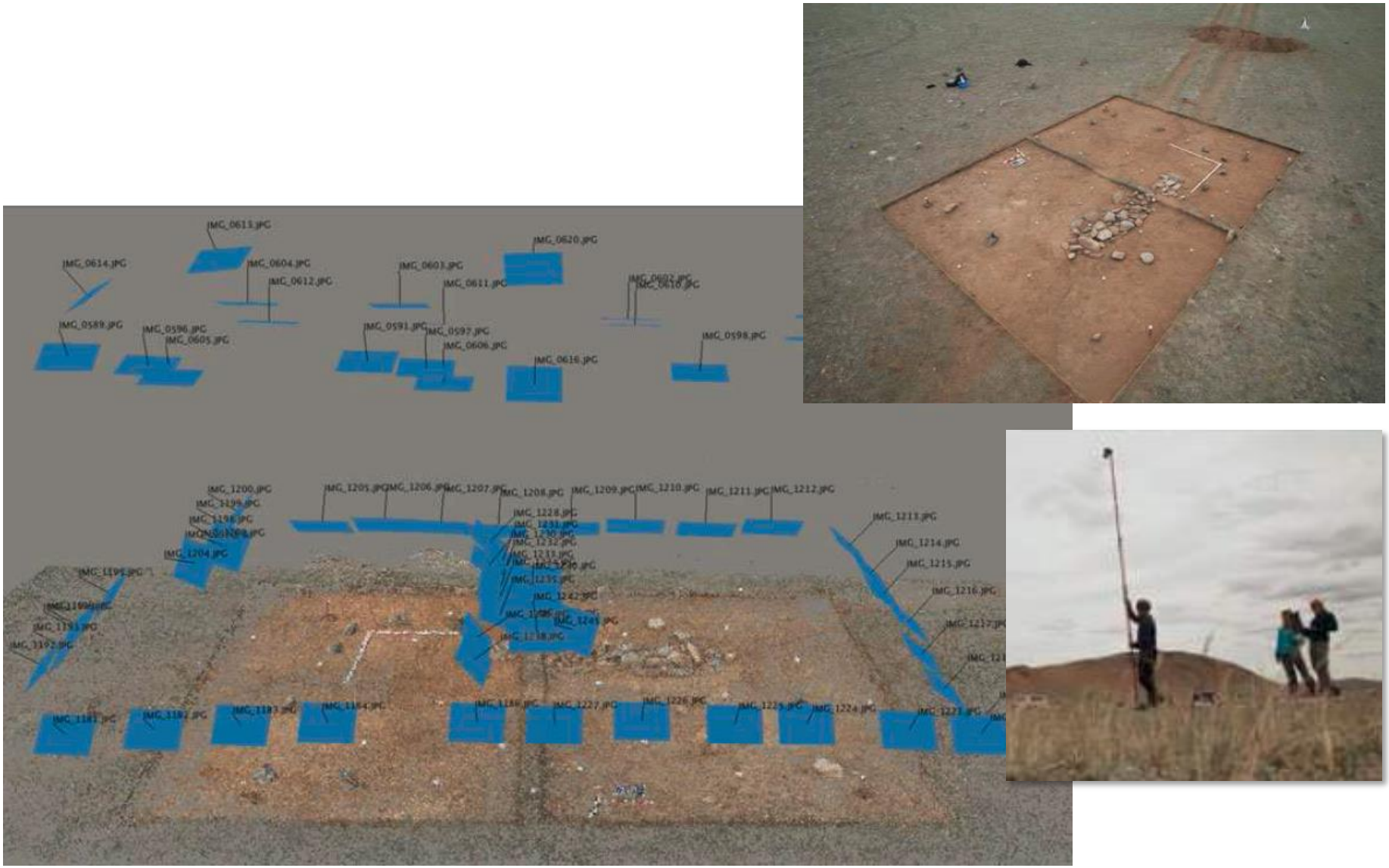
SfM from ground-based photographs



Plets *et al.* (2012). Three-dimensional recording of archaeological remains in the Altai mountains, *Cambridge Univ. Press*

SfM from Unmanned Aerial Vehicles (UAV)


DJI Phantom 2 quadcopter (~$1k)


Custom built helicopter (~$15k)


Autokite (~$1k, discontinued)

Falcon Unmanned fixed wing (~$12k)

SfM from helicopters and multi-rotor UAVs


DJI Phantom 2 quadcopter (~$1k)


Custom built helicopter (~$15k)

Pros Robust in high wind and can take off and land anywhere. Larger helicopters can carry large SLR camera. Smaller multi-rotors cannot, but are easier to fly.

Cons Helicopter needs trained pilot to take-off and land and regular refuelling. Initial costs are high and requires careful maintenance.

Regulations may need to be followed (FAA in the U.S.)

SfM from fixed wing UAVs

Pros Relatively easy to pilot. Can cope in moderate winds. Flight durations are normally longer than copters.

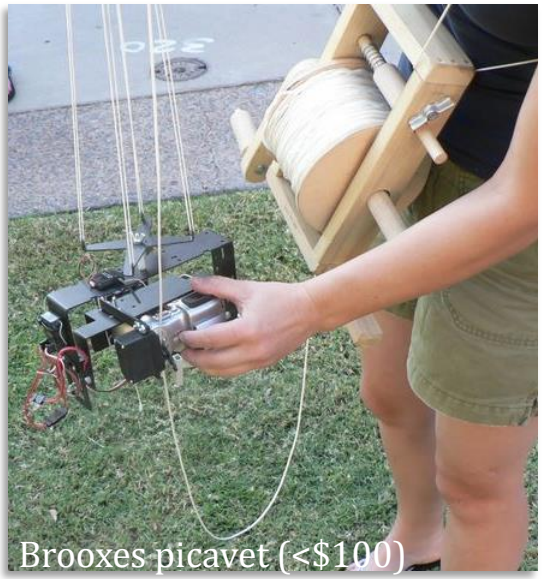
Cons Susceptible to damage during landing.

Regulations may need to be followed (FAA in the U.S.)

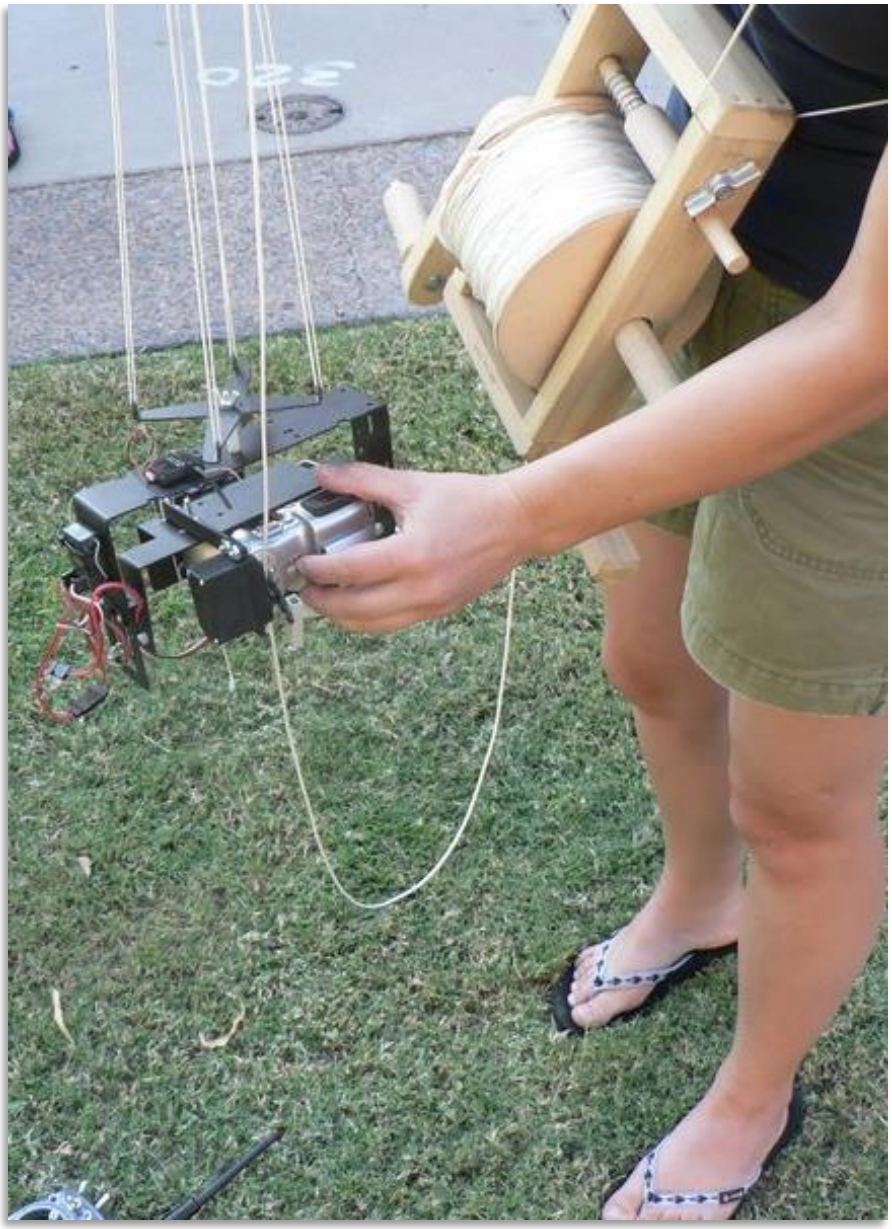

Autokite (~$1k, discontinued)

Falcon Unmanned fixed wing (~$12k)

SfM from Unmanned Aerial Systems (UAS)



SfM from Unmanned Aerial Systems (UAS)



Pros Easy to drag across target area. Once in the air can remain there. Can carry large SLR cameras. No FAA regulations!

Cons Requires helium, which can be expensive (>$100 per canister), and fiddly picavet. Cannot be automated. Difficult to deploy in windy conditions.

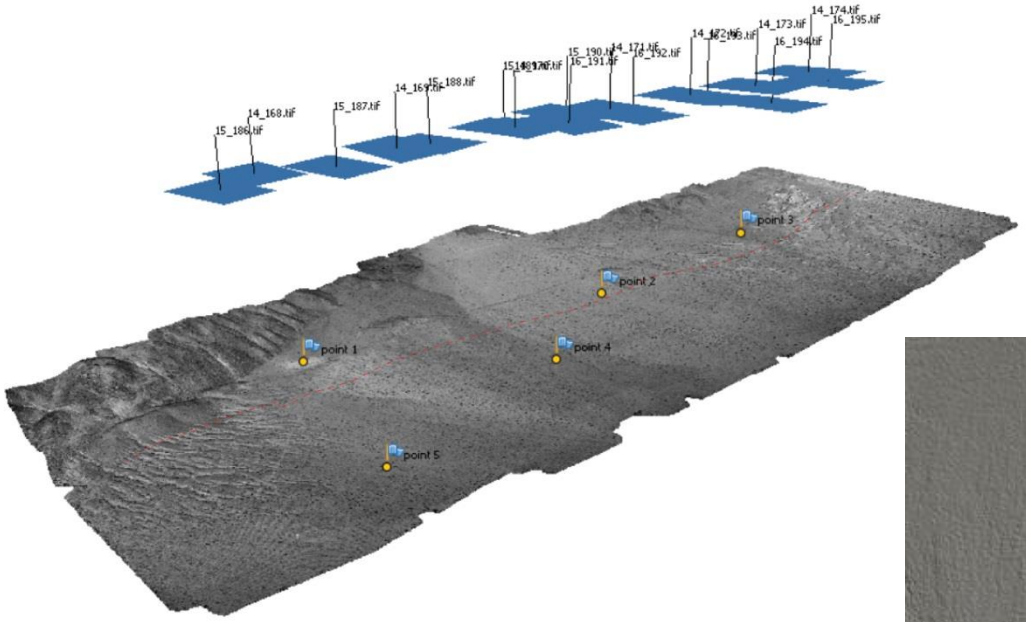
SfM from Unmanned Aerial Systems (UAS)

Pros Easy to drag across target area. Once in the air can remain there. Robust in high wind. No FAA regulations!

Cons Requires helium, which can be expensive (>$100 per canister). Cannot be automated. Carries small cameras.

SfM from airplane photos

• "Historical topography" and "diachronic geomorphology" possible using legacy air-photos. Requires sufficient photo overlap and georeferencing is a challenge.



(Left) A short section of the ~85 km-long USGS aerial survey of the 1992 Landers rupture, California.

(Right) Resulting 30 cm-resolution DEM, hillshaded to highlight fine geomorphic features.

Georeferencing was undertaken using modern satellite imagery