

SLR energy density modelled and measured at Jason-2 and at the Herstmonceux station

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The ILRS began support for the Jason-2 satellite soon after its launch in 2008. From this time, as part of the OCA/CNES time transfer by laser link (T2L2) payload, the satellite recorded energy densities of incoming SLR laser pulses. The Herstmonceux station, by receiving the return signal from the retro-reflectors onboard Jason-2, calculates SLR return rate which can be converted to energy density.

These simultaneous one-way and two-way energy densities measurements were compared as a whole and for individual passes.

Such measurements could provide information on the transparency of the optical path taken through the Earth's atmosphere and on the efficiency of the retro-reflector array. Additionally, the theoretical link budget was calculated for Jason-2, taking into account Herstmonceux system parameters, atmospheric transmission, the diffraction pattern of the retro-reflector array and the orientation of the satellite.