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**Multi-point observations of magnetospheric responses to interplanetary shocks.** MAYOWA ADEWUYI, HYOMIN KIM<sup>1</sup>, ANDREW GERARD, LOUIS LANZEROTTI, New Jersey Inst of Tech, MICHAEL HARTINGER, Center for Space Science and Engineering Research, Virginia Tech, Virginia. — We report on observations of magnetospheric responses due to interplanetary shocks associated with sudden changes in solar wind flow pressure. Such solar wind transient events are statistically surveyed using solar wind data and their magnetospheric and ionospheric responses are investigated using field and particle data from various spacecraft (Cluster, THEMIS, Van Allen Probes, and MMS) and ground instrument data. Our statistical study presents spatial distributions of ULF wave generation mechanisms and propagation, and ring current particle dynamics in association with compression and/or expansion of the magnetosphere caused by interplanetary shocks. Inner-magnetospheric responses are a particular focus in our study to understand how far the transient phenomena in the solar wind propagate in the magnetosphere and what controls the spatial distributions of the responses.

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