

STATEMENT OF WORK

1. Objective/Requirements

The objective is to use existing in situ and ground-based observations to build a few well-defined event studies that can identify measurement needs and observational gaps relevant to the future Links multi-scale geospace mission. Links is the highest priority Living With a Star (LWS) mission identified by the last Heliophysics Decadal Survey.

2. Characteristics, Scope, and Specs

The contractor shall perform the following duties:

- Identify candidate substorm events (space weather activity) that contain THEMIS and MMS alignment, with good ground-based observational coverage. Additional data from missions such as ELFIN, POES/MetOp, Swarm, etc.
- Produce studies of current sheet formation and disruption in the near-Earth magnetotail using MMS and THEMIS in situ observations. Goal is to calculate reconnection rates with respect to other observables and other small-scale energy conversion signatures, for comparison to macro- and meso-scale phenomena.
- Study magnetotail activity in relation to near-Earth particle injections, ionospheric particle precipitation, and other ionospheric responses.
- Develop an AI-ML-assisted event workflow to support event organization and feature extraction across different datasets. Expected delivery is a prototype workflow that would enhance Links-relevant data analysis and planning.

3. Period of Performance

8/1/26 – 7/31/27