkage to the south Atlantic Indian Ocean wave for the 1980–2016 period. They did not divide the entire period into two separate periods. Figure 4e and 4f show two different wavetrains for the 1979-1999 and 2000-2020 periods. The wavetrain is stronger for the former and weaker for the latter.

3. Figure 3 shows the appearance of SST Wavenumber-4 (Senapati et al.(2021)) before 2000 in both the cases of SIOD and SAOD. Also, the weakening of the SST Wavenumber-4 pattern is related to South Pacific Meridional Mode noticed after 2000 as discussed by senapati et al. (2022). Also, a change in SIOD activity is noticed by Zhang, Lei, et al. (2022). These mechanisms need to discuss.

We have enhanced the discussion about the mechanisms and added the references mentioned above (L143-149).

Senapati, Balaji, Dash, M. K., & Behera, S. K. (2022). Decadal variability of southern subtropical SST wavenumber-4 pattern and its impact. Geophysical Research Letters, e2022GL099046. doi:10.1029/2022GL099046

Zhang, Lei, et al. "Eastward Shift of Interannual Climate Variability in the South Indian Ocean since 1950." Journal of Climate 35.2 (2022): 561-575.

4. Are composite maps agree with this proposed mechanism?

Yes, composite maps agree with the proposed mechanism. Prior to 2000, stronger convective activities over the southeastern Brazil and the subtropical South Atlantic Ocean favor the triggering of the wavetrain; The opposite occurs after 2000.

5. Line 164-172: How the weakening of the wave train is related to the interdecadal variability of the OLR activities? Since all the analyses presented in this paper are conducted using detrended anomaly fields, I cannot understand why the wave train weakens in response to the interdecadal variability of the OLR activities. Also, I could not understand the interdecadal variability of OLR anomalies which is dynamic. What drives it?

Climatological OLR anomalies for the 1979-1999 and 2000-2020 periods in Figure 5 were not detrended. The larger the magnitude of the negative OLR anomalies over the southeastern Brazil and the subtropical South Atlantic Ocean, the larger the positive RWS, which triggers wavetrain more easily. During 1979-1999, more convective activities occurred in the above regions and excited the wavetrain. The situation is reversed after 2000: reduced convective activities suppress positive RWS and prohibit the wavetrain. We considered that the weakening of the wavetrain is related to the interdecadal variability of the OLR anomalies over the southeastern Brazil and the subtropical South Atlantic Ocean. In the conclusion and discussion section, we discussed the reason for the interdecadal variability of OLR anomalies. The AMO and IPO may be responsible for the interdecadal variability, for they had a phase shift in the late 1990s. Previous studies have noted their effects on precipitation in Brazil and South Atlantic Ocean. We plan to examine the driver of the interdecadal variability in further studies.

6. Show significant areas in Figures 4c-f, 6c-f, and 7c-d. Activities in other regions create ambiguity for the proposed mechanism.

We added significant areas of MSLP and 10-m wind fields in Figures 6 and 8. To show clearly the RWS, upper-level divergent wind and Rossby wavetrain, we plot the significant areas Figures S1 and S2 below. Prior to 2000, stronger convective activities in the southeastern Brazil and central subtropical South Atlantic Ocean excite 200-hPa divergent wind (Figure S1a), which triggers a wavetrain (Figure S1b). Anomalous OLRs in southeastern South Atlantic Ocean and South Indian

Ocean also contribute to the wavetrain, but the origin of the wavetrain is the anomalous convective activities in the southeastern Brazil and central subtropical South Atlantic Ocean.

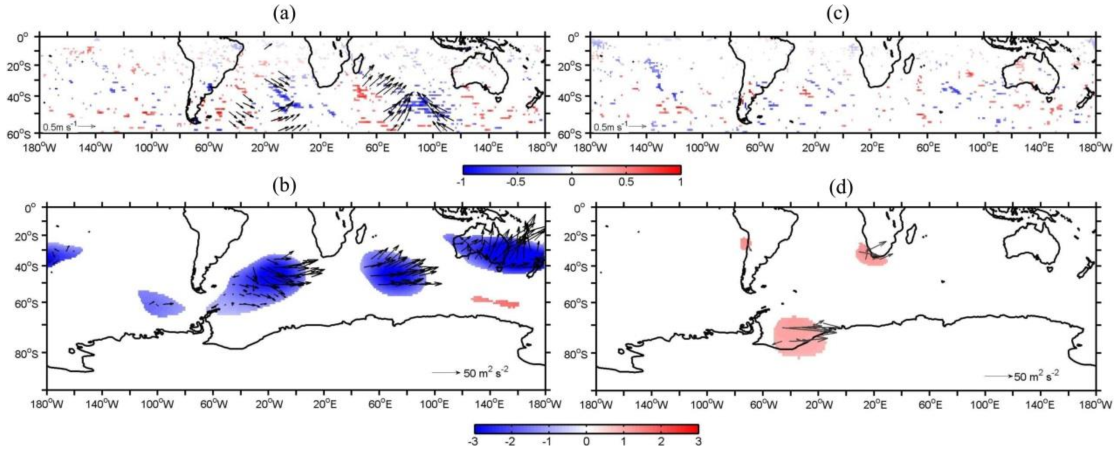

Figure S1. Rossby wave source (RWS) ($10^{-10}s^{-2}$) and 200-hPa divergent wind (vector), and (a, c) wave activity flux (vector) and streamfunction ($m^2\ s^{-1}$) (b, d) onto the summertime SAOD index over the periods of (a, b) 1979-1999 and (c, d) 2000-2020. Only significant regions are shown.

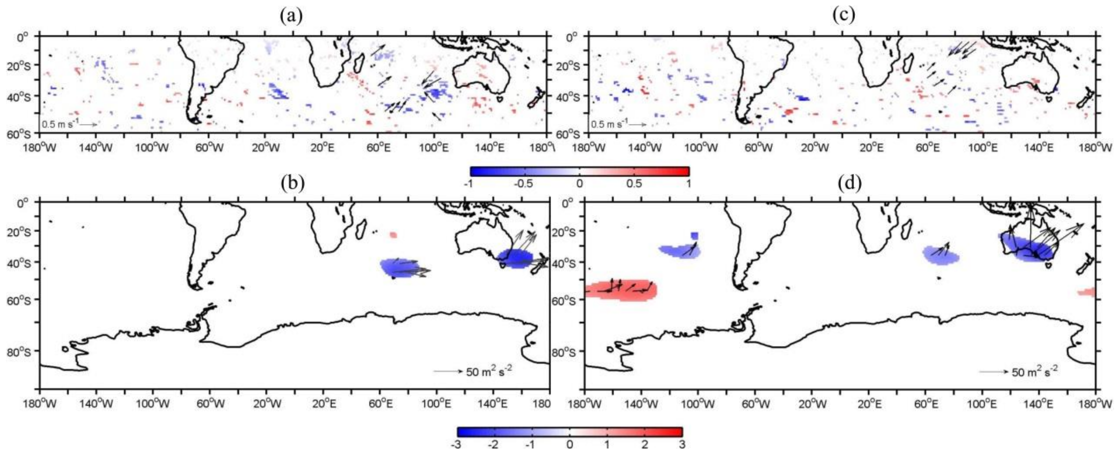

Figure S2. Rossby wave source (RWS) ($10^{-10}s^{-2}$) and 200-hPa divergent wind (vector), and (a, c) wave activity flux (vector) and streamfunction ($m^2\ s^{-1}$) (b, d) onto the summertime SIOD index over the periods of (a, b) 1979-1999 and (c, d) 2000-2020. Only significant regions are shown.

7. Line 191-193 : "The large decrease in the strength of the summertime subtropical high associated with SAOD from the first two decades to the next two (Figure 7c, 7d) corroborates the sharp drop in the SAOD-SIOD correlation (Figure 1d)". I can't understand how the change in the strength of subtropical highs in both basins affects the SAOD-SIOD relationship.

Prior to 2000, the stronger wavetrain associated with SAOD induced stronger summertime subtropical highs, which produced larger subtropical SST anomalies in both basins, strengthening the SASD-SIOD relationship. After 2000, the weaker wavetrain induced weaker subtropical highs. The SST anomalies in each basin are largely determined by the physical processes in each basin, which is not directly related to the wavetrain. Thus, the SAOD-SIOD relationship is weaker after 2000.

Minor comments:

1. Line 161 : Replace "SST anomalies" to "OLR anomalies"

   Changed

2. Figure 5 : Provide the colorbar. Have you detrended?

   We added a colorbar. We did not detrend, which is now clarified in the text.

3. Line 140: Replace "relateda" to "related a"

   Done

4. Mention the calculation of anomaly in the methodology section

   We added the calculation of the anomaly.

5. Figure 1 : What do you mean by spatial pattern? How is it calculated?

This now has been clarified in the text

6. Change figure captions a-d starting from left to right instead of top to bottom.

Changes have been made to the caption