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Southern Ocean microbial ecology – things we know, things we don't know and why bother

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The Southern Ocean is a vast, exciting, relatively understudied part of the Earth. It is connected to all other oceans and is the source of nutrient rich deep currents critical to the primary productivity of large parts of the global oceans. The Southern Ocean is also one of the most important carbon sinks.

Every drop of the Southern Ocean contains tens to hundreds of thousands of bacteria and archaea, belonging to hundreds of different species. Across the vastly different environments of the Southern Ocean, the microbial community consists of hundreds of thousands of different species. They drive the majority of the biogeochemical cycles underpinning primary productivity in the Southern Ocean and across the global oceans. A major change in their activities would potentially have catastrophic consequences for the environment, for the climate, for oceanic productivity and for humanity. Yet we have only started to study them in earnest.

The talk will provide an overview of what we know about the microbial ecology of the Southern Ocean, point out the major gaps in our knowledge, why this all matters and where current research is heading.