



Interannual Variation of global net radiation flux as Measured from Space

Ping Zhu

Royal Observatory of Belgium, Reference Systems and Planetology, Brussels, Belgium (zhuping@oma.be)

At interannual time scales, the global net radiation flux (NRF) in and out of climate system at the top of the atmosphere (TOA) varies, reflecting the fact that the processes responsible for attaining energy equilibrium at a global scale are complicated. To explore these processes, changes in global-mean NRF were derived from to date unexplored observations of a bolometric type sensor onboard the PICARD microsatellite. These anomalies were then compared to the global NRF change measured by the Clouds and Earth's Radiant Energy System (CERES) at the top-of-the-atmosphere (TOA). The deseasonalized PICARD-NRF is strongly correlated with the CERES observed NRF change with a correlation coefficient of $+0.76$, the bootstrapped correlations at 90% confidence interval is $+0.64$ and $+0.85$. The feasibility to transfer the relative measurement to a absolute one will be studied with the Earth energy imbalance explorer (EAGER) program.