

The Earth Through Time: Implications for searching for habitability and life on Exoplanets

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The Earth has been both a habitable and inhabited planet for around 4 billion years, yet distant observers studying Earth at different epochs in our history would have detected substantially different and probably varying conditions. Understanding Earth's history thus has much to tell us about how to interpret observations of potentially habitable exoplanets. In this talk I will review the history of life on Earth, from the earliest microbial biosphere living under a relatively methane-rich atmosphere to the modern world of animals, plants, and atmospheric oxygen, with a focus on how observable conditions on Earth changed as the planet and its biosphere evolved. I'll discuss the implications of this history for assessing the habitability of--or presence of life on--planets around other stars.