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## Study on co-operational observation of plasma waves by formation-flight satellites using inter-satellite communication

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To achieve a co-operational observation with formation-flight satellites, we developed a system using LAN-connected PCs for simulating inter-communication among satellites and onboard data processing functions. On the simulator, we can simulate co-operational observation under the direction of mother satellite according to the reports from daughter satellites. The purpose of this study is to examine a multi-satellite observation system as a feasibility study for the SCOPE mission, which is a Japanese future multi-satellite mission.

In the present study, we used observation data from the waveform capture (WFC) onboard the KAGUYA spacecraft in order to simulate co-operational observation functions under realistic condition. As KAGUYA turned around the moon with interval of 2 hours and the trajectories of neighboring revolutions were quite similar with each other, we conduct some experiments on co-operational behavior of multi-satellites providing the WFC spectrum data of neighboring revolution to each PI task module implemented in the satellite simulator.

In the present paper, we introduce some decision making algorithms and evaluate their qualities based on the experiments.

**Keywords:** formation-flight satellite, inter-satellite communication, co-operational observation, simulation, plasma wave observation, simultaneous multi-point observation