3D Documentation of a Basketmaker Petroglyph Panel in Southeastern Utah

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SITE & SETTING

- Inaccessible Rock Art Panel (petroglyphs = marks made by removing rock)
- Basketmaker Period (400 BC - 400 AD)
- Location: Moqui Canyon tributary, San Juan County, Utah (Bureau of Land Management property)
- Context: U-shaped Alcove known as archaeological site 42SA749
- Panel occurs 10-30 m above modern ground surface
- Height precludes traditional documentation methods or even ascertaining what images are present
- Drone used to generate a 3D model (“Preservation” by digital documentation)

METHODS

- 3D Model Technique: Structure from Motion (SfM)
- Approximates a three-dimensional structure using overlapping two-dimensional images
- Photo capture using a drone with image resolution of 5472 x 3648 pixels
- 1,333 images taken of the cliff face with the petroglyphs

RESULTS & ANALYSIS

- Archaic (~3000 – 400 BC)
  - Stick-like figures
  - Animals
- Basketmaker (~400 BC – AD 400)
  - Motifs and elements
  - Anthropomorphs (human-like figures)
    - Twins
    - Flute Players
  - Concentric circles
  - Dotted Lines
  - Bighorn sheep

RAW DRONE IMAGES

DISCUSSION

- Overcame inaccessibility
- Tested the ability of the drone and technique.
- Preserve fragile sites without further endangering their integrity.
- Drone method was:
  - Reliable
  - Easy to transport
  - Cost-efficient

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