

ASTRONOMY WORKSHOP AND OBSERVATORY REPORT

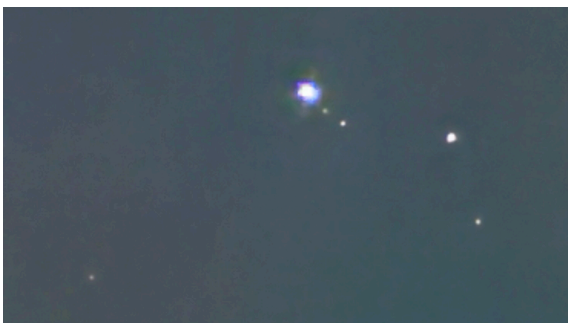
June and July 2026 Observations

Quarknet Summer Workshop 2026

This report details the activities and observations undertaken during an astronomy workshop and observatory experience spanning from June 9-11, 2026, with an additional session on July 15, 2026, focusing on radiation detection technology. The workshop provided hands-on experience with astronomical observation techniques, data analysis, and advanced scientific instrumentation.

June 9, 2026: Initial Observations and Planning

The workshop commenced on June 9, 2026, with a 9 am meeting at Dr. Lee's office. Astronomy observation team members Darrien, Anthony, and Dr. Kirill were in attendance. The primary objective of this meeting was to finalize the weekly schedule, ensuring all planned activities were accounted for.



Later that evening, at 8:30 pm, the team convened at the TTU Skyview Observatory. Despite challenging cloud cover, the 12" automated telescope was set up. Initial viewing attempts focused on Venus and Jupiter, which were intermittently visible through the clouds. A significant portion of the session was dedicated to discussing and practicing layered photography techniques for star identification. Observations of star streaks within layered images were made, offering insights into celestial movement. Unfortunately, increasing cloud coverage eventually halted further observations for the night.

June 10, 2026: Research and Advanced Observation



The morning of June 10, 2026, from 9:30 am to 11:30 am, was dedicated to developing classroom research materials. The team utilized resources such as the ventusky.com cloud cover map to inform their efforts.



The evening session at the TTU Skyview Observatory, running from 8:00 pm to 12:00 am, focused on more advanced observational targets. The team successfully tracked a White Dwarf system and a potential exoplanet candidate. Preparations for observation included completing camera cool-down and telescope sequencing, which typically took 30-45 minutes. High winds during the evening prevented the use of portable telescope equipment, limiting observations to the main observatory setup.



June 11, 2026: Data Analysis and System Discussion

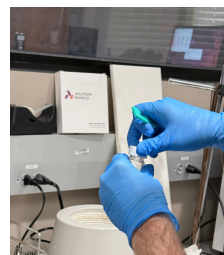
Data analysis formed the core of the activities on June 11, 2026. The team reconvened at the TTU science building to process the observational data gathered over the previous nights. Discussions centered on the Trapest system and exploration of resources available on spaceengineering.org, furthering the team's understanding of exoplanetary systems and related research.

June 12, 2026: Intergration and Program Wrap-Up

Educators participated in a roundtable to translate 5 core activities explored during the week into actionable, class-room ready lessons for the upcoming school year. We also meet with Shane Wood over a zoom call to discuss the future of the program and potential outcomes. We also had a logistics planning for a follow-up one-day workshop activities to be held in July to complete our workshop week.

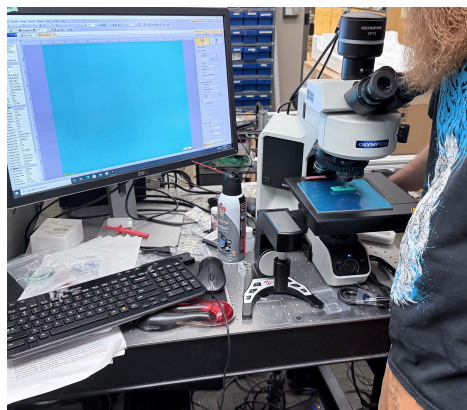
July 15, 2026: CR-39 Radiation Detection Technology

On July 15, 2026, the workshop included a specialized session on CR-39 polymer radiation detection technology. This hands-on experience provided valuable insights into a crucial area of scientific research.

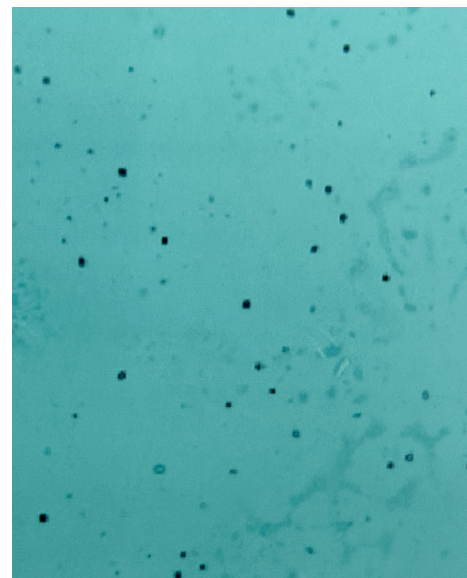


Key Features of CR-39:

- **Material:** A thermoset polymer.
- **Mechanism:** Records high-energy particle impacts through the breaking of chemical bonds within the polymer structure.
- **Applications:** Widely used for neutron detection, environmental testing, radon detection, dosimetry, and educational experiments.



The session involved viewing particle tracks using Scanning Electron Microscopy (SEM) and AI analysis, offering a detailed look at the recorded impacts. The educational value of CR-39 was particularly emphasized, as it provides a physical, permanent record of individual radiation particles. This tangibility makes abstract concepts of radiation much more accessible and understandable.



Educational Relevance:

CR-39 technology is considered an ideal teaching tool, suitable for students from high school through university levels, enabling a deeper comprehension of nuclear physics and radiation science.



Conclusion

The astronomy workshop and observatory experience provided a comprehensive and engaging learning opportunity. From hands-on celestial observation and data analysis to specialized training in radiation detection technology, participants gained valuable practical skills and theoretical knowledge. The diverse range of activities, from telescopic viewing of planets to the microscopic analysis of particle tracks, underscores the multifaceted nature of modern astronomical and scientific research.