SMALL SATELLITES FOR SPACE WEATHER RESEARCH: WHY NOW?

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Recent advances in sensor and spacecraft technologies are making small satellites a cost-effective means to accomplish key research objectives in space weather. Small satellite missions can complement existing or planned larger missions by filling gaps in time or coverage, or can constitute stand-alone missions targeting specific, well-defined science questions. A particularly promising aspect of this development is the prospect of obtaining multi-point observations in space that are critical for addressing many unresolved problems in space science. At the same time, small satellite missions provide essential opportunities to train the next generation of experimental space scientists and aerospace engineers.

This presentation will highlight some of the advancements that have been made in recent years that make small satellite missions both feasible and cost effective. Several new programs are underway that take advantage of the progress in sensor development, satellite platform design, and launch technology for small satellites. The time is right to integrate these emerging technologies to accomplish key science objectives, particularly in space weather. This is the motivation for the Atmospheric Sciences Division at the National Science Foundation (NSF) to develop a new program to conduct small scientific satellite missions in support of space weather research and education. Plans and current status for this new program will be presented.