

Understanding radiative forcing from what isn't in an energy balance equation

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There are many concepts that go into the definition of "radiative forcing" besides just the radiative transfer changes from a greenhouse gas or other species. There are adjustments, notably the stratospheric adjustment. There are distinctions to be made between forcings and feedbacks. Both forcings and temperature responses are not uniform across the globe, yet radiative forcing is usually defined as a global average. One must distinguish a slow response of temperature due to heat capacity from a slow response due to slow feedbacks. Many of these concepts are clarified by looking carefully at what terms are not explicitly included in a simple equation that states global energy conservation and how those terms are instead implicitly folded into forcing and climate sensitivity.