great flexibility in the SOLEX operations. For example, scan endpoint wavelengths are selectable so that high time resolution over a short wavelength range can be chosen. In the raster mode, maps may be made at any wavelength within the appropriate spectrometer’s wavelength range. We will describe the SOLEX instrumentation in detail. This work was supported by the U. S. Air Force Space and Missiles Systems Organization Contract No. F04701-78-C-0079.

08.20.03 Very Large Array Observations of Solar Active Regions K. R. LANG Tuffs Univ. High resolution radio wavelength observations of solar active regions indicate ever present, small scale features (15") whose high degree of circular polarization (40%) reflects the magnetic field structure of the solar corona. Very Large Array (V.L.A.) maps of active regions at 6 cm wavelength are presented for both left hand (L.C.P.) and right hand (R.C.P.) circularly polarized radiation. The small-scale L.C.P. and R.C.P. features are not spatially coincident, suggesting the feet of magnetic dipole fields with positive magnetic polarity corresponding to regions of strong right hand circular polarization. This is confirmed by comparison with optical wavelength magnetograms taken at K.P.R.O. The high brightness temperatures (10^5 K) of the radio wavelength features suggests a coronal origin, whereas the optical wavelength features refer to the lower, lying photosphere. Both the V.L.A. maps of the coronal magnetic field and the magnetograms of the photospheric magnetic field have comparable angular resolutions of a few seconds of arc. Coronal magnetic field strengths of a few hundred gauss are inferred under the assumption that the radio wavelength radiation is emitted at the first few harmonics of the gyrofrequency.

09.20.03 Heavy Ions and Helium in the Solar Wind, K.W. O'NEILL, Goddard Space Flight Center, Greenbelt. Recent observations of heavy ions and the He/He ratio by the ion composition experiment on ISHE-3 will be discussed, with special emphasis on He/He variations with time and on the temperature of the heavy ions.

10.20.03 Pitch Angle Scattering of Solar Energetic Particles: New Information from Helios, J.A. EARL, J.W. BIEBER, Univ. of Maryland, College Park, MD 20742; G. GREEN, H. KUNOW, R. MULLER-MELLIN, G. WIBBEREN, Univ. of Kiel, 2300 Kiel, W. Germany - Solar particle data at 0.5 AU from the Kiel experiment on Helios 2 were compared with the predictions of a theoretical model which takes into account all significant aspects of the longitudinal transport of energetic particles along interplanetary magnetic fields and which also includes the effect of a postulated temporal profile of injection. During an event on 28 March 1976, a good correspondence between observations and predictions was obtained for 4-13 MeV protons and for 0.3 - 0.8 MeV electrons. For both species, the mean free path was 0.7 AU, independent of rigidity. Throughout this nearly coherent event, strongly anisotropic pitch angle distributions were accurately described by the model, provided that the rate of pitch angle scattering was assumed to go through a local minimum centered at 90° pitch angle.