

New “Vertical Map” of Airborne Microorganisms Indicates How Global Warming Will Impact Global Ecosystems

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In a landmark study of airborne microorganisms from ground level up to 3,500 metres, scientists from the Singapore Centre for Environmental Life Sciences Engineering (SCELSE) at Nanyang Technological University, Singapore (NTU Singapore) have found that bacteria and fungi populate the planet's lower atmosphere in very specific ways and if changed, may negatively impact human health and food supply.

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Using a combination of a 200-metre meteorological tower and a research aircraft that circled at different heights from 300 metres to 3,500 metres to gather the necessary measurements, the researchers found that temperature was the single most important factor influencing the composition of airborne microbial communities.

As the temperature of the air changes, the species found and the ratio of bacteria to fungi change significantly. These findings suggest that the currently observed increase in global temperature will have an impact on the atmospheric microbial ecosystem, as well as planetary terrestrial and aquatic ecosystems.

The study was published today in the peer-reviewed journal Proceedings of the National Academy of Sciences (PNAS) by a team of interdisciplinary scientists led by NTU Professor Stephan Schuster, Research Director (Meta-'omics & Microbiomes) at SCELSE.