

Investigating the current thinking on the CLAW Hypothesis

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This issue of *Environmental Chemistry* focuses on the research arising from the publication of the 'CLAW Hypothesis', a paper published over 20 years ago in *Nature*.^[1] This paper suggested a potential role for sulfur emissions from phytoplankton in modifying cloud albedo and hence climate.

This was not the first paper to propose a role for the natural sulfur cycle in altering global climate. The paper written by Glenn Shaw and published in 1983 in *Climatic Change*,^[2] published a few years before the *Nature* paper, took James Lovelock's suggestion that life moderated climate, the 'Gaia Hypothesis',^[3,4] and provided a mechanism that would support Lovelock's hypothesis. Shaw first introduced the sulfur cycle as the process through which biology could ameliorate climate and the 1987 *Nature* paper built on Shaw's earlier work. However, it is the 'CLAW Hypothesis', as the *Nature* paper became known, that is widely remembered and credited with initiating much of the research in this area.

The papers presented in this issue assess the progress made on the understanding of the role of biogenically derived sulfur emissions in modifying cloud albedo and hence climate. Opinion papers have been contributed by scientists, from a variety of fields, providing an overview of past work and a snapshot of current research on the climate role for the sulfur cycle and we are pleased that Glenn Shaw has been able to provide a paper assessing the progress from his original publication in 1983.

The feedback potential of the sulfur cycle is the focus of much current work to incorporate sulfur chemistry into global models as means to generate cloud condensation nuclei, as we seek to understand how natural processes drive climate and

how these natural processes are themselves modified as climate changes.

The indirect effects of aerosol still provide the greatest uncertainties in the assessment of climate change^[5] and we hope that the debate presented here will contribute to the modelling efforts and the IPCC process in addressing these uncertainties.

We would welcome feedback on the papers in this issue and invite readers express their views by sending a short letter to the editor, at publishing.env@csiro.au. A selection of these letters will be published as Correspondence in the subsequent issue of *Environmental Chemistry*.

References

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