

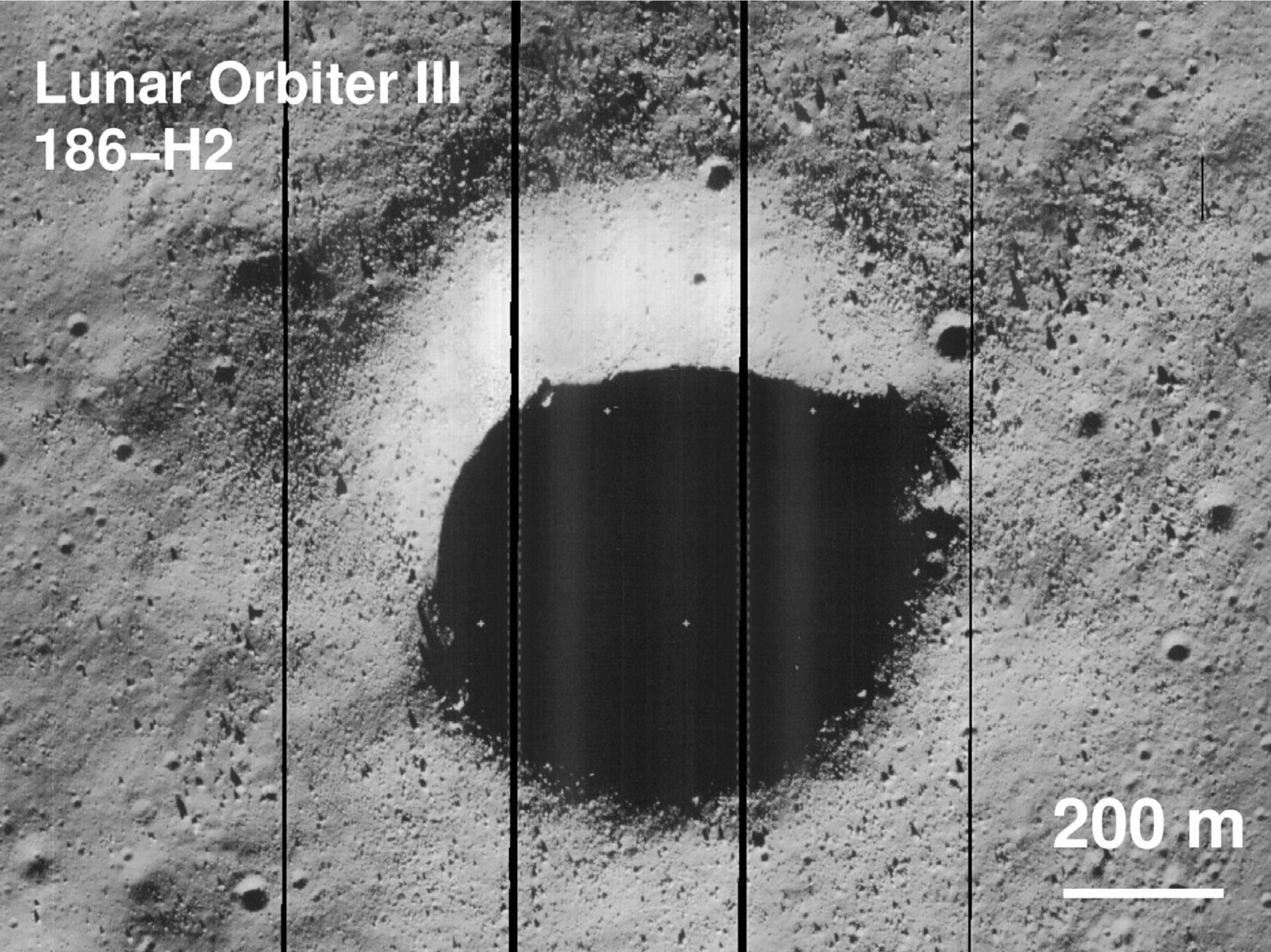
# **Boulders Ejected From Small Impact Craters**

by

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Lunar Orbiter III  
186-H2



200 m

# Background

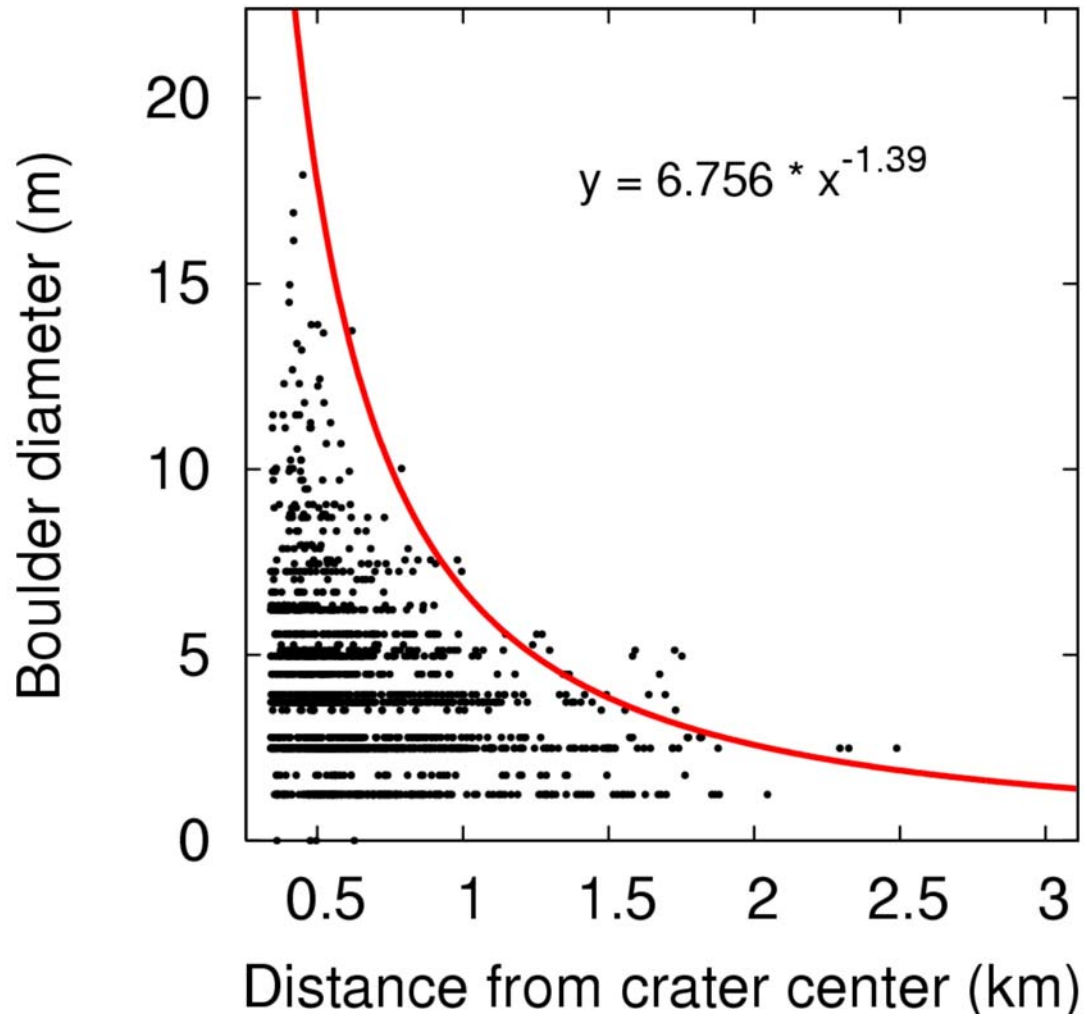
- Fresh craters have boulder fields
- Impacts create lunar boulders
- No lunar weathering effects
- Differences may reveal clues about the impact fragmentation process

**QUESTION:** Are the ejected blocks created in the impact or excavated by it?

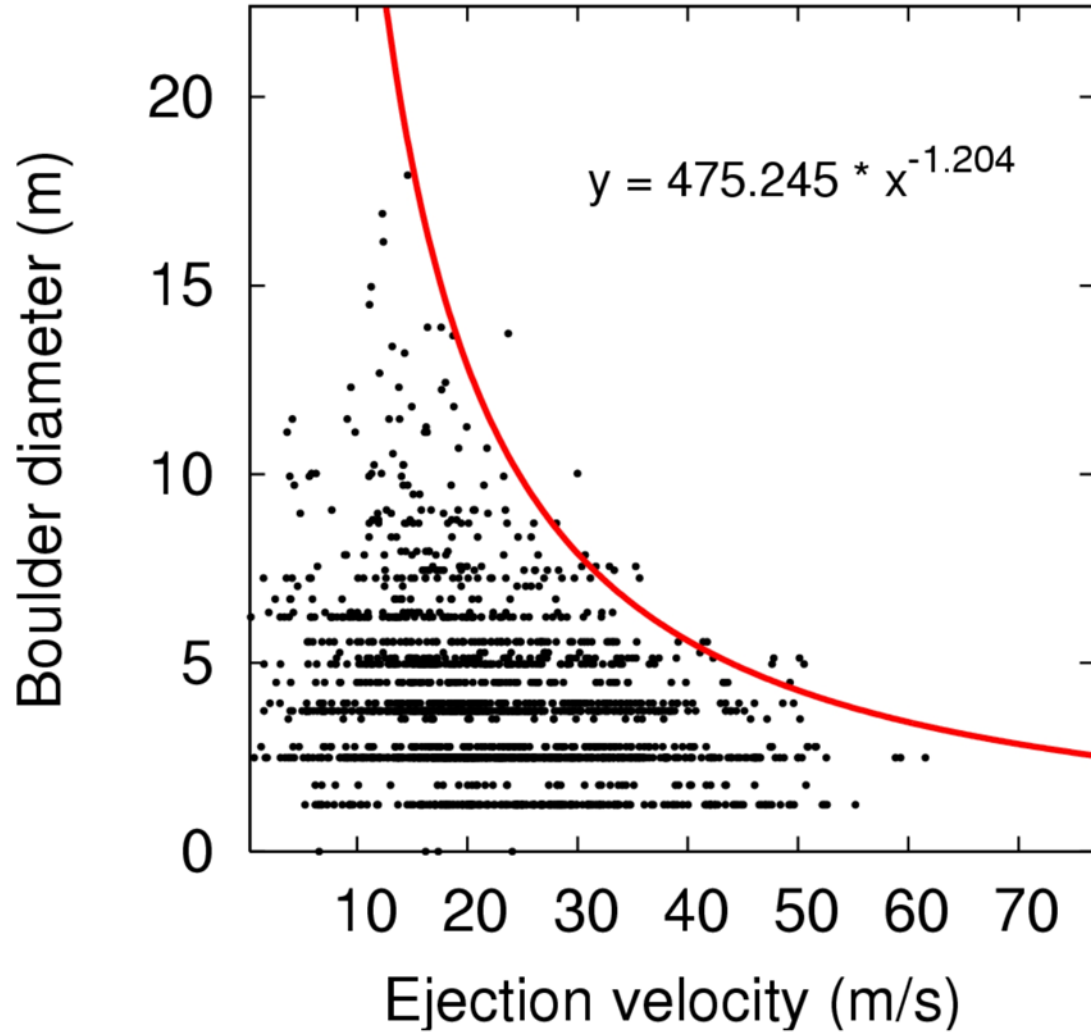
# Method

- Used Lunar Orbiter III and V, Apollo 17
- Examined 19 craters
  - 2 on the Copernicus ejecta blanket
  - 4 in the highlands
  - 13 in the mare
- Measured 15,768 boulders
  - Diameter
  - Location
- Fit power laws to data
  - $Y = a * x^b$

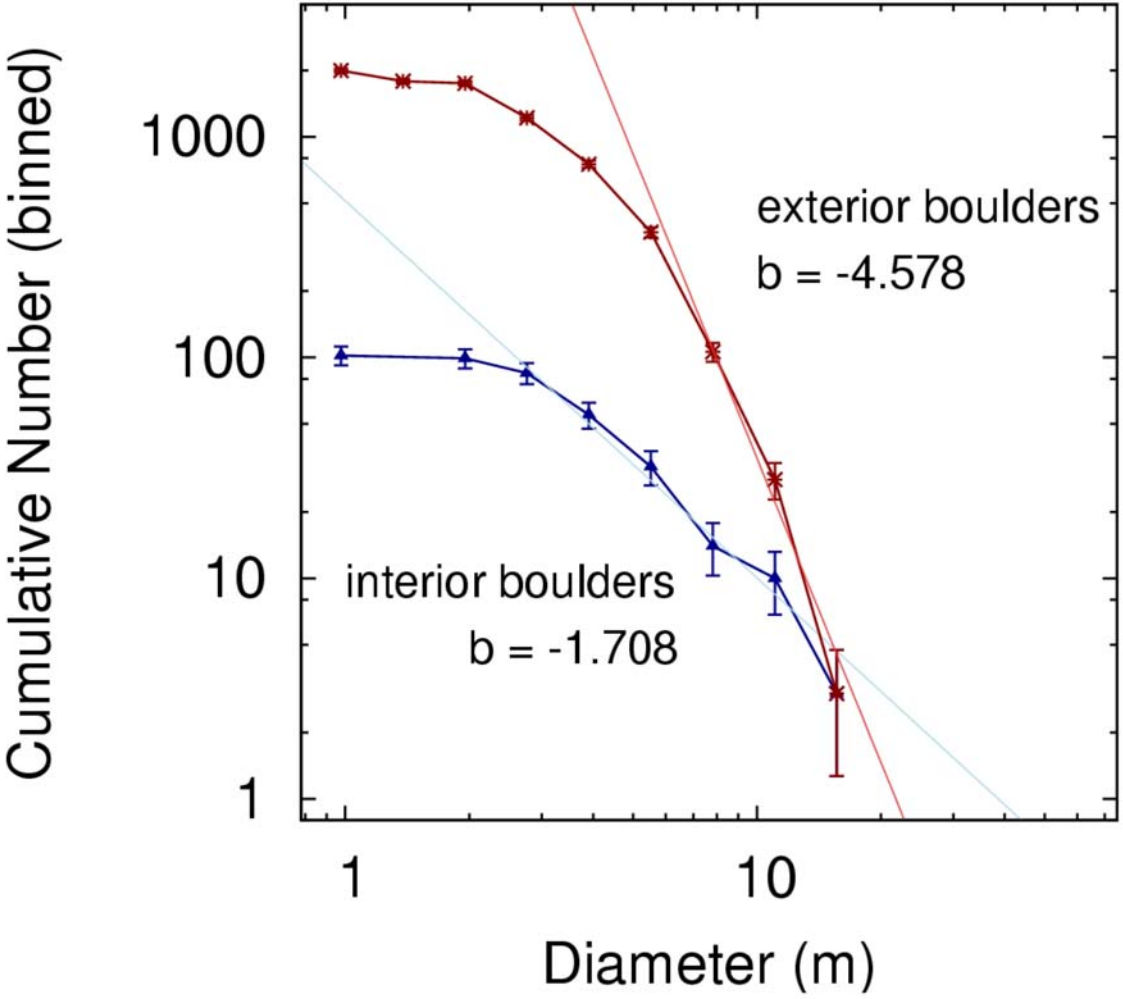
### III-186-H2



# III-186-H2



# III-186-H2

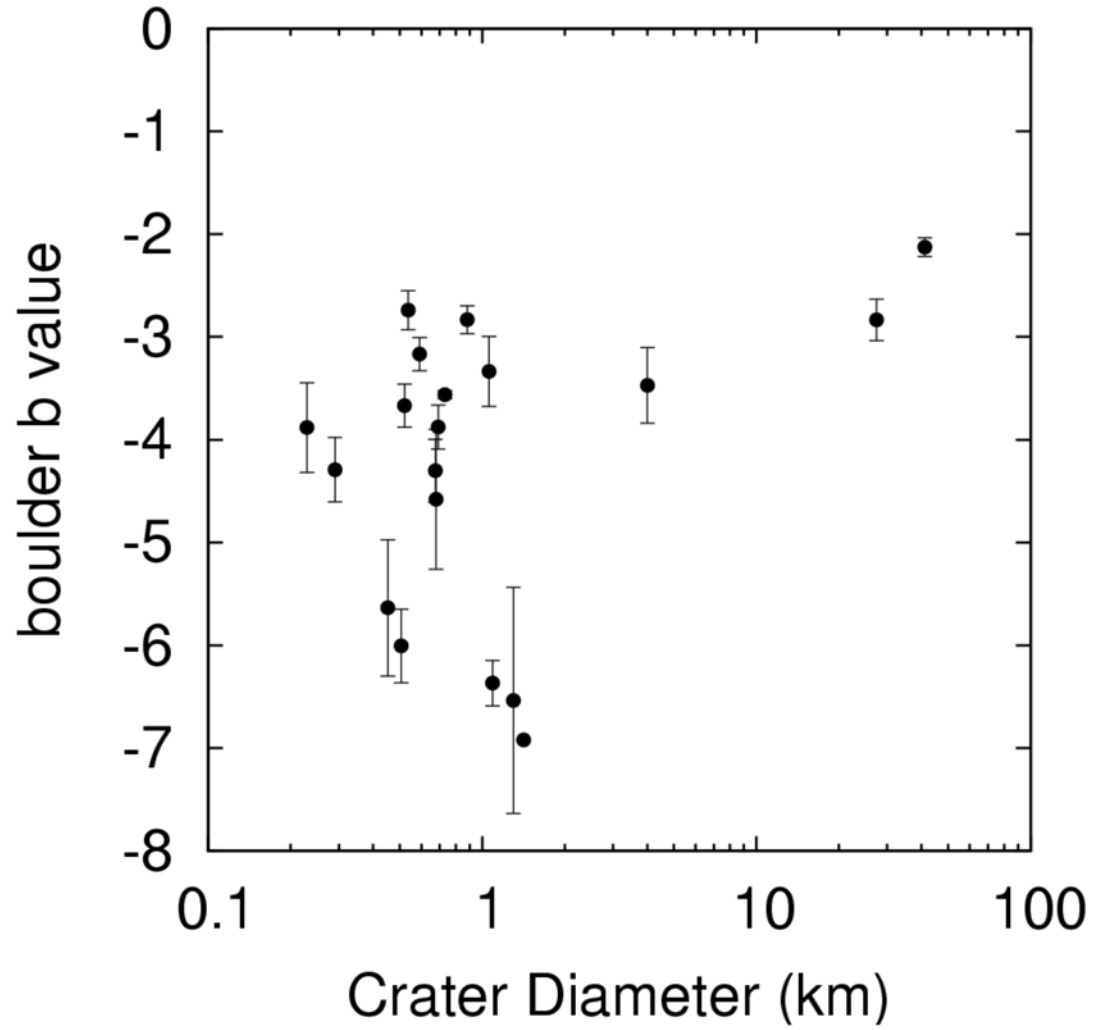


# Objectives

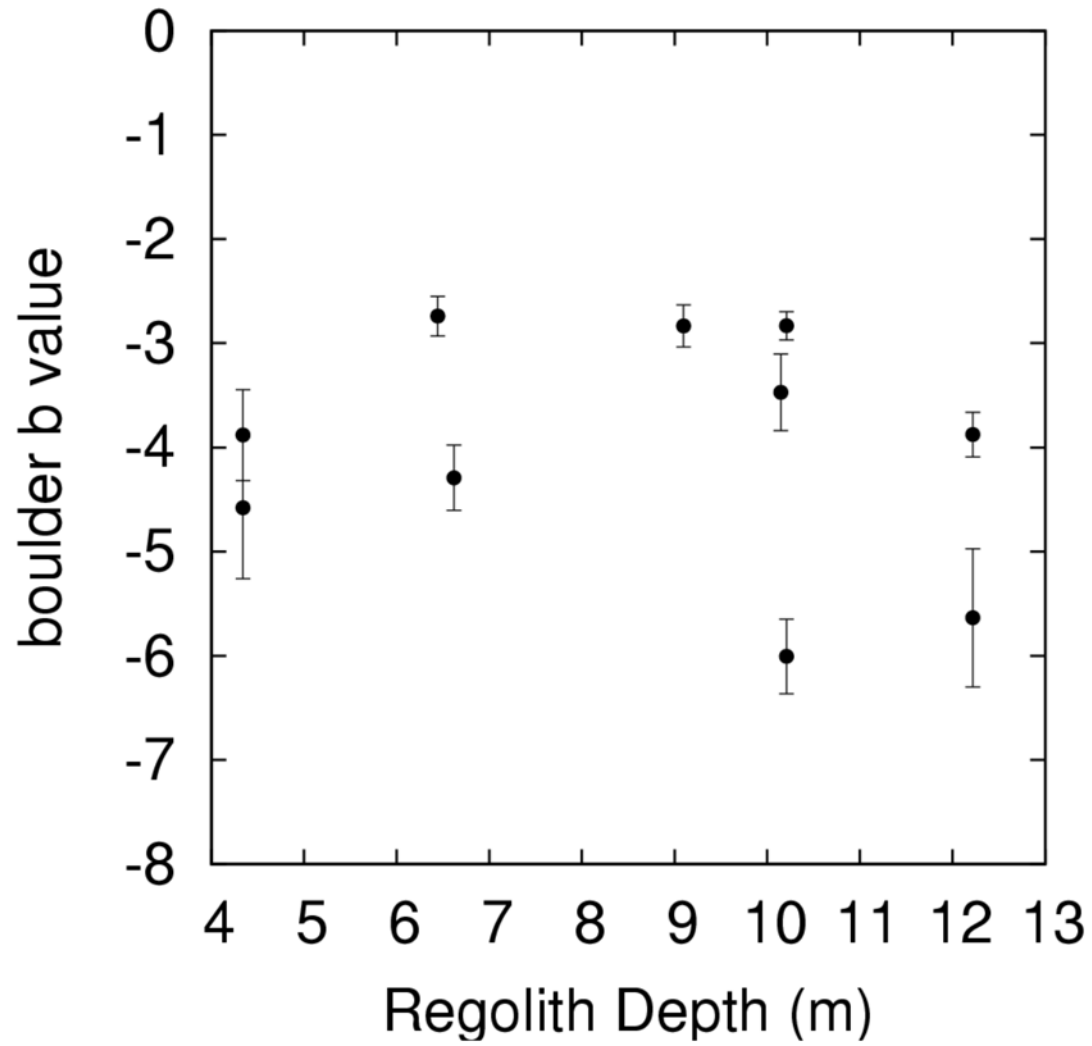
QUESTION: Are the ejected blocks created in the impact or excavated by it?

- Compare boulder distributions
  - Effect of crater size
  - Effect of regolith depth
  - Effect of terrain type
  - Effect of boulder position

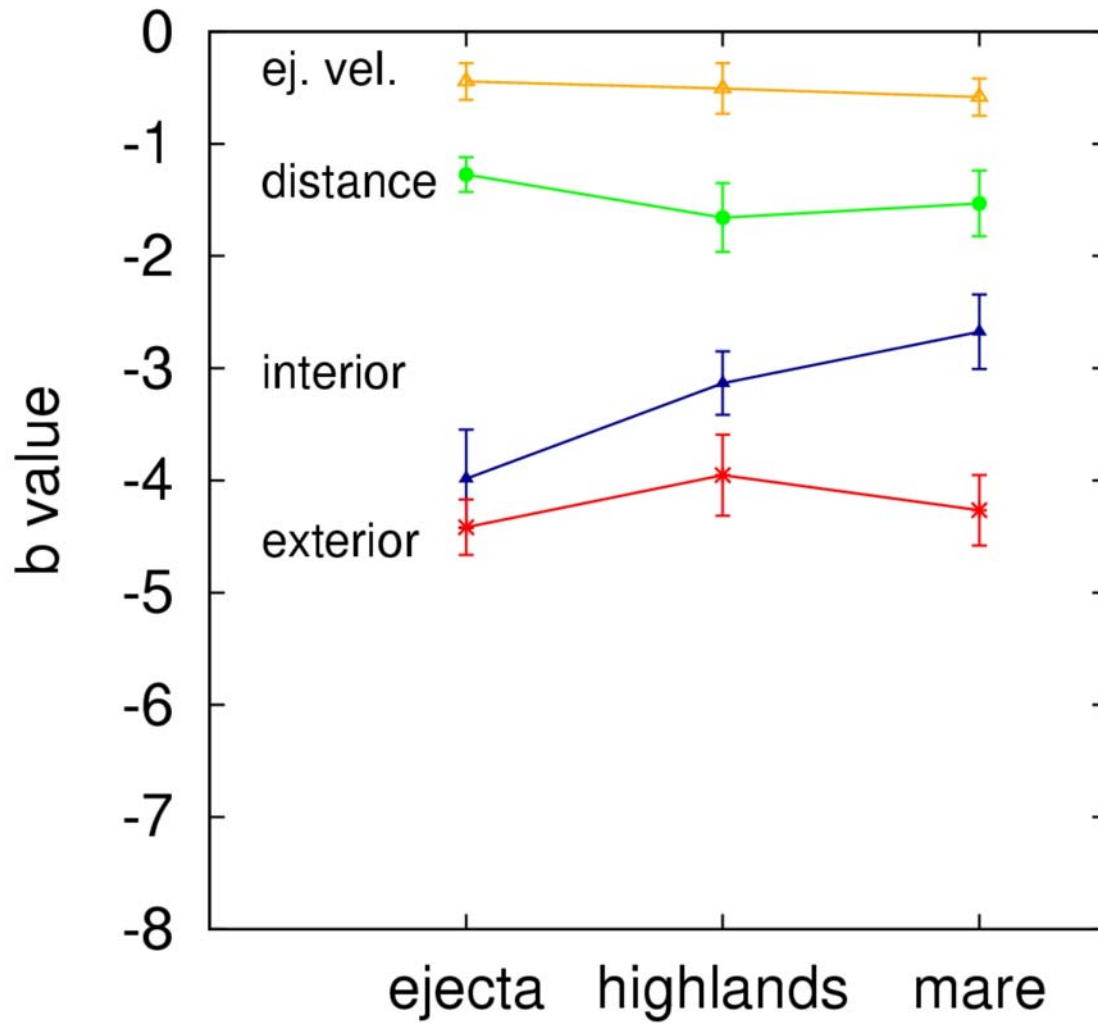
effect of crater size



effect of regolith thickness



### effect of terrain



# Conclusions

Boulder distributions are not changed by

- Crater size
- Regolith depth
- Terrain type

indicating that boulders are created by the impact and not excavated by it.

The change in slope for the interior boulders may indicate slump blocks forming along preexisting joints.