Abstract
CASCADES-II was launched on 20 March 2009 at 11:04:00 UT from the Poker Flat Research Range. The payload had five subpayloads for multipoint measurements of auroral dynamics and structure. The signatures in the keograms at the time of flight can be described as a series of Poleward Boundary Intensifications, which are repeated brightenings along the poleward edge of the auroral oval that may move equatorward. There have been theories suggesting that these repeated poleward brightenings are related to Alfvénic activity at the Plasma Sheet Boundary Layer (PSBL) [Liu, et al. 1995]. The launch of CASCADES-II into this dynamic Alfvénic structure will provide a rich case study of this less-studied type of event.

Initial analysis of the optical data indicates the payloads cross through the equatorward edge of a PBI at the beginning of flight, followed by a period of unstructured aurora, until reaching the onset of the next PBI at a higher latitude. During these two of a PBI at the beginning of flight, followed by a period of unstructured aurora, until reaching the onset of the next PBI at a higher latitude. During these two PBIs, what can this case study say about the correlation among flows in the magnetotail, auroral intensifications detected on ground-based instruments, and Alfvén waves on the rocket?

Payload Concept
Five subpayloads for multipoint measurements are included with GPS and magnetometers.

Launch Conditions
• Launched 20 March 2009 at 11:04:00 UT
• Apogee of 564 km
• Negative b at H seen by ground magnetometers
• PBI signatures seen in keograms
• Tall rays imaged during rocket flight

Connection of BBF to PBI
These figures from Nakamura et al. show a spatial relationship between the BBF footprint and the associated ionospheric auroral signature. The map to the left shows the THEMIS footprint to be within one hour east of the rocket trajectory, which matches this picture.

In Situ Data
The in situ data gives us a detailed look at the ionospheric signatures seen in conjunction with the BBFs and PBIs.

References and Acknowledgements

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