

Objective

Using a diversity of measurement systems and model results, examine the evolution of global ocean heat uptake (OHU) during the industrial era

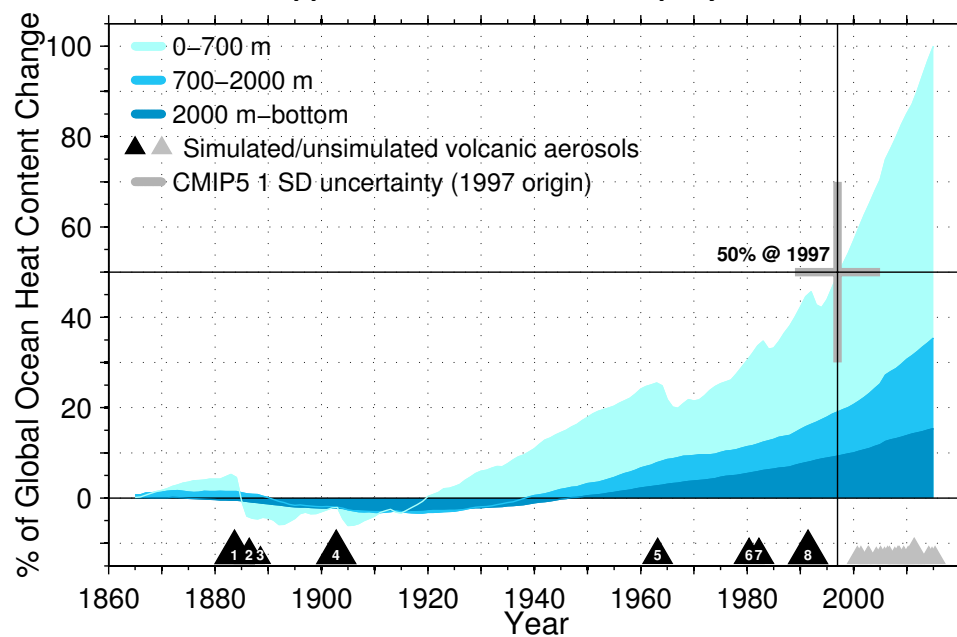
Research

- Earlier research attributes OHU since the 1970s to increasing greenhouse gases (Gleckler et al., 2012)
- Durack et al. (2014) demonstrated that the paucity of measurements in the Southern Hemisphere have led to underestimates in OHC changes
- Gleckler et al. (2016) demonstrate the consistency between observed and simulated OHC changes that yields a more detailed historical perspective (deeper ocean and further back in time)
- Durack et al. (2016) show how the continued monitoring of ocean changes are at risk

Impact of latest results

- Fills important voids in understanding of global energy budget changes (oceans account for ~95% of budget)
- **Total ocean heat uptake during the industrial era has doubled in recent decades**
- **By 2015, the deeper ocean (>700m) accounts for 35% of the total heat uptake and is rapidly increasing**

Fractional accumulation of heat uptake
in the upper, intermediate and deep layers of the ocean



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LETTERS

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Durack, P. J., P. J. Gleckler, F. W. Landerer, and K. E. Taylor (2014): Quantifying underestimates of long-term upper ocean warming. *Nature Climate Change*, 4, 999–1005

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