

A TECHNOLOGY DEMONSTRATION FOR RAPID FIRE MAPPING

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ABSTRACT

The National Aeronautics and Space Administration has undertaken a project to demonstrate the application of state-of-the-art remote sensing and information technologies to wildfire mapping. Funded by the Office of Earth Science Natural Hazards and Airborne Science Programs, with support from the Technical Data Relay Satellite System project office, the initial system has been successfully fielded.

The basic concept is to collect digital infrared imagery from an aircraft, and link it in real-time via satellite to a ground station. The imagery is then immediately loaded onto an interactive web page, which may be accessed by any personal computer with telephone access. Typical turn around time from image acquisition to web posting is 15 seconds. The current system utilizes an ER-2 high altitude aircraft for the mapping platform, with the ground station located at the Airborne Sensor Facility at Ames Research Center, CA.

This system has been successfully demonstrated on several fires in California, with the data being directly accessed by fire managers in the field (ref. Fire Management Notes, Fall, 1998; pgs. 26-30.)

The next step in the evolution of this system is the introduction of automated geo-registration of the imagery, which will enable precision overlay of the IR data onto topographic maps. This GCS (Geo-Correction System) element includes a precision inertial measurement device mounted on the airborne scanner, together with a satellite-based real-time Differential GPS unit, and custom image processing software.

This presentation will describe the existing system architecture in detail, the status of the geo-correction implementation, and will include example imagery from several operational missions.