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USING A VIRTUAL OBSERVATORY (VO) TO ENABLE MULTIDISCIPLINARY DATA ANALYSIS

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There have been numerous spacecraft launched since the beginning of Space Age to study the sun, the heliosphere, geospace and planetary environment. Many satellites are currently operating, covering different spatial and temporal domains. While individual missions have typically been developed to achieve different mission or science objectives, when taken together they effectively form an extended sensor that can be used to observe processes in the solar system as an integrated system. The fleet of operating NASA spacecraft has been referred to as the *Heliophysics System Observatory* (HSO). While space missions have finite time spans, if stored and maintained appropriately their data can remain available, accessible and usable continuously. The data from different missions can then be used in investigations even after the missions have ended. In support of distributing widely the data obtained from NASA's heliophysics missions, the *Space Physics Data Facility* (SPDF) and the *Solar Data Analysis Center* (SDAC), both at the NASA Goddard Space Flight Center, have been successful in archiving (storing, documenting and maintaining) and providing access to the mission data. As heliophysics research provides the foundation for the understanding of space weather, there is an increasing need to analyze coordinated, cross-disciplinary datasets that cut across different heliophysics domains. To extend the existing NASA heliophysics data services to better support the needs for cross-disciplinary investigations, we will explore the concept of a virtual observatory (based on the existing NASA VxO infrastructure) and examine how it could enable access to all heliophysics-relevant data obtained by NASA and non-NASA missions and ground stations.