Thermal Inertia:

* Temperatures do not instantly adjust to energy changes
* Consider a planet with no atmosphere, with E­in = 238 W/m2 = Eout
  + Surface emitting same energy as Ein
  + An addition of a one-layer atmosphere initially does not affect temperature or energy being emitted back by the surface, but it did half Eout to 119 W/m2 , as now, half of the energy emitted by surface is reflected off of the atmosphere back down to surface.
  + Now Ein = 238+ 119 = 357 W/m2 . The surface will continue warming until Eout = Ein
* As it will take most of the mass of the ocean millennia to heat up, the warming from pollution will take that long to have its full effect on the climate. Even if we stopped all GHG pollution, kkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkkm7uearth would continue eating

Radioactive Forcing

* RF is the change in (Ein – Ein) for the planet as a result of some change imposed on the planet before the temperature of the planet has adjusted in response
* RF = (Ein – Ein) = Ein – Ein
* Ozone
  + In lower atmosphere, contributes a forcing of +0.4 W/m2
  + In upper atmosphere, -0.05 W/w2
* Water vaper induced by oxidized methane
  + +0.07 W/w2
* Aerosols
  + Lower atmosphere
    - -0.4 W/w2
    - Only from aerosols produced in the previous few weeks
  + Volcanic, upper atmosphere
    - Several W/w2