

# UAS MODELING OF PETRIFIED FOREST NATIONAL PARK, AZ - ARCHAEOLOGICAL SURVEY

## BACKGROUND

Petrified Forest National Park located in northeastern Arizona is home to more than 600 archeological sites. The Park has a remarkably diverse and long record of human history. Evidence shows there are over 13,000 years of human occupation. The periods of archeology represented in the Park are: Paleoindian (13,500-6000 BCE), Archaic Period (6000-500 BCE), Basketmaker (500 BCE-650 CE), Pueblo I (650-950 CE), Pueblo II to III (950-1300 CE), Pueblo IV (1300-1540 CE). Source: NPS



*Various artifacts found near the pueblo sites are protected and preserved.*



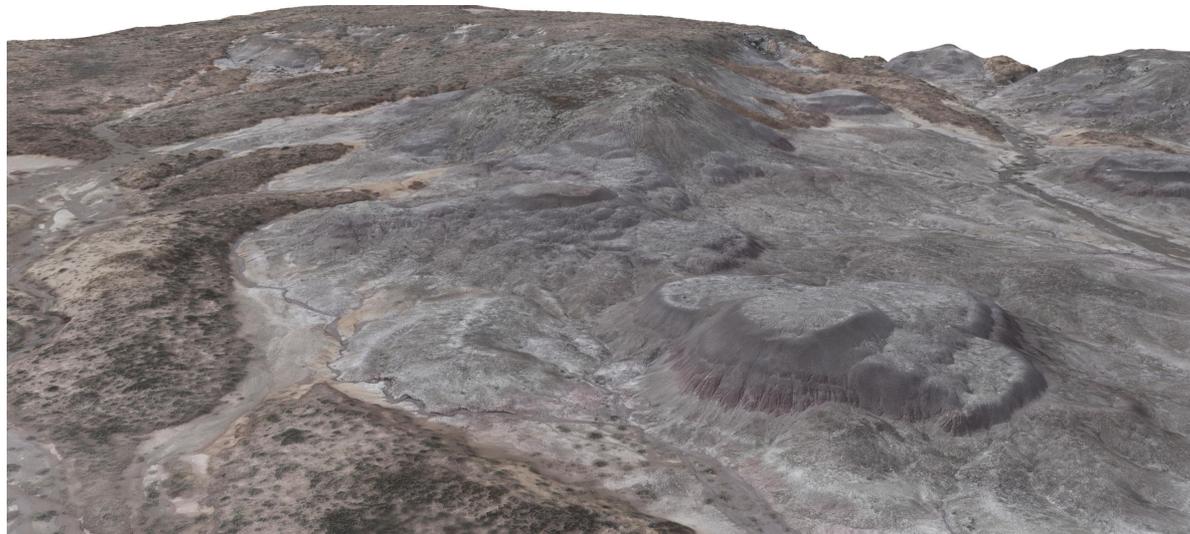
The FireFly6 vertical take-off and landing fixed-wing UAS platform was utilized with a Sony RX1RII camera. The 3DR Solo was utilized with a Ricoh GR II camera for photogrammetric surveys.

## UAS DATASETS

5 Textured 3D Surface Models  
4627 Camera Stations (Total for 5 Sites)  
Flying Altitude 60-160 m  
Ground Resolution: 1.46 – 2.24 cm  
Total area covered: 6.73 km<sup>2</sup>

## UAS PROJECT INFORMATION

In October 2018, The National Park Service requested the support of the U.S. Geological Survey (USGS) National Unmanned Aircraft Systems (UAS) Project Office to collect georeferenced orthoimagery and 3D terrain models of various culturally significant archeological sites. The data collected established a baseline of topographic, erosion, cultural, archeological data for preservation and management of these sensitive locations. Understanding the impacts from visitation and changes by erosion allow NPS resource managers to more accurately monitor change over time. The data collected provides the park a prioritization for stabilization work and preserves historical and archeological records of the park.



*UAS derived textured surface model from the Ricoh GR II camera*



*UAS derived textured surface model from the Sony RX1RII camera*



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