

A century later, Einstein’s theory proven

A brief “chirp” coming from two black holes colliding a billion light years away has astrophysicists abuzz. The reason? It is the verification of an essential feature of Albert Einstein’s 1915 general theory of relativity.

Einstein said that immense changes in matter and energy could cause tiny fluctuations in space and time, expansion or contraction similar to the ripples in a pond if a small pebble were thrown into it. The “chirp” is a result of such ripples or gravitational waves coming from the unimaginable energy of the black hole collisions. Thus, a century after Einstein predicted them, evidence of gravitational waves was found.



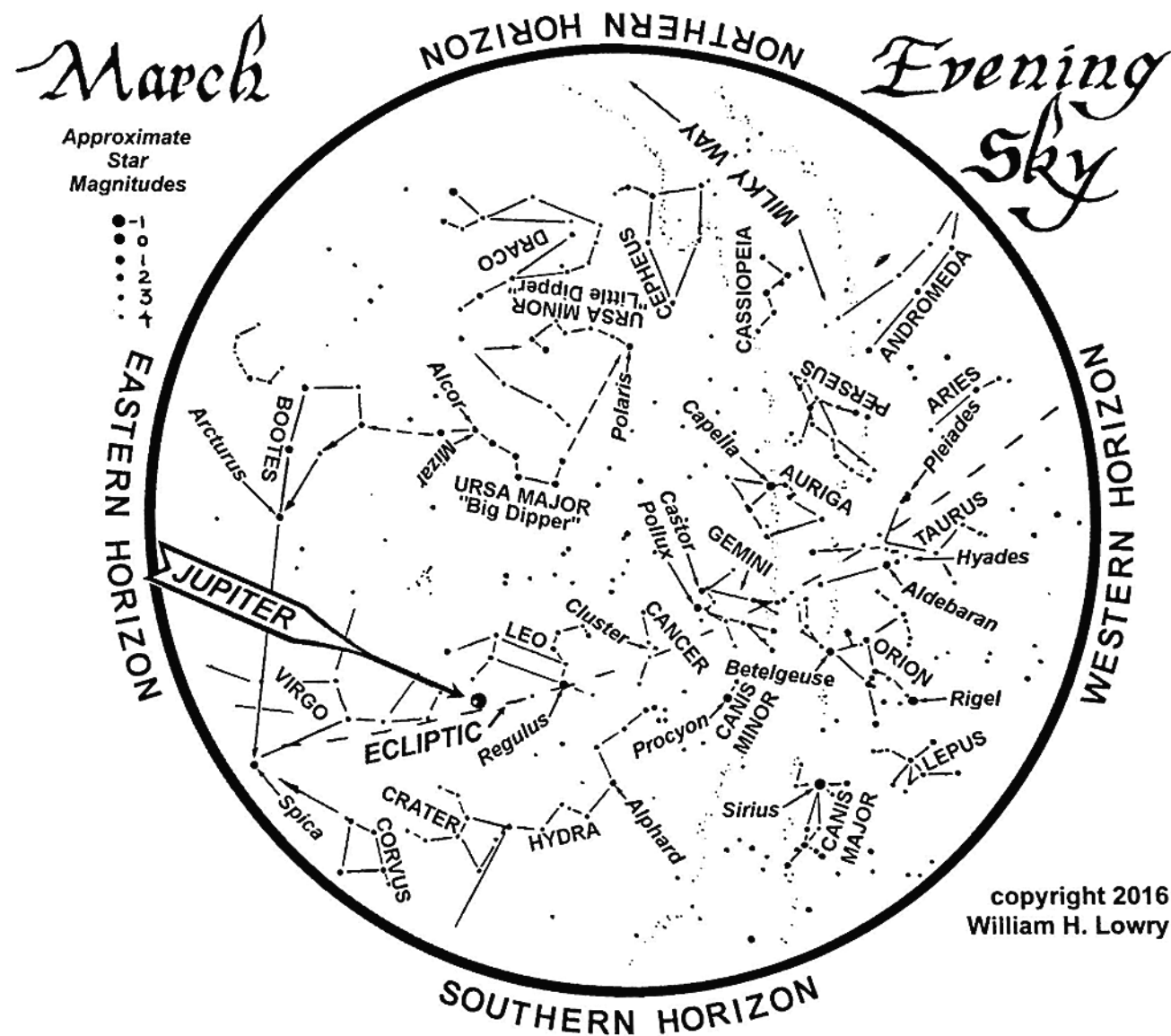
CLAIR WOOD
MAINE SKIES

“The ‘chirp’ will rank among the great discoveries being compared to [Alexander Graham] Bell’s message, ‘Watson, come here,’ or Sputnik’s first beeps from space. Einstein would be very happy,” says Gabriela Gonzalez, one of the co-discoverers.

Focus on the planets

Mercury rises in the west during the evening hours but will be very difficult to spot. Wait until April for its best evening appearances.

Venus is in the east-southeast about an hour before sunrise as March opens and rises later each day as the once-brilliant “morning star” prepares to slip into the solar



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glare for the month of April.

Mars rises in the southeast shortly after midnight and will almost double in brightness during March and will outshine bright neighboring star Antares. On March 5, Mars is high in the south an hour before sunrise with Saturn to its lower left. Backyard telescopes

should easily pick out the white north polar cap.

Jupiter steals the planetary show in March, rising in the east during the early evening hours and staying in view all night. Jupiter is at its closest for the year and viewers with telescopes will have no problem picking out surface belts and bands

while watching the dance of the four major moons about and across the face of the giant planet.

Saturn comes up in the south about an hour after Mars makes its appearance. The ring system is situated for viewing as is the major moon Titan. The real show for the month, however, is

watching Mars advance toward Saturn for a close approach late in the month.

Uranus can be spotted low in the southwest as dusk falls but disappears into the evening twilight by mid-month. On March 10, Uranus is due north of the thin crescent moon.

Neptune is a lost cause,

lost in the morning twilight during March.

March events

1 Sunrise, 6:14 a.m.; sunset, 5:22 p.m. Last quarter moon, 6:12 p.m.

7 Venus is close to the lower right of the moon at dawn, however, they are so close to the horizon they may be difficult to spot.

8 New moon, 8:55 p.m.

10 Moon at perigee or nearest approach to Earth.

11 The sun enters Pisces on the ecliptic. Jupiter shines halfway up on the eastern horizon around 8 p.m.

13 The second Sunday in March. Time to set your clocks one hour ahead as we change over to daylight saving time for the spring and summer months.

15 Moon in first quarter, 1:04 p.m. The Ides of March, a bad day for Julius Caesar!

16 Saturn is to the immediate left of Mars in the south about an hour before sunrise.

17 St. Patrick’s Day. This is the traditional day to plant peas, according to gardening lore.

20 Spring or vernal equinox, 12:30 a.m. The sun crosses the celestial equator back into the northern hemisphere. The sun enters the astrological sign of Aries at the equinox.

21 Jupiter is just to the upper left of the moon tonight.

23 Full moon, 8:01 a.m. The full moon of March is known as the Worm Moon, Sap Moon or Crow Moon.

25 The Moon is at apogee, or farthest from the Earth.

27 Easter.

31 Sunrise, 6:19 a.m.; sunset, 7:01 p.m. Moon in last quarter, 11:18 a.m.

Owls

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damage to aircraft. On rare cases, bird-aircraft collisions have resulted in emergency landings and crashes.

“Snowy owls are big birds, and what makes them even more hazardous [to aircraft] is the slow, low-flying behavior and their reluctance to leave,” Adam Vashon, a wildlife biologist for the United States Department of Agriculture Wildlife Services in Maine, said.

USDA Wildlife Services often assist airports in dealing with snowy owls and other types of wildlife that are posing a threat to aircraft and passenger safety. The program’s central mission is to help solve human-wildlife conflicts with an integrated approach, using multiple methods on a case-by-case basis. In many cases, the wild animal is trapped and relocated an area where it won’t cause problems. In other cases, measures are taken to keep the animal away, such as the construction of a fence around an area. But in some cases, especially when the animal is threatening human safety, Wildlife Services decides the best way to resolve the issue is to kill the animal.

“There are dozens of very serious bird strikes [with aircraft] across the country each and every year,” Vashon said. “We’ve been successful at reducing them.”

For the tracking project, snowy owls “Brunswick” and “Casco” were captured while hunting for rodents at southern Maine airports. Bangor International Airport also recently announced at an Airport Committee meeting that they also will participate in Project SNOWstorm, if an eligible owl is captured at its facility this season.

Wildlife Services captured “Brunswick” at the Brunswick Executive Airport on Jan. 11, using what’s known as a bal-chatri trap, which consists of a wire dome placed over live bait — typically a rodent or small bird. The dome is covered with microfilament nooses that catch the owl’s feet when it comes down to take the bait. This method is commonly used by biologists to catch birds of prey and does not harm the animal if monitored closely by someone who is trained to use the trap. “It worked like a charm,” Vashon said.

In collaboration with the Biodiversity Research Institute, the owl was carefully inspected. It was a female



AILINN SARNACKI | BDN

Lauren Gilpatrick of the Biodiversity Research Institute displays the wing of a snowy owl recently before releasing the bird in blueberry barrens in Cherryfield. The owl, captured at Portland Jetport, is outfitted with a GPS transmitter that will be tracked by Project SNOWstorm, a collaborative research effort to learn more about the species and their migrations. The transmitter on the owl’s back is less than 3 percent of the owl’s weight and attached by a tiny harness under the feathers.

and healthy — a perfect candidate for Project SNOWstorm.

After fastening a silver, numbered band around the owl’s leg, BRI outfitted the bird with a high-tech GPS transmitter — a piece of equipment that costs roughly \$3,000. The next day, the owl was released at Rachel Carson National Wildlife Refuge in Wells.

The GPS transmitter, created by New Jersey company Cellular Tracking Technologies, was constructed specifically to track birds movements in detail. It records a bird’s location each 30 minutes using satellites, then stores the data to be sent by cellphone tower to researchers each week.

“They’re solar powered, so barring some sort of mechanical failure they should last a long time,” Scott Weidensaul, co-founder of Project SNOWstorm, said. “They’ve lasted seven to eight years on golden eagles. We’re really hopeful we’ll get the same kind of lasting data from them.”

Project SNOWstorm, which began with the snowy owl irruption of 2013-2014 and is funded entirely by public donations, has deployed 42 of these lightweight transmitters on snowy owls captured in the Northeast and Midwest over the past three years, being careful to only select healthy owls as carriers.

“In many respects, almost every owl we’ve put a transmitter on has surprised us in some fashion,” Weidensaul said. “We’ve seen some really interesting individual differences in behavior.”

For example, Project SNOWstorm researchers have learned that some snowy owls on the coast travel out over the water at night to feed on waterfowl and sea-

birds, while other snowy owls hunt exclusively on land, preying on voles, rabbits and mice. Some snowy owls return to the same hunting ground each winter and barely move from that spot, while others seem to have wanderlust, flying for hundreds of miles and only stopping for short periods of time. Their research also has shown that neighboring snowy owls will respect each other’s hunting territories, and that they tend to become more active around dusk.

“One of my colleagues has said — and I think this is really true — the lives of individual birds are fascinating,” Weidensaul said. “When you have the opportunity to study them week after week, year after year, you can see these, I wouldn’t hesitate to say, personalities come through. They’re very individualistic.”

The transmitter is fastened to the bird with a flexible harness made of woven Teflon, which is hidden by the owl’s thick coat of white feathers.

“It’s incredibly tough and incredibly gentle material,” Weidensaul said. “I’ve put a bunch of these transmitters on [owls], and it’s a long, fiddly, meticulous process. We’re very aware of the fact that the bird is going to wear the harness and transmitter the rest of its life unless we catch the bird again, which we do in some cases.”

The entire contraption weighs less than 3 percent of the owl’s weight.

“It goes on properly and fits well, it’s absolutely not a problem for the bird,” Weidensaul said. “I can actually say that with confidence.”

Laval University in Quebec has studied snowy owls carrying similar transmitters for about 25 years, com-

paring their survival and reproductive rate to snowy owls not carrying transmitters. They found no difference in their survival rate, Weidensaul said.

“And birds with transmitters had slightly more chicks on average,” Weidensaul added. “Their joke is that it’s the ‘bling effect.’”

Maine’s second snowy owl to become a part of Project SNOWstorm was captured by Wildlife Services at the Portland International Jetport on Feb. 22. Four snowy owls were seen at the airport that day, but only one went for the bait in the bownet trap — a device that includes live bait and a remotely controlled net that drops over the owl.

“It’s a good safe technique,” Vashon said. “A hoop throws a net over the bird. It’s a technique all raptor research biologists use. It may look obvious to you, but it fools them.”

Named “Casco,” the large female owl was outfitted with a leg band and transmitter and placed into a large dog carrier to be brought by truck to a vast complex of blueberry barrens in Cherryfield, about 150 miles northeast of where it was captured.

“I’ve never seen an owl this mellow,” Matt Ewing, a wildlife specialist with Wildlife Services who teamed up with Gilpatrick for the release, said.

“In the hand, snowy owls are pretty calm compared to falcons or eagles,” Gilpatrick said. “You don’t even have to use a hood on snowies, and they still relax in your lap. ... Snowy owls have an altogether different look in their eye than a falcon or eagle.”

Gilpatrick lifted the owl slowly from the carrier and inspected the bird’s GPS transmitter — a dark square located high up on its back. Then, with one hand grasping the owl’s legs and the other supporting its chest, Gilpatrick swung the bird back, then forward several times before releasing it into the air.

Free again, the “Casco” flew across the red fields and disappeared over the trees.

The public can follow “Casco” and “Brunswick” as well as the other snowy owls involved in Project SNOWstorm at snowstorm.org. On the website, the birds’ locations generally are updated once per week.

Project SNOWstorm is currently in the middle of an Indiegogo campaign to raise \$25,000 to continue the research. To contribute to the campaign, visit snowstorm.org.

Holyoke

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Last weekend, I spent several hours at the Cabin Fever Reliever outdoor show in Brewer, and the issue of moose permits was a frequent topic of conversation. Opinions ran the gamut, from those who think shooting a single moose is one too many, to those who think we ought to be issuing twice as many moose permits as we do.

Some think the biologists aren’t seeing the whole picture. Those folks, I ought to mention, typically begin their tirades with “I’ll tell you what I’m seeing,” then proceed to tell you that in their particular (and tiny) favorite area, there are either too many moose or no moose at all.

Scientists call these reports “anecdotal.”

I call ‘em “hearsay.”

Those who share these tales often call their observations the gospel truth, and concrete evidence that, data-be-damned, the rest of the state is in the same situation.

As Kantar points out, it’s easy for folks to sit back and fret about moose after hearing about a reduction of 600 permits in a year, and nearly 2,000 permits over three years.

In fact, the number of moose permits will only be reduced in five of the 24 WMDs where moose hunting is allowed. Zones 1-4, which are in the northern part of the state, and 19, which has Grand Lake Stream as its center, are the ones affected.

A total of 330 cow moose permits have been eliminated in those zones, including 150 in WMD 4 alone.

Kantar said those reductions don’t reflect a crisis, though portions of the moose herd have been affected by winter ticks. Instead, the decrease in permit numbers can indicate that department population goals have been reached in those zones.

Aerial surveys over the past few years has added plenty of data about the moose population and its composition — how many bulls to cows — and biologists have been able to use that information in trying to reach management goals, Kantar said.

“The data showed that we were above the public target for how many moose people wanted out there,” Kantar said, explaining why the

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LEE KANTAR,
STATE MOOSE BIOLOGIST

state allowed some cow moose to be taken in certain zones in the past. “There was going to be a time period in which those permits for cows was going to be reduced or go away when we hit that target. That was inevitable.”

And that happened this year.

Kantar said another challenge can crop up: The DIF&W is in the process of putting together its next long-range management plan for moose, and meetings are scheduled for the coming months. In those meetings, different user groups, including hunters, wildlife watchers and animal rights groups, will have the chance to weigh in on future management decisions.

But right now, the biologists are still using the 15-year plan established in 2000 as their template.

“But again, the major difference is we have better data,” Kantar said. “That’s why we increased to over 4,000 permits a few years ago, because we had a good fix on the number of moose out there and we could afford to do that.”

Now, with moose “productivity” lagging a bit, Kantar said it made sense to adjust numbers in a few WMDs.

And while it’s possible for people on either side of the issue to feel that too many — or not enough — moose are being shot each year, Kantar assured the public that he and his fellow biologists are listening to what they’re hearing.

“Whatever people are seeing on the landscape — less, more, whatever — we’re balancing all those numbers with all the different things people want to have,” Kantar said. “People want to have moose to enjoy. We know that. People want to conserve moose for future generations. That’s job number one.”

And that, fortunately, is a sentiment that most of us can agree with.

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