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Comment on acp-2022-562

Anonymous Referee #1

Referee comment on "A change in the relation between the Subtropical Indian Ocean Dipole and the South Atlantic Ocean Dipole indices in the past four decades" by Lejiang Yu et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2022-562-RC1, 2022

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

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

Ln 140; relateda => related a

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