Antarctic Climate Change and the Environment

Edited by Turner, J., Bindschadler, R.A., Convey, P., Di Prisco, G., Fahrbach, E., Gutt, J., Hodgson, D.A., Mayewski, P.A., and Summerhayes, C.P.
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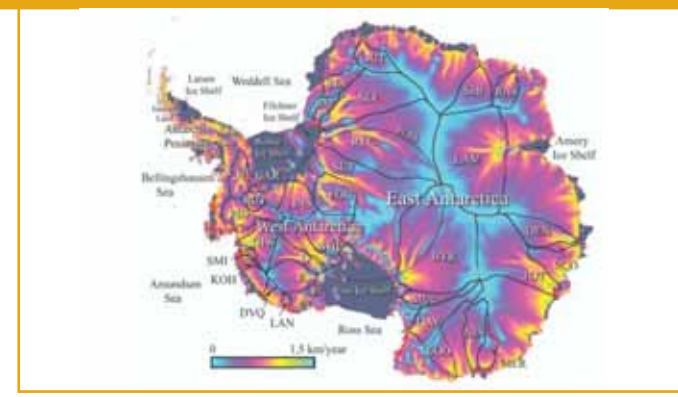
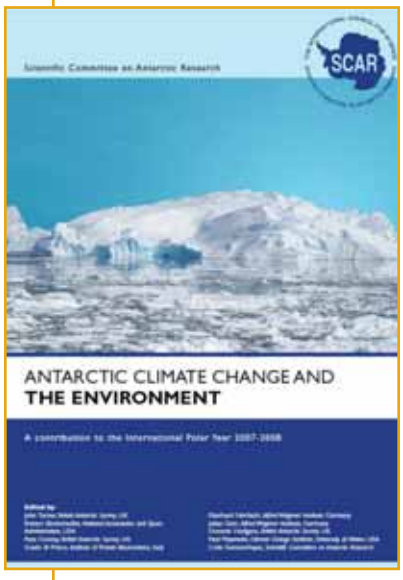


Figure 1.6 from the report shows balance velocity, calculated at any point as the velocity (averaged over the thickness) required to balance upstream accumulation, to illustrate the spatial pattern of ice flow that is required to maintain the ice sheet shape in the present climate (Rignot and Thomas, 2002).



In December 2009, the Scientific Committee on Antarctic Research (SCAR) released the first comprehensive review of the state of Antarctica's climate and its relationship to the global climate system. *Antarctic Climate Change and the Environment* presents the latest research from the icy continent, identifies areas for future scientific research, and addresses the urgent questions that policy makers have about Antarctic melting, sea-level rise, and biodiversity.

Dr. Colin Summerhayes, executive director of the Scientific Committee on Antarctic Research said, "Antarctica is an unrivalled source of information about our planet. This review describes what we know now and illustrates how human activity is driving rapid climate change. By integrating this multidisciplinary evidence into a single source we will help scientists and policy makers understand the distinction between environmental changes linked to the Earth's natural cycles, and those that are human induced. The work is particularly important because it puts Antarctic climate change into context and reveals the impact on the rest of the planet."

Professor John Turner of the British Antarctic Survey was the lead editor of the review. He said, "For me, the most astonishing evidence is the way that one man-made environmental impact—the ozone hole—has shielded most of Antarctica from another—global warming. Understanding the complexities surrounding these issues is a challenge for scientists—and communicating these in a meaningful way to society and to policymakers is essential. There is no doubt that our world is changing and human activity is accelerating global change."

Following production of the Arctic Climate Impact Assessment report in 2005, SCAR decided that a southern hemisphere equivalent was required, and set about producing it. One hundred scientists from 13 countries contributed as authors, and the manuscript was produced by an editorial team of 9, headed by Turner.

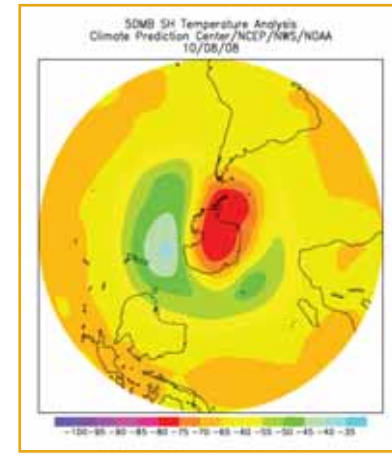


Figure 1.13 from the report, shows the polar vortex above Antarctica in midwinter (August).

Elements of the report have already been published as scientific papers in *Reviews of Geophysics* (January 2009) and in the December 2009 issue of the *Antarctic Science Journal*. Annual reviews of the science of climate change in the Antarctic, based on the ongoing work in the report, have been presented to the Antarctic Treaty Consultative Meetings and the associated Committee on Environmental Protection.

The report is available from the ACCE page of the SCAR website.

www.scar.org/publications/occasionals/acce.html

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