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**Title** Trend of land surface radiation balance and evapotranspiration across diverse ecosystems under climate change

**Outline** Objectives of this study are: 1) to investigate the trends of solar radiation (e.g. global dimming/brightening), albedo (e.g. effect of disturbance), downward longwave radiation (e.g. effect of green house gases and water vapor), upward longwave radiation (e.g. effect of fire, drought or flood), and consequently net radiation and 2) to study the trend of evapotranspiration for answering hydrological intensification or dampening issue across diverse ecosystems. Land surface radiation components will be investigated with MODIS aerosol (MOD04), water vapor (MOD05), cloud (MOD06), land surface temperature (MOD11), vegetation index (MOD13) and albedo (MOD43) products for understanding how atmospheric and land surface properties modulated the radiation balances. Then, how the trend of evapotranspiration was modulated by net radiation, precipitation and phenology (e.g. growing season length inferred from NEE) will be investigated for both water-limited and energy-limited regions. MODIS cloud and aerosol products will be used because they are tightly coupled to the process of evapotranspiration in both water-limited and energy-limited regions.