

**CIRCULATION-INDUCED CHANGES IN ANTARCTIC NET PRECIPITATION IN THE 20TH AND 21ST CENTURIES BASED ON IPCC MODEL DATA.**

JP Uotila<sup>1</sup>, AH Lynch<sup>1</sup>, JJ Cassano<sup>2</sup>, R Cullather<sup>3</sup>

<sup>1</sup>*SGES, Monash University, Clayton, VIC, Australia,* <sup>2</sup>*CIRES, University of Colorado, Boulder, Colorado, United States,* <sup>3</sup>*Div. of Ocean and Climate Physics, LDEO, Columbia University, New York, United States*

Scenarios from fourteen global climate models and two re-analysis products (NCEP/NCAR and ERA-40) were utilized to study the atmospheric moisture budget over the Southern Ocean and Antarctica. Changes in the Antarctic moisture budget have a major impact on the Antarctic ice sheet mass balance and hence will affect predictions of global sea level variations.

The model simulations were implemented to support the Working Group 1 component of the IPCC's fourth Assessment Report. In this study we relate components of the moisture budget to a classification of synoptic circulation patterns obtained using a neural network algorithm known as Self-Organizing Maps. Three decades (1991-2000, 2046-2055 and 2091-2100) were analysed in order to (1) assess the quality of the model realizations in the 20th century, and (2) determine the range of predicted changes in the Antarctic moisture budget over the coming century. The mean net precipitation over the Antarctica is not projected to increase in the following hundred years according to the multi-model ensemble.