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## The Competition Between Anthropogenic Aerosol and Greenhouse Gas Forcing is Revealed by North Pacific Water-mass Changes

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Modelled water-mass changes in the North Pacific thermocline from CMIP6, both in the subsurface and at the surface, reveal the impact of the competition between anthropogenic aerosols and greenhouse gases (GHGs) over the past 6 decades. The aerosol effect overwhelms the GHG effect during 1950-1985 in driving salinity changes on density surfaces, while after 1985 the GHG effect dominates. These subsurface water-mass changes are traced back to changes at the surface, of which ~70% stems from the migration of density surface outcrops, equatorward due to regional cooling by anthropogenic aerosols and subsequent poleward due to warming by GHGs. Ocean subduction connects these surface outcrop changes to the main thermocline. Both observations and models reveal this transition in climate forcing around 1985 and highlight the important role of anthropogenic aerosol climate forcing on our oceans' water masses.