

Publications: Raymond T. Pierrehumbert

Superscript † indicates that the co-author was a student or postdoc working with Pierrehumbert at the time the paper was written. Top 20 featured publications are indicated with ”**”

Books

*Pierrehumbert RT 2010: *Principles of Planetary Climate*. Cambridge University Press, 652pp.
Archer DA and Pierrehumbert RT 2010: *The Warming Papers*. Wiley/Blackwell.

Book projects in progress

Principles of Planetary Climate, second edition (Cambridge University Press)
Mathematics and Physics Explorations in Python (Princeton University Press)
Planetary systems: A very short introduction (Oxford University Press)

Major peer-reviewed reports

McNutt MK, Abdalati W, Caldeira K, Doney SC, Falkowski PG, Fetter S, Fleming JR, Hamburg SP, Morgan MG, Penner JE, Pierrehumbert RT, Rasch PJ, Russell LM, Snow JT, Titley DW, Wilcox J. 2015a. Climate intervention carbon dioxide removal and reliable sequestration. National Academies Press

McNutt MK, Abdalati W, Caldeira K, Doney SC, Falkowski PG, Fetter S, Fleming JR, Hamburg SP, Morgan MG, Penner JE, Pierrehumbert RT, Rasch PJ, Russell LM, Snow JT, Titley DW, Wilcox J. 2015b. Climate intervention: Reflecting sunlight to cool earth. National Academies Press

Solomon S, Battisti D, Doney S, Hayhoe K, Held I, Lettenmaier D, Lobell D, Matthews D, Pierrehumbert RT, Raphael M, Richels R, Root T, Steffen K, Tebaldi C and Yohe G 2010. *Climate Stabilization Targets: Emissions, Concentrations and Impacts over Decades to Millennia*. National Academy Press:Washington 190pp.

Alley RB, Marotzke J, Nordhaus W, Overpeck J, Peteet D, Pielke R, Pierrehumbert RT, Rhines P, Stocker T, Talley L and Wallace JM 2002: *Abrupt Climate Change: Inevitable Surprises* National Academy Press,244pp.

Stocker TF,Clarke GKC,Le Treut H, Lindzen RS, Meleshko VP, Mugara RK, Palmer TN, Pierrehumbert RT, Sellers PJ, Trenberth KE, and Willebrand J 2001. Physical Climate Processes and Feedbacks, Ch. 7 in *The Physics of Climate Change: IPCC WG1 Third Assessment Report*, Cambridge University Press.

PhD Thesis

Pierrehumbert RT 1980: *The Structure and Stability of Large Vortices in an Inviscid Flow*. Ph.D. Thesis, Massachusetts Institute of Technology.

Journal articles and peer-reviewed book chapters

2020-2024

Lefèvre† M, Turbet M, Pierrehumbert R. 2021. 3d convection-resolving model of temperate, tidally locked exoplanets. *The Astrophysical Journal* 913:101

Baxter C, Désert JM, Tsai† SM, Todorov KO, Bean JL, Deming D, Parmentier V, Fortney JJ, Line M, Thorngren D, et al. 2021. Evidence for disequilibrium chemistry from vertical mixing in hot jupiter atmospheres—a comprehensive survey of transiting close-in gas giant exoplanets with warm-spitzer/irac. *Astronomy & Astrophysics* 648:A127

Lynch† J, Cain M, Frame D, Pierrehumbert R. 2021. Agriculture’s contribution to climate change and role in mitigation is distinct from predominantly fossil co2-emitting sectors. *Frontiers in sustainable food systems* 4:300

Lichtenberg† T, Bower DJ, Hammond† M, Boukrouche† R, Sanan P, Tsai† SM, Pierrehumbert RT. 2021. Vertically resolved magma ocean–protoatmosphere evolution: H₂, h₂o, co₂, ch₄, co, o₂, and n₂ as primary absorbers. *Journal of Geophysical Research: Planets* 126:e2020JE006711

- Ding[†] F, Pierrehumbert RT. 2020. The phase-curve signature of condensible water-rich atmospheres on slowly rotating tidally locked exoplanets. *The Astrophysical Journal Letters* 901:L33
- Hammond[†] M, Tsai[†] SM, Pierrehumbert RT. 2020. The equatorial jet speed on tidally locked planets. i. terrestrial planets. *The Astrophysical Journal* 901:78
- Lee[†] GK, Casewell SL, Chubb KL, Hammond M, Tan X, Tsai SM, Pierrehumbert RT. 2020. Simplified 3d gcm modelling of the irradiated brown dwarf wd 0137- 349b. *Monthly Notices of the Royal Astronomical Society* 496:4674–4687
- Graham[†] RJ, Pierrehumbert R. 2020. Thermodynamic and energetic limits on continental silicate weathering strongly impact the climate and habitability of wet, rocky worlds. *The Astrophysical Journal* 896:115
- Jellinek A, Lenardic A, Pierrehumbert R. 2020. Ice, fire, or fizzle: The climate footprint of earth’s super-continental cycles. *Geochemistry, Geophysics, Geosystems* 21:e2019GC008464
- Lynch[†] J, Cain M, Pierrehumbert R, Allen M. 2020. Demonstrating gwp*: A means of reporting warming-equivalent emissions that captures the contrasting impacts of short-and long-lived climate pollutants. *Environmental Research Letters* 15:044023

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- Lynch[†] J, Pierrehumbert R. 2019. Climate impacts of cultured meat and beef cattle. *Frontiers in Sustainable Food Systems* 3:5
- Ding[†] F, Pierrehumbert RT. 2018. Global or local pure condensible atmospheres: Importance of horizontal latent heat transport. *The Astrophysical Journal* 867:54
- Hammond[†] M, Pierrehumbert RT. 2018. Wave-mean flow interactions in the atmospheric circulation of tidally locked planets. *The Astrophysical Journal* 869:65
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- Hörst SM, He C, Ugelow MS, Jellinek AM, Pierrehumbert RT, Tolbert MA. 2018. Exploring the atmosphere of Neoproterozoic Earth: the effect of O₂ on haze formation and composition. *The Astrophysical Journal* 858:119
- *Hammond[†] M, Pierrehumbert RT. 2017. Linking the climate and thermal phase curve of 55 Cancri e. *The Astrophysical Journal* 849:152
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Caballero [†] R, Mitchell[†] J and Pierrehumbert RT 2008: Axisymmetric, nearly inviscid circulations in non-condensing radiative-convective atmospheres. *Quart J Roy Meteorol Soc* **134**,1269-1285.

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