

IO - July 2009

Issue 2009-07
Eugene Astronomical Society

Eugene Astronomical Society
Annual Club Dues \$25
President: Sam Pitts - 688-7330
Secretary: Jerry Oltion - 343-4758
Additional Board members:
Jacob Strandlien, Tony Dandurand.

www.eugeneastro.org

EAS is a proud member of:

The Astronomical League
The World's Largest Federation of Amateur Astronomers



Next Meeting: July 23rd

Topic to be Announced — Call for Speakers

Next meeting's topic hasn't been decided yet. We're always looking for speakers for future meetings, too. Now would be a great time for anyone with a special astronomy-related skill or interest to talk to the group. EAS President Sam Pitts has done an amazing job of finding speakers for our meetings, but he needs our help to keep the docket filled month after month. Please consider putting on a program on your favorite subject and share your knowledge with the group. And if you know of someone outside the club who could give a good talk, let Sam know about them.

In addition to the main program, Jacob Strandlien will present the astronomy news for July. And as always, we encourage the sharing of astronomy-related questions, news, or projects with other members of the club.

Io Articles Needed

While we're on the subject of club involvement (see above), your humble *Io* editor could use a hand with articles for our newsletter. I get a few articles every now and then from members (and a big thank-you to those who've written them!), but I know there are more of us with interesting stories to tell.

I'd like to make this newsletter reflect the knowledge and experiences of our club members. I'd also like to make sure it's interesting and useful. With that in mind, I'm soliciting opinions as well as articles. Tell me what parts of the *Io* you like, what you think could go, and what new features you'd like to see. Are the "Observing Highlights" worth the effort? Do you use the planet and Sun/Moon data on p.3? Do you find the NASA and other web-based articles interesting or a waste of space? If the latter, what do you think would be a better use of that space? Is the *Io* itself passé now that we have the email list?

Now's your chance to help make this newsletter more useful and interesting to *you*. Email your articles and/or suggestions to me at j.oltion@sff.net.

Next First Quarter Friday: July 31st

Our next First Quarter Friday star party will be July 31st. Mark your calendar and bring your scope to the College Hill Reservoir (24th and Lawrence in Eugene) and share the view with whoever shows up.

Here are the dates for First Quarter Fridays through December of 2009.

July 31, 2009
August 28, 2009
September 25, 2009

October 23, 2009
November 27, 2009

December 25, 2009
(Yes, Christmas night!)

The Eugene Astronomical Society meets at EWEB

500 E. 4th Avenue in Eugene.

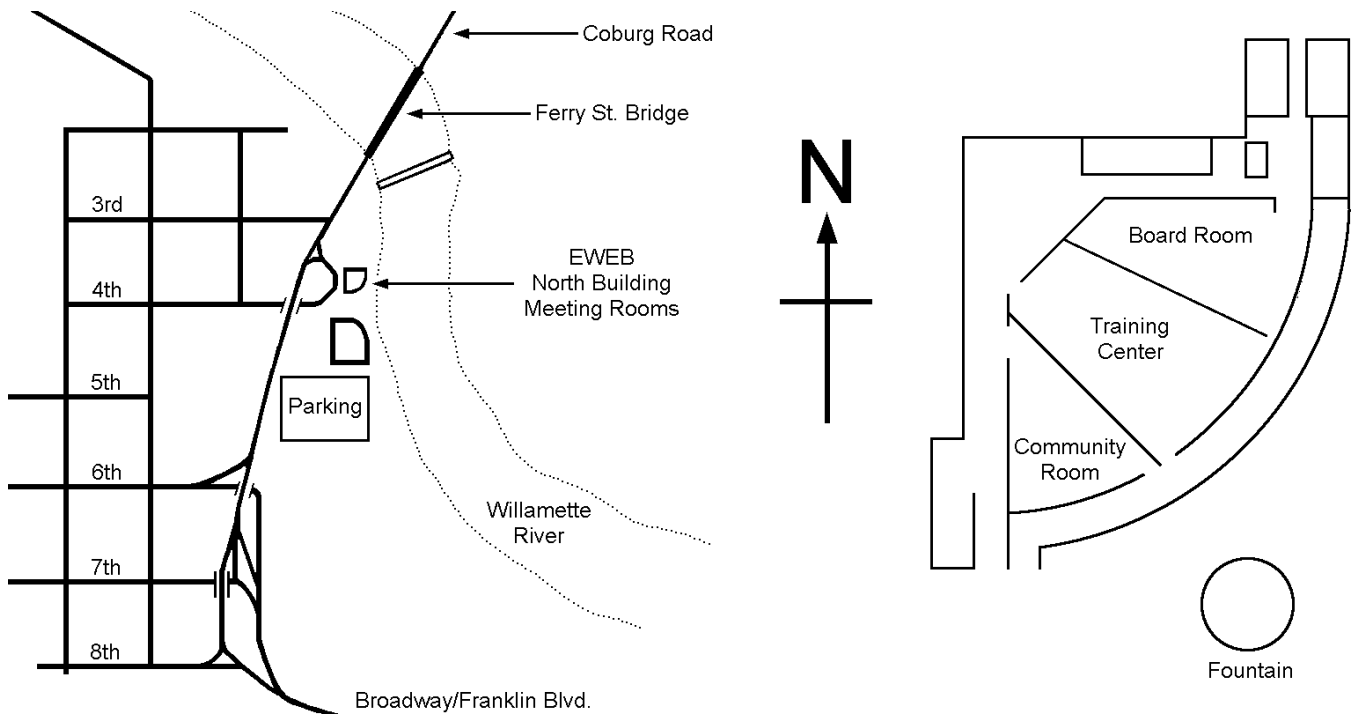
Our next meeting will be on Thursday, July 23rd, at 7:00 in the north building's Community Room. This is in the semicircular building to the north of the fountain at EWEB's main campus on the east end of 4th Avenue.

Meeting dates for 2009: (All meetings are at 7:00 in the Community Room)

July 23
August 27

September 24
October 22

November 19
December 17



EWEB is located at 500 E. 4th Avenue.

EAS meets in the first room in the semicircular building to the north of the fountain.

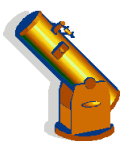
CASTLE STORAGE

Unit _____
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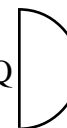
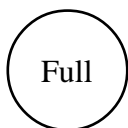
120 S. Danebo • Eugene, OR 97402 • 541.607.3800

Thank You Castle Storage

For over a year now, Castle Storage has generously provided EAS a place to store its telescopes and equipment. EAS would like to thank Castle Storage for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. They are great people and offer secure and quality storage units.



Observing in July



July 7	July 15	July 21	July 28
Mercury Rise: 4:58 AM	Mercury Set: 9:08 PM	Mercury Set: 9:24 PM	Mercury Set: 9:30 PM
Venus Rise: 2:56 AM	Venus Rise: 2:53 AM	Venus Rise: 2:54 AM	Venus Rise: 2:56 AM
Mars Rise: 2:28 AM	Mars Rise: 2:14 AM	Mars Rise: 2:03 AM	Mars Rise: 1:52 AM
Jupiter Rise: 10:53 PM	Jupiter Rise 10:20 PM	Jupiter Rise 9:56 PM	Jupiter Rise 9:26 PM
Saturn Set: 11:53 PM	Saturn Set: 11:23 PM	Saturn Set: 11:01 PM	Saturn Set: 10:34 PM
Uranus Rise: 00:04 AM	Uranus Rise: 11:29 PM	Uranus Rise: 11:05 PM	Uranus Rise: 10:37 PM
Neptune Rise: 10:50 PM	Neptune Rise: 10:18 PM	Neptune Rise: 9:54 PM	Neptune Rise: 9:26 PM
Pluto Set: 5:08 AM	Pluto Set: 4:36 AM	Pluto Set: 4:12 AM	Pluto Set: 3:44 AM

All times: Pacific Standard Time (Nov 2, 2008-March 8, 2009) = UT -8 hours or U.S. Pacific Daylight Time (March 8-November 1, 2009) = UT -7 hours.

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
7/1/2009	14:17	01:16	05:33	20:59	03:10	23:23
7/2/2009	15:23	01:45	05:34	20:59	03:11	23:21
7/3/2009	18:26	02:19	05:35	20:59	03:12	23:21
7/4/2009	19:22	03:00	05:35	20:58	03:13	23:20
7/5/2009	20:11	03:49	05:36	20:58	03:14	23:19
7/6/2009	20:52	04:44	05:37	20:58	03:15	23:18
7/7/2009	21:26	05:44	05:37	20:57	03:17	23:17
7/8/2009	21:53	06:47	05:38	20:57	03:18	23:16
7/9/2009	22:17	07:51	05:39	20:56	03:20	23:15
7/10/2009	22:38	08:55	05:39	20:56	03:21	23:14
7/11/2009	22:57	09:58	05:40	20:55	03:22	23:12
7/12/2009	23:16	11:01	05:41	20:55	03:24	23:11
7/13/2009	23:36	12:06	05:42	20:54	03:26	23:10
7/14/2009	23:59	13:13	05:43	20:53	03:27	23:08
7/15/2009		14:23	05:44	20:53	03:29	23:07
7/16/2009	00:26	15:36	05:45	20:52	03:30	23:05
7/17/2009	00:59	16:51	05:45	20:51	03:32	23:04
7/18/2009	01:43	18:03	05:46	20:50	03:34	23:02
7/19/2009	02:39	19:08	05:47	20:50	03:36	23:01
7/20/2009	03:49	20:01	05:48	20:49	03:37	22:59
7/21/2009	04:08	20:44	05:49	20:48	03:39	22:57
7/22/2009	06:32	21:17	05:50	20:47	03:41	22:55
7/23/2009	07:55	21:45	05:51	20:46	03:43	22:54
7/24/2009	09:15	22:09	05:52	20:45	03:45	22:52
7/25/2009	10:31	22:32	05:53	20:44	03:46	22:50
7/26/2009	11:45	22:55	05:54	20:43	03:48	22:48
7/27/2009	12:56	23:19	05:55	20:42	03:50	22:46
7/28/2009	14:06	23:47	05:57	20:41	03:52	22:45
7/29/2009	15:14		05:58	20:40	03:54	22:43
7/30/2009	16:19	00:20	05:59	20:38	03:56	22:41
7/31/2009	17:18	00:58	06:00	20:37	03:57	22:39

Other Items of Interest This Month

- Saturn's rings narrow from 3.2° to 1.9° in July
- 7/01 7:50 PM until Saturn sets, Titan's shadow transits Saturn
- 7/8 1:27 - 1:35 AM, Ganymede eclipses Io
- 7/17 7:00 PM until Saturn sets, Titan's shadow transits Saturn
- 7/22 Total Solar eclipse. (Note: Must use rock filter to observe from Eugene.)
- 7/31 First Quarter Friday Star Party

For Current Occultation Information
 Visit **Derek C. Breit's** web site
"BREIT IDEAS Observatory"
<http://www.poyntsource.com/New/Regions/EAS.htm>

Go to Regional Events and click on the Eugene, Oregon section. This will take you to a current list of Lunar & asteroid events for the Eugene area. Breit continues to update and add to his site weekly if not daily. This is a site to place in your favorites list and visit often.

All times are for Eugene, Oregon, Latitude 44° 3' Longitude 123° 06' for listed date

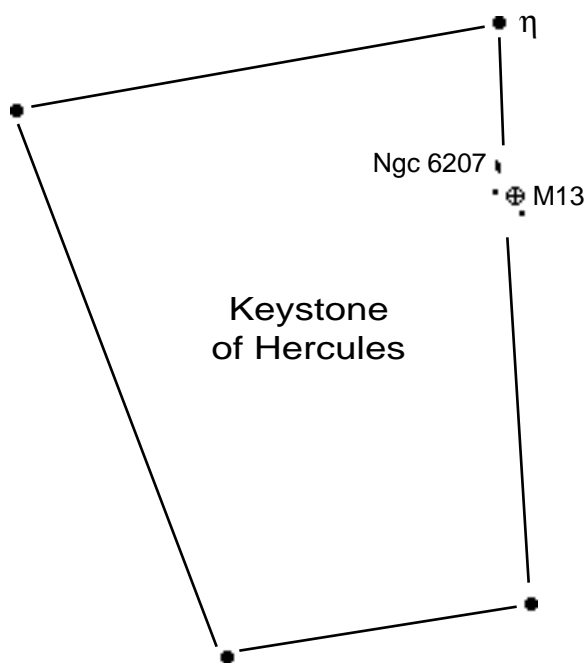
Observing Highlight: NGC 6207

It's a rare summer night when an amateur astronomer out with a telescope doesn't look at M13, the glorious globular cluster in Hercules. Yet few of us know that there's another interesting sight just one field of view away.

NGC 6207 is a small, 12th-magnitude spiral galaxy that lies about half a degree to the north-north-east of the famous Hercules Cluster. It's 3.0 x 1.3 arc-minutes in size, oriented roughly north-south, and easily visible in an 8" scope under dark sky. It can be seen in much smaller apertures with a little patience. In photographs this galaxy has complex knotty spiral arms, faint outer arms, and a bright central lens without a definite nucleus. There's a bright Milky Way star superimposed near the center.

NGC 6207 is 30-45 million light years away from us. That's nearly 1200-1800 times farther away than M 13. Consider that this galaxy almost certainly has its own globular clusters, much like M13, only at that distance they would be as faint as 22nd or 23rd magnitude.

To find NGC 6207, start with M13 and look for the two bright stars to the west-northwest and to the south-southeast of it. Low power will help here. From the northwest star of that pair, go straight north to-



M13 and NGC 6207, Courtesy NOAO/NSF

ward eta (η) Herculis about a third of a degree, and there you are. If you don't see it at low power, boost the magnification a bit to improve the contrast and scan around until you find it. Motion helps bring out dim objects, so move the scope as well as your eye.

If you're using a *very* large scope under ideal conditions, you might notice an extremely faint smudge about halfway between M13 and NGC 6207. That's IC4617, a 15.5 magnitude galaxy. If you see IC4617, you're in a pretty exclusive club.

For go-to folk and the last person on Earth to still use setting circles, NGC 6207 can be found at:

RA: 16h 43m 04.3s

Dec: +36° 49' 59"

Dark-Sky Star Party July 18th

We've been wanting to put on a big dark-sky star party for years, but the logistics of finding the right site have kept us from following through. This year, during the International Year of Astronomy, we decided to make sure it happened. We considered several sites and eventually settled on Dexter State Park, about 15 miles southeast of Eugene on Highway 58. It's right at the lower end of Dexter Reservoir, and just across the highway from the town of Dexter itself. It has wonderful wide-open views in all directions, and sky dark enough to reveal the Milky Way. There will probably be a little light pollution from Dexter, but nothing like what we have in Eugene. The few yard lights that are visible can be obscured behind the hill crest or trees or strategically parked cars.

Using a state park provides several advantages: easy access, parking for over a hundred cars, a bathroom, and enthusiastic sponsors in the State Park Service. We should be able to publicize this event all over the Willamette Valley and provide a wonderful (okay, "stellar") experience for everyone who shows up.

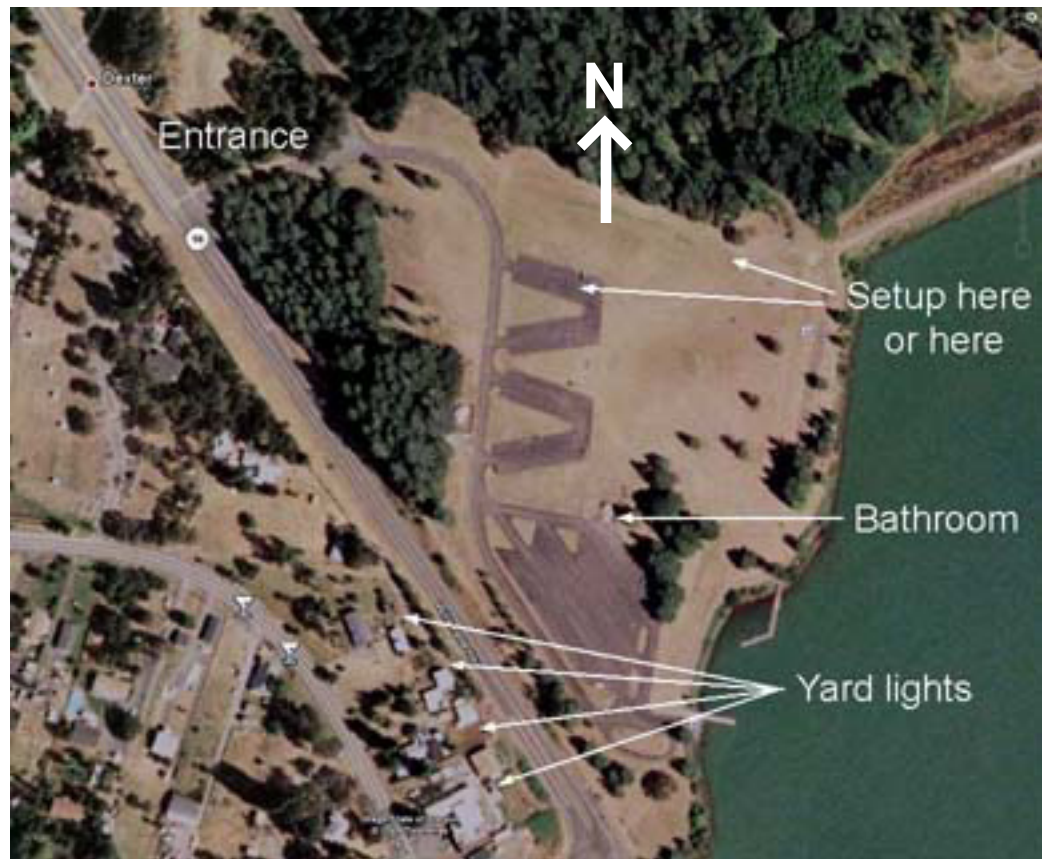
The next page is a flyer that you can — and should! — print out and photocopy and post at work and wherever else you can think of that's appropriate. Always ask permission before posting flyers, but do get out there and post them. The farther we spread the word, the more people will come to the party, and the more people who will understand the value of dark sky.

The party will start at dusk, which should be around 9:15 - 9:30. Get there early to set up and learn where everything is. We'll be setting up in the first parking lot or near the treeline to the northeast; we haven't decided yet.

To get there, head up Hwy 58 from Goshen. Go past the Rattlesnake Road turnoff where we normally turn to go to Eagle's Rest, and go another 3 miles. Just as you reach the town of Dexter, you'll see signs for Dexter State Park on the left (north). Park in the first parking lot you come to.

We need volunteers to direct parking, run the information table, help put red filter material on flashlights, and so on. We'll coordinate things via the email list, and hopefully between us all we'll anticipate everything we need and have a smooth party.

The main thing is to have lots of club members there with telescopes! Bring yours, and help show people how beautiful the deep, dark sky can be.





Dark Sky Star Party July 18, 2009 Dexter State Park

15 miles S.E. of Eugene on HWY 58

Come see the wonders of the
night sky far from city lights

We bring the telescopes,
You bring curiosity and enthusiasm!

Starts at dusk (9:30) - Admission: FREE

Dress warmly. Please cover flashlights with red filter material
to preserve night vision. We will have filters on hand if you need one.

Sponsored by Oregon State Parks and the Eugene Astronomical Society
For more information, visit www.eugeneastro.org

Pine Mountain Summer Events

by Rick Kang

Pine Mountain Observatory is open for drop-in visits Friday and Saturday evenings throughout the summer, with plenty of room for telescopes to be set up at the “upper deck” and a nice campground adjacent. On Full Moon nights there’s a feature science fiction movie shown in the new tent auditorium near the parking lot. Hot chocolate, sweatshirts, caps, red cellophane for your flashlight, and other items are available at the Welcome Center/Gift Shop, also adjacent to the parking lot.

On Friday, August 28th, astrophysicist Alex Filippenko from University of California, Berkeley, is slated to give a public lecture at the Tower Theatre in downtown Bend. Filippenko is known for his work on the expansion of the Universe. He and his team were one of two groups of researchers who independently discovered the accelerating effects of Dark Energy several years ago. He is an award-winning teacher at UC, and has produced the series of videos about Astronomy owned by many amateur astronomers. The event will require tickets purchased in advance, and is organized by the University of Oregon’s College of Arts and Sciences. We’ll post details online of how to obtain tickets; keep an eye on the <http://oregonsky.org/> website.

Teenage Girl Discovers New Type of Supernova

by Keith Pickering in *The Daily Kos*

On November 6, 2008, Caroline Moore of Warwick, New York discovered a supernova in galaxy UGC 12682, in the constellation Pegasus. Caroline and her father Bob are part of the Puckett Observatory Supernova Search Team. The team was founded by dedicated amateur astronomer Tim Puckett of Georgia in 1997, and currently has several dozen members around the world. They have an impressive record, having racked up 191 supernova discoveries to date.

The team has four computer-automated telescopes at work in British Columbia, Arizona, Georgia, and South Africa, collecting images of thousands of galaxies every clear night. Thousands of galaxies, and dozens of astronomers — that math isn't good. Often new images are collected too fast to analyze. Sharp new eyes are always needed, so when Caroline looked at the image of UGC 12682 last November, the photo was already two days old. But Caroline saw something there, just barely, that she didn't see on the reference image of the galaxy.

“I’m going to send it in. I think it's something,” she told her father. A couple nights later, her suspicions were confirmed. “We got confirmation very late at night,” said Bob Moore. “I had to drag her out of bed, and she just started laughing.”

What Caroline discovered is now known as SN2008ha, and it turns out to be a very interesting object — in fact, it is an entirely new class of supernova, never before seen. The spectrum of the supernova was all hydrogen, which is the signature of a classic Type I supernova. But the supernova itself was dim, far dimmer than any Type I supernova — or indeed, any supernova of any type — ever observed. It was about 1000 times dimmer than a typical Type I, but was still 1000 times brighter than a typical (non-super) nova. SN2008ha turns out to be a totally unique object.



Mystery of the Missing Sunspots Solved?

From Science@NASA.gov

The sun is in the pits of a century-class solar minimum, and sunspots have been puzzlingly scarce for more than two years. Now, for the first time, solar physicists might understand why. At an American Astronomical Society press conference today in Boulder, Colorado, researchers announced that a jet stream deep inside the sun is migrating slower than usual through the star's interior, giving rise to the current lack of sunspots.

Rachel Howe and Frank Hill of the National Solar Observatory (NSO) in Tucson, Arizona, used a technique called helioseismology to detect and track the jet stream down to depths of 7,000 km below the surface of the sun. The sun generates new jet streams near its poles every 11 years, they explained to a room full of reporters and fellow scientists. The streams migrate slowly from the poles to the equator and when a jet stream reaches the critical latitude of 22 degrees, new-cycle sunspots begin to appear.

Howe and Hill found that the stream associated with the next solar cycle has moved sluggishly, taking three years to cover a 10 degree range in latitude compared to only two years for the previous solar cycle. The jet stream is now, finally, reaching the critical latitude, heralding a return of solar activity in the months and years ahead.

“It is exciting to see”, says Hill, “that just as this sluggish stream reaches the usual active latitude of 22 degrees, a year late, we finally begin to see new groups of sunspots emerging.”

The current solar minimum has been so long and deep, it prompted some scientists to speculate that the sun might enter a long period with no sunspot activity at all, akin to the Maunder Minimum of the 17th century. This new result dispells those concerns. The sun's internal magnetic dynamo is still operating, and the sunspot cycle is not “broken.”

Because it flows beneath the surface of the sun, the jet stream is not directly visible. Hill and Howe tracked its hidden motions via helioseismology. Shifting masses inside the sun send pressure waves rippling through the stellar interior. So-called “p modes” (p for pressure) bounce around the interior and cause the sun to ring like an enormous bell. By studying the vibrations of the sun's surface, it is possible to figure out what is happening inside. Similar techniques are used by geologists to map the interior of our planet.

“This is an important discovery,” says Dean Pesnell of NASA's Goddard Space Flight Center. “It shows how flows inside the sun are tied to the creation of sunspots and how jet streams can affect the timing of the solar cycle.”

There is, however, much more to learn. “We still don't understand exactly how jet streams trigger sunspot production,” says Pesnell. “Nor do we fully understand how the jet streams themselves are generated.”

To solve these mysteries, and others, NASA plans to launch the Solar Dynamics Observatory (SDO) later this year. SDO is equipped with sophisticated helioseismology sensors that will allow it to probe the solar interior better than ever before.

“The Helioseismic and Magnetic Imager (HMI) on SDO will improve our understanding of these jet streams and other internal flows by providing full disk images at ever-increasing depths in the sun,” says Pesnell. Continued tracking and study of solar jet streams could help researchers do something unprecedented: accurately predict the unfolding of future solar cycles.

