

AERIAL CAMERA BLIMP SYSTEM

During June of 2000 and 2001 an Aerial Camera Blimp System (ACBS) was used at the RGDT to photograph the “dry wash” and selected outliers. The ACBS combines a helium filled blimp with on-board video and still cameras providing a real time view of the subject. The 6-meter long blimp is inflated by approximately 12.8 cubic meters of helium and is capable of lifting the on-board cameras to a height of 80 meters above the ground. A tether/control cable is used to control the camera height and connects the blimp to the operator on the ground. The operator wears a harness that holds a color-video display and remote camera controls. The on-board color-micro-video camera and still camera provides the operator with an image of the area to be photographed. A swivel mount equipped with pan and tilt motors, suspended on the underside of the blimp rotates the camera to align it with the targeted area. This mount also allows the camera to hang plumb and offers a degree of self-leveling.



Systematic stereoscopic coverage of the “dry wash” was taken in black and white with the medium format (45- x 60-mm) still camera. Several higher altitude views of the site were taken, using 35-mm color film, with the camera set at an oblique angle in the swivel mount. Flight heights were determined based on desired scale and width to be covered. The camera was set on auto exposure and the focus was preset and a fast shutter speed was used. The B&W film taken at the site was developed in a portable darkroom, allowing for in the field verification of stereoscopic coverage.



Both ground control and visual targets were placed on the “dry wash” prior to ACBS flyover. Previously established ground control points were paneled and selected one-meter grid corners in the “Ballroom” and “Discovery Area” were marked with ceramic tiles. Large (.3- x .3-meter) white boards were placed at each pre-measured photo center to assist with visual alignment of the ACBS.

Systematic stereoscopic coverage of the “dry wash” was achieved through the use of the ACBS. The resulting images were crisp and showed good detail of the track bearing surface. The operator owner of Aero Arts, Terry Lumme was very good to work with and assisted with other aspects of the project when inclement weather delayed use of the ACBS by a day. Maneuverability of the ACBS allowed for better systematic photographic coverage and more consistent scale between photographs. However, the weather was a factor as the ACBS was not operable in high winds or during times of precipitation. During normal operations a single operator was able to control the blimp, however an additional person holding a second tether helped in windy conditions. The flying was completed between 8:00am and 1:00pm minimizing interference from the wind and maximizing the sun angle.

Getting the ACBS to the site was also a consideration. The blimp is normally kept inflated and driven to the site in an enclosed trailer. Thus road conditions suitable for a truck pulling a 7.6-meter trailer were needed. This was not a problem at RGDT.

