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Terrestrial outgoing radiation measurements with small satellite mission

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The solar force is the main driver of the Earth's climate. For a balanced climate system, the incoming solar radiation is equal to the sum of the reflected visible and reemitted thermal radiation at top of the atmosphere (TOA). Thus the energy imbalance plays an important role to diagnose the health of nowadays climate. However it remains a challenge to directly track the small Energy imbalance in Earth's Radiation Budget (EIERB) from space due to the complicities of the Earth's climate system and the limitation on long term stability of space instrument. The terrestrial outgoing radiation (TOR) has been recoded with a Bolometric Oscillation Sensor onboard PICAD microsatellite. In this presentation, we will report the three years TOR observed with PICARD-BOS and its further comparison with the CERES product. However the data acquired from this mission is still not enough to derive the EIERB. But the heritage gained from this experiment shields a light on the EIERB tracking with the small satellite even a cubesat mission.