

CHARGE SIGN SOLAR MODULATION OF COSMIC RAY POSITRONS AND NEGATRONS

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On August 25, 2000 (from Lynn Lake, Manitoba) we conducted a balloon flight of the LEE/AESOP payload to measure the spectrum of cosmic ray electrons (resolved into negatrons and positrons) from 500 MeV to 3 GeV. Analysis of the data from that flight reveals a significant decrease in the cosmic ray positron abundance from a level that remained relatively stable throughout the decade of the 1990's. Errors on the new determination are comparatively large due to the low particle fluxes at solar maximum. Nevertheless, the magnitude of the effect is consistent with predictions based on the assumption that cosmic ray modulation effects with 22-year periodicity are related simply and directly to charge sign and large-scale structure of the heliospheric magnetic field.