

NITheCS COLLOQUIUM: Goldilocks molecules in the Anthropocene

Prof Guy Midgley (Stellenbosch University)

Monday, 21 November 2022 | 16h00 – 17h00 SAST

ABSTRACT

Atmospheric CO₂ concentration has been critical in the establishment of a stable and productive biosphere supportive of a “modern” human society that has developed only during the last few thousand years, despite human presence on the planet for tens of thousands of years. Why the delay? I will summarise emerging insights about the modern human ecological niche, and discuss the vital role of atmospheric CO₂ level primarily via its impacts on climate and plant productivity.

The concentration of this ‘Goldilocks molecule’ is now nominally under the control of human society as we enter the Anthropocene Epoch – the geological epoch dominated by human influence on the geo-biosphere. Our understanding of CO₂'s role is vital as human societies consider how to obtain consensus on an optimal CO₂ level for the future of humanity in a supportive biosphere. This is especially relevant to how ecosystems can be supported to provide the pivotal negative feedback that currently limits the rate of atmospheric CO₂ change.

As more and more damaging climate events sweep over the globe, the urgency of understanding our relationship with atmospheric CO₂ has become paramount.

BIOGRAPHY

Guy Midgley has worked in the fields of global change and biodiversity science since the 1980s in the South African National Biodiversity Institute, then taking up a Professorship at Stellenbosch University (Botany and Zoology) in 2014.

He has held lead roles in international scientific assessments (IPCC 4th, 5th and 6th Assessments, CBD ad hoc Technical Expert Group, and IPBES Global Assessments) and national level syntheses on climate change impacts, risks, and adaptation.

With over 170 publications, he holds an NRF A-rating, has been a Thomson Reuters highly cited researcher (2014), and is amongst the most influential climate change scientists globally (2021). He is a recent awardee of the SA Royal Society Marloth Medal and Humboldt Foundation Research Award for lifetime science contributions.



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