

Las Cumbres Observatory Global Telescope Network: Keeping Education in the Dark

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Forging the Elements and
Probing the Universe with Stars

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Rob Ratkowski, Maui

Who are we?

- **Las Cumbres Observatory Global Telescope Network, Inc. is a nonprofit organization building a global network of robotic telescopes for both scientific research and educational use**
 - **The “Large” Network:**
 - **2-3 two meter telescopes in rings in the Northern and Southern hemispheres**
 - **The “Small” Network:**
 - **~40 0.4-0.6 meter telescopes scattered around the globe**
 - **The “Medium” Network:**
 - **~30 0.8-1.0 meter telescopes near the two-meter telescopes**

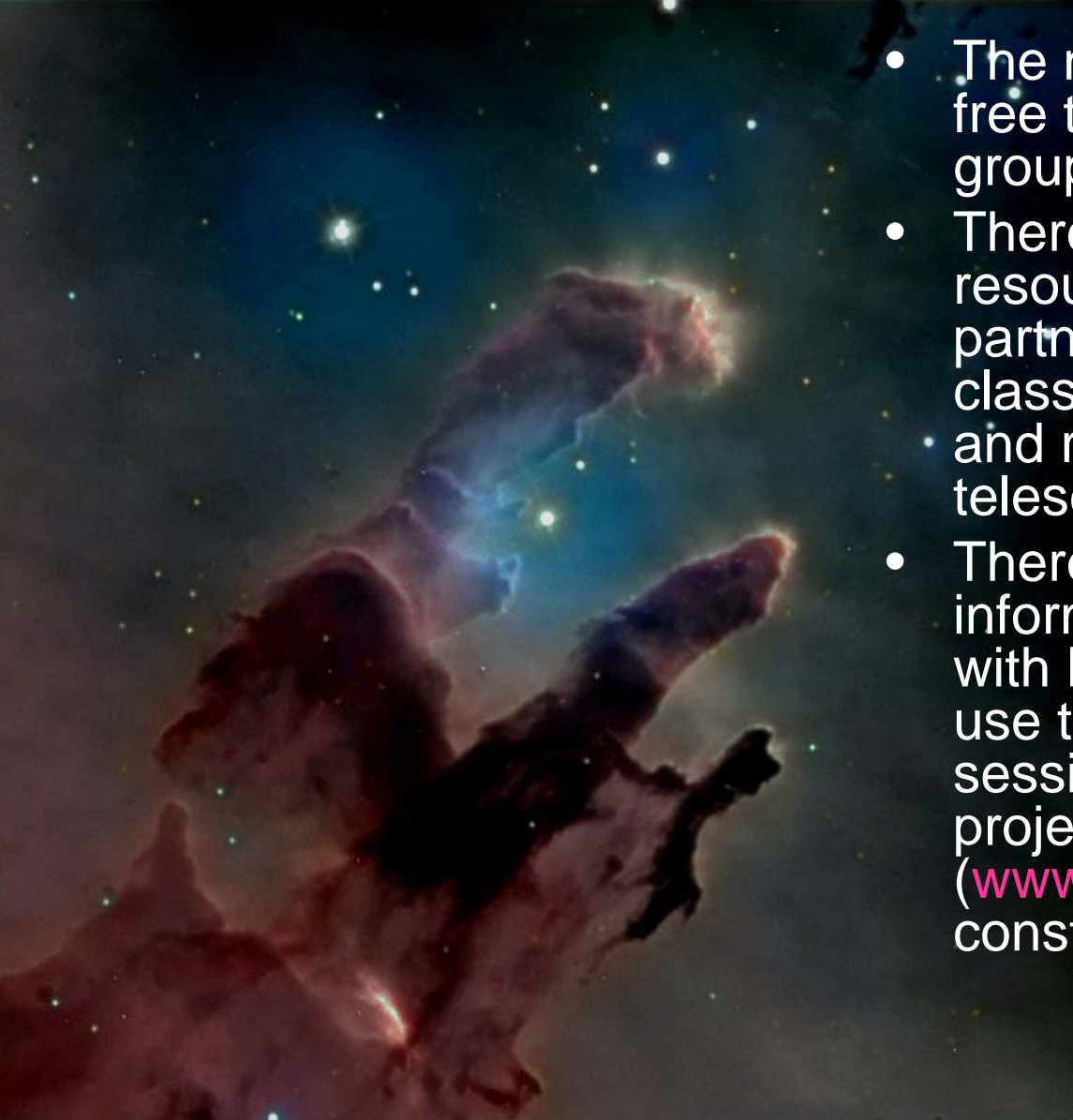
Current LCOGT Network

- Has 2 two-meter telescopes run by the FTP
 - FTN: Haleakala, Maui
 - FTS: Siding Spring Observatory, Australia
- Designing 1-2 more two-meter telescopes
- Designing and building ~40 0.4 meter telescopes
- Designing ~30 0.8-1.0 meter telescopes
- High quality instrumentation including CCD cameras, spectrographs, and possible infrared viewing capabilities

Current LCOGT Network cntd

- A highly motivated team based in Santa Barbara, CA and Cardiff, Wales
- Creating partnerships and affiliations with local and international educational facilities
- Beginning to test out some classroom observing programs as well as a program with the Santa Barbara Natural History Museum

The Vision

- 
- The network will be open and free to any registered school or group
 - There will be an online library of resources, as well as links to our partners and affiliates, including classroom and group activities and research projects for the telescopes
 - There will be more detailed information on how to register with LCOGT as well as how to use the telescopes, planning the session, ideas of research projects, etc. on the website (www.lcogt.net, currently under construction)

Many associate “astronomy” with
pretty pictures ...

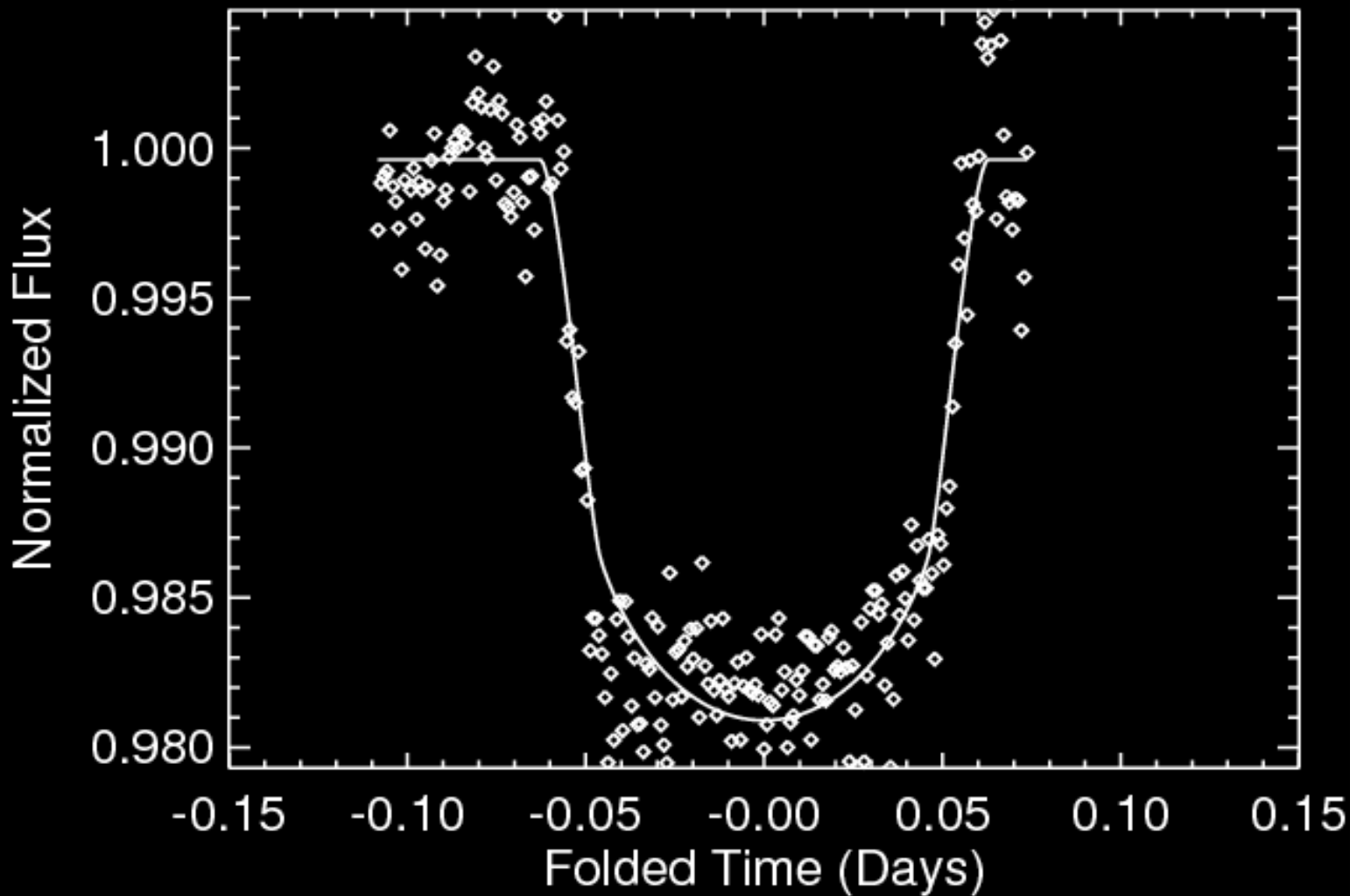


... but there is so much more to
astronomy!

- Most objects in astronomy change & vary with time and need to be observed over the course of several hours to several days, possibly several weeks, months or even years!
 - Extrasolar planets, supernovae, variable stars, GRB's, AGN's, ...



Transit of XO-1



May 12, 2006
FTN

How Will Our Network Be Able To Study These Phenomena?

By having a global network of robotic telescopes!

- With robotic telescopes located at specific points around the world it will be easy to study those objects that require long exposures or multi-day tracking: nonstop observing!
- There will always be at least one (more likely several) telescope(s) in the dark at any given time
- This will give the ability to observe any day, any time, wherever the Sun is not shining!



Why Robotic Telescopes?



Where Will These Robotic Telescopes Be?



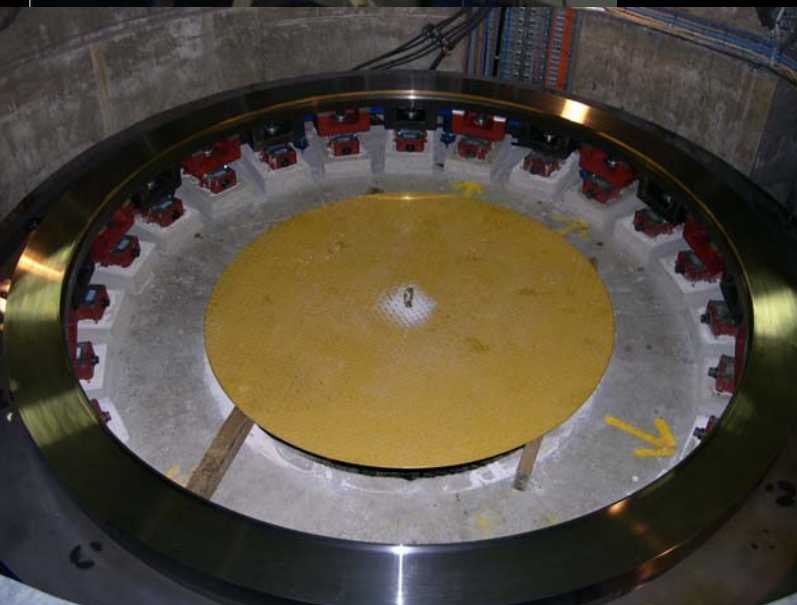
As well as many other places!

Haleakala, Maui; Siding Spring, Australia; La Palma, Canary Islands; Cerro Pachon, Chile; Sutherland, South Africa

FTN, Maui



FIS, Australia



Enano, Chile



Education With the Telescope Network in the Near Future

- Real-time or queued-mode
- Twinning between schools internationally
- Live, online astronomy sessions
 - Possibly some live, interactive astronomy sessions with an astronomer
- Online journal of observations
 - Observe it, write it up, submit it!
- Online resources and tools
 - Classroom and group observing programs, general astronomy resources, links to our affiliated groups
- Astronomy workshops, teacher training and IT workshops
 - How to use the telescopes, how to incorporate the program into teaching general science, etc
- Availability for amateur science and astronomy clubs as well as museum groups and nature centers

Las Cumbres Global Telescope Network!

- *A dream decades in the making!*
- Then there was the Dill Faulkes Educational Trust, which got the Faulkes Telescope Project rolling
- Funding for 20 years provided by the TABASGO Foundation
- TTL built both FTN and FTS and are currently designing new 2m telescopes
- ARI of LJMU operates the FT telescopes
- Cardiff University hosts the Faulkes Telescope Project with associated educational program
- Currently designing and testing the educational network, although smaller telescopes, a much larger network with high quality instrumentation that will lead the way to countless research projects!


Astronomy could be used as a hook to introduce other sciences (physics, chemistry, biology, geology), as well as mathematics, engineering, computer science, art, and literature.





This Sounds Exciting!



- There are currently about 1000 registered users of the Faulkes Telescope Project, ranging from schools in and around the UK to amateur and community groups, as well as a few groups in the US and Australia
 - Becoming a global network of robotic, optical telescopes will not only provide continuous sky coverage and the ability to treat the network as a single instrument (able to “telescope-hop” around the network), and provide the resources for cutting edge science while collaborating with many organizations ...
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LCOGT promotes an active and innovative educational program, open to anyone of any age who gets excited about learning!

We Will Always Keep You In The Dark!



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