AGU 100 FALL MEETING
Washington, D.C. | 10–14 Dec 2018

PP11A-04: The impact of floating ice on sea level estimates across multiple glacial cycles

Monday, 10 December 2018
08:45 - 09:00
Walter E Washington Convention Center - 102AB

Unlike grounded ice sheets, floating ice shelves have minimal direct impact on sea level. However, depending on the method, proxy sea level reconstructions may be affected by the existence of floating ice.

Unless ice shelves intercept the seafloor, their former presence is very difficult to detect. The recent discovery of ice erosional features in deep water depths at various locations throughout the Arctic Basin may indicate that extensive ice shelves existed in the Arctic Ocean during glacial maxima. Although dating these features is difficult, the current constraints suggest that a thick ice shelf existed during the penultimate glacial maximum. However, this does not rule out that ice shelves also existed during other glacial stages.

Here we use ice sheet and oxygen isotope modeling to explore what impact a former Arctic ice shelf would have on our interpretations of past ice volumes during glacial maxima. We suggest that a former Arctic ice shelf may help to resolve some existing discrepancies between different proxy sea level reconstructions.

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