

V. STATUS REPORTS

A. Ames Research Center (ARC)

1. Dragon Eye

Dragon Eye flights took place at Fort Hunter Liggett, CA (January 28-29, 2013) and Turrialba Volcano, Costa Rica (March 10-15, 2013).

The Dragon Eye (Figure 9) is a 6-pound UAS with a 3.75-foot wingspan. It flies fully autonomously and performs surveillance missions using miniature electro optical/infrared (EO/IR) cameras in the nose section. It is hand or bungee launched and performs belly landings, giving it the ability to be operated from unimproved sites. ARC acquired 70 of these systems and modified several of the noses to carry sensors to measure the constituents in volcanic plumes.



FIGURE 9: DRAGON EYE

Initial flight testing was performed in restricted airspace at Fort Hunter Liggett, CA to allow the team to gain experience with the system in a safe airspace environment. These UASs are cheap and expendable, but some of them demonstrated erratic flight behavior, and many crashed. A number of good flying airframes were identified, and these were used to perform the mission to sample the plume of the Turrialba Volcano in Costa Rica. Range safety was easily achieved given the remoteness of the location, and the Costa Rican Civil Aviation Authority provided a streamlined approval process.

2. Vision II

Vision II flew a mission to Key West, FL (May 9-18, 2013).

The Vision II (Figure 10) is a 130-pound UAS with a rotor diameter of 10.5 feet. It is powered by a 14 horsepower turbo shaft turbine engine running Jet-A fuel. The aircraft was configured to carry a high resolution hyper-spectral camera to take images of sea grass near Sugarloaf, FL and coral near Cheeca Rocks, FL.

During the mission, Vision II took off from shore and flew out over the ocean to the research sites with the Pilot in Control (PIC) and RSO chasing it in a boat. The slow speed capability of the Vision II made this approach to range safety practical. Imaging passes were repeated at altitudes ranging from 50 to 250 feet before returning to the shore to land and refuel.



FIGURE 10: VISION II