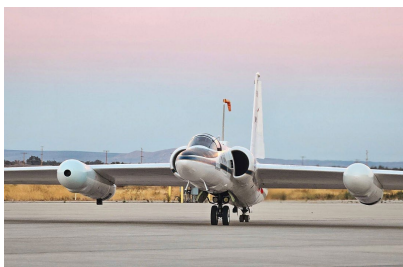




March 2024 - Issue 74

Discovery Digest is a glimpse into how University of Saskatchewan research, scholarly and artistic work is making a difference for Saskatchewan, Canada and the world. Curated by the Research Profile and Impact unit, Office of the Vice-President Research. [Feedback welcome!](#)

This Month's Stories



[National USask-led satellite science mission receives \\$17 million in funding](#)

University of Saskatchewan (USask) researchers have received \$17 million from the Canada Foundation for Innovation (CFI) fund in support of the HAWC (High-altitude Aerosols, Water vapour and Clouds) mission. This will place USask at the forefront of space innovation and has the potential to revolutionize the way we understand and address climate change.

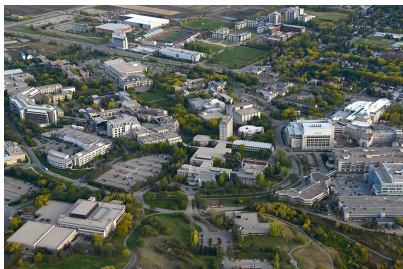
“It definitely is a real sense of satisfaction that (HAWC) seems to resonate across the country, and that the importance of the project is recognized,” said **Dr. Adam Bourassa (PhD)**, a professor in the Department of Physics and Engineering Physics in USask’s College of Arts and Science and part of USask’s Institute of Space and Atmospheric Studies (ISAS). “It is a strong sense of validation for what we’ve done and what we believe in, what we’re proposing to do.”

[Government of Saskatchewan commits \\$15 million to Global Institute for Food Security at USask](#)

Saskatchewan Minister of Agriculture David Marit announced a funding commitment on March 11 of \$15 million over five years to the Global Institute for Food Security (GIFS) at USask.

The funding for GIFS will provide \$3 million each year from 2023-2027 to support its ongoing operations, contributing to Saskatchewan's agriculture sector through work such as supporting crop breeding through sequencing, bioinformatics and data analytics services or technology development that facilitates commercialization of new products.

"This announcement reinforces our province's commitment to sustainable agricultural practices," said **Peter Stoicheff**, president of USask. "USask has a storied history of leading agriculture advancements and the funding announced today will allow us to continue our world-leading agricultural research and development."



[Innovative USask health research projects receive \\$4.86 million from CIHR](#)

Thirteen projects led by USask researchers and research teams were awarded funding through the CIHR Project Grant from the Fall 2023 competition. The projects received a total of \$4,862,701 in funding.

Researchers from USask's College of Medicine, the Saskatchewan Cancer Agency, the Western College of Veterinary Medicine (WCVN), the Vaccine and Infectious Disease Organization (VIDO), and the Canadian Centre for Rural and Agricultural Health (CCRHA) received funding.

[USask researchers seek to develop new breast cancer treatments](#)

Dr. Deborah Anderson (PhD), the director of research for the Saskatchewan Cancer Agency and a professor in USask's College of Medicine, is working with other scientists at USask and across Canada to develop a new drug treatment for metastatic breast cancer.

The research conducted by Anderson and her team is working towards developing the first-ever drugs to target the CLIC3 protein. By focusing on the CLIC3 protein, Anderson said the hope is the new drug will prevent cancer from growing and spreading.

"We have a lead compound and will work to modify it so that it binds tighter, is more effective at inhibiting the CLIC3 target ... and to make sure that not only is it a compound that inhibits the metastatic cell properties, but it's also a good and safe drug for patients to take," Anderson said.





[USask research: For water in Western Canada, forget the old normal](#)

The Prairies are entering another year of a multi-year drought, with soil moisture, snowpacks and streamflows at levels far below normal in many areas. An exceptional early-March snowstorm lessened the drought but was not nearly enough to overcome it.

Climate change has arrived, and water is where it reveals itself.

“We’re seeing new climates emerging in Western Canada and we don’t fully understand them yet and what they’ll mean. We will have to adapt very quickly in how we manage water and manage every aspect of our lives,” said **Dr. John Pomeroy (PhD)**, the Canada Research Chair in Water Resources and Climate Change and director of the Global Water Futures Observatory program at USask.

Looking for more research stories? [Visit Discovery Digest online.](#)

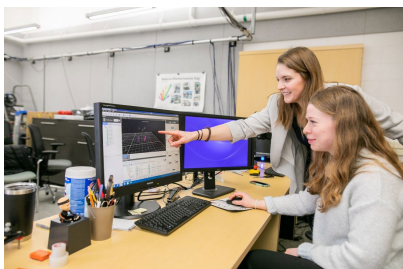
[Tsunami on the plains: USask researchers find sea waves once swept Prairie Provinces](#)

Hundreds of millions of years ago, an earthquake sent a series of massive waves across the ancient sea that covered part of Western Canada and the northern United States.

That is the conclusion of a new paper by two USask researchers – **Dr. Brian Pratt (PhD)** and **Dr. Colin Sproat (PhD)** of USask’s College of Arts and Science – who have found the strongest-ever evidence of a tsunami in a shallow inland sea.



Saskatchewan and its neighbouring areas are not known for their coastal views—or for their seismic activity. But 445 million years ago, in the period called the Ordovician, the region looked very different. Much of what is now Saskatchewan, Manitoba, Montana, and the Dakotas was covered by a sea known as the Williston Basin.



[USask breast cancer research targets post-treatment function, rehabilitation](#)

Dr. Angelica Lang (PhD), an assistant professor in USask's College of Medicine in the Department of Medicine and the CCRAH, said patients who have had surgical treatment for breast cancer can experience issues with pain, range-of-motion and secondary injuries afterwards.

Lang's research explores relationships between types of surgeries and subsequent movement pattern alterations, as well as their implications for post-surgery rehabilitation.

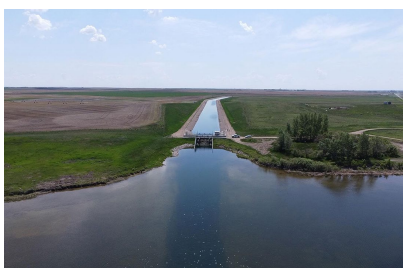
"Hopefully what we're able to get at is to better connect movement patterns to treatment types, to understand which treatments may be more likely to lead to a secondary injury," she said. "That can help us better rehab the problems, or prevent them."

[USask pulse research part of \\$11 million federal investment](#)

The funding is provided through the AgriScience Program – Clusters Component, which is part of the Sustainable Canadian Agricultural Partnership (CAP). The Sustainable CAP is a five-year, \$3.5 billion agreement between federal, provincial, and territorial governments to continue building up Canada's agricultural and agri-food sectors.



"Canadian pulse farmers are vitally important to our economy. This investment will bring together the top experts in pulse growing and research from across the Prairies to improve the competitiveness and sustainability of the sector for generations to come," said the Honourable Lawrence MacAulay, Minister of Agriculture and Agri-Food in a statement.



[Where water meets the field](#)

As the United Nations prepares to spotlight World Water Day on March 22, irrigation and livestock water quality remain among the leading research topics at USask.

Irrigation is the focus of a project led by **Dr. Patrick Lloyd-Smith (PhD)**, associate professor in the Department of Agricultural and Resource Economics and a member of the Global Institute for Water Security at USask.

Dr. Greg Penner (PhD), a professor in the Department of Animal and Poultry Science, and USask Centennial Enhancement Chair in Ruminant Nutritional Physiology, is starting a new project—the fourth in a series—to evaluate the impact of high-sulfate water on cattle and sheep.

[Innovative new crop protection developed with USask research](#)

Two USask scientists were instrumental in developing an innovative, biological crop protection that will be used by growers for the first time this spring.

Professors emeritus **Dr. Vladimir Vujanovic (PhD)** and **Dr. James Germida (PhD)** with the College of Agriculture and Bioresources worked with USask to patent and license their invention based on the recent discovery of using microbes for protecting crops and promoting



growth at the seed stage.

Germida and Vujanovic's research into biological-based defenses for crops has led to the creation of a new bionematicide – a pesticide created from biological sources for battling plant parasitic nematodes and protecting crops.



[An urban elder's journey: The role of tradition, community, and education](#)



[Nourishing minds through research: The future of dietetics](#)



[USask hosts delegation of teachers from Ukraine](#)

Stay connected with USask research news



Make sure to follow the USask Research [Twitter page](#) to stay in-the-know, with exciting research news delivered right to your newsfeed. Don't forget to also follow [USask Research on LinkedIn](#), and [@VPR_USask](#) and [@USask](#) on Twitter for more of the latest research and university news.

Use the hashtag **#USaskResearch** when sharing USask-related research findings, publications or achievements on social media.

Beyond the cafeteria: The economic case for investing in school meals

By: Dr. Amberley T. Ruetz (PhD), USask Department of Community Health and Epidemiology, Flora Zhang, University of Toronto, and Dr. Gabrielle Edwards (PhD), University of Gothenburg



The return on investing in universal school meals is clear. According to our new report, universal free school meals (breakfast and lunch for students regardless of income) have 2.5 to seven times the return in human health and economic benefits in comparable high-income countries.

Upcoming events



March 22 is World Water Day @ USask!

Mark your calendar for '[World Water Day @ USask](#)' – a celebration of water-related research at USask and beyond!

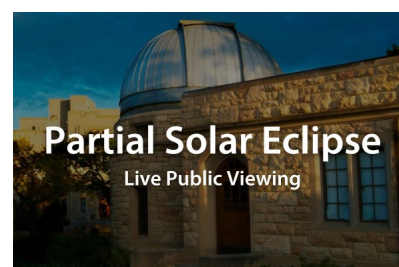
Hosted by the Global Institute for Water Security, this half-day event includes a keynote presentation on global transboundary water issues, a panel discussion on challenges and opportunities related to drought and water cooperation in Saskatchewan, a poster-session and more. Live stream options are also available.

Learn more and register at the [link here](#).

- World Water Day – Friday, March 22, 1:30 – 5 p.m., Convocation Hall

Viewing of the partial solar eclipse

SuperDARN, in collaboration with the USask Observatory and RASC Saskatoon, is hosting a live viewing of the partial solar eclipse on **April 8th from 11:30 a.m. to 2 p.m.**



- Safely observe the Sun through the Observatory's specialist Solar telescope and RASC telescopes with Solar filters.
- Tour the Observatory facilities.
- Learn to make pinhole cameras to safely view the eclipse yourself.
- Space Physicists from SuperDARN will talk about the Sun and Space Physics.

DO NOT stare at the sun during the solar eclipse without protection. Though the sun may appear dimmed during the eclipse, looking directly at it can still lead to vision impairment or blindness due to its harmful rays. It's essential to use appropriate equipment for safe eclipse viewing.

- Partial eclipse viewing event – April 8, 11:30 a.m. - 2 p.m.
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NEW - Information for researchers

Call for Judges — 2024 Life & Health Sciences Research Expo



Call for Judges

Calling all faculty members, trainees, and research facilitators from the University of Saskatchewan community with a PhD or equivalent degree.

Help acknowledge exemplary research and learning taking place at USask by adjudicating research poster presentations at the 2024 Life & Health Sciences Research Expo.



REGISTER TODAY! THE CALL FOR JUDGES CLOSURES APRIL 5.

Faculty members, trainees, and research facilitators from the University of Saskatchewan community with a PhD or equivalent degree are invited to adjudicate research poster presentations at the [2024 Life & Health Sciences Research Expo](https://healthsciences.usask.ca/expo) taking place on May 2, 2024. Competition categories will explore basic, translational, clinical, and applied science as well as social and population health. Register now to help ensure that all student researchers receive professional adjudication.

This Call for Judges opens **March 4** and closes on **April 5, 2024**. Visit <https://healthsciences.usask.ca/expo> to register or learn more.

Nominations Open for USask Internationalization Recognition Awards

As part of the University of Saskatchewan Blueprint for Action 2025, the International Office announces the **J.W. George Ivany Internationalization Award, Global Research Leadership Award for Faculty, Global Research Leadership Award for Students, and International Engagement Service Award for Staff**. These awards are to recognize the achievements of faculty, staff and students who provide outstanding contributions to the internationalization of USask. Nominate a deserving colleague for an Internationalization Award.



Nomination deadline: **March 29, 2024, 4 p.m. CST/SK time**

Visit internationaloffice.usask.ca/awards for details.

In the news

- March 13 – Globe and Mail – [Batteries, genomes and climate satellites to share in \\$515-million for Canadian labs](#)
- March 13 – CNN, Yahoo! News – [Interacting with dogs may affect multiple areas of the brain, study finds](#)
- March 13 – Globe and Mail – [Two new gene therapies could present possible cure for sickle cell disease, but access is an obstacle](#)
- March 12 – CBC Radio – [U of S researchers have found evidence of an ancient tsunami right here on the prairies](#)
- March 11 – CTV News Saskatoon – [Sask. researcher working on new treatment for stage 4 breast cancer](#)
- March 6 – The Weather Network, MSN News – [What recent snowstorms mean for the drought and wildfire risk in Western Canada](#)

- March 6 – CBC News – [As drought persists on the Prairies, some farmers are selling off their herds](#)
 - March 4 – CBC Radio – [John Pomeroy on what recent snowfall means for Alberta's drought](#)
 - Feb. 25 – Vox – [Is oat milk unhealthy? That's the wrong question.](#)
 - Feb. 25 – CBC News – [Canada's drug crisis affecting newcomers, but lack of data makes it hard to know severity of problem](#)
 - Feb. 24 – CTV News Saskatoon – [U of S discovery may reduce nuclear energy risk](#)
 - Feb. 21 – Vice – [Scientists Claim AI Breakthrough to Generate Boundless Clean Fusion Energy](#)
 - Feb. 19 – Global News – [EU farmers are protesting climate change regulations. Could Canadians join them?](#)
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Banner image photo credit: **New Life Reveals All** - by **Dr. Kayla Buhler (PhD)**, recent alumna in Veterinary Microbiology

Images of Research 2023 - *Runner-up, Best Description*

When you think about climate change in the Arctic, pictures of polar bears and sea ice loss probably come to mind. You may not have thought about infectious diseases, even though they are emerging as temperatures warm. We have very little information about the diseases that northern wildlife encounter. So how do we measure any changes? This Arctic fox mom and her pups are part of a long-term disease study in Nunavut. Her pups, especially, provide a snapshot of the diseases that they encounter during the summer months. A little bit of blood collected from litters each year helps to build a picture of how climate impacts disease transmission in the Arctic.

Funders: Natural Science and Engineering Research Council of Canada, Weston Family Foundation, ArcticNet and Polar Knowledge Canada



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