Specification of UV, Visible, and Infrared Emission Spectra ofSprites and Blue Jets

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18 Jan 2002

Final Report

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SUMMARY

During the period of performance Stanford University constructed a VLF/ELF receiver to measure the VLF/ELF electromagnetic and quasi-electrostatic fields produced by lighting during Sprite and Blue Jet events, and deployed this instrument in the field to make such measurements. The data acquired in the field was used to characterize the electromagnetic and quasi-electrostatic fields produced by lightning during Sprite and Blue jet events.
FINAL TECHNICAL REPORT

1. Contract Purpose

The Contract goal is to measure and interpret ELF/VLF waveforms of causative lightning discharges in order to determine the electromagnetic pulse and quasi-static electric fields which constitute critical inputs to theoretical models of the UV, visible, and infrared emission spectra of Sprites and Blue jets.

2. Period of Performance


3. Work Provided

During the period of performance Stanford University constructed a VLF/ELF receiver to measure the electromagnetic and quasi-electrostatic fields produced by lighting during Sprite and Blue Jet events, and deployed this instrument in the field to make such measurements. The VLF/ELF receiver was constructed, tested and validated during the first year. Field data were acquired during the second year. Analysis and interpretation of the field data was also carried out in the second year.

6. Results

Results of the data analysis was reported in a paper delivered at the December American Geophysical Union in 1998 [Reising et al., 1998] and in a paper published in the journal Geophysical Research Letters [Reising et al., 1999]. The complete citations for these papers is given in the Reference section.
7. References


7. List of personnel contributing to report

The list of Stanford University scientists and engineers who contributed to the work reported in this document is as follows:
Tim Bell  
Steve Reising  
Umran Inan