The Effect of Volcanic Eruptions on Ocean Heat Content and Thermal Expansion in the AR4 Simulations

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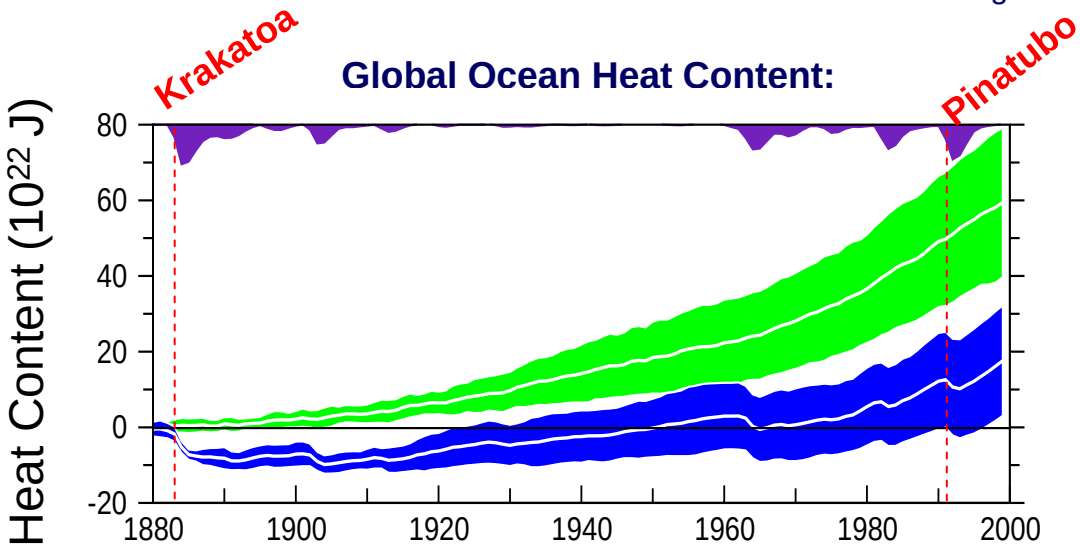
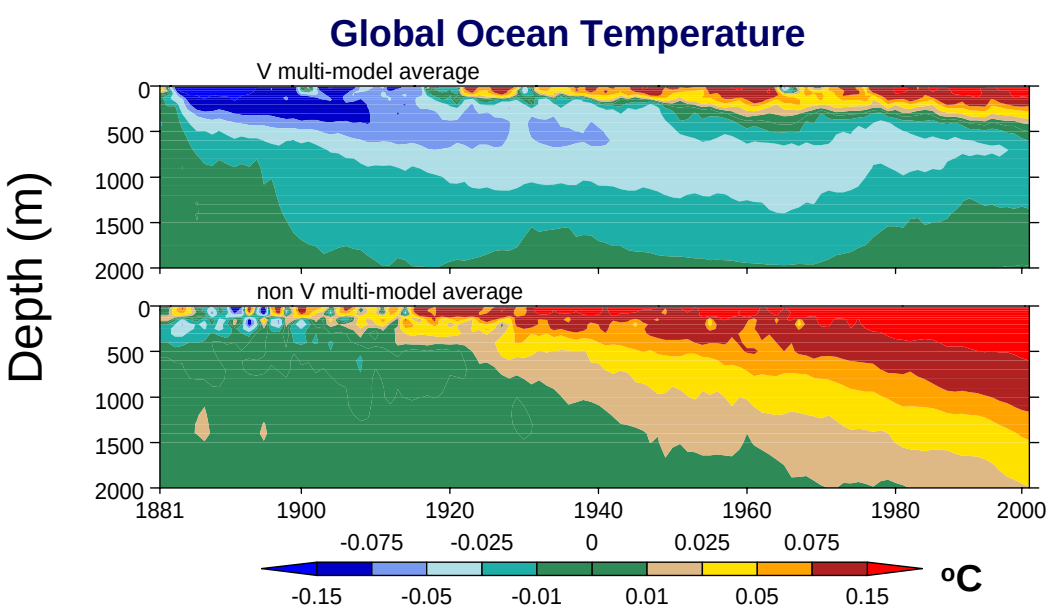
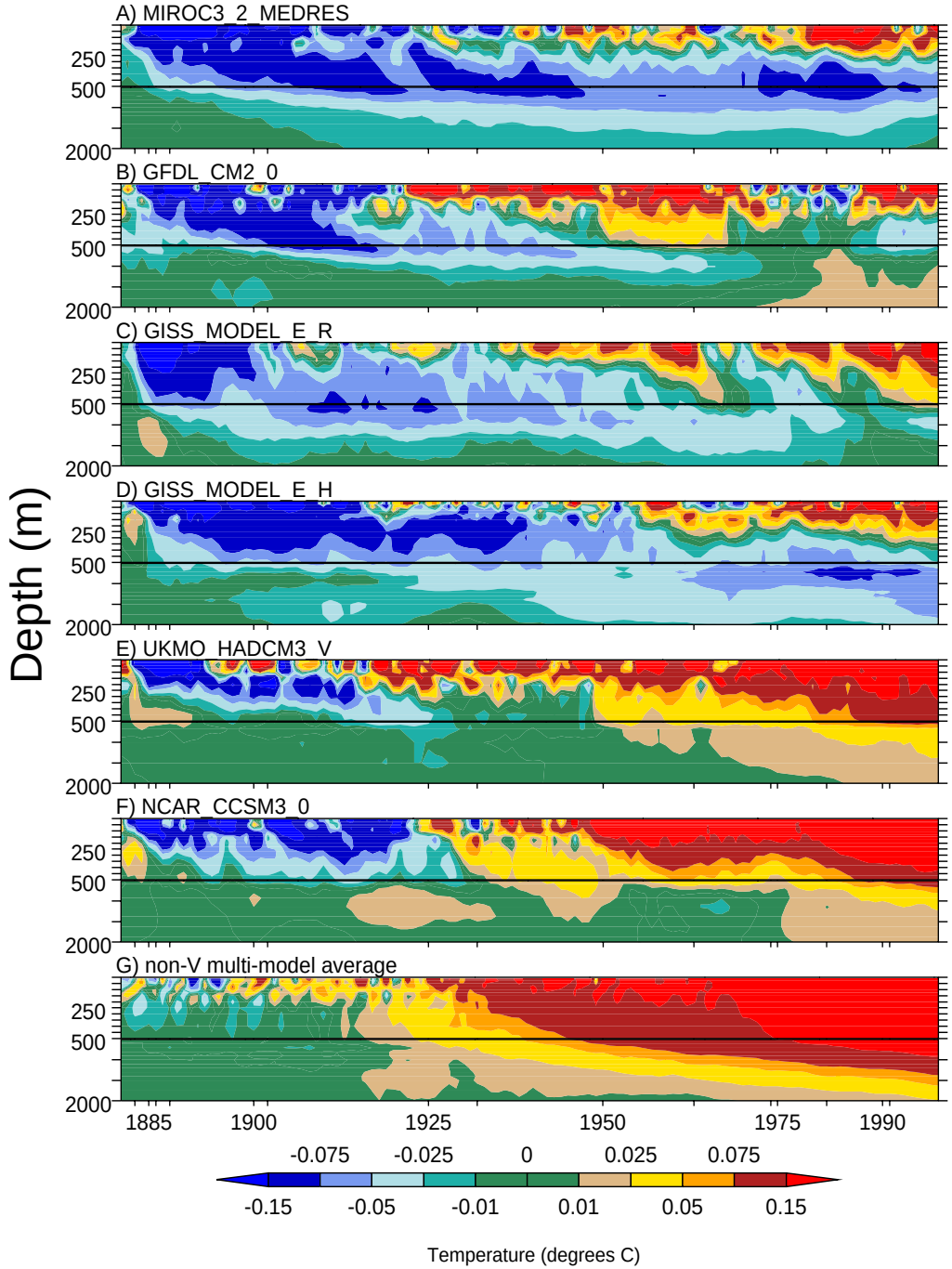




- Volcanic eruptions substantially reduced 20th Century ocean warming and thermal expansion.
- Recovery from Krakatoa (1883) takes decades.
- Effect of Pinatubo is much weaker than Krakatoa because it occurs against backdrop of substantial ocean warming.



- Models including V forcing agree more closely with late 20th Century observations than those without V
- Uncertainties associated with external forcings, model physics and experimental design warrant further tests.
- WORK IN PROGRESS: Tracking the 3d evolution of the Krakatoa anomaly in 6 realizations of CCSM3, GFDL 2.1 and GISS_HYCOM.