



GENERAL MEETING

Visitors Welcome

Tuesday Evening, October 20, 7:30 PM

Jefferson Township Park

1730 S webster Rd, New Haven, IN

Introducing the Observatory by Gene Stringer

This event is for members of the Fort Wayne Astronomical Society and their guests.

General Meetings are held the third Tuesday of each month, 7:30pm. Check our web site for location.

The Star*Quest Observatory

October's meeting will be at our new observatory in Jefferson Township Park. Gene Stringer will introduce us to the new facility nearing completion and show us around, and enjoy "First Light". The observatory has been in construction for a year and is now nearing completion. If you can, please bring a chair.

We hope the final landscaping will be done so please stay on the entrance sidewalk upon arriving.

This is a members and their guests event. Come and meet your new observatory.

After the meeting you are invited to join the group that meets for continuing discussions at a restaurant to be selected at the meeting.

Calendar Events Oct-Nov

Scheduled events for the next two months: Free public observing at Jefferson Township Park every clear Saturday for 2 hours, starting 1 hour after sunset, April - November.

October

General Meeting Tuesday, Oct 18

Board Meeting Tuesday, Oct 25

November

General Meeting Tuesday, Nov 15

Board Meeting Tuesday, Nov 22 (Note: this will be the last Board meeting of the year).

Deep Sky Star Parties

Deep Sky observing events are scheduled for FWAS members and their guests to observe the fainter objects in the sky from a location away from city lights. These events are closed to the general public to allow members to plan observing and photography projects that will be undisturbed.

This year we have not yet selected a site. Until we do you are invited to come to JTP for observing. If you have suggestions for a site contact Larry Clifford at 824-2655.

Observing times are scheduled for Fridays near the new moon each month. This year the remaining dates are: **Oct 28, Nov 25.**

Public Star Parties

The public observing season started in April. We will need trained volunteers to run the Richard Johnston (RJ) Telescope. **If you wish to participate, with the RJ scope, with your own telescope or without a scope, contact Gene Stringer at 489-8135. to get on his volunteer list.** This is a great way to contribute to our community service. Current events are:

Sat Oct 15 Bluffton Halloween Hayride, Check with Larry Clifford, 824-2655, for details.

Sat Nov 26 at JTP, final public viewing for the season.

After this the observatory will be closed to the public until april 2017. However, members may schedule time by contacting our Observatory Director, Mark Anderson.

Star*Quest Update

By Gene Stringer

As of this writing our contractor, Robert Koors, has completed most of his construction tasks. The construction support team has finished the painting and has installed rubber floor tiles in the west wing and part of the east wing. Landscaping was accomplished this week, with the ditches filled and the site graded & planted with seed. Rain gutters are expected to be installed this week.

There is still much to do before the observatory is fully functional, including the following items from our Construction Support Task List:

Continued on Page 2

Board Meeting Highlights

- The Board met on 27 Sep in Phil Hudson's office.
- Treas reported current holdings of \$2,895 for General operations and \$39,201 for S*Q.
- Construction of the S*Q Observatory is nearly complete.
- The next board meeting will be on Tuesday, 25 Oct., at 7:30 p.m. in Phil Hudson's office.

FWAS OFFICERS

President: Larry Clifford 824-2655
 Vice-President: Phil Hudson 484-7000
 Secretary: Gene Stringer 489-8135
 Treasurer: Dave Wilkins 444-3070

APPOINTED POSITIONS

Observatory Director: Mark Anderson
 260-387-7913
 Star*Quest Project Manager: Gene Stringer 489-8135
 Star*Quest Treasurer: Dave Wilkins 444-3070

EDITORIAL STAFF

Eyepiece editor, Gene Stringer, 489-8135
 Distribution, Gene Stringer 489-8135 & Phil Hudson 484-7000

Submissions to the Eyepiece are cheerfully accepted by E-mail (preferred) or on CD or other media, or on paper. Submissions may be edited



East Wing

Five external pads provide set-ups for member's telescopes



A centrally located Pylon provides eight electrical plug outlets for the external telescopes mounted on the pads or the grass.

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5. Install Lamps (Alan Pareis). – Current white lights include LED lamps for the control room and dimmable floods for the viewing room and external pads. Alan is researching the current technology for red lighting for improvement over the original design .
6. Install RJ Telescope.– Gerne Stringer, Phil Hudson and Robert Koors have cleaned the pier well, grouted it with hydraulic cement and prepared it for the pier. the pier and wedge are expected to be installed in time for the members to see it operate at the general meeting.
7. Install HC Telescope
8. Install Floor Tiles. – Phil Hudson and Gene Stringer installed about 450 sqft. in the west wing and part of the east wing. We plan to tile the control room as well. Greg Jacobs reports that he can procure the required additional 600 tiles by December.
9. Plan & install signs.
10. Landscaping (Laura Ainslie) – The contractor has graded and seeded the site. Laura's plans will create a welcoming garden at the north entrance and other plantings on the site.



West Wing

Our existing shed will provide a handy storage place for maintenance equipment.



Inside West Wing

Rubber floor pads provide safety for dropped items and excellent durability under foot traffic.



North Entrance welcomes visitors



The control room is fully insulated. It was a handy work room for finishing the construction.

Additional tasks for support of the Star*Quest Project are:

1. Recognition of donors and past members.
2. Procure & install observatory furniture.
3. Procure & Install electric/electronic equipment.

We look forward to demonstrating the many features of this observatory to the members at the general meeting on Tuesday. Bring a folding or camp chair if you can.

This article is provided by **NASA Space Place**. With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit spaceplace.nasa.gov to explore space and Earth science!



One Incredible Galaxy Cluster Yields Two Types of Gravitational Lenses

By Ethan Siegel

There is this great idea that if you look hard enough and long enough at any region of space, your line of sight will eventually run into a luminous object: a star, a galaxy or a cluster of galaxies. In reality, the universe is finite in age, so this isn't quite the case. There are objects that emit light from the past 13.7 billion years—99 percent of the age of the universe—but none before that. Even in theory, there are no stars or galaxies to see beyond that time, as light is limited by the amount of time it has to travel. But with the advent of large, powerful space telescopes that can collect data for the equivalent of millions of seconds of observing time, in both visible light and infrared wavelengths, we can see nearly to the edge of all that's accessible to us.

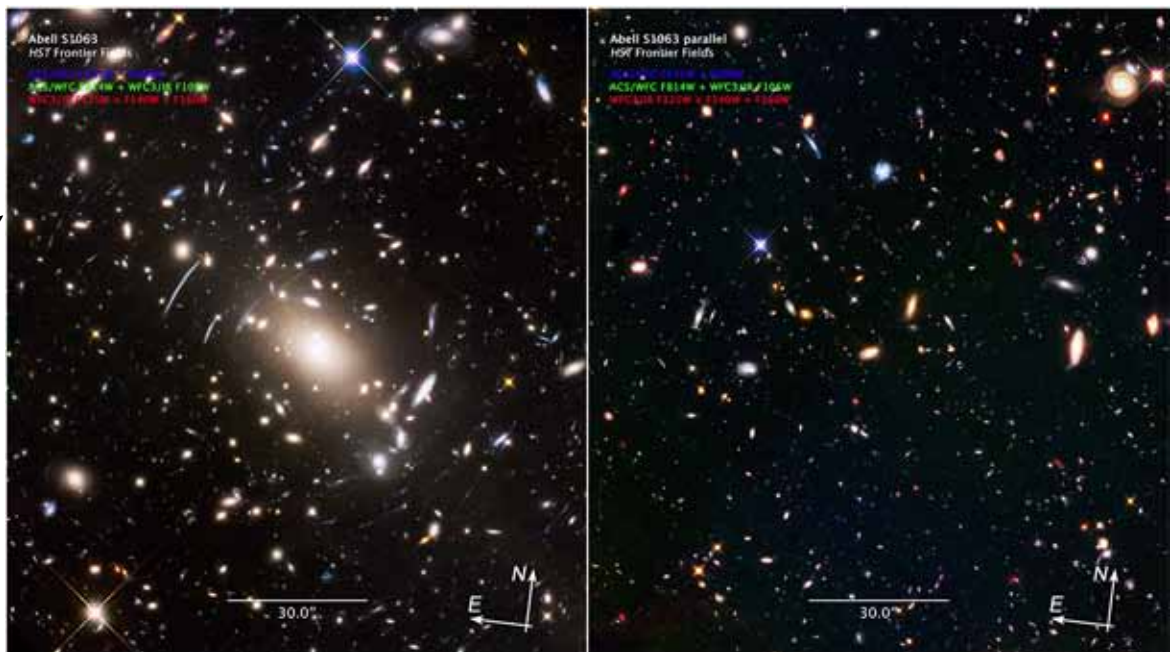
The most massive compact, bound structures in the universe are galaxy clusters that are hundreds or even thousands of times the mass of the Milky Way. One of them, Abell S1063, was the target of a recent set of Hubble Space Telescope observations as part of the Frontier Fields program. While the Advanced Camera for Surveys instrument imaged the cluster, another instrument, the Wide Field Camera 3, used an optical trick to image a parallel field, offset by just a few arc minutes. Then the technique was reversed, giving us an unprecedentedly deep view of two closely aligned fields simultaneously, with wavelengths ranging from 435 to 1600 nanometers.

With a huge, towering galaxy cluster in one field and no comparably massive

objects in the other, the effects of both weak and strong gravitational lensing are readily apparent. The galaxy cluster—over 100 trillion times the mass of our sun—warps the fabric of space. This causes background light to bend around it, converging on our eyes another four billion light years away. From behind the cluster, the light from distant galaxies is stretched, magnified, distorted, and bent into arcs and multiple images: a classic example of strong gravitational lensing. But in a subtler fashion, the less optimally aligned galaxies are distorted as well; they are stretched into elliptical shapes along concentric circles surrounding the cluster.

A visual inspection yields more of these tangential alignments than radial ones in the cluster field, while the parallel field exhibits no such shape distortion. This effect, known as weak gravitational lensing, is a very powerful technique for obtaining galaxy cluster masses independent of any other conditions. In this serendipitous image, both types of lensing can be discerned by the naked eye. When the James Webb Space Telescope launches in 2018, gravitational lensing may well empower us to see all the way back to the very first stars and galaxies.

If you're interested in teaching kids about how these large telescopes "see," be sure to see our article on this topic at the NASA Space Place: <http://spaceplace.nasa.gov/telescope-mirrors/en/>



Galaxy cluster Abell S1063 (left) as imaged with the Hubble Space Telescope as part of the Frontier Fields program. The distorted images of the background galaxies are a consequence of the warped space dues to Einstein's general relativity; the parallel field (right) shows no such effects. Image credit: NASA, ESA and Jennifer Lotz (STScI)



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Next General Meeting:
Tuesday, October 18, 7:30 pm
Jefferson Township Park
1730 S Webster Road
New Haven, IN 46774

Program:
Introducing the Observatory
to Members of the
Fort Wayne Astronomical Society
by Gene Stringer

Saturday Night Stargazing at [Jefferson Township Park](#) every clear Saturday night is temporarily suspended due to construction. Opening Soon.

October Night Sky: The shorter nights are now with us as the Sun moves further into the southern sky. Mercury spends most of the month in the morning sky, lying too close to the Sun to be easily seen. Venus is a brilliant object, readily observed in the western sky from just after sunset. The planet sets around 11pm by the end of the month. Venus and Saturn are within 3 degrees of each other on the 30th. Mars is still well positioned for viewing in the early evening. Saturn sinks lower into the western sky this month and is nearby the bright red star, Antares. There are two New Moons in October- on the first and last day of the month.