NASA Aircraft Flies Calif. Wildfire Post-Burn Mission

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(PhysOrg.com) -- NASA's remotely piloted Predator B aircraft, named Ikhana, recently conducted post-burn assessments of two Southern California wildfire sites, the Piute Fire in Kern County and the Station Fire in the Angeles National Forest. Ikhana, an unmanned aircraft equipped with an infrared imaging sensor, completed a seven-hour imaging flight on Nov. 19, 2009 from NASA's Dryden Flight Research Center, Edwards Air Force Base, Calif.

The Autonomous Modular Scanner, developed by NASA's Ames Research Center, Moffett Field, Calif., was carried in a pod under the aircraft's wing. The scanner operates like a digital camera with specialized filters to detect light energy at visible, infrared and thermal wavelengths.

The scanner operated with a new photo mosaic capability requested by the U.S. Forest Service. A photo mosaic provides easier interpretation for the end user, which in the case of an active wildfire, is the fire incident commander.

Traveling northwest of NASA Dryden, the aircraft flew several data collection routes over the area burned by the month-long Piute Fire in Kern County that grew to 37,026 acres before it was contained in July 2008. The burn area is located in the Sequoia National Forest and on Bureau of Land Management public land near Lake Isabella.

Ikhana then traveled southeast to fly image collection routes over the

arson-caused Station Fire. It burned more than 160,000 acres in the Angeles National Forest northeast of Los Angeles after being ignited on Aug. 26, 2009. The scanner collected images that will indicate the severity of devastation within the fire area. Another use of the images is for the U.S. Forest Service's Burned Area Emergency Rehabilitation, or BAER.

The Forest Service uses BAER to reduce further damage to land made unstable by fires, rather than replace what is burned. The BAER data are derived using multi-spectral data available from the Autonomous Modular Scanner on the aircraft. The processes can be changed mid-mission to enable improved collection of critical information, either in mapping active fires or assessing post-burn severity.

The post-burn images collected by the scanner were transmitted through a communications satellite to NASA Ames, where the images were superimposed over Google Earth and Microsoft Virtual Earth maps to better visualize the locations. The images then were made available to the Forest Service for initial assessment of the damage caused by the fires and rehabilitation required.

Ikhana carried the Autonomous Modular Scanner for Western States Fire Mission flights in 2007 and 2008, imaging wildfires from south of the U.S. border with Canada to near the Mexican border. Critical information about the location, size and terrain around the fires was sent to commanders in the field in as little as 10 minutes. This fall Ikhana was poised to fly a 2009 Western States Fire Mission if NASA had received a request for support from emergency service organizations.

While imaging the Station Fire, Ikhana flew in the national airspace system in close coordination with the Federal Aviation Administration.

Provided by JPL/NASA (news : web)