

BULLETIN

"An organization of people interested in the Natural Sciences"



July/August 2026; Vol. 80, #5

President's Message

We announced last issue that this Fall, on Saturday November 7th, we will host the **52nd Annual RAS Fall Scientific Papers Session** at St. John Fisher University in partnership with their science departments. RAS members are encouraged to attend.



Campus from air, courtesy St. John Fisher University. Session is at Integrated Science and Health Sciences Building, far left side.

RAS members have several benefits in attending not available to others. You may do what our sections do and set up a **table** at NO charge to show off any interesting collections you might have made, such as fossils, minerals, stone tools, botanicals, telescopes, or whatever. You could show photographs you have taken, or you could show attendees how to do something, like pressing and preserving plants, dyeing with natural substances, using a microscope or telescope, or anything else from your science-based hobbies.

If you prefer to present a talk or poster, we now call for RAS Member Abstracts. As a member of the Academy with scientific interests, you are invited to present a poster

or short talk. Are you working on projects, made any discoveries or been active in a citizen science activity? Let us hear about it! Otherwise, plan to come to hear about the latest local research in fields of interest to you.

We will announce the keynote speaker for the event for our annual Larry King Memorial Lecture in our September issue.

Save the Date!
Saturday, November 7th, 2026
RAS Scientific Paper Session
St. John Fisher University

For more information, visit
<https://rasny.org/paper-session>.

RAS member Volunteers are needed.

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RAS at 27th ADK Outdoor Expo

We had several people from the RAS Astronomy Section, Fossil Section, and Mineral Section at the ADK Outdoor Expo in Mendon Ponds Park, Pittsford on June 13. Thank you to Craig Kaplan, David Bishop, Howard Heitner, Fred Haynes, John Handley, Jutta Dudley, and Bob Crumrine for helping with this. We entertained well over 100 kids and families on a warm, sunny, pleasant day.



Dave Bishop & Craig Kaplan, at ASRAS table with Mars and Moon globes front and Venus rear.

Some of them signed up to get more information on our activities. This is how to get new members!



Mineral table with Howard Heitner and visitor. Both photos by Bob Crumrine.

Sarah Mastro and Nicholas Sugg, Expo Co-Chairs for the Adirondack Mountain Club, wrote to us to thank us for putting on these three educational hands-on exhibits.



"On behalf of the 2026 Outdoor Expo Committee and the Genesee Valley Chapter of the Adirondack Mountain Club, I'd like to thank you for participating in this year's event! We are proud to have hosted this event for 27 years... something that would not be possible without our fellow adventurers and like-minded organizations. We hope that you enjoyed your time at the Outdoor Expo and will join us again in the future!"

Thanks again!

*Sarah Mastro & Nicholas Sugg
ADK-GVC Outdoor Expo 2026*

Michael Grenier, RAS President

Events for July/August 2026

NOT MEETING IN JULY:

Mineral,
Herbarium,
RAS Board.

NOT MEETING IN AUGUST:

Herbarium,
Mineral,
Fossil.

JULY EVENTS:

July 8 Wed: Astronomy Board Meeting

7:00 p.m. – 9:00 p.m. Zoom only. Members welcome to attend. Contact Craig Kaplan at President@rochesterastronomy.org for details.

July 10-12 Fri: RocheStar Fest

Farash Center. Peter Miller of L3 Harris will speak about the Nancy Grace Roman space telescope. Contact Craig Kaplan at President@rochesterastronomy.org for details.

July 11 Sat: Fossil Section Field Trip

Little Beard's Creek: This is a large shale exposure of Windom Member of the Moscow Formation in a stream near Geneseo. For details, see the latest RAS FossilLetter or contact Dan Krisher at (585) 698.3147 or DLKFossil@gmail.com. Date is tentative awaiting approval by the landowner.

July 17 Fri: Public Observing

8:00 p.m. – 11:00 p.m. Farash Center. Contact Craig Kaplan at President@rochesterastronomy.org for details.

AUGUST EVENTS:

Aug 5 Wed: Astronomy Board Meeting

7:00 p.m. – 9:00 p.m. Zoom only. Members welcome to attend. Contact Craig Kaplan at President@rochesterastronomy.org for details.

Aug 7 Fri: Public Observing

8:00 p.m. – 11:00 p.m. Farash Center. Contact Craig Kaplan at President@rochesterastronomy.org for details.

Aug 19 Wed: RAS Board Meeting

7:00 p.m. - 9:00 p.m. Pittsford Community Center, room 206, 35 Lincoln Ave, Pittsford. Zoom option available. For details, contact Michael Grenier at mgrenier@frontiernet.net.

STRASENBURGH OBSERVATORY:

ASRAS will operate the telescope at the Strassenburgh Planetarium on mostly clear Saturday nights, dusk until 10:30. For more information, contact: Jim Seidewand at (585) 703-9876.



Burney Baron Photography

Brilliant red carbon star T Lyr, center. Burney Baron; June, 2026.



**The Worst Day Ever:
The End-Cretaceous Extinction Event
Part V The Impact – the next few minutes
By Michael Grenier**

blogs.equ.eu/divisions/gd/2024/05/29/unravelling-the-magma-plumbing-network-of-the-deccan-traps/ for source.

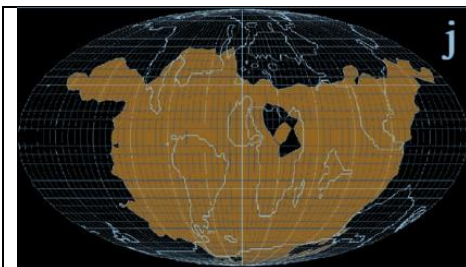
At impact at the Chicxulub crater site, with the thermal radiation at the speed of light and the blast wave at the speed of sound came the vaporization of the asteroid. A crater 100 kilometers (62 miles) wide and 30 km (19 mi) deep²⁸ was blasted into the crust most of the way through the granitic basement rock but not reaching the mantle. Crustal rock was pulverized and ejected as a massive plume of 25 trillion metric tons of molten rock shooting up into the atmosphere, with temperatures of this molten material reaching 10,000° C²⁹ (compare this to the surface of the sun at 5,500° C).

Up to 200 billion metric tons (200 gigatons) of water from the ancient shallow ocean and seabed was vaporized into the atmosphere. In addition to the rock dust, vaporized carbonate rock injected several hundred gigatons of carbon dioxide (CO₂) and vaporized sulphates from gypsum added a similar amount of sulphur dioxide (SO₂). All this dispersed into the atmosphere at high speed and around the Earth within hours.³⁰

In 300 seconds the superheated rock reached the atmosphere's top. Some escaped into space. The rest created a rain of molten rock from the skies. This incinerated everything within a radius of more than 1,000 miles and dried and ignited plant material causing wildfires worldwide.³⁰

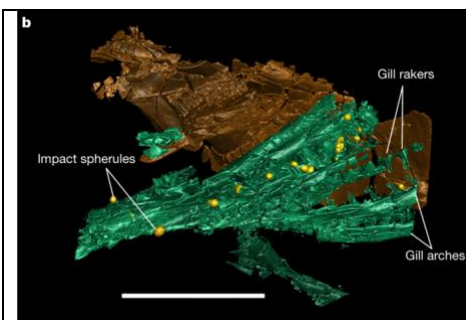
Although initial estimates from the quantities of soot in the Cretaceous-Paleogene boundary layer were that the entirety of the earth's plant material burned, current estimates are that about 70% burned, recognizing that a portion of the soot

was carbon from the vaporized carbonate rock.²⁹



Global map showing the locations (orange) where the power radiated to the ground was sufficient (12.5 kW/m² for >20 min) to ignite vegetation, even if initially wet.²⁹

Much of the molten rock fell as red hot glass. Glass spherules (called tektites and microtektites) are found in large quantities in the boundary layer within 6000 km (3700 mi) of impact. The fossil fish in Montana's Tanis site referenced in Part IV had glass microspherules imbedded in their gills, likely suffocating them.²⁴



3-dimensional rendering of the paddlefish subopercular and gills with trapped impact spherules (yellow). Scale 2 cm.²⁴

A 1.5 km (5000 feet) high tsunami immediately followed the impact, transporting sediments and debris to what is now the U.S. Caribbean coast. The impact tsunami was up to 30,000 times more energetic than the largest tsunamis in the modern record and propagated throughout the world oceans with evidence as far as Australia and New Zealand.³¹ The tsunamis transported 48,000 cubic miles of sediment across the Gulf of Mexico, covering swathes of Mexico and the Caribbean in hundreds of feet of debris.³² Charred tree trunks in tsunami deposits show that coastal fires from the first heat pulse were snuffed out by the

tsunami.³³ Within one hour, the tsunami reached central Colorado.

In addition to spawning massive earthquakes at the impact site (of a magnitude between 9 and 11), the shockwave from the asteroid triggered earthquakes and volcanic activity around the world. More tsunamis 50 to 150 meters (150 to 500 feet) high were created by ensuing earthquakes in oceans and seas around the world.³³

The earthquakes were larger than the 1960 Valdivia earthquake in Chile-- the strongest earthquake ever recorded, 9.4–9.6 magnitude. The seismic shock wave reaches Hell Creek, Montana in 15 minutes. The seismic motion was sufficient to trigger volcanic eruptions all over the world.³⁴

Next issue—Hours later the trouble is just beginning.

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Undergraduate Student Research Grant Award Winner



Ryan Jackson, Hobart and William Smith College

Project Title: Ecoacoustic Monitoring and Fourier Spectral Analysis of Construction Impacts on a Campus Soundscape

Advisor: Ileana Dumitriu

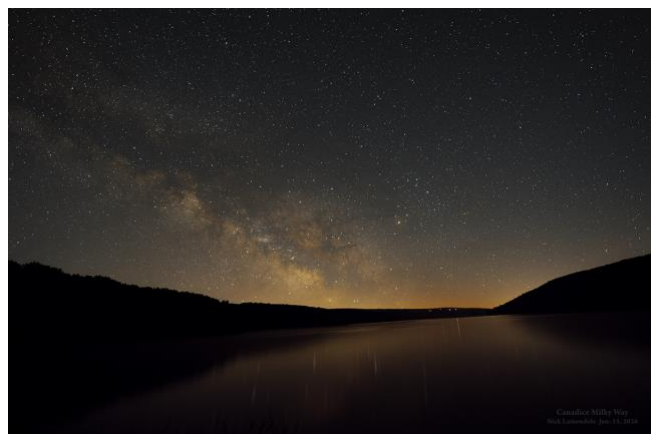
Abstract: Ecoacoustic monitoring uses environmental sound as a non-invasive way to measure ecological activity, anthropogenic disturbance, and environmental change. This study tested whether construction activity on the Hobart and William Smith Colleges campus shifted the local soundscape toward greater low-frequency dominance, while also evaluating how upgraded recording equipment affected measured acoustic structure. Recordings collected before and during construction were analyzed with a Fourier-based workflow that estimated power spectral density with Welch's method and extracted spectral centroid, band-limited energy, root

mean square amplitude, and the Normalized Difference Soundscape Index (NDSI). NDSI compared lower-frequency anthropony-associated sound, ranging from 200-2000 Hz, with higher-frequency sound, ranging from 2000-12000 Hz.

The matched dataset contained 175 recordings, and the refined analysis used 148 recordings after removing narrowband tonal contamination. Pre-construction recordings were collected with a Zoom H1essential handheld recorder, while construction-period recordings included both the H1essential and the upgraded Zoom F3 field recorder with matched Lewitt LCT 040 MATCH microphones. The F3 system provided a more sensitive, lower-noise setup, helping separate equipment-related effects from environmental change.

The most controlled comparison, using H1essential recordings from both periods, showed lower NDSI values and lower spectral centroids during construction than before construction. These statistically significant shifts indicate stronger low-frequency dominance, consistent with increased mechanical and anthropogenic noise. Because this low-frequency energy can mask quieter ecological and environmental sounds, the results suggest that construction does not simply add noise, but changes the structure of the soundscape itself. Overall, this project shows how Fourier analysis and ecoacoustic methods can be used to measure environmental and construction-related changes in a campus soundscape, while also showing why recording equipment must be considered when comparing sound data over time.

RAS Member Images



Milky Way over the Finger Lakes. Nick Lamendola; June, 2026.



Sunflower Galaxy M63. David Kreiton; June 17, 2026.

Rochester Research in Review.

(These are Hot Links which when clicked lead to the press release on the Science Daily and other science websites.)

[Targeting inflammation may help overcome drug resistance in colon cancer. Cornell University, May 21, 2026](#)

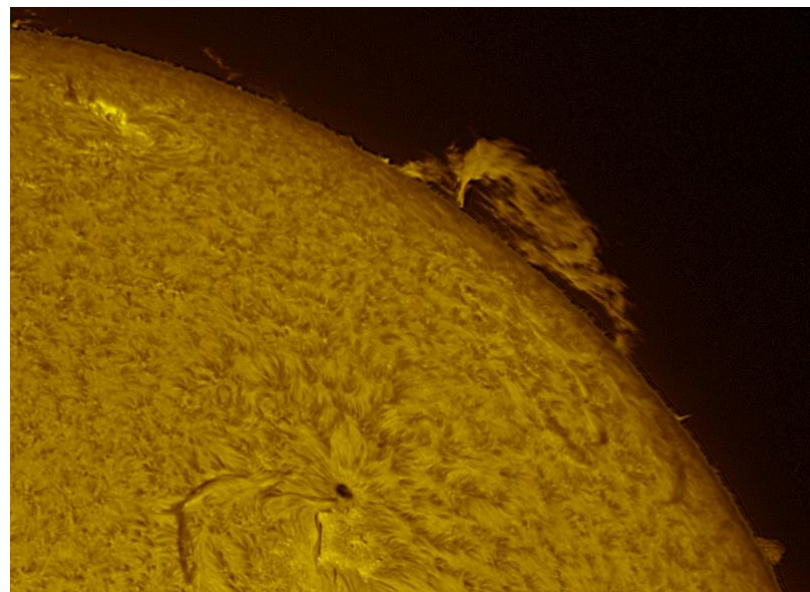
['Indian Niño' drove record heat in 2023, 2024, new study finds. May 6, 2026](#)

[T cells secrete DNA to help immune system fight cancer, Cornell University. May 1, 2026](#)

[Researchers Test Einstein's Limits of General Relativity. Syracuse University. March 25, 2026.](#)

[Intermediate phases speed nanoparticle crystallization. Cornell University, March 3, 2026.](#)

[AI system curbs hallucinations in automated chest X-ray reports. SUNY Buffalo, March 23, 2026.](#)



Large solar prominence. Doug Kostyk; June 13, 2026.

[As wildfires intensify, UB researchers test if AI can improve fire spread prediction. SUNY Buffalo, March 11, 2026.](#)

[UB researchers advance solvent-based recycling for flexible plastics. SUNY Buffalo, March 5, 2026.](#)

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For information, contact President Michael Grenier at (585) 671-8738 or by email paleo@frontier.com.

The Academy Internet website is <http://www.rasny.org> or see us on Facebook at <https://www.facebook.com/Rochester-Academy-of-Science-792700687474549>.

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