We present elemental abundances of 12 red giants obtained with the BOAO 1.8m telescope and its fiber-fed echelle spectrograph. We perform the abundance analysis using the Kurucz model atmosphere and MOOG. Comparisons of our alpha- and neutron-capture elemental abundances and those in globular clusters and nearby dwarf galaxies will be presented.

[V-1-4] Galactic Warps in Live Triaxial Halos

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We investigate the evolution of the initially tilted, self-gravitating disks in a live axisymmetric or triaxial halo. Our study shows how the axisymmetric and triaxiaility of the halo alters the evolution of the warp compared to the spherical case. We attribute the development of warps to the torque between a halo and disk and that between the inner and outer regions of the disk. We discuss if the triaxial halo can be responsible for the formation and maintenance of the warp phenomena even in the presence of dynamical friction between the disk and the halo.

[V-1-5] Introduction of the CFIRB Observations with AKARI/FIS

Woong-Seob Jeong[1], Hyung Mok Lee[2], Chris Pearson[3], Takao Nakagawa[4], Shuji Matsuura[4], Mitsunobu Kawada[5], Sang Hoon Oh[2], Sungho Lee[1], Ho Seong Hwang[6], and Hideo Matsuhara[4]

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The Cosmic Far-Infrared Background (CFIRB) contains information about the number and distribution of contributing sources and thus gives us an important key to understand the evolution of galaxies. In order to detect CFIRB fluctuation effectively, we have to analyze the confusion carefully which sets a fundamental limit to the deep observations. From our deep observations, we can compare the background fluctuation via observations of regions at different Galactic latitudes. Our comparative study between estimated confusion levels from our observations and those from our model enables us to understand the nature of CFIRB. We introduce our CFIRB observations and report the preliminary results.

■ Session VI-1 : Space Environment 2
Thursday, 23 October [11:25-12:25]

[VI-1-1] Statistical study of phase reversal locations on the SC-associated preliminary impulse

Suk-Kyung Sung, Khan-Hyuk Kim, and Kyung-Suk Cho

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In this study, we investigate the magnetic latitude of phase reversal on the sudden commencement (SC)-associated preliminary impulse with 267 SC events using the ground magnetometer data of the IMAGE from 1997 to 2005. During SC event, geomagnetic fields are affected by various currents flowing in the magnetosphere and/or ionosphere. In particular, high-latitude geomagnetic field variations are significantly dominated by the change of SC-associated field aligned current (FAC). Until now, however, there are few studies to examine where the location of the FAC in the ionosphere is and what determines the location of the FAC. The location of the SC-associated FAC can be examined by using magnetometer data obtained from high-latitude stations distributed along the same magnetic meridian. The phase reversal locations are concentrated two regions, ~62 deg (L ~ 4.5) and ~70 deg (L ~ 8.5) in magnetic latitude. If FAC is a result of a mode conversion from fast mode to Alfven mode, then the FAC location could be determine by the duration time of the input energy. When we use the rise time, dT, as the input energy, there is no relationship between dT and the location where the first pulse of SC is reversed. We consider other factors such as local time and solar wind condition.

[VI-1-2] The temporal variability of the longitudinal plasma density structure in the low-latitude F -region.

S.-J. Oh[1], H. Kil[2], and Y.-H. Kim[3]

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Formation of longitudinally wave-like plasma density structure in the low-latitude F region is now a well-known phenomenon from the extensive studies in recent years. Observations of plasma density from multiple satellites have shown that the locations of the crests of the plasma density that are seen to be stationary during daytime are shifted after sunset. This phenomenon has been understood to be caused by eastward drift of the ionosphere at night. However, the eastward drift velocity of the ionosphere after sunset is not sufficiently large enough to explain the day-night difference in the longitudinal density structure. The

vertical drift velocity of the ionosphere significantly changes just after sunset and the nighttime ionospheric morphologymay be affected by this drift after sunset.In this study, we will investigate the temporal variation of the phase of the longitudinal density structure and vertical plasma drift by analyzing the ROCSAT-1, TIMED/GUVI, and DMSP data and verify the role of the vertical drift after sunset in the change of the phase of the longitudinal density structure.

[VI-1-3] Can relativistic electrons be accelerated in the geomagnetic tail region?

J. J. Lee[1], G. K. Parks[2], K. W. Min[3], E. S. Lee[2], M. P. McCarthy[4], J. A. Hwang[1], and C. N. Lee[1]

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While some observations in the geomagnetic tail region supported electrons could be accelerated by reconnection processes, we still need more observation data to confirm electron acceleration in this region. Because most acceleration processes accompany strong pitch angle diffusion, if the electrons were accelerated in this region, strong energetic electron precipitation should be observed near earth on aurora oval. Even though there are several low altitude satellites observing electron precipitation, intense and small scale precipitation events have not been identified successfully. In this presentation, we will show an observation of strong energetic electron precipitation that might be analyzed by relativistic electron acceleration in the confined region. This event was observed by low altitude Korean STSAT-1, where intense several hundred keV electron precipitation was seen simultaneously with 10 keV electrons during storm time. In addition, we observed large magnetic field fluctuations and an ionospheric plasma depletion with FUV aurora emissions. Our observation implies relativistic electrons can be generated in the small area where Fermi acceleration might work.

[VI-1-4] Simultaneous Observation of FUV Aurora with Precipitating Electrons on STSAT-1

C. N. Lee[1], K. W. Min[1], J. J. Lee[2], K. H. Kim[2], Y. H. Kim[3], W. Han[2], and J. Edelstein[4]

[1]KAIST, [2]KASI, [3]ChungNam National University, [4]Space Sciences Laboratory, UC Berkeley

We present the results offar ultraviolet (FUV, 1350-1750 Å) auroral observations made by the Far-ultraviolet IMaging Spectrograph (FIMS) instrument on the Korean microsatellite STSAT-1. The instrument was capable of resolving spatial structures of a few kilometers with the spectral resolution of 2-3 Å. The observations were carried out simultaneously with the measurement of precipitating electrons using an electrostatic analyzer (ESA, 100 eV-20 keV) and a solid state telescope (SST, 170 keV-360 keV) on board the same satellite. With a careful mapping of the field lines, we were able to correlate the particle spectrum to the corresponding FUV spectrum of the footprints of the FIMS image that varied significantly in fine scales. We divided the FIMS spectral band into the LBH long (LBHL, 1640-1715 Å) and LBH short (LBHS, 1380-1455 Å) bands, and compared the electron energies with the intensities of LBHL and LBHS for the well-defined inverted-V structures. The result shows a strong correlation between the total LBH intensity and the energy flux measured by ESAwhile the peak energy itself does not correlate well with the LBH intensity. On the other hand, it was observed that the ratio of the LBHL intensity to that of LBHS increased significantly as the peak electron energy increased, primarily due to a smaller absorption by O2 at LBHL than at LBHS.

■ Session VII-1 : Invited Talk
Thursday, 23 October [13:30-14:30]

[VII-1-1] China Mobile SLR system & China-Korea Close Cooperation

Pei-yuan Wang[1], Tang-Yong Guo[1], Hyung-Chul Lim[2], Tong Zou[1], Yoon-Kyung Seo[2], Hyeon-seock Jeon[2], and Jong-Uk Park[2]

[1]Institute of Seismology, China Earthquake Administration (ISCEA)

[2]Korea Astronomy & Space Science Institute (KASI)

Satellite laser ranging (SLR) system which measures the round trip time of laser to satellites is one of the important techniques in space geodesy. SLR system gives a powerful tool to determine the precise orbit of satellites, the center of mass of the Earth, and etc because it provides instantaneous range measurements of millimeter level precision. China Transportable Ranging Observation System (TROS) was built in 1999 and other four SLR stations were founded in China. TROS has been upgraded to the new electronic system capable of KHz ranging since last year, and succeeded in KHz SLR technology. TROS has been operated in KASI headquarter for research of space geodesy since August 2008, which will be operated for 12 months by August 2009. Now ISCEA and KASI keep strong relationship in SLR field.

[VII-1-2] Microwave Radiometer for Space Science and DREAM Mission of STSAT-2

Y. H. Kim