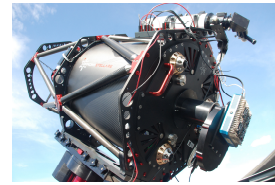




Falcon Telescope Network STEM First Light Project Introduction



Increasing student interest, engagement, and retention in science, technology, engineering, and mathematics (STEM) fields is a problem that needs to be addressed in creative ways. By providing students with opportunities to participate in meaningful, hands-on, authentic science experiences, we can hopefully spark and retain student interest in science through a variety of projects and initiatives utilizing the unique resources available within the Falcon Telescope Network.

The Falcon Telescope Network (FTN) is a global network of 20-inch telescopes being developed by the United States Air Force Academy (USAFA) Department of Physics. It will be shared with both U.S. and international university partners for the purpose of community STEM outreach and undergraduate space research education. Partners in the program include the following sites where individual telescopes, or nodes, of FTN will likely be located in addition to those on USAFA sites:

- Colorado:
 - Colorado Mesa University (Grand Junction)
 - Fort Lewis College (Durango)
 - Northeastern Junior College (Sterling)
 - Otero Junior College (La Junta)
- Rest of U.S.:
 - Penn State University (State College, PA)
 - Kauai Community College (Lihue, HI)
- Chile:
 - Universidad de La Serena (La Serena)
& Observatorio Mamalluca (Vicuña)
- Australia:
 - Gravity Discovery Center and Catholic Education Office of Western Australia (Perth)
 - University of New South Wales (Canberra)
- South Africa
 - University of Cape Town (Cape Town)
- Germany
 - Technische Universität Braunschweig (Braunschweig)

Currently the FTN has five nodes installed, two in CO at Otero Junior College and Northeastern Junior College; and one each in Chile; Canberra, Australia; and Penn State University.

The kickoff STEM outreach project for an FTN node will be the STEM First Light Project. First light for a telescope marks the first official images taken by a newly-commissioned telescope. It is generally a very exciting event, akin to a ribbon-cutting ceremony for a new business or a maiden voyage of a ship. Each node of FTN will likely have a first light event, but the next STEM first light of the network will involve the node in Canberra, Australia at the University of New South Wales (UNSW). This event will occur on one or two nights during the week of March 7, 2016, weather permitting. Please see the Registration section below for additional important dates.

We would like your students to participate in an exciting STEM First Light Project where students become scientists and a crucial part of selecting the FTN telescopes' first STEM images! Classes or school-associated groups will submit proposals expressing which astronomical objects to image on these milestone evenings. Proposing will require initial research by the students on what objects are visible in the night sky at the UNSW node location and current time of year. It will also require students to try their hand at scientific writing as they communicate their proposal idea to others. The proposals will be written within a provided template and submitted to USAFA via a web upload. It will include information such as the celestial coordinates of the object, background information on the chosen object, and why it should be one of the first images of the telescope. A class or group may participate in one or many of the first light events in the coming months.

Once all of the proposals are received for a specific event, the FTN education team and USAFA cadets will review them and determine which proposals will be accepted. To encourage a variety of participating ages, appropriate grade level considerations will be implemented. Individuals from the reviewing committee will contact the classes or organizations that submitted proposals to inform them of their acceptance or give insight on why a proposal was not accepted.

The images from the observations will be made available via a webpage or by email for further investigation.

Australian National Curriculum Support

The FTN STEM First Light Project is a valuable learning tool that could help support the following National Curriculum areas:

Year 5: Earth and Planetary Sciences (Planets and the Sun) ACSSU078

Year 7: Eclipses (Sun-Earth-Moon Positions) ACSSU115

Gravity (Escape and Decay orbits) ACSSU118

Year 8: Use and influence of Science ASSHE135

Year 10: Galaxies, Stars, Solar Systems ACSSU188

Year 11: Physics Unit 3: Gravity and Electromagnetics (Kepler)

Kickoff Materials

Informational materials will be available online to each participating teacher/supervisor upon registration. Materials will include:

- General FTN Information
- Instructional Information
 - Astronomy Resources
 - Information about telescopes and the night sky to help your students get started
 - Specific Project Guidelines
- Proposal Template

Registration

Registration for the UNSW STEM First Light Project will be accepted starting February 8, 2016 through February 22, 2016. Proposals will be due February 26, 2016. Images will be taken during the week of March 7, 2016, weather permitting.

To **Register** for the **UNSW STEM First Light Project** go to <http://www.cvent.com/d/mrqb8n> between February 8 and February 22, 2016. Once registered, registrants will have the ability to download the above listed kickoff materials. When the proposal is complete, registrants must return to the registration page link, provided in the confirmation email, to upload the document.

If you would like to participate in a future node's first light event, or would like more information about the FTN send a brief email to FTN@usafa.edu stating your interest.

Questions?

Send your questions to: FTN@usafa.edu