

KlimaCampus Kolloquium

Prof. Dr. David Marshall

at the invitation of the Institute of Oceanography of
Universität Hamburg

The fundamental role of the Southern Ocean in global climate

Over the past two decades, a paradigm shift has occurred in our understanding of the global ocean circulation and its impact on global climate, with the Southern Ocean and its turbulent eddies playing pivotal roles. In this talk, I will explain how the simple dynamical balances in the Southern Ocean exert a leading order control on global ocean heat content, the strength of the the global overturning circulation, and equilibrium levels of atmospheric carbon dioxide. A corollary is that any changes in Southern Ocean circulation in response to anthropogenic climate change have the potential to provide large feedbacks on ocean heat and carbon uptake, and thereby on global climate projections. Despite tremendous advances in the global ocean observing system and ocean circulation models, I will argue that the Southern Ocean remains inadequately sampled and poorly represented in climate models, although there are grounds for optimism on both counts for near future.

KlimaCampus Hamburg

23.04.2015, 3:15 pm; Bundesstraße 53; room 22/23 (first floor)