

Evolution of the Total Solar Irradiance during the Rising Phase of Solar Cycle 24

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To determine the total solar irradiance (TSI) from SOLar VARIability Picard (SOVAP) we established a new instrumental equation. A new parameter was integrated from a theoretical analysis that highlighted the thermo-electrical non-equivalence of the radiometric cavity. From this new approach, we obtained values that are lower than those previously provided with the same type of instruments. Based on SOVAP data, we obtained that the TSI input at the top of the Earth's atmosphere at a distance of one astronomical unit from the Sun is 1362.1 Wm^{-2} . In this talk, we describe the method, and then present results about TSI variations during the rising phase of solar cycle (from 2010 to 2014) and linkages between measurements and other solar parameters (solar radius and magnetic field). We are also going to talk about the implications of the harsh space environment on TSI measurements and how it is difficult to obtain absolute level of the TSI with a high degree of accuracy.