

BUREAU OF LAND MANAGEMENT: USE OF UNMANNED AERIAL SYSTEMS FOR NATURAL RESOURCE MANAGEMENT

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Commission VI, WG VI/4

KEY WORDS: UAS, UAV, Unmanned Aircraft, Close Range Photogrammetry, BLM, Land Management

SPECIAL SESSION: This paper is intended for the BLM Multi-Scale Natural Resources Applications session.

ABSTRACT:

The Bureau of Land Management (BLM) is an agency within the United States Department of the Interior (DOI) that administers public lands primarily in the western United States, totalling approximately 253 million acres. The BLM has actively explored the use of Unmanned Aerial Systems (UAS) technology since 2002 for natural resource applications. Prior to the establishment of a UAS program within the BLM, several resource management programs experimented with remote controlled aircraft, tethered blimps, and kites to collect high spatial resolution terrestrial imagery. The history of the current BLM UAS program began with the identification of data acquisition gaps in the remote sensing program, resulting in the program's deployment of surplus military UAS. Each flight mission conducted by the BLM UAS program includes multiple phases: (1) project planning, (2) flight operations, and (3) data analysis. Project planning includes a resource management project request, alternatives analysis, military frequency approval, FAA Certificate of Authorization (COA) processing, all pre- and on-site flight planning, and public outreach. The flight operations portion of each project is generally conducted by BLM and United States Geological Survey (USGS) aircraft operators, with on-site flight operations lasting one to two weeks. Finally, the data analysis phase utilizes close range photogrammetric techniques, remote sensing methodologies appropriate to the type of data collected, and large volume data management practices. DOI acquired several platforms from the U.S. Army that were slated for destruction until the DOI repurposed them for natural resource monitoring. One significant challenge facing the BLM UAS program is overcoming technological obstacles in adapting military surveillance technology for scientific quality aerial imaging. BLM will continue to use existing military technology until authority is granted by the DOI to pursue purpose built "off the shelf" unmanned platforms.

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