Supporting Information for "Chlorophyll production in the Amundsen Sea boosts heat flux to atmosphere and weakens heat flux to ice shelves"

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Additional Supporting Information (Files uploaded separately)

Introduction

References

Park, J., F. I. Kuzminov, B. Bailleul, E. J. Yang, S. Lee, P. G. Falkowski, and M. Y. Gorbunov, Light availability rather than fe controls the magnitude of massive phytoplankton bloom in the amundsen sea polynyas, antarctica, *Limnology and Oceanography*, *62*(5), 2260–2276, doi:10.1002/lno.10565, 2017.

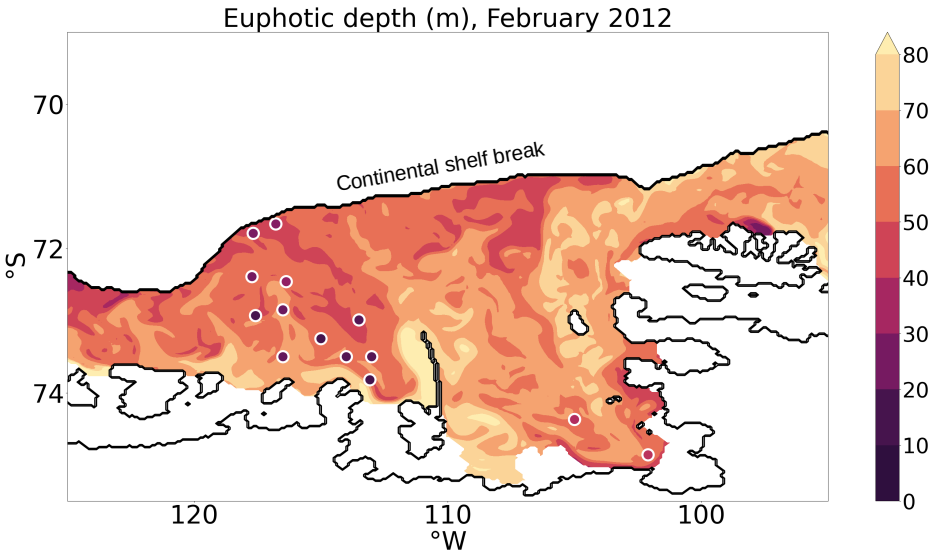

Figure 1. Comparison of euphotic depth between monthly averaged output and in-situ measurements for February 2012. Measurements taken during Korean Antarctic Research Program cruise (shown in *Park et al.* [2017]) are represented in the filled circles. Colourbar is saturated at a maximum of 80m.

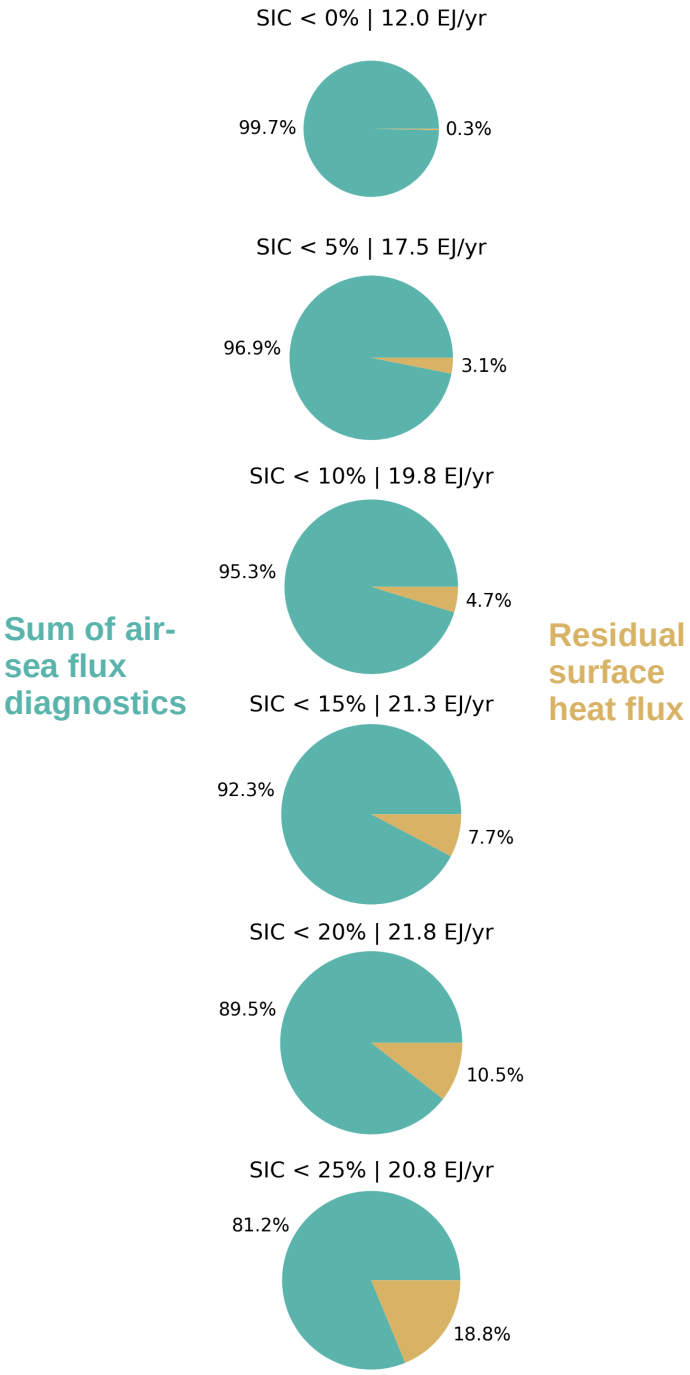

Figure 2. Impact of choice of sea ice threshold on the surface heat budget. Teal shading shows percentage of the total-ocean leaving heat flux which can be accounted for by the sum of the shortwave, longwave, latent and sensible heat flux diagnostics output from MITgcm. Brown shading shows percentage contribution of the residual surface heat flux, due to impacts from sea ice. The area of each pie chart is proportional to the total surface heat flux at each sea ice threshold, as indicated in the title of each plot.