The activities of ***the Astronomical Institute of the Slovak Academy of Sciences (AISAS)***, Tatranská Lomnica (http://www.astro.sk), related to COSPAR, were devoted to the research in solar and stellar physics using satellite observations, mainly in the UV, XUV and X-ray spectral regions. Solar data concern mainly the current SOHO mission and the TRACE satellite and previous satellites of the NOAA and GOES series. Stellar data of the IUE satellite and the Hubble Space Telescope were used for research of various variable stars. Some other studies were focused on the solar corona emission and the cosmic rays with respect to the solar cycle.

In the research of interacting binaries with a long orbital period (the symbiotic stars) the archival ultraviolet spectra made by the IUE (International Ultraviolet Explorer) and the HST (Hubble Space Telescope) satellites were used and a new method of disentangling the composite spectra of symbiotic binaries in the range of UV/optical/IR wavelengths was developed [14-18]. This approach allowed to determine precise quantities of physical parameters of the individual components of radiation. In addition, modeling the far-UV continuum around the Ly-alpha line revealed the effect of a strong Rayleigh scattering of hard UV photons on a huge slab of neutral atoms of hydrogen (Fig.1) [16]. Application of our method [14] to a sample of 21 symbiotic systems led to revealing of common characteristics of the UV-continuum during outbursts. In was interpreted in terms of an edge-on flared disk surrounded by the neutral material at the orbital plane and the nebula located above/below its surface (Fig. 2). On the basis of spectral energy distribution in the UV/optical domain main features of a complex behaviour observed in the light curves of symbiotic binaries were explained, e.g., the wave-like variation as a function of the orbital phase produced by the orbitally-related variation in the emission measure of the symbiotic nebula [15].

Dynamics and energy transfer in the outer layers of the solar atmosphere was studied in a series of papers devoted to quiet solar network and to active events in the supergranular internetwork with help of data acquired in frame of the SOHO/TRACE joint operation programs JOP078 and JOP171 using CDS, SUMER, EIT instruments on-board SOHO as well as the TRACE satellite. In particular, a particular explosive event and its relation to plasma in different temperature regimes was investigated [23,24], mutual relations of the upper layers of the quiet solar atmosphere in/above chromospheric network were studied in order to identify physical mechanisms which control energy transfer to the corona [5,6,12].

Three new runs of the SOHO joint observing program JOP 171 for instruments onboard the SOHO and the TRACE satellites were performed (June 5-9, 2004: MEDOC13 Campaign; July 8-15, 2004: VTT and DOT observing campaign; October 18-31, 2005: SST and DOT observing campaign). These data will be utilized in the near future. In particular very detail observational data have been acquired for a M5.4 solar flare on July 13, 2004 [7].

Investigation of the space-time distribution of the solar corona brightness revealed a number of regularities over more than five solar cycles. A pronounced north/south asymmetry of the solar corona was identified and discussed including the quasi-biennial oscillations and rotation of the solar corona [2,3,4,19].

Archive data of the X-ray flares acquired on the orbit (as well as H alpha obtained on the ground) were investigated statistically in order to derive periodicities of their occurrence around the rotational period as well in the interval of the intermediate periods [1,11,13,20,21]. The 24-day periodicity of the solar flares was explained [22].

Relations of the cosmic rays and the green coronal index variability to the space weather were studied [8,9,10].

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FIGURES:

Fig. 1. Top: Reconstructed SED in the UV/optical/IR continuum of EG And. Solid thin and dashed lines represent the hot stellar and the nebular component of radiation. The solid thick line is the resulting modeled continuum. Radiation from the giant is represented by the synthetic spectrum. Bottom: A detail of the top panel covering the ultraviolet region. Note the pronounced Rayleigh attenuation in the far-UV due to 8E+22 atoms of hydrogen on the line of sight [S2].

Fig. 2. Schematic representation of a basic structure of hot objects in symbiotic binaries during outbursts. Left: Individual components of radiation isolated from the AR Pav spectrum. Right: A sketch of the corresponding emitting regions as seen on a cut perpendicular to the orbital plane containing the accretor [S1]