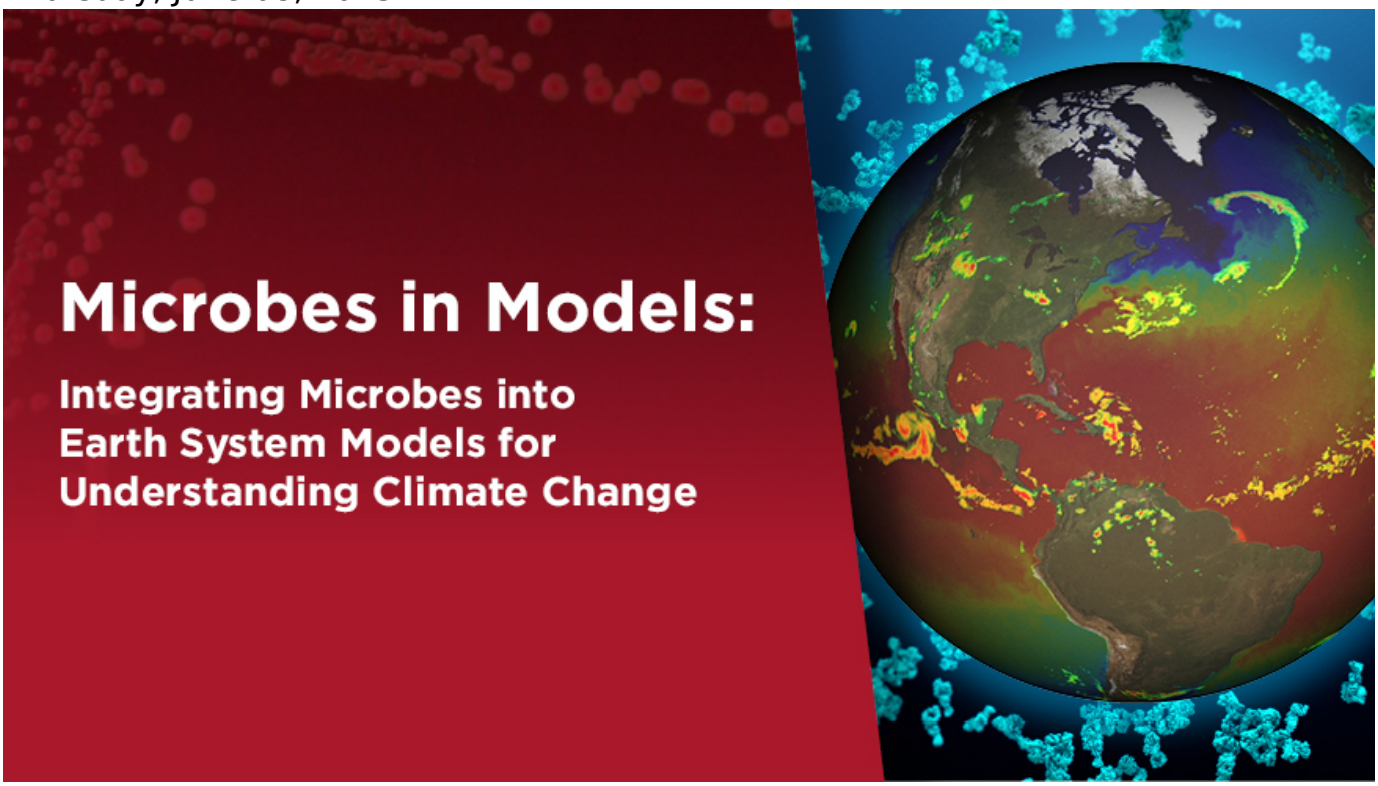
UC Irvine Faculty Contribute to Vital Climate Report

Now, a groundbreaking report released by the American Academy of Microbiology, sheds light on a previously overlooked aspect of climate change: microorganisms.
Thursday, June 08, 2023



Climate change is an undeniable reality that is rapidly transforming our planet. As scientists strive to comprehend the complexities of this phenomenon, Earth system models have emerged as vital tools in understanding current environmental changes and projecting future scenarios. Now, a groundbreaking report titled “Microbes in Models: Integrating Microbes into Earth System Models for Understanding Climate Change,” released by the American Academy of Microbiology, sheds light on a previously overlooked aspect of climate change: microorganisms.

Microbes, the microscopic organisms that inhabit every corner of our planet, are not immune to the impacts of climate change. They, too, will be fundamentally affected by the changing conditions. However, microorganisms also play a significant role in

influencing climate change. Through their consumption and production of greenhouse gases, they drive essential biogeochemical cycles. Recognizing the critical interplay between microbes and climate change, the report emphasizes the necessity of explicitly including microbial processes into Earth system models to enhance the accuracy of projections.

The report stems from a virtual colloquium organized by the American Academy of Microbiology in December 2022, which brought together leading experts from the fields of climate and microbial sciences. These experts identified the current knowledge gaps and challenges hindering the integration of microbial processes into Earth system models. By articulating the top ten challenges in incorporating microbes into these models, the report provides a roadmap for future research and innovation.

Some of the key challenges highlighted in the report include the tradeoffs in model complexity, identifying microbial functional groups, addressing the temporal and spatial scale differences between microbes and global models, and harmonizing data. Solving these challenges will require new approaches and interdisciplinary collaboration, as well as a collective effort from the scientific community.

The need for a deeper understanding of the feedback loops between climate change and microbes cannot be overstated. With climate change impacts becoming increasingly complex and difficult to manage, it is crucial that our Earth system models accurately reflect the role of microorganisms. These models serve as essential tools for refining the complexities of climate change into manageable terms, guiding policymaking and mitigation strategies to safeguard humanity.

It is worth noting that the University of California, Irvine played a significant role in this report, with four of its faculty members contributing their expertise: Professor Jennifer Martiny, Professor Adam Martiny, Professor Steven Allison and Distinguished Professor James Randerson. Their involvement underscores UC Irvine’s prowess in the areas of climate and microbial sciences, further validating the university’s commitment to cutting-edge research and innovation.

As we navigate the complex challenges of climate change, understanding the intricate relationship between microorganisms and our changing planet is paramount. The release of this report marks a significant milestone in advancing our knowledge in this crucial area. To learn more about the findings and

recommendations presented in “Microbes in Models: Integrating Microbes into Earth System Models for Understanding Climate Change,” we encourage you to read the full report. By staying informed, we can all contribute to building a sustainable and resilient future for our planet.

To access the report, click here.

Original Source
In the Media
News Briefs
Earth System Science
Climate Change
The Future of Energy and the Environment
View PDF