[1]Korea Astronomy and Space Science Institute, Korea
[2]Department of Astronomy & Atmospheric Sciences, Kyungpook National University, Korea
[3]Astronomy & Space Science, KyungHee University, Korea
[4]Astronomy & Space Science, Chungnam National University, Korea

Rho et al.(2008) showed that the eccentricity parameter of a CME is an important indicator for forecasting CME geoeffectiveness. In this study we have tested a capability of the eccentricity parameter as an indicator of CME direction. For this work we considered 11 CMEs observed by both SOHO/LASCO and STEREO/SECCHI (2007-2008 from Temmer et al. 2009) coronagraphs. We have estimated earthward direction angles for these CMEs based on two different methods: (1) the eccentricity parameter from a single coronagraph SOHO/LASCO and (2) the triangulation technique using a pair of spacecrafts LASCO/STEREO-A and LASCO/STEREO-B. As a result, we have found that for 7 out of 11 CME events their direction angles are consistent with each other within 20°. This result demonstrates that the earthward direction based on the eccentricity parameter can be a good potential indicator for CME propagation direction.

■ Session : 전리층
10월 30일(금) 10:30 - 12:00 제2발표장

[IV-2-1] **Gadanki radar observations of F-region irregularities during June solstice of solar minimum: First results and preliminary analysis**

D. V. Phani Kumar[1], A. K. Patra[2], Y.-S. Kwak[1], and T. K. Pant[3]
[1]Korea Astronomy and Space Science Institute, Daejeon, Korea
[2]National Atmospheric Research Lab., Gadanki, India
[3]Space Physics Lab., VSSC, Trivandrum, India

In this paper we present the first results of summer-time F region irregularities during low solar condition observed using the Gadanki MST radar. Echoes were observed on all 20 nights of radar observations and were mostly confined to the post-midnight hours. Echo morphology is very different from the equinoxial post-sunset plume-like features reported earlier from Gadanki. Echo SNRs are lower by 25 dB than their equinoxial post-sunset counterpart, and are quite comparable to the equinoxial irregularities in the post-midnight hours, which are essentially the decaying post-sunset irregularities. The Doppler velocities, which lie in the range of ± 100 m s-1, show upward/northward motion of the irregularities during the initial phase in contrast to the observed predominant downward/southward velocities associated with the decaying equinoxial post-midnight F region irregularities. Spectral widths of the summer echoes, which are well below 50 m s-1 and are very similar to those of the decaying equinoxial irregularities, represent the presence of weak plasma turbulence. Simultaneous observations made using a collocated ionosonde show no ionogram trace during 2200-0530 LT except for a few occasions. Weak frequency type spread F observed during midnight hours occurred without prior occurrence of range spread F. Concurrent ionosonde observations made from magnetic equatorial location Trivandrum also show very similar result and thus no height rise of the F layer during the midnight hours could be monitored. The preliminary analysis suggests that the post-midnight irregularities reported here are mostly freshly generated ones. The observations are discussed in the light of other observational results reported earlier and the current under standing on the post-midnight occurrence F region irregularities in summer.

[IV-2-2] Ionospheric F2-Layer Variability in Mid Latitude Observed by Anyang Ionosonde

Young-Sil Kwak[1], Phani Kumar[1], Il-Hyun Cho[1], Kyung-Suk Cho[1], Khan-Hyuk Kim[2] and Sunhak Hong[3]
[1]Korea Astronomy and Space Science Institute, Korea
[2]Kyung Hee University, Yongin, Korea
[3]Radio Research Laboratory, Icheon-si, Korea

The ionosphere displays variations on a wide variety of time-scales, ranging from few hours to days and up to solar cycles and even more. In this paper, we examine the ionospheric F2-layer variability in mid latitude by analyzing the foF2 and hmF2 from the Anyang ionosonde. Especially, we investigate how ionospheric semi-annual and seasonal anomalies vary with local time and solar activity. In addition to the characterization of the ionospheric semi-annual an seasonal anomalies, our study extends to the investigation of the relationship between ionospheric variability and geomagnetic activity. Finally we also discuss the coupling between ionospheric F2-layer variability and thermospheric neutral composition.

[IV-2-3] The One-to-one Comparison of the Pre-reversal Enhancement Characteristics with the Equatorial Plasma Bubble Occurrence using Multiple Satellite Data.

S. -J. Oh[1], H. Kil[2], and Y. H. Kim[3]
[1]S.E.Lab., [2]APL/JHU, [3]Department of Astronomy and Space Science, CNU