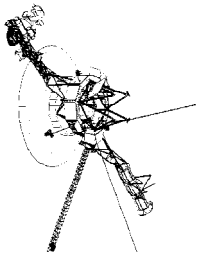
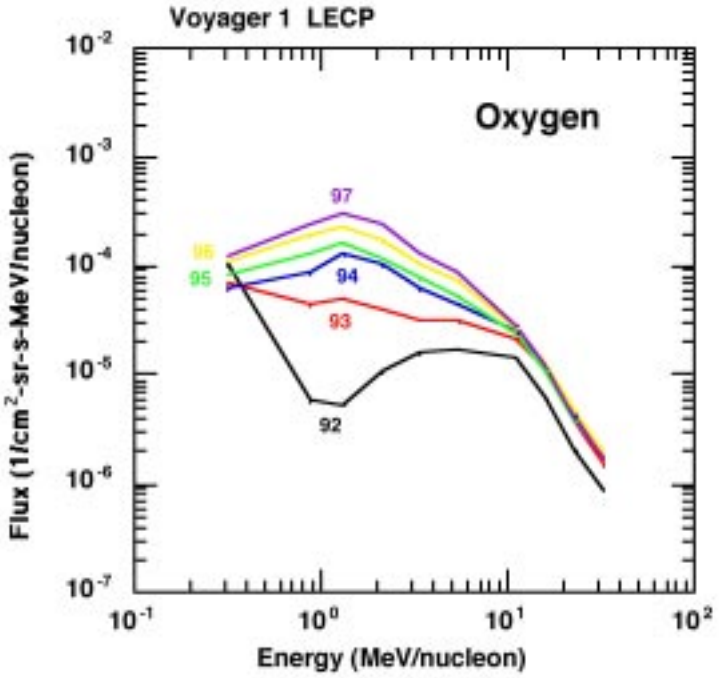
Voyager 1 Observes Large Increase in Anomalous Oxygen at Solar Minimum





The LECP instrument uses very thin silicon solid state detectors (the thinnest is only 2 microns thick, about 1/30 the thickness of a human hair) to measure the oxygen flux down to 200 keV/nucleon.

Submitted by D.C. Hamilton for the LECP Team

During the five years leading to the recent solar minimum, the Voyager 1 LECP instrument observed a 100-fold increase in the peak flux of Anomalous Cosmic Ray oxygen. Quieting conditions in the outer heliosphere allowed ACR oxygen ions to propagate more easily from the heliospheric termination shock, where they are thought to be accelerated, to Voyager 1.

The figure shows the dramatic increase in oxygen flux near 1 MeV/nucleon from 1992 to 1997. As the Voyager 1 spacecraft speeds outward through the heliosphere at a rate of 3.5 AU per year, a shift of the peak flux to lower energies will indicate Voyager's approach to the termination shock.

Ref.: S.M. Krimigis et al, "Spectra of Energetic Ions in the Outer Heliosphere: 1992-1997", COSPAR Abstracts pg. 249, Nagoya, Japan, 12-19 July, 1998.