

# Our Solar System



# Full Moon



# SuperMoon...



Minimoon

Distance = 399,686 km =  
1.333 ls

22:09 EST, Feb 3, 2015



Supermoon

Distance = 353,615 km =  
1.180 ls

23:30 EDT, Aug 9, 2014



# APOLLO at Apache Point Observatory

```
apollo_apache_point.txt (~/FRS_131/2023/lectures) - VIM8
APOLLO:                Vanderbei:
2.3 watt laser          5mW laser                2.2 x 10^-3
2 km diameter Moon patch 20 km diameter          10^-2
10^-10 sec pulse        1 sec pulse             10^10
3.5m aperture           0.25m aperture          5.1 x 10^-3
Quantum Efficiency (QE) = 1  QE = 0.9                0.9
  |                        |
  V                        V
2 photons                10.1 x 10^2 = 1010 photons
~
~
~
~
```





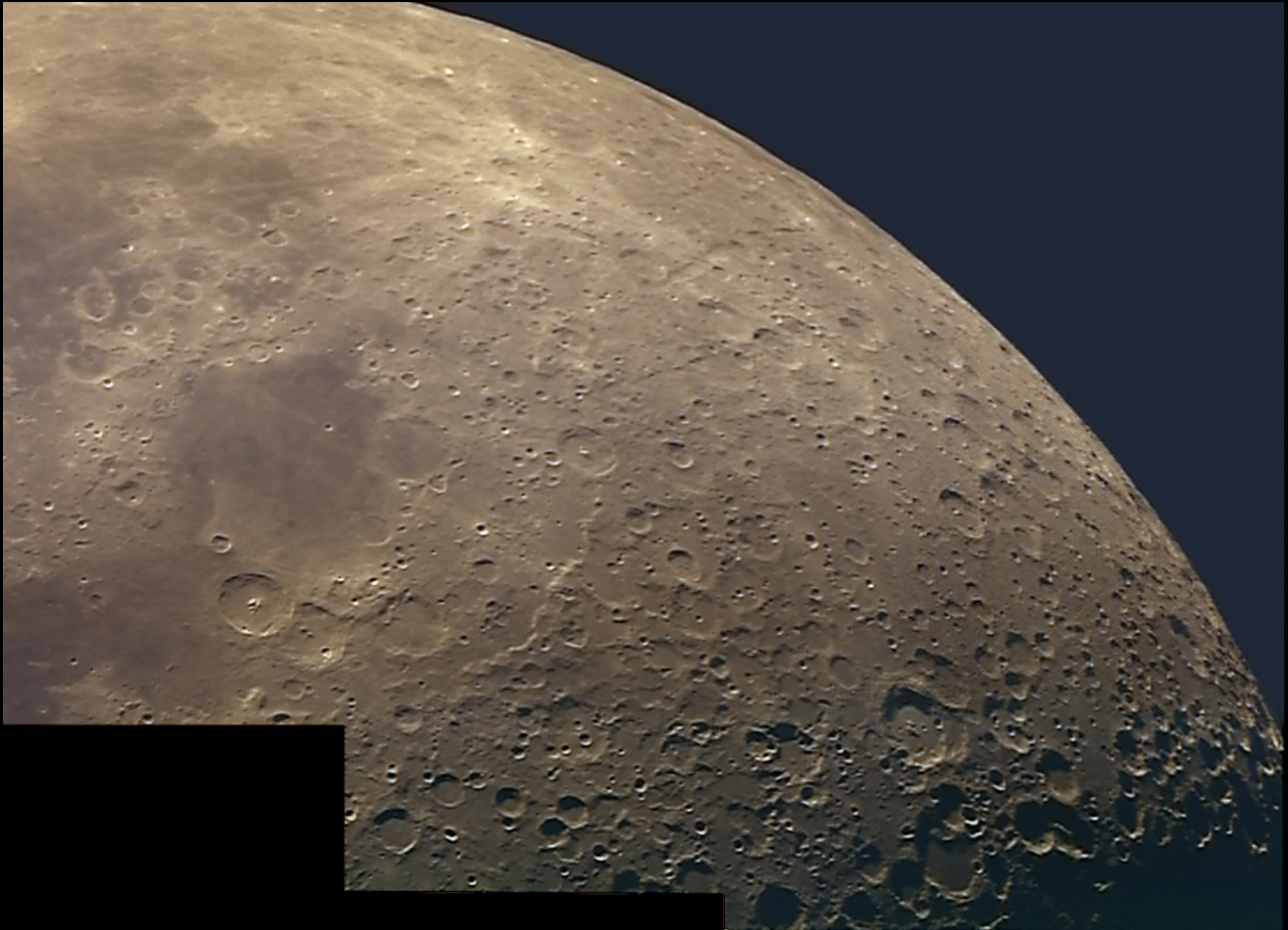
Apollo 15







# Daytime Moon





# Lunar Eclipse (2010 Dec. 21)



