



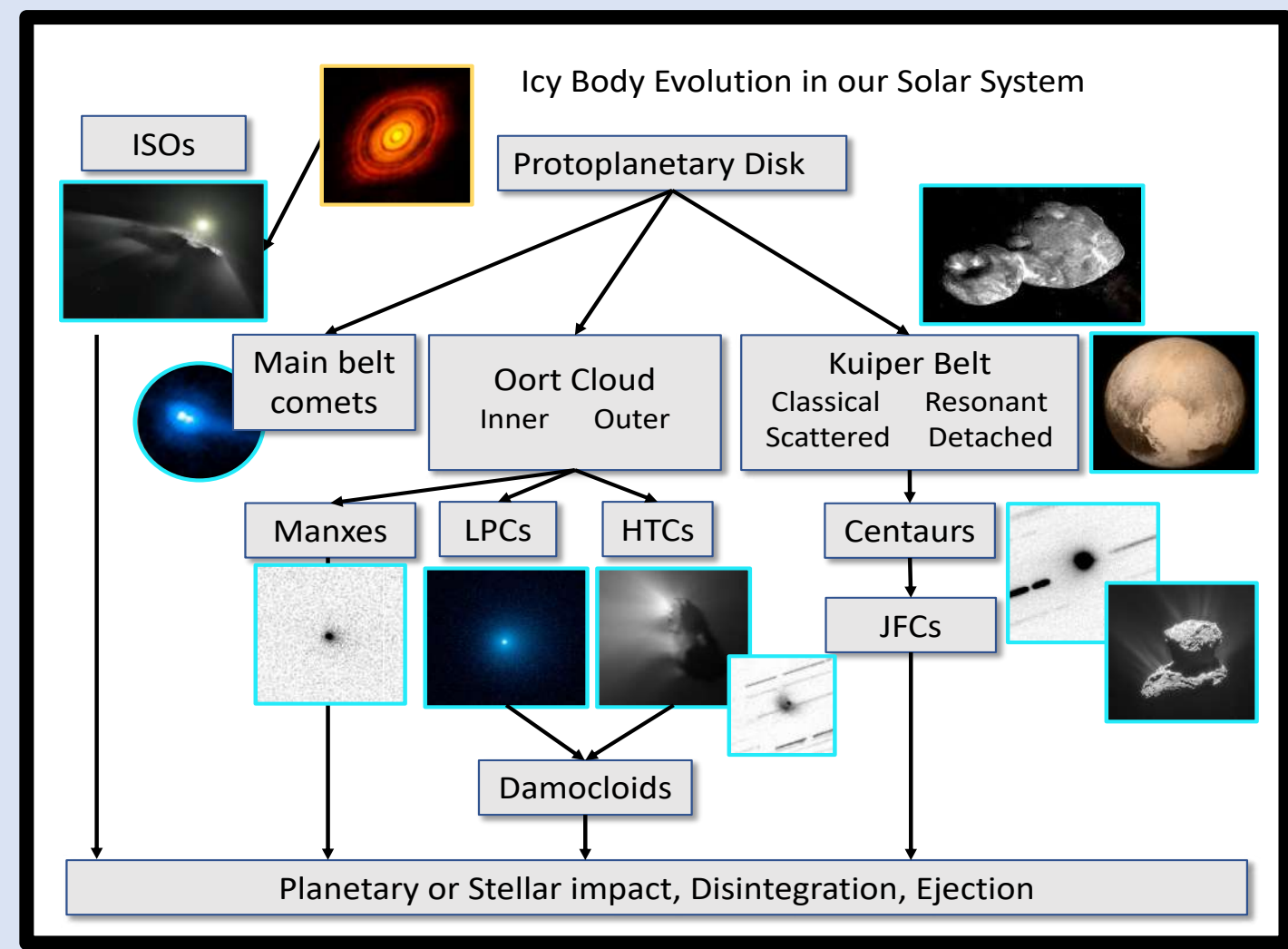
# Possible Activity in Manx Comet 2013 LU28

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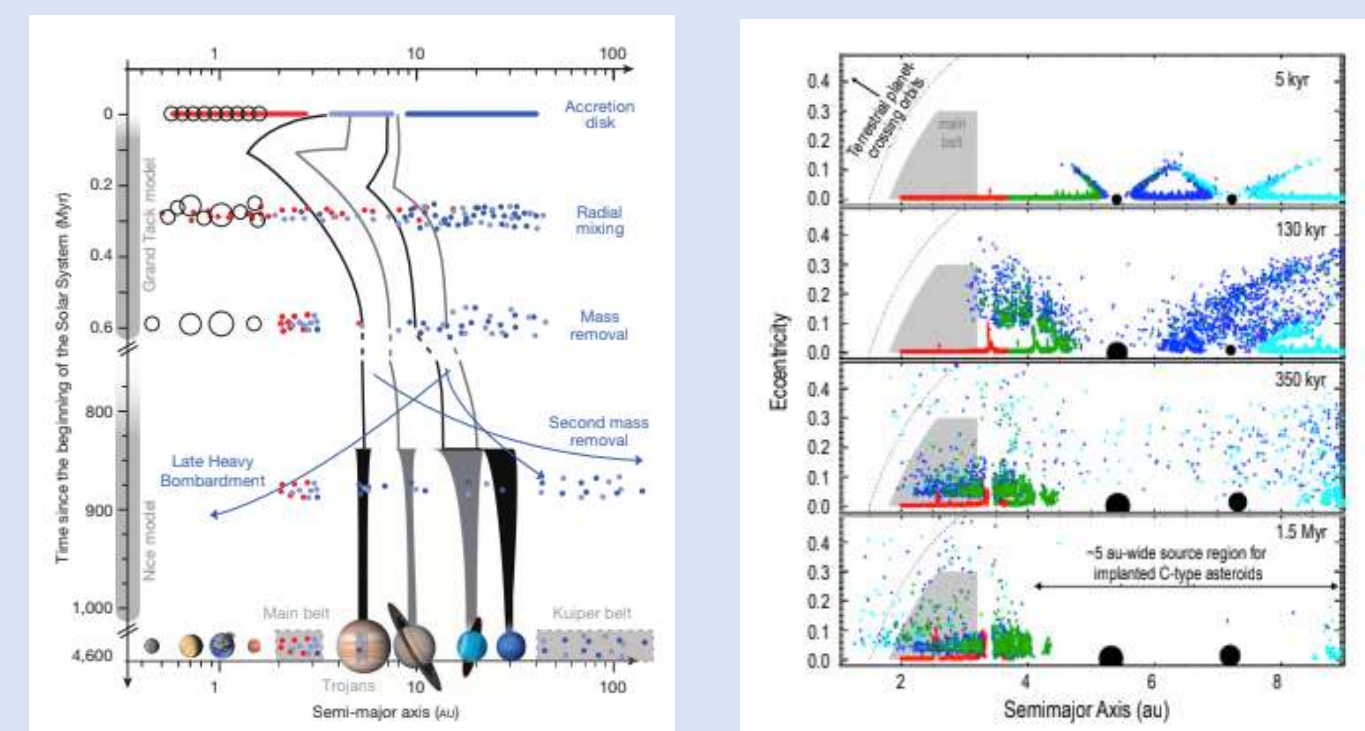
## BACKGROUND

What are Manxes?  
 Can objects on LP orbits be inactive?  
 Oort -> it's dead comets  
 Levison -> it isn't there  
 Now -> it was always inactive  
 2013 LU28  
 Discovered 6/8/13 - (r = 21.8 au)  
 Mt. Lemmon Survey in Arizona



## OBJECTIVES

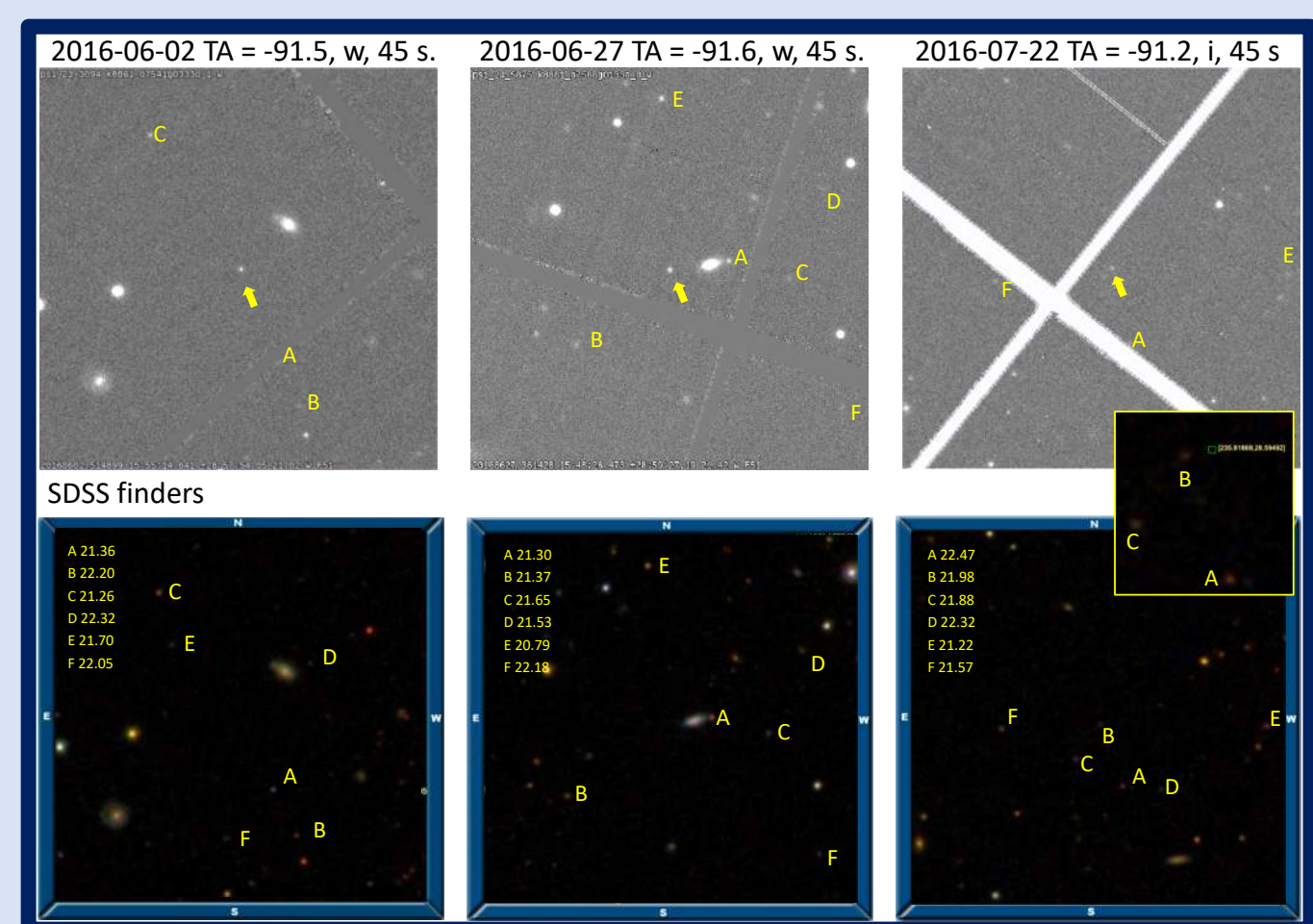
Large distance from perihelion – observe a Manx comet over its approach to the sun  
 Watch the onset of any potential activity  
 What's so special about Manxes?  
 Constrain solar system formation models



## METHODS

### Observations and Data Reduction

- Image Processing
- Flattened and calibrated with pipeline
- Photometry & SB with IRAF
- Color corrections to the SDSS r' band
- Sublimation Modeling

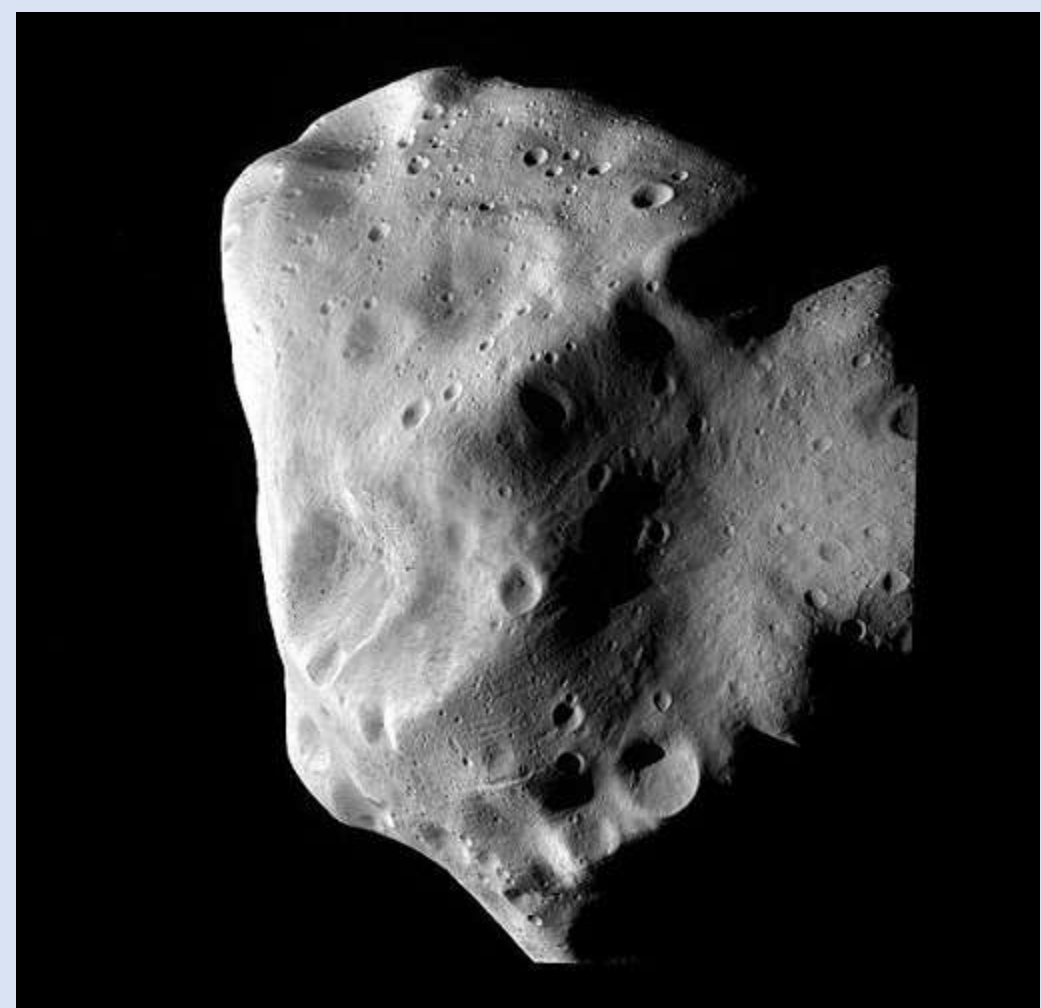


### Analysis

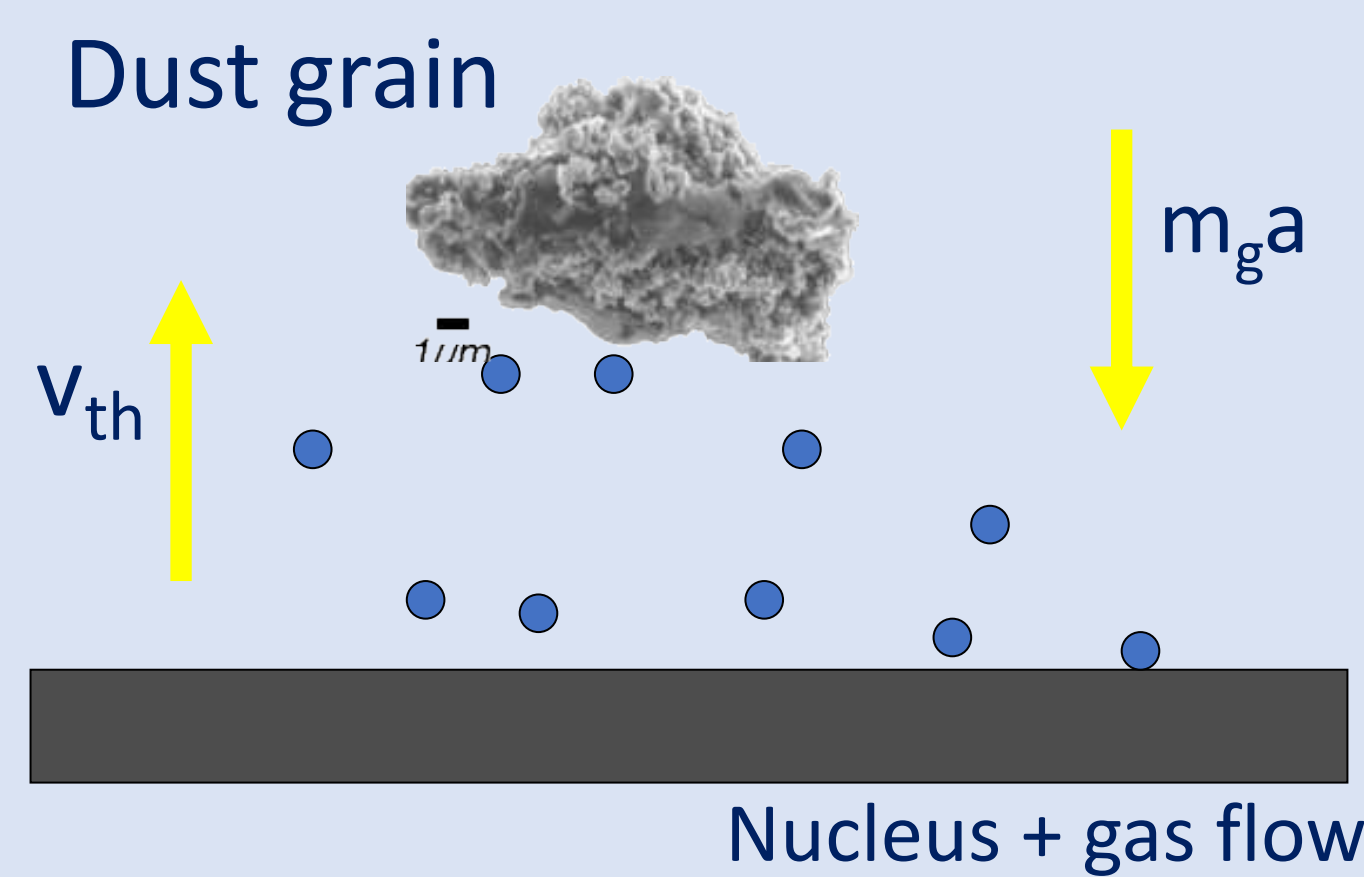
#### Spectral Reflectivity



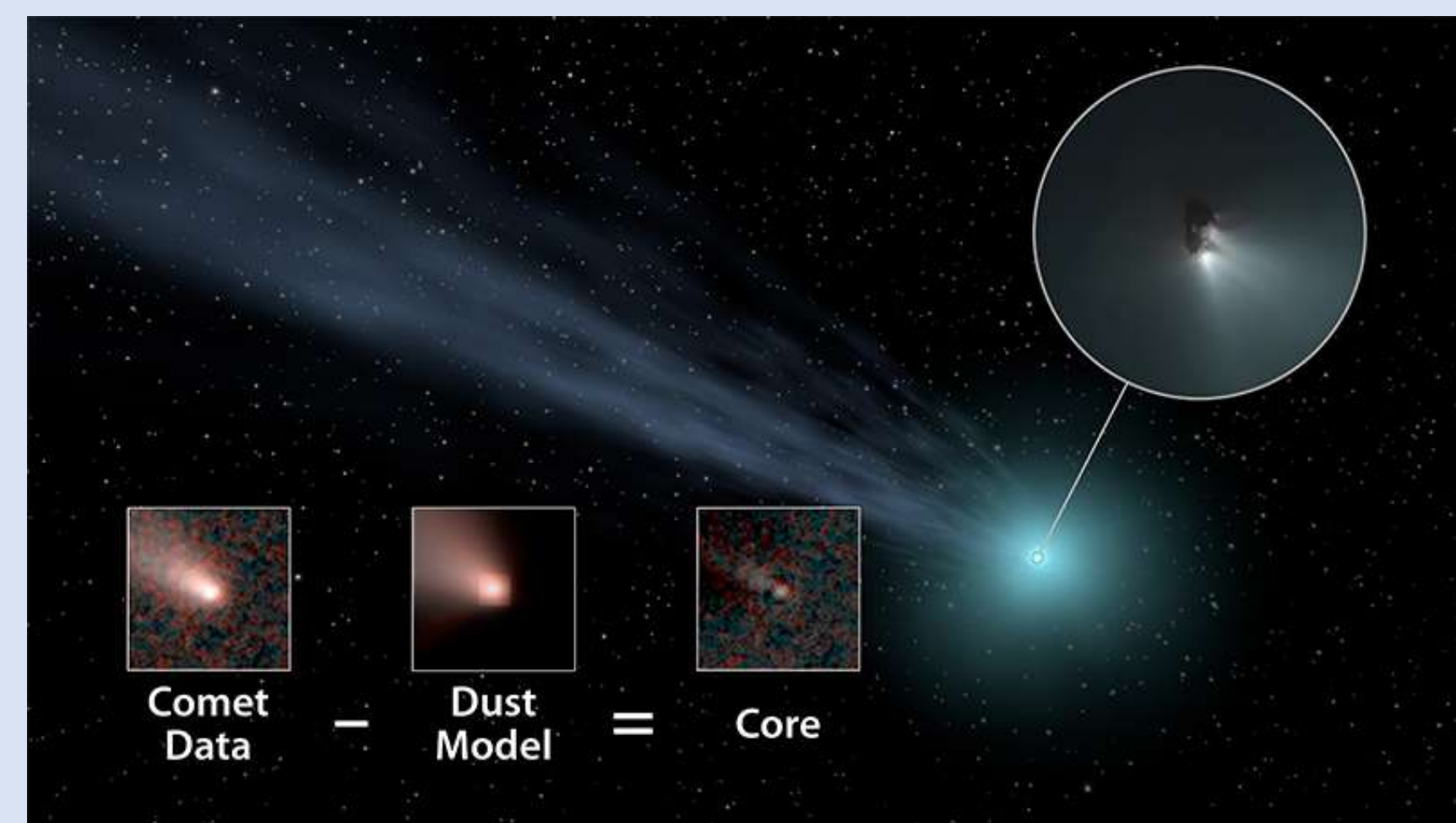
Nucleus Size



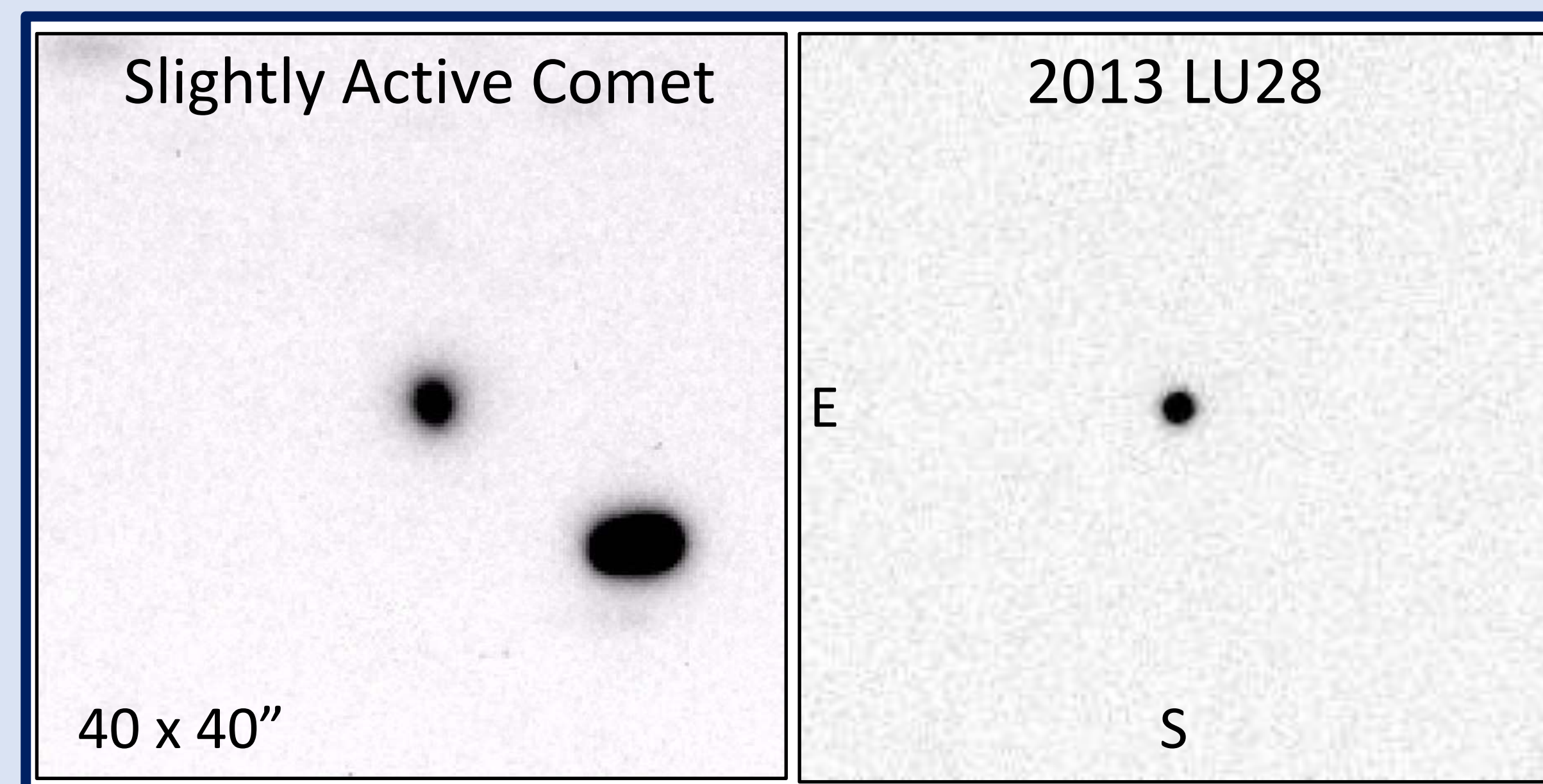
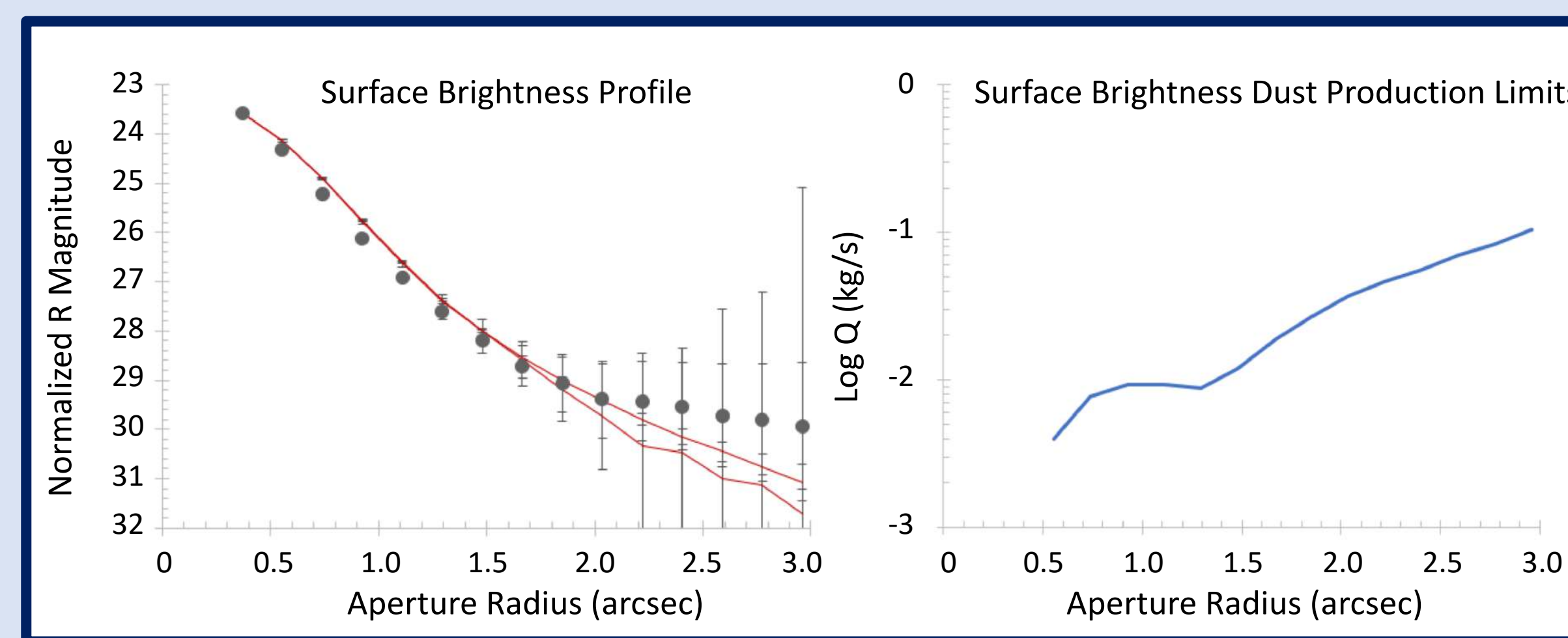
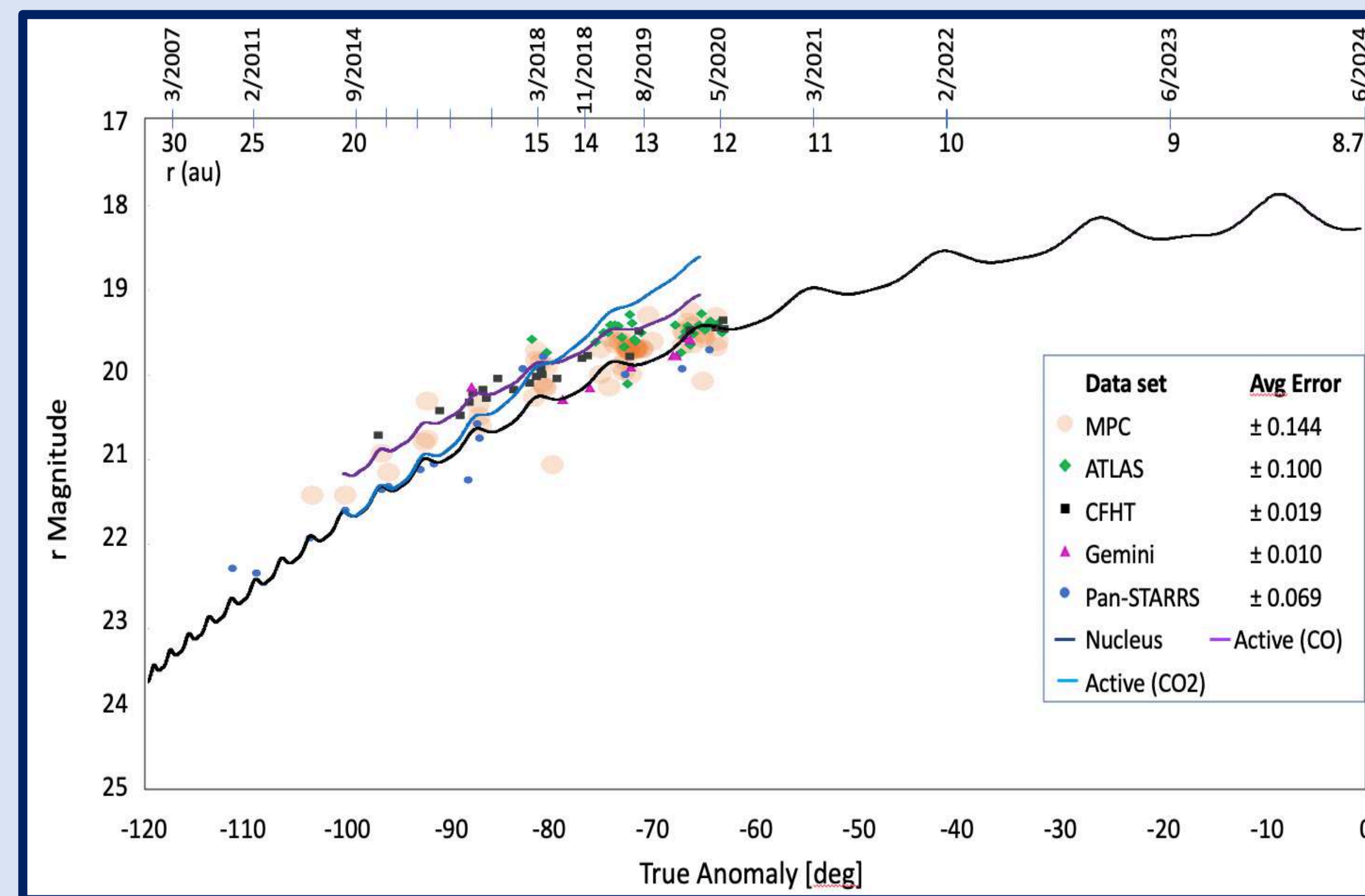
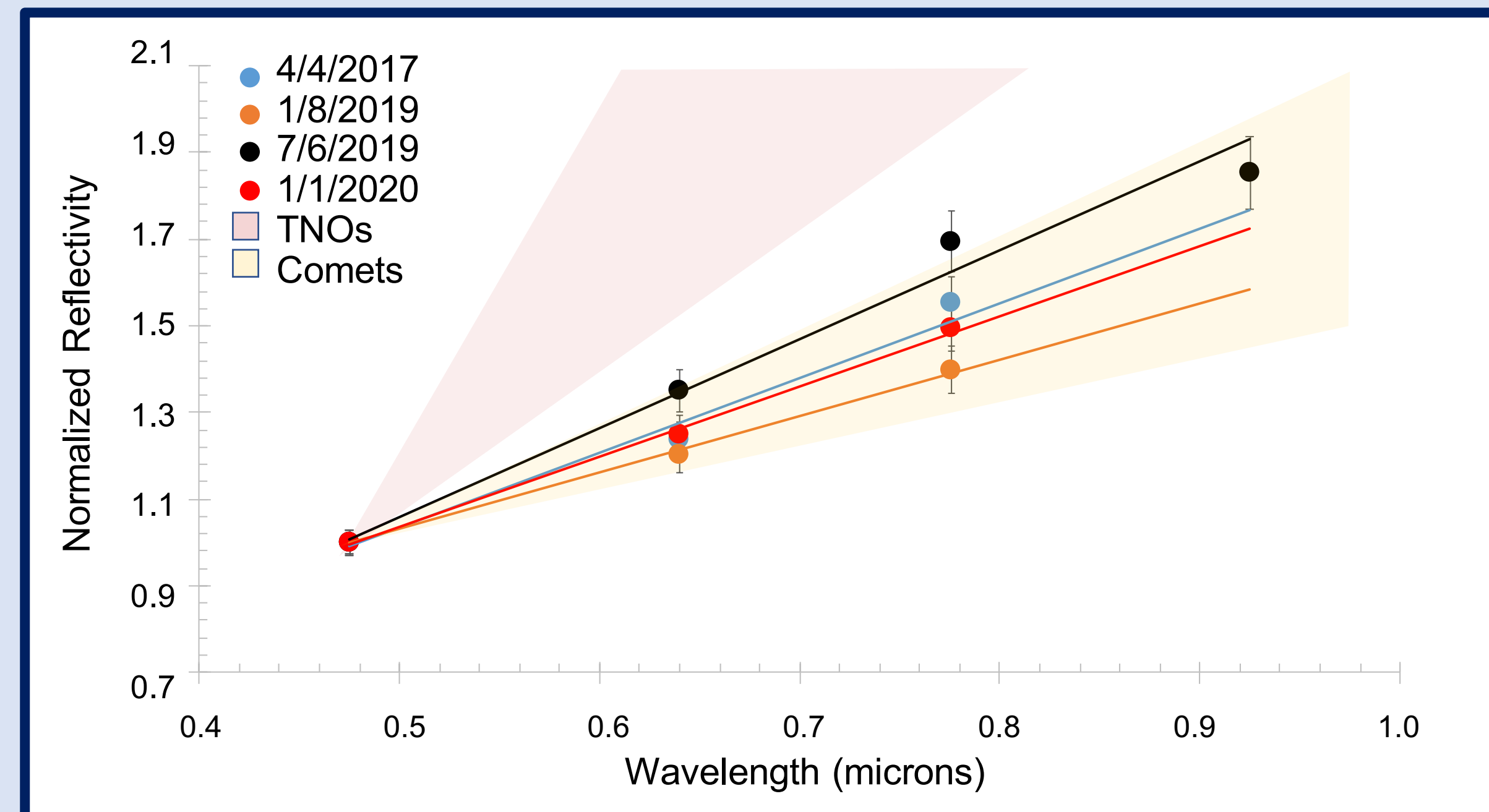
#### Surface Ice Sublimation Models



#### Dust Production Limits

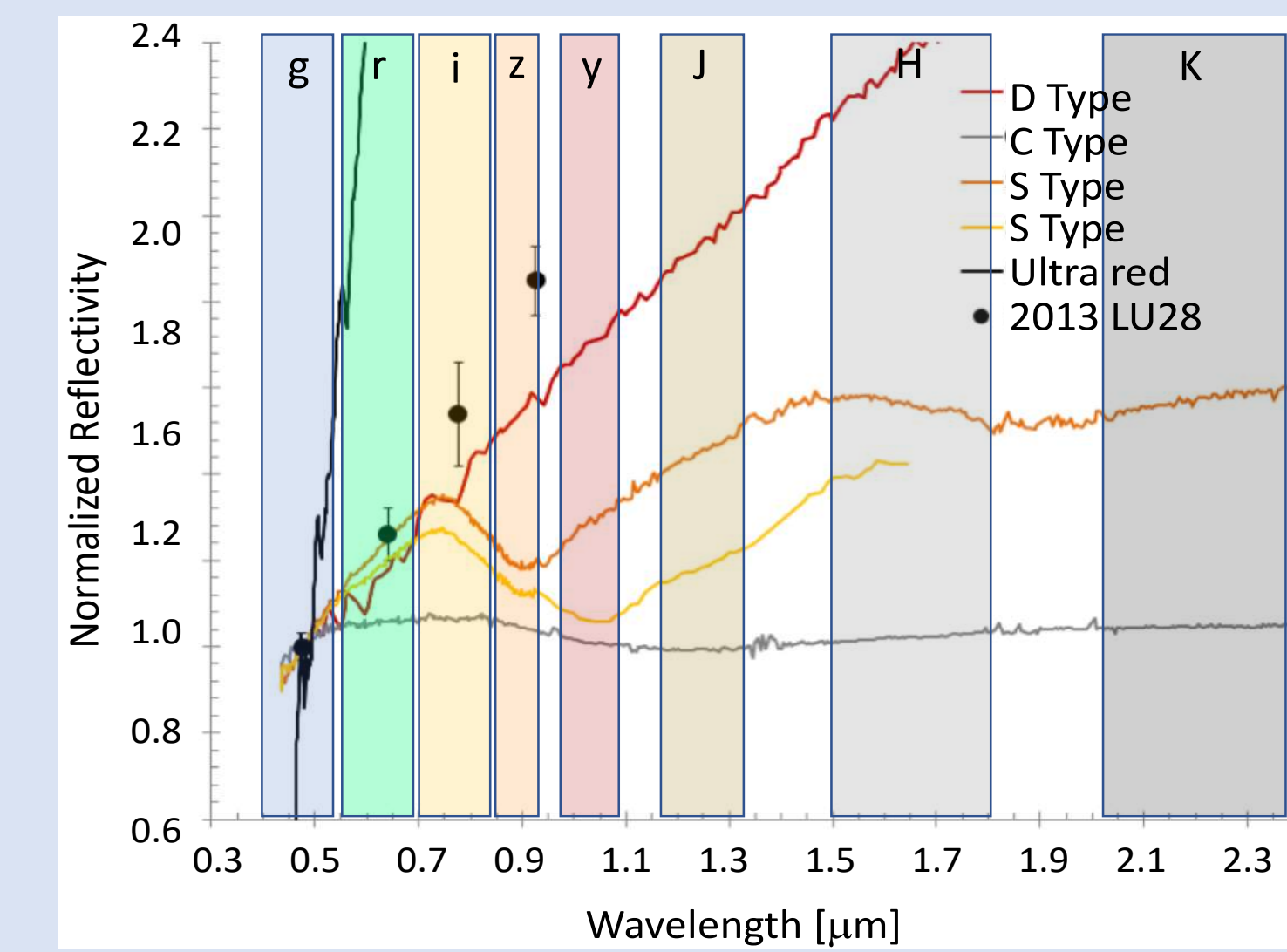


## RESULTS



## DISCUSSION

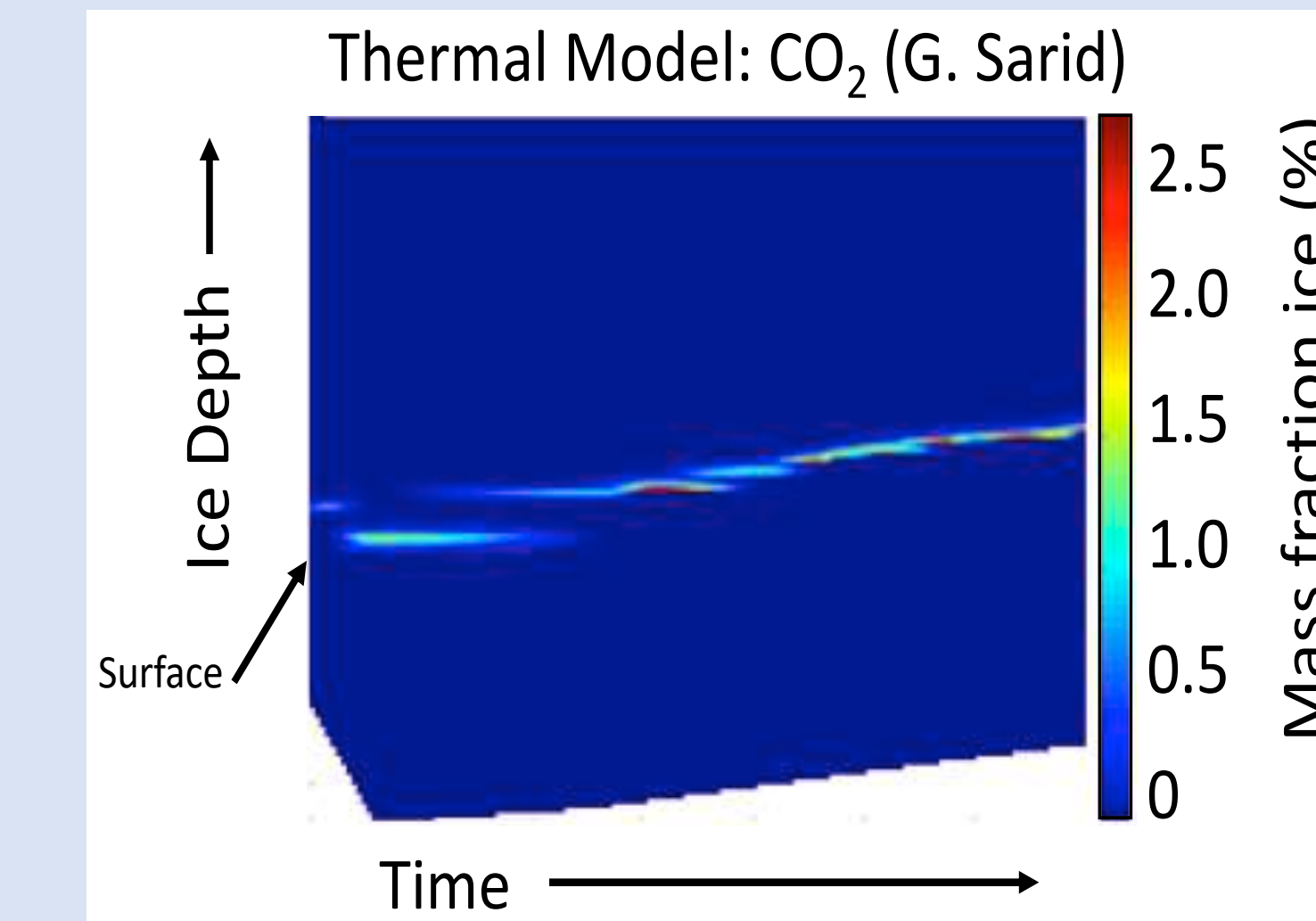
Spectral Reflectivity  
 Consistent with typical comets



Possible Outburst with Exposed Ice  
 Similar to Chiron's activity

### Dust Model

Small amount of dust  
 Only small fraction of total SA  
 Small sized ice patches

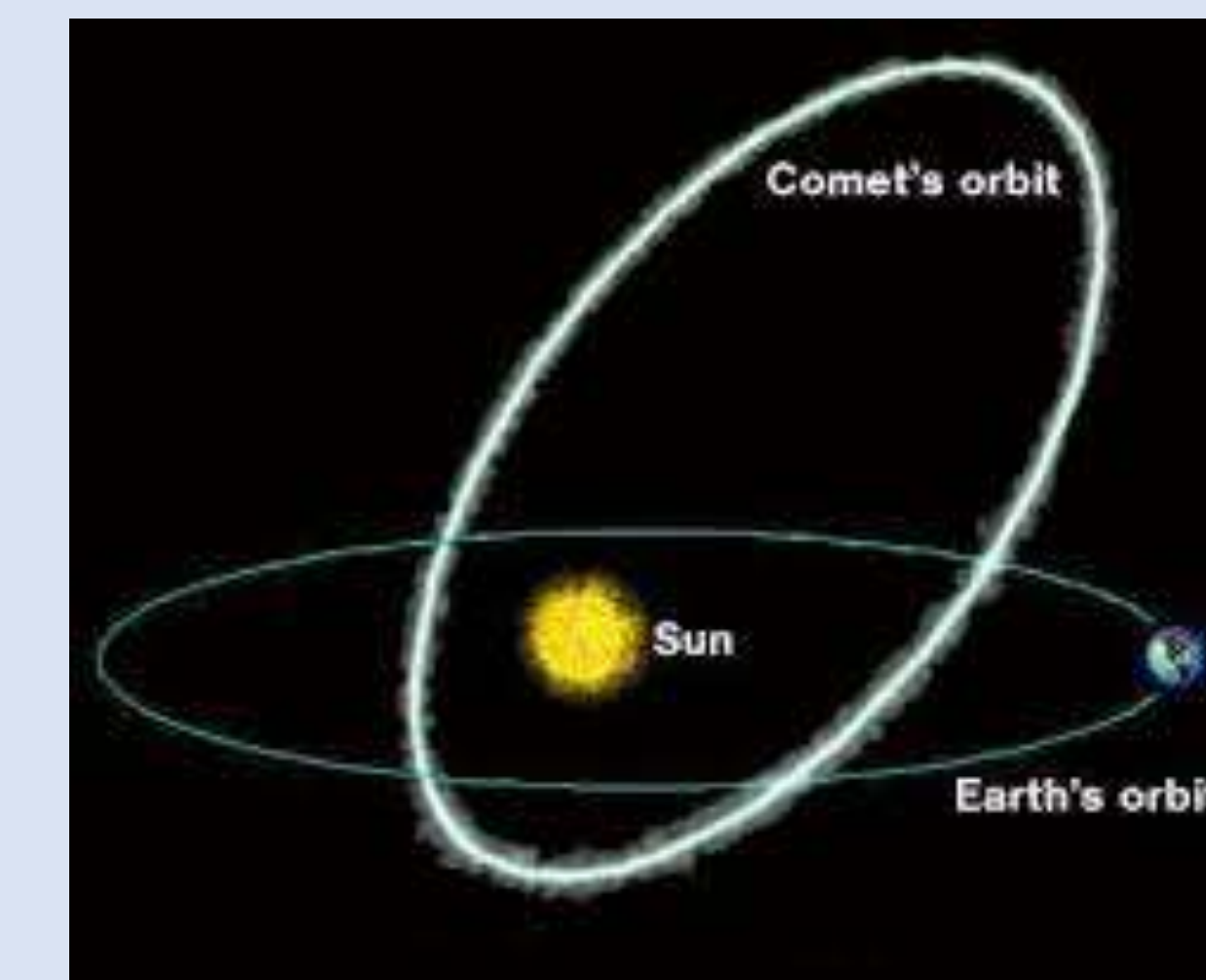


### If Active, Why No Fuzz?

Chiron bound dust "atmosphere"  
 Critical dust grain size for lift off

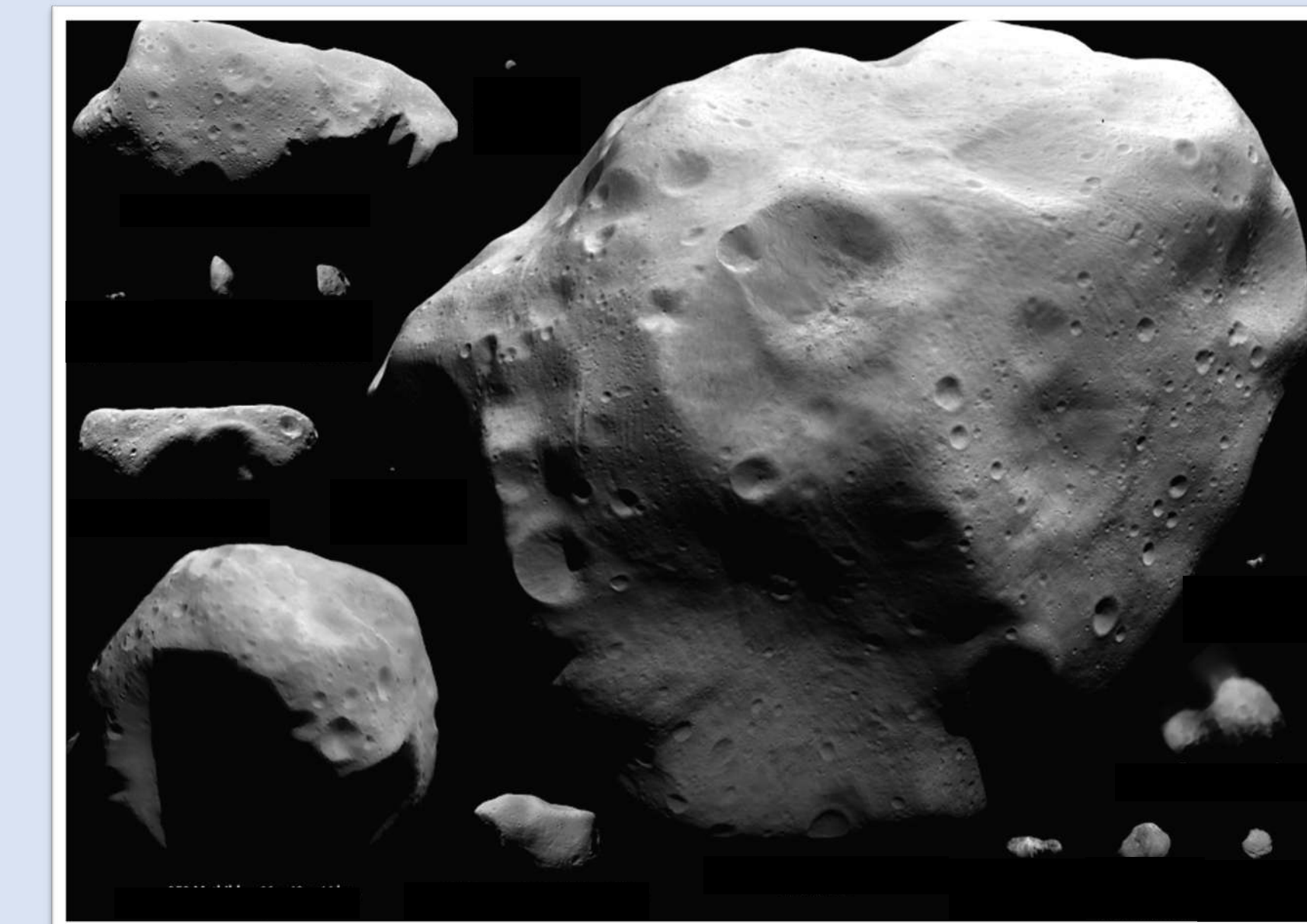
### Bursts of Activity

Can turn off and on  
 Multiple trips around the sun



### Very large object

Comets rad ≈ 0.3 – 10 km  
 2013 LU28 rad ≈ 55.4 km  
 Slightly larger than Lutetia



## REFERENCES

See Final Slide for References



\*See Individual Slides to Zoom