monitor rates increased 300x due to this event. The telescope is sensitive to single scatter gamma rays and neutrons above 0.25 MeV and 1 MeV, respectively. Double scatter gamma rays also occur at about 1.2 MeV and 20 MeV, respectively. These are identified by time-of-flight between the telescope's two 1 m² scintillator arrays. Preliminary results of the analysis of these rates increases coincident with this large solar flare will be presented. The telescope has the capability of imaging the region of the sun in both neutrons and gamma rays.

35.04
High Time Resolution Hα, Continuum, and Hard X-Ray Observations of a White Light Flare

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High time and spatial resolution (0.5 sec, 1 arcsec pixels) observations of a white light flare (WLF) were obtained on March 7, 1989, using CCD detectors at the Vacuum Tower Telescope at Sacramento Peak. Data were simultaneously acquired in three wavelengths (Hα+3Å, Hα−3Å, and 5000Å continuum), and compared with SMM/IHRS hard x-ray measurements to yield the following results: (1) time profiles in all three optical wavelengths reveal the existence of both a gradual and an impulsive component at the location of the WLF kernel, with the impulsive component being most distinct in the kernel core and the gradual component being relatively more important in the peripheral regions of the kernel, (2) the normalized time profiles in all three optical wavelengths are nearly identical in shape, although during the initial impulsive rise the continuum profile lags both the Ha wing profiles by 1-2 sec, while the latter, in turn, lag the ≈50 keV x-rays by 1-2 sec, (3) a red asymmetry, apparent in the Ha wing intensities at the time of the first impulsive peak, is obvious in the kernel core but is not evident in the peripheral regions of the kernel. The distinctively different characteristics of the optical emissions in the core and peripheral regions of the flare kernel suggest that different mechanisms of energy transport may be operating at these locations. The relative timings of the impulsive onsets in hard x-rays, Ha wings, and optical continuum are discussed within the context of possible atmospheric and energy transport models.

35.06
Low Energy Cut-off of the Energetic Electron Spectrum in Impulsive Solar Flares

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In order to deduce the low energy cutoff of the impulsive-ly accelerated electrons in solar flares, it is necessary to observe the impulsive soft x-ray (1-10 Å) emission spectrum simultaneously with the impulsive hard x-ray emission spectrum. However, since imaging observations of impulsive hard x-ray and soft x-ray sources made with high time and spatial resolution are not available at the present time, it is not possible to observe the impulsive soft x-ray spectrum which is usually very weak compared to the large increase in detector background caused by the relatively intense gradual soft x-ray emission present during the impulsive phase. Stereoscopic (multi-spacecraft) observations of partially occulted impulsive hard x-ray flares, in which the gradual soft x-ray source is occulted from the view of one of the spacecraft, provides, at present, the only reliable method of observing the impulsive soft x-ray emission in large flares. We present stereoscopic observations of two such partially occulted flares made with instruments aboard the Interplanetary Cometary Explorer (ICE) and Pioneer Venus Orbiter (PVO) spacecraft. The observed x-ray spectra indicate that the energetic electron spectrum in impulsive solar flares extends down to about 2 keV. This implies that the total energy of energetic electrons in impulsive solar flares is much larger than that often deduced on the basis of an assumed low energy cutoff of about 20 keV.

35.07
Electron Beam Models and Stereoscopic Observations of Partially Occulted Impulsive Hard X-ray Bursts

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Predictions of thick-target electron beam models are compared with stereoscopic observations of impulsive hard x-ray events which were observed by the ICE and PVO satellites and were partially occulted from the view of either of those satellites. It is found that such models are consistent with the data given, and for each event the spectral index and pitch angle dispersion of the distribution of the accelerated electrons and the mirror ratio of the magnetic field has been deduced. The accelerated electron distributions are found to have spectral indices which range from approximately 2.5 to 4.0 and are nearly isotropic. In the case of one flare a model with a uniform magnetic field fits the observations best, but for another three flares the required magnetic fields are constant in the corona, but increase by factors of approximately 2 to 5 in the chromosphere.

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