DIVISION ON SOLAR PHYSICS

P. Simon, Co-Chairman, (France); H. Tanaka (Japan); V. N. Obridko (USSR); and K. A. Anderson, R. E. Dodd (USA). The catalogue will consist of three lists with summaries of information relating to (1) particle events, (2) proton events, and (3) solar wind data. The primary objective of the survey is to gather all available data on solar activity, including solar flares, solar prominence, and coronal mass ejections. The catalogue is intended to serve as a comprehensive resource for researchers in the field of solar physics.

The Soft X-Ray Flare of 12 August 1970. G. A. Dorschel and J. E. M. Hultsch Center for Space Research, Natl. Naval Research Laboratory. The flare event occurred on August 12, 1970, and was characterized by intense x-ray emission. The intensity of the flare varied, reaching a maximum at around 10:30 UT. The flare was associated with a large eruption of plasma and magnetic field lines, leading to a significant increase in the solar wind speed.

A Search for the Photospheric Origin of Spicules. R. H. Dunn and J. B. Timmer, Sacramento Peak Observatory, AFUCHL, Sunspot, N.M. A number of recent theoretical models for spicules postulate that some change in photospheric granulation is a major driver of spicule formation. In this study, we investigated the possibility of observing such changes in the photosphere using high-resolution spectroscopic images.

Calculation of 5250, 216 A Line Profiles in Sunspots. A. R. Dunn, Teldey Brown Engineering. Theoretical line profiles in LTE can be calculated for the neutral iron line at 5250, 216 A by using published sunspot models. This is a strong line with a very low excitation potential (0.121 eV); if pure absorption and LTE are assumed, the calculated line profile forms almost entirely at optical depths which are shallower than those included in conventional sunspot models.

New Multichannel Spectrometer at Sacramento Peak. R. H. Dunn, Sacramento Peak Observatory, Air Force Cambridge Research Laboratory, Sunspot, New Mexico 88349, G. L. Epstein, R. W. Hobbs and S. F. Naran. A new spectrometer is being developed for use at Sacramento Peak. The instrument is designed to operate in a variety of modes, including high-resolution spectroscopy, imaging, and polarimetry. The spectrometer is expected to provide valuable insights into solar activity and solar physics.

Laboratory for Solar Physics, NASA-Goddard Space Flight Center, Greenbelt, Maryland 20771. A new multichannel spectrometer, designed for solar spectroscopy, has been developed. The instrument is capable of measuring flares and active regions, and is in operation at Sacramento Peak. The spectrometer has a 12-inch evacuated telescope, a 10-cm diameter solar image at the entrance slit of the spectrometer. The spectrometer can monitor simultaneously at 0.2 second intervals the intensities in 35 exit slits, of fixed widths ranging from 0.013 to 0.26λ. These cover wavelengths in the range 3186λ to 10830λ. Twenty-six slits are centered on absorption lines, five monitor continuum wavelengths, and four feed light to a magnetometer. Time resolution of 0.15 sec is attained in the multichannel computer. The output of the data collection is limited to 20 channels. A punched paper tape control unit allows the observer to specify the site and location of solar regions that are scanned in the spatial raster mode. The instrument has been used to observe active regions and flares studied simultaneously by x-ray and EUV spectroheliograms on the OSO-7 satellite.

Analysis of the EUV Quiet Solar Spectrum. A. K. Dupree, Harvard College Observatory. The EUV spectrum (λ304 - 1400Å) from one square arc minute at the quiet center of the solar disk is analyzed to obtain the emission measure and the relative abundances of 10 elements in the atmosphere.

By using a new method of analysis, we can demonstrate that the quantity (N,T)2 (g 5/2 dt/dh)1 is constant to within a factor of 2 over the range 0.2 to 1.6×106 K. The electron pressure is assumed constant through this range, then the heat flux conducted through the transition is also constant to within a factor of 2. In addition, we are able to show that a two-level approximation is not satisfactory for terms in the Li sequence appears to occur over a significantly larger range in temperature than previously realized. It is an one-dimensional temperature model that is consistent with the observed intensities follows directly from these results.