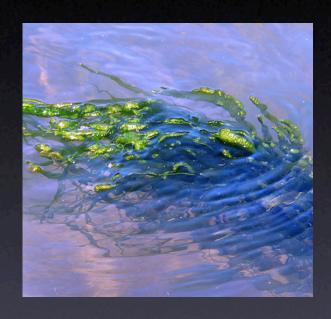
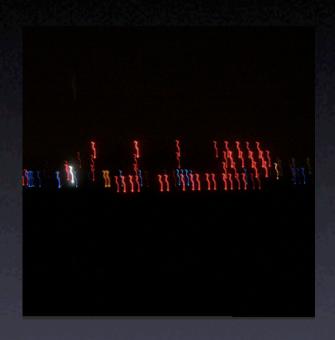
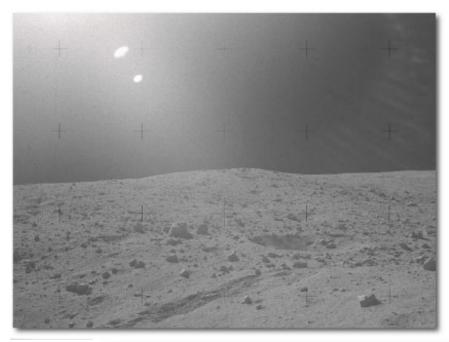
Inward Bound







Gregory Laughlin
Dept. of Astronomy
University of California, Santa Cruz





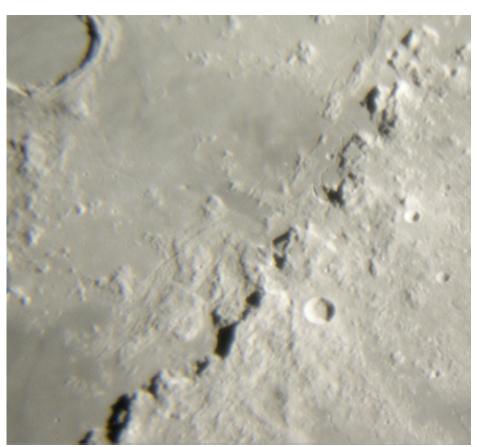


December 1972

Detailed studies of the Moon were done in anticipation of Apollo. Astrobiology can now play a similar role.

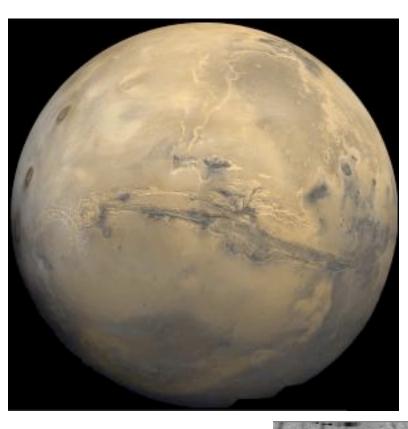


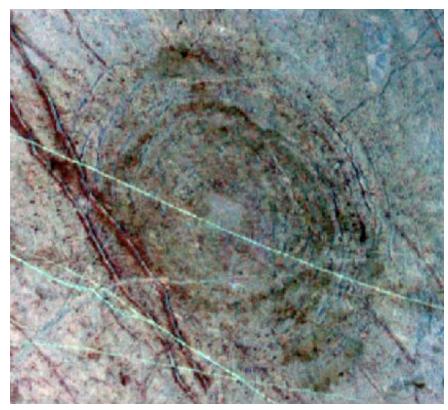
Lick Observatory



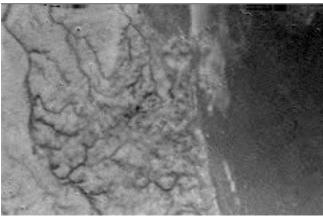
Hadley Rille (landing site)

Astrobiology will prepare us for goals of near-term exploration.



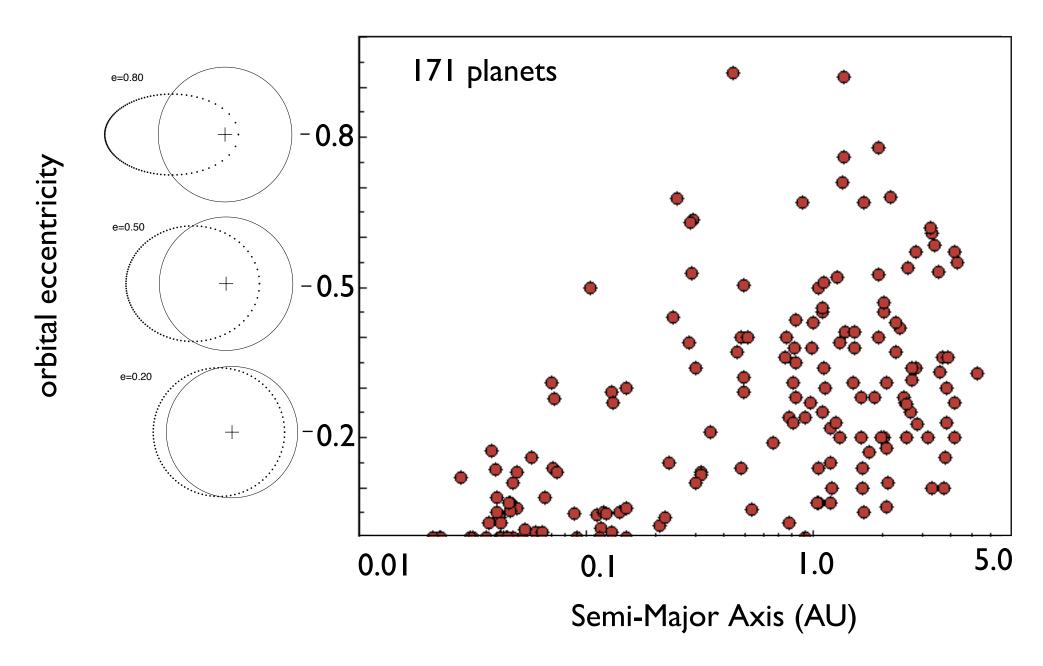


Mars

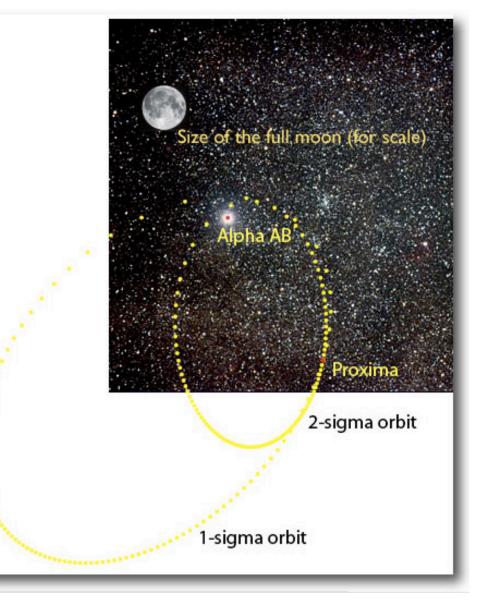


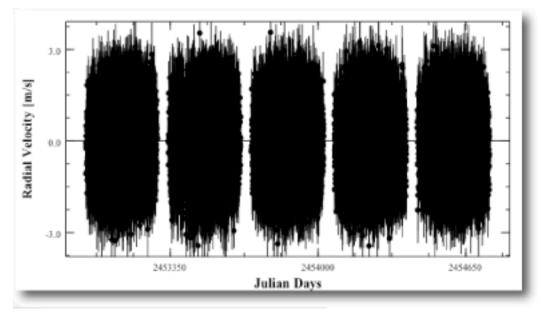
Europa

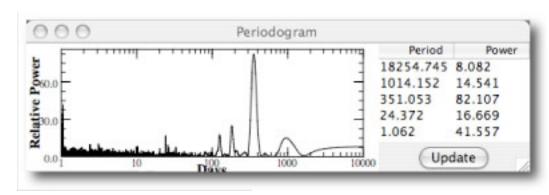
Titan



Astrobiology will also prepare us for long-term goals.







Simulated detection of an Earth-mass planet, using a 5-year radial velocity campaign.

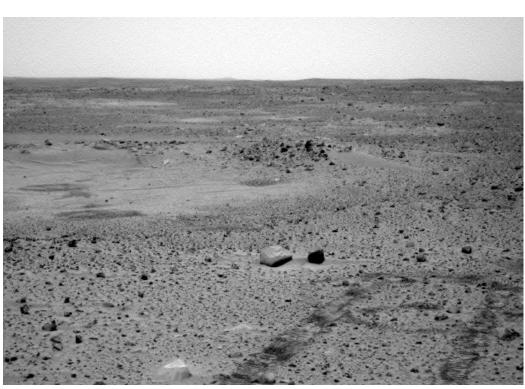
For example, a dedicated ~10 million dollar effort can tell us within 6 years whether habitable terrestrial planets exist in orbit around Alpha Centauri B. (They should be there.)

Everything that we've learned so far points to the conclusion that planets and life are common. If this continues to be true, it has a profound consequence for understanding our own trajectory into the future.

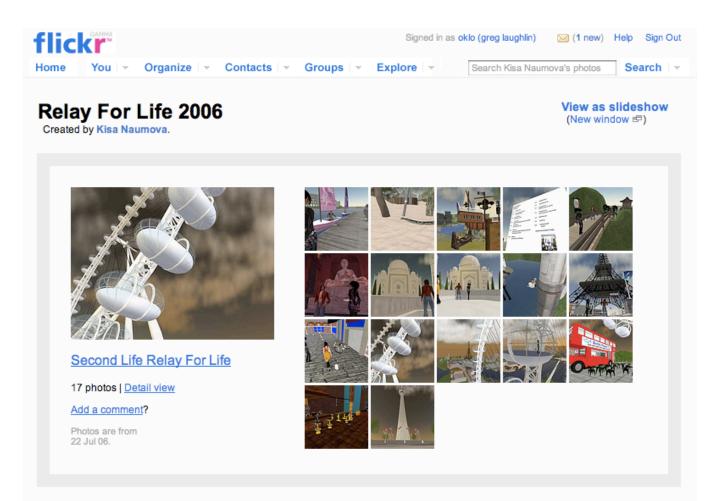
In particular, what is the resolution to Fermi's paradox?

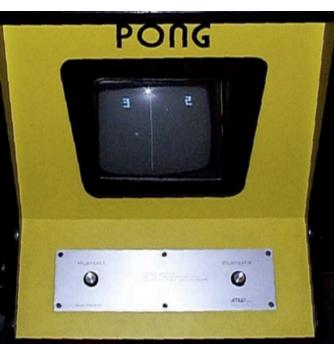
I think that the ultimate future of exploration may be toward smaller scales and shorter time-frames.





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