

Biography

Paul James Durack

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Degrees:

- BSc (Hons 1A) Murdoch University, Perth, Western Australia, 2003
- PhD (Physical Oceanography) University of Tasmania/CSIRO, Hobart, Tasmania, 2011

Research Interests:

- Global ocean-atmosphere variability and change
- Global water cycle change
- The ocean's role in the global water cycle
- Ocean freshwater and heat changes attributable to anthropogenic climate change
- Inter-ocean exchanges

Paul graduated with Honours in Marine Science from Murdoch University in 2003. His Honours project was titled “The Effect of Predicted Climate Change on Western Australian Regional Oceanography” and focused on determining projected changes to the regional oceanography of Western Australia. This research used ocean (and atmospheric) output from the CSIRO Mk3 coupled climate model.

He began working for the CSIRO Division of Marine and Atmospheric Research in March 2003, for the Climate Variability and Change program in the Impacts, Adaptation and Vulnerability team. Paul undertook numerous climate impact assessments, which involved analysis of observational and model-derived datasets for the Australian region. Some key outcomes included: The Melbourne Water Climate Change study - developing future climate scenarios of water availability for the greater Melbourne region; Planning for climate change in the Murray-Darling Basin - a study which developed future climate scenarios of water availability for the Australian region of key agricultural production; and the ongoing development of the OzClim climate scenario generator software package.

Paul began his PhD project in 2006, moving to Tasmania based at the CSIRO Marine and Atmospheric Research laboratories in the Ocean Observations, Assessment and Predictions program, and the Broad-scale Ocean Dynamics team. His PhD project, titled “Global Ocean Salinity: A Climate Change Diagnostic?” focussed on revisiting historical ocean observations, and with the aid of the modern Argo array, provided new estimates of long-term salinity changes for the period 1950-2000. In subsequent work, these new estimates of ocean salinity change were compared to model output from the Coupled Model Intercomparison Project phase 3 (CMIP3). This yielded a new quantified estimate of observed water cycle changes for the corresponding period – an estimation limited strongly by sparse atmospheric and terrestrial global water cycle observations. His PhD was conferred in August 2011.

Paul began a Postdoctoral appointment at the Lawrence Livermore National Laboratory in 2011, working in the Program for Climate Model Diagnosis and Intercomparison (PCMDI). His current research focuses on continuing to investigate observed changes to the global ocean system in the 20th century, with a specific interest in estimating rates of change. Along with observational change estimates, he is investigating changes to sea-level both from halosteric (salinity) and thermosteric (temperature) captured in the CMIP3 and new CMIP5 model suite. He hopes continued investigations into observed and model-simulated ocean change estimates will further narrow the uncertainties inherent in global climate change projections for the future.