



## **Global variability in leaf respiration in relation to climate and leaf traits**

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Leaf respiration plays a vital role in regulating ecosystem functioning and the Earth's climate. Because of this, it is imperative that Earth-system, climate and ecosystem-level models be able to accurately predict variations in rates of leaf respiration. In the field of photosynthesis research, the F/vC/B model has enabled modellers to accurately predict variations in photosynthesis through time and space. By contrast, we lack an equivalent biochemical model to predict variations in leaf respiration. Consequently, we need to rely on phenomenological approaches to model variations in respiration across the Earth's surface. Such approaches require that we develop a thorough understanding of how rates of respiration vary among species and whether global environmental gradients play a role in determining variations in leaf respiration. Dealing with these issues requires that data sets be assembled on rates of leaf respiration in biomes across the Earth's surface. In this talk, I will use a newly-assembled global database on leaf respiration and associated traits (including photosynthesis) to highlight variation in leaf respiration (and the balance between respiration and photosynthesis) across global gradients in growth temperature and aridity.