

SURVEY OF ENERGETIC PARTICLES OBSERVED AT VOYAGERS 1 AND 2 DURING 1999-2001

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We summarize observations of energetic particles measured by the LECP instruments on Voyagers 1 (V1) and 2 (V2). We focus on the period 1999 to mid-2001, which includes activity maximum of solar cycle 23. During this period V1 moved from 72.6 to 81.8 AU (at 33 deg. N lat.), and V2 moved from 56.7 to 64.6 AU (at 20-23 deg. S lat.). Among the new results of interest are the following. (1) Intensities of ~ 3 -30 ACR H and >70 MeV GCR/ACR H showed marked decreases at both V2 and V1 during mid- to late-1999 to early 2001. (2) Passage of the Bastille Day 2000 shock by V2 in early January 2001 was accompanied by intensity increases of ~ 0.5 -1.5 MeV and ~ 3 -17 MeV H, and a decrease in >70 MeV ACR/GCR H. (3) In March 2001 there is a small intensity increase of ~ 0.5 -1.5 MeV H at V1 that may indicate passage of the Bastille Day shock at 80 AU. (4) Despite disturbed conditions in the outer heliosphere due to enhanced solar activity, we are still able to measure at V2 the ~ 66 -108 keV (~ 4 -7 keV/nuc) oxygen ions that comprise the low-energy portion of the superthermal tail on the pickup oxygen distribution.