1 Discussion Outline

Other studies investigated impact of winds on Southern Ocean biology [Lovenduski and Gruber, 2005, Hauck et al., 2013].

[Lovenduski and Gruber, 2005]: observational satellite study with Chl-a

1. our MLD responds differently than fig.2 schematic illustration
2. increase in SAM increase in chlorophyll south of PF/45S because of iron supply from below (we have phy-decrease)
3. increase in SAM reduction in chlorophyll north of PF/45S because of increased ZMLD (we have a slight phy-increase)
4. BUT we dont have iron/nutrient limitation in SO

[Hauck et al., 2013]: stronger winds, increased upwelling, more iron supply, higher primary production, overlap of deepening zmld and iron increase areas

[Wang and Moore, 2012]:

1. forced model, 25yr trends, so rather climate change impact than decadal variability
2. some regions: more upwelling, more iron, more primary production
3. I dont get the clear storyline of the whole paper, too many aspects

Limitations of HAMOCC/MPIESM vs obs/other models:

1. too early and enhanced Southern Ocean seasonal cycle [Nevison et al., 2016]
2. not eddy resolving, has impacts [Stssel et al., 2015]
3. basically no nutrient limitation in SO? - other models and observations disagree; no iron hypothesis in HAMOCC
4. observation studies use sparse data for pCO2 [Landschützer et al., 2015]
5. MPIOM performance on circulation patterns and water masses in SO [Salle et al., 2013]
6. MPI-ESM zmld performance in SO [Sallée et al., 2013]

References and Notes

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