



The Human Cause and Global Consequence of Southern Ocean Warming

J. Fyfe

Canadian Center for Climate Modelling and Analysis, Environment Canada
(John.Fyfe@ec.gc.ca)

I will show that the Southern Ocean has warmed twice as fast as the World Ocean, that the warming cannot be explained by factors other than increased greenhouse gases in the atmosphere, and that this warming has been suppressed to a large extent by the incidence of volcanic dust in the atmosphere. I will also describe other related changes, such as strengthening and poleward-shifting of the Antarctic Circumpolar Current and changing oceanic and terrestrial sinks of carbon. Finally, I will present results from the latest series of climate models suggesting that the rate of Southern Ocean warming and Circumpolar Current intensification will accelerate in coming decades.