What happened in the near-Earth solar wind during interplanetary disturbances detected with radio scintillation measurements?

Munetoshi Tokumaru[1], Masayoshi Kojima[1], Ken'ichi Fujiki[1]

[1] STE Lab., Nagoya Univ.

http://stesun5.stelab.nagoya-u.ac.jp/~tokumaru

We have analyzed in situ solar wind measurements taken when interplanetary disturbances were detected from interplanetary scintillation (IPS) measurements at 327 MHz. Fifty eight events of IP disturbances have been identified from our IPS measurements made in 1997 and 1998. From the present analysis, the occurrence of these IPS events is found to be closely associated with appearance of the compression region at the near-Earth solar wind; enhancements of plasma density, wind speed, and interplanetary magnetic field strength at the near-Earth solar wind were observed in most (more than 80 percent) of these IPS events. Interplanetary signatures of the magnetic cloud (i.e. interplanetary CME) are found in 60 percent cases of the compression region associated with IPS events.