



# MEDIA RELEASE

**NEWS FROM THE INSTITUTE FOR MARINE AND ANTARCTIC STUDIES**

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ATTENTION: Chiefs of Staff, News Directors

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## Southern Ocean plankton surprise

It appears NASA satellites have not accurately estimated the important life-giving microscopic phytoplankton population that lives in the Southern Ocean and Antarctica.

Recently published research in the prestigious *Journal of Geophysical Research (Oceans)* by the University of Tasmania's specialist Institute for Marine and Antarctic Studies (IMAS), in collaboration with three of Australia's leading Antarctic and Southern Ocean research bodies, has successfully corrected the underestimation of Southern Ocean phytoplankton by NASA satellites.

Phytoplankton form the base of the marine food chain, produce half the oxygen on Earth and are partly responsible for the ocean uptake of at least a third of total human induced carbon dioxide (CO<sub>2</sub>) emissions.

Existing ocean colour satellites systematically underestimate the chlorophyll concentration (an indication of phytoplankton population) of the Southern Ocean and Antarctica.

"Our significantly improved algorithms (method of calculation) will permit more accurate estimates of Southern Ocean phytoplankton and will allow us to detect changes that, until now, have gone unnoticed," said lead author Mr Robert Johnson from IMAS.

"This has consequences for our ability to model and predict the uptake of carbon in the Southern Ocean."

Led by PhD student Mr Johnson and IMAS' Associate Professor Peter Strutton, the authors drew together expertise (from the Australian Antarctic Division, the Antarctic Climate and Ecosystems Cooperative Research Centre, and the Australian Research Council Centre of Excellence for Climate System Science) in order to use

more than 1000 Southern Ocean phytoplankton samples, collected across almost 10 years.

The majority of the samples used in this study were collected on the French Antarctic vessel MV L'Astrolabe through a collaborative and long-term monitoring program between the CSIRO, the Australian Antarctic program, and the French Antarctic Program.

"Much of our global scale science can now only be achieved through strong collaborative research teams that work together to do sustained and long term research," Mr Johnson said.

Mr Johnson said this is especially true in the Southern Ocean - the most remote and important ocean on earth.

Assoc Prof Strutton said the improved satellite chlorophyll algorithms will be used to produce higher-accuracy observations on the vitally important phytoplankton of the Southern Ocean and Antarctica.

"This improved data will be made freely available to the global research community through the Integrated Marine Observing System (IMOS). This will go a long way towards improving our understanding of how the Southern Ocean works and how the movement of carbon is changing in these remote waters," said Prof Strutton.

**The online paper in the *Journal of Geophysical Research - Oceans* can be viewed here: <http://onlinelibrary.wiley.com/doi/10.1002/jgrc.20270/abstract>**

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