



April 2021 - Issue 39

In this issue: Using traditional Cree approaches to make communities safer, deciduous trees offset Alaskan forest fires, continents drying out, *Images of Research* winners, archeology students map Nutana Pioneer Cemetery with radar, wastewater data now available, and MORE!

Every month, USask Research Profile and Impact highlights research from across campus. *Discovery Digest* is a glimpse into how USask research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world. [Feedback welcome!](#)

Top Stories



New USask partnership will use traditional Cree approaches to make communities safer

University of Saskatchewan researcher Dr. **Holly Graham** (PhD)—pictured next to Chief **Duane Antoine** of Poundmaker First Nation—has been awarded \$2.5 million over five years by Public Safety Canada to implement a crime prevention program using culture as the intervention.

The project provides 10- to 19-year-old students and their families on the Little Pine and Poundmaker First Nations an opportunity to further connect to their traditional Cree identity, including the use of traditional ways to manage conflict resolution – also known as restorative processes.

The project was initiated by two elders, **Austin Tootoosis** of Poundmaker Cree Nation and the late **Jacob Pete** from the Little Pine First Nation. They approached her to work with them and apply for the federal grant that would help address a pressing community problem. [The full story.](#)



Deciduous trees offset carbon loss from Alaskan boreal fires, new study finds

More severe and frequent fires in the Alaskan boreal forest are releasing vast stores of carbon and nitrogen from burned trees and soil into the atmosphere, a trend that could accelerate climate warming. But new research co-authored by USask biologist Dr. **Jill Johnstone** (PhD) and published this week in the journal *Science* shows that

the deciduous trees replacing burned spruce forests more than make up for that loss, storing more carbon and accumulating it four times faster over a 100-year fire interval.

The full story.

Johnstone has also just published an article about her research in *The Conversation Canada*.



'The continents are drying out:' New USask research shows troubling water trends

A pair of satellites collecting detailed measurements about Earth's gravitational field are giving researchers an unprecedented look at the state of the planet's water—and the results are worrying.

New research by a team led by University of Saskatchewan hydrologist and director of the Global Institute for Water Security Dr. **James Famiglietti** (PhD) shows water is leaving the continents at an increasing rate, which is fuelling sea level rise.

He's spent nearly two decades studying data from NASA's Gravity Recovery and Climate Experiment mission, commonly known as GRACE. The mission involves a pair of satellites that were launched roughly 400 kilometres into Earth's orbit in 2002. The GRACE mission wrapped up in mid-2017, but a follow-on mission dubbed GRACE-FO began in 2018 and continues to collect data today.

His latest study was published this month in the peer-reviewed journal *Geophysical Research Letters*. **The full story.**



Beauty under pressure: winners of USask Images of Research announced

Despite unprecedented challenges, USask students, faculty, staff, and alumni snapped images of what research looks like from their side of the lab bench, dig site, and desktop, and submitted more than 70 images to showcase the beauty of that work. **The full story. See the**

winners.

USask archaeology students' hands-on forensic experience in local cemetery could support TRC Calls to Action



For several days last week, a small group of USask archaeology students led by Prof. **Terence Clark** (PhD) used various methods and technologies—such as ground-penetrating radar (GPR)—to search for lost graves at Nutana Pioneer Cemetery. The hands-on training the students received could prove valuable as searches continue across Canada for the remains of Indigenous children who died while attending residential schools. [The full story.](#)



Saskatoon COVID-19 wastewater testing results now available to public

Saskatoon residents now have access to the results of wastewater-based epidemiology (WBE) testing for SARS-CoV-2, the virus causing COVID-19, thanks to a partnership between USask researchers, the City of Saskatoon and the Saskatchewan Health Authority. Housed on the USask's Global Institute for Water Security website, the latest data can be found here: <https://water.usask.ca/covid-19> [The full story.](#)

COVID-19 Research

USask researchers in a wide range of fields are undertaking critical research to help combat COVID-19. [Read other stories.](#)



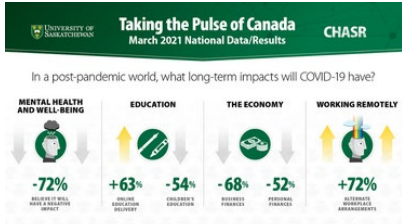
USask researchers help lead \$9-million COVID Variant Rapid-Response Network

Recently announced by Canada's federal government and funded with \$9 million, the COVID Variant Rapid-Response Network (CoVaRR-Net) is composed of eight core "pillars" of activity focused on research mitigating the harmful impact of COVID-19 variants.

Pillars six through eight will focus on informing governments, public health decision makers, and public health systems of the latest evidence-based research and deploying information to the public in Canada and abroad, with specific efforts to engage Indigenous partners and communities.

Dr. **Nazeem Muhajarine** (PhD) and Dr. **Cory Neudorf** (PhD) of the USask College of Medicine, and Dr. **Cheryl Camillo** (PhD) from the Johnson Shoyama Graduate School of Public Policy at the U of R, will lead pillar six. Dr. **Michelle Johnson-Jennings** (PhD), USask College of Arts and Science, will lead pillar seven. [The details.](#)

CHASR takes the pulse of Canadians on post-pandemic life



Canadians are bullish on a post-pandemic future when it comes to new ways to do their work but are apprehensive about dark days to come for their mental health, the economy, and for their personal finances—these are some of the highlights of the first Taking the Pulse of

Canada national survey conducted by USask's Canadian Hub for Applied and Social Research (CHASR).

From March 1 to March 19, 1,002 people across Canada were asked by telephone what long-term impacts they perceived COVID-19 will have across 15 different categories. The national edition builds on the success of the long running Taking the Pulse of Saskatchewan series. **The full story.**



Education key to vaccine acceleration

Scientists at VIDO are currently using animal models to test the efficacy of their sub-unit vaccine against four new variants of the SARS-CoV2 virus which causes COVID-19. The subsequent tests will involve comparing blood samples from human volunteers who have already received VIDO's trial vaccine to see if it protects against

the variants.

But the biggest impediment fighting the pandemic and getting back to normal according to VIDO director Dr. **Volker Gerdts** (DVM, PhD) is people who are hesitant or refuse to be vaccinated against COVID-19. **The full story.**



Masks, vaccines, lockdown and trust: National survey reveals what Canadians think of COVID-19 pandemic response

Researchers from the Johnson Shoyama Graduate School of Public Policy (JSGS) at USask and the University of Regina have collaborated with leading public policy organizations across the country on a national public

opinion survey that gives voice to Canadians about major issues shaping the future of the federation and their political communities.

The first of many reports produced from the findings of the *Confederation of Tomorrow 2021 Survey of Canadians* was released on April 8 and covered questions about the ongoing COVID-19 pandemic, such as Canadians' views on masks-wearing policies, vaccines, lockdowns, and their trust in the scientific and medical community.

Adapting your research in a time of COVID

Have you been adapting your research program in innovative ways to pivot to our current pandemic reality? Have you changed your focus



to study something COVID-specific? Have you found a new way to conduct your research remotely? *Research Profile and Impact* wants to tell that story. Send brief examples of how you have been coping to research.communications@usask.ca

Health research



Recognition and \$1.87 million in awards

Dr. **Uladzimir (Vladi) Karniychuk** (DVM, PhD), a health researcher at VIDO-InterVac, has been awarded the Canadian Institutes for Health Research's \$25,000 Bhagirath Singh Early Career Prize in Infection and Immunity.

Karniychuk, an adjunct professor USask's veterinary college, is also one of three USask researchers awarded \$1.87 million in CIHR project grants. He received \$581,000 to study long-term impacts of Zika on babies born without visible birth defects from the viral disease to mothers with "silent" infections.

Kinesiology professor Dr. **Philip Chillibeck** (PhD) received \$487,000 to determine if stretching is better than walking to reduce blood pressure. Pictured above, Dr. **Scott Widenmaier** (PhD), an assistant professor in medicine, was awarded \$807,000 to research factors that protect the liver against serious damage from obesity-linked fatty liver disease.



Prestigious award for Phenix

Nuclear medicine researcher Dr. **Chris Phenix** (PhD), an assistant professor in USask's chemistry department, has been awarded US\$150,000 by The Michael J. Fox Foundation (with potential for supplemental funding) and \$40,000 by the Saskatchewan Health Research

Foundation to develop diagnostic radiotracers for early detection of Parkinson's Disease.

His team is using fluorine-18 produced at USask's cyclotron facility to develop radiotracers that selectively attach to a protein identified as a potential biomarker for the disease, enabling researchers to learn more about Parkinson's and develop more effective drugs to treat the disease. Phenix says the prestigious award recognizes the world-class research being done at USask with a unique collection of radiotracer development and imaging infrastructure.

Virtual Reality and Mental Health

USask College of Nursing's Dr. **Don Leidl** (EdD) and **Karyn**



Kawula, director of inpatient mental health and addiction services with the Saskatchewan Health Authority, have teamed-up to create simulated training experiences for nursing staff working at The Irene & Leslie Dubé Centre

for Mental Health. Using virtual reality, nurses will be given an opportunity to walk through different Code White (aggressive patient) scenarios in a safe and secure, simulated environment, before experiencing them first-hand. By creating these alternative learning scenarios, it gives nurses an opportunity to develop knowledge, confidence, and competence related to the management of aggressive patients in the mental health and addictions clinical care setting.



A Father's Perspective on Caring for a Chronically Ill Child

An international team of nurses led by College of Nursing's Dr. **Shelley Spurr** (PhD) is exploring the fathers' experience of caring for a child with a chronic illness. The project brings together 21 researchers from five countries, all who belong to the International Family

Nursing Association. The research will benefit nurses from the across the world who can use the research findings to improve the quality, effectiveness, and efficiency of current family nursing practice, in respect to families caring for chronically ill children.



Studying e-cigarettes risk to reproductive health

E-cigarette companies spent more than \$9 billion in marketing last year to promote their product as a healthy alternative to conventional cigarettes for smokers, but USask scientist Dr. **Ali Honaramooz** (DVM, PhD) is not convinced. Honaramooz is investigating what impact vaping and other toxicants have on an animal model of

fetal, newborn and prepubescent testis tissue. **The full story.**

Food security research



USask scientists help find the key to decoding rye genome

An international team led by the IPK Leibniz Institute in Germany and including USask researchers has succeeded in completely decoding the genome of rye, despite its large size and complexity.

The results published recently in the journal *Nature Genetics* are promising for both science and breeding. Rye offers access to a diverse gene

pool, not only for rye breeding but also for wheat breeding.

At USask, the research team includes Dr. **Curtis Pozniak** (PhD), director of USask's Crop Development Centre and Ministry of Agriculture Strategic Research Program Chair in Durum and High-Yield Wheat Breeding and Genetics, plant molecular geneticist Dr. **Andrew Sharpe** (PhD), director of Genomics and Bioinformatics at USask's Global Institute for Food Security (GIFS), Dr. **Sean Walkowiak** (PhD)--Pozniak's former research officer, now research scientist for Canadian Grain Commission, bioinformatics analyst **Brook Byrns**, and plant sciences emeritus professor Dr. **Brian Fowler** (PhD).



Global Institute for Food Security Agtech Ideas Portal

The Global Institute for Food Security (GIFS) at USask represents a unique partner for researchers, industry, producers, consumers and governments.

Have an agricultural technology (agtech) project idea that you'd like to move forward but are not sure how to proceed? Innovation is a team sport. Connect with us through our **Agtech Ideas Portal** and let's work together to move your ideas forward. All submissions made are protected and will be kept confidential.



Canada Grain Act Review and Industry Goods: Lessons from Australia

Will Canada's grain quality management system continue to meet the end-to-end needs of the grain supply chain considering a rapidly innovating industry? A new policy brief from the Johnson Shoyama Graduate School of Public Policy examines whether there are lessons to be learned from how Australia ensured industry-related public goods in its domestic grains sector as it transitioned to a more de-regulated market from the single-desk marketing regime of the Australian Wheat Board.

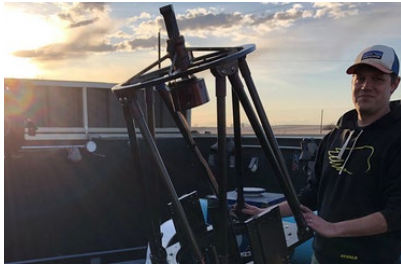
Water security research



Water for gender equity

A multidisciplinary USask research group led by Dr. **Sabine Liebenehm** (PhD), assistant professor in the College of Agriculture and Bioresources, has been awarded \$289,000 by the Queen Elizabeth Scholars (QES) program to develop water security solutions that will help advance gender equity and climate change resiliency in Ghana and Senegal. Water security eases domestic tension for women, whose responsibility it is to fetch water for household use and to grow food. The QES funding is for a scholar exchange program involving eight PhD students, post-doctoral fellows and early career researcher from the West African nations and two from Saskatchewan and is aimed at

Space research



‘Everyone’s really excited’: USask’s new robotic telescope discovers first supernova

Astronomers at USask are excited about undertaking new research after the PROMPT-USASK Skynet robotic telescope discovered its first supernova—known as SN 2021gmj—earlier this month.

In collaboration with USask and the international astronomy network Skynet, the DLT40 supernova research group uses PROMPT-USASK along with two other PROMPT telescopes, located in Chile and Australia, to monitor 600 bright nearby galaxies on a 12-to-24-hour cadence. The aim is to detect new supernovae soon after they occur. [The full story.](#)



Here comes the sun: ISAS and SuperDARN scientists tracks Solar Cycle 25 at USask

follows an approximately 11 year-long cycle, with magnetic activity increasing to an apex and then dissipating. Since 2019, the sun has been in Solar Cycle 25, increasing activity through to the year 2025. For the past 65 years, researchers in USask’s Institute of Space and Atmospheric

Studies (ISAS) have kept an eye on the sky to study solar activity and the sun’s effect on the planet’s atmosphere. USask scientists will be monitoring space weather and looking for indications of geomagnetic storms that could play havoc with satellite transmissions and power grids on Earth. The biggest indicator of increased activity of the sun: large northern lights displays. [The full story.](#)

Accolades



USask researchers named to Fulbright Arctic Initiative program

Dr. **Andrea Kraj** (PhD), School of Environment and Sustainability, and Dr. **Bonita Beatty** (PhD), College of Arts and Science, are two of three successful Canadian applicants for the internationally prestigious Fulbright Arctic Initiative program. This highly competitive program

had more than a hundred applications from leading scholars and practitioners on Northern issues. The scholars have their own individual research programs but will also engage in three policy groups focused on climate change and infrastructure, particularly energy; community health; and Arctic security. These groups will be engaged with

distinguished officials from the United States, Canada, Norway, Iceland, and other Arctic states to provide input in Arctic policy deliberations, as well as participating in community workshops in various locations in the Circumpolar North.

From the OVPR



Picture a Scientist—Documentary screening and panel discussion—April 29, 12pm

Organized by OVPR's Undergraduate Research Initiative, a free screening of the documentary *PICTURE A SCIENTIST* is a must-see. The film chronicles the groundswell of researchers who are writing a new chapter for women scientists. Biologist Nancy Hopkins, chemist Raychelle Burks, and geologist Jane Willenbring lead viewers on a

journey deep into their own experiences in the sciences, ranging from brutal harassment to years of subtle slights.

The screening will be followed by a panel discussion at 2 p.m., featuring USask faculty, including chemist Dr. **Tara Kahan** (PhD), bioinformatics researcher Dr. **Kimberly MacKay** (PhD), virologist Dr. **Joyce Wilson** (PhD) and toxicologist Dr. **David Janz** (PhD), graduate and undergraduate students who will be responding to the documentary and its impact and message.

Watch a trailer. Sign up.

Research Lifecycle

From the planning stages to securing funding to ensuring your research is executed to the highest operational, financial, legal, ethical and safety standards, here are the tools, information, and support available to make your work hassle-free, and to help maximize the impact of your research.

New Research Resources PAWS channel launched

The **Research Resources** PAWS channel (<http://paws.usask.ca/go/research>) has now launched

—a new, easy-to-access, helpful resource for researchers, which provides the tools, information and supports available at USask, across the research lifecycle.

The goal of this joint initiative led by the Office of the Vice-President Research, USask Library, and USask Information and Communications Technologies is to make conducting research easier, more efficient, and less complicated. Key information you need at every stage of research is now findable in one place. No more hunting around! See anything missing? Get in touch: rei@usask.ca

Telling your research story

In **THE CONVERSATION**

Online workshop: Learn how to work with The Conversation running - May 11

The Conversation Canada is a daily independent online publication, delivering analysis and explanatory journalism from the academic and research community directly to



the public. It's a not-for-profit collaboration, where professional editors work directly with academics and researchers to publish articles for a wide audience.

This exclusive session organized by USask Research Profile and Impact, is open to **faculty, graduate students**, and **post-doctoral fellows** from USask.

Deputy Editor **Hannah Hoag** and Editor-in-Chief **Scott White** will explain the mission of The Conversation Canada, offer some background on how it helps academics with knowledge mobilization and give some tips on how to pitch a really great story idea. This is an interactive workshop where participants are encouraged to bring story ideas to discuss.

May 11, 12pm. [Register on EventBrite.](#)

As extreme fires transform Alaska's boreal forest, aspen and birch put a brake on carbon loss and how fast the forest burns

USask researcher Dr. Jill Johnstone (PhD), Auburn University's Dr. Heather Alexander (PhD), and Northern Arizona University's Dr. Michelle Mack (PhD) and Dr. Xanthe Walker (PhD)

A new study finds deciduous trees are increasingly dominant after severe fires in the boreal forest, and that's having some unexpected impacts.



USask professor answers AstraZeneca COVID-19 vaccine FAQs

Many people have questions about the changing guidelines for the use of AstraZeneca's COVID-19 vaccine. Writing in the Conversation Canada, USask infectious disease specialist Dr. **Alexander Wong** (MD) answers some of the most burning questions.



Rural vs. urban Canada: No 'one size fits all' COVID-19 recovery

Dr. Sarah-Patricia Breen (PhD), adjunct professor in the School of Environment and Sustainability

Misconceptions of rural realities can have serious implications. Better use of data can help avoid this and lead to policies that will help rural communities recover in the post-pandemic.



Climate action, job creation are top post-pandemic priorities for Canadians

Dr. Michael Atkinson (PhD), public policy professor emeritus, and Dr. Haizhen Mou (PhD), researcher at the Johnson Shoyama Graduate School of Public Policy

As Canada emerges from the pandemic, creating jobs and achieving full employment are top priorities. Relegated to the back burner are balanced budgets and reducing debt.



As inflation looms, here's how real estate and farmland have protected investors

Dr. Grant Alexander Wilson (PhD), researcher in management and marketing at Edwards School of Business

Canadian residential real estate and farmland have historically proven to be strategic hedges against inflation.



Write about your own research in The Conversation

USask is a founding member of The Conversation Canada, an online academic journalism hub/newswire where researchers write plain-language editorials and explainers articles about their research. Articles written by USask researchers have been read more than 2.3 million times since the university entered into a partnership with the SSHRC-funded Conversation Canada in June 2017.

Writing is easier than you think!

Watch a video from Conversation Canada Editor-in-Chief Scott White.



Want to reach a broad audience with your research? Consider pitching an item to the Conversation. **Wondering where to start? Read a short explainer on how to write for The Conversation Canada. Read previous USask articles here and get in touch with Research Profile and Impact.**

Arts and humanities



Examining esports excellence

The global electronic sports—or esports—phenomenon is growing at an accelerated pace, boasting audiences in the hundreds of millions of spectators. USask computer scientist Dr. **Madison Klarkowski** (PhD) aims to find out what causes expert players of these games to succeed or fail when subjected to intense pressure.

Opportunities



2021 Water Film Prize: Call for Submission—Deadline April 30

Let's Talk About Water (LTAW) film festival is now accepting submissions for water-short films—up to 2 minutes—that inform, educate, inspire and motivate people to come together and embrace our ubiquitous need to value water and to share compelling stories about the current state of water resources around the globe. The deadline to submit your film is April 30, 2021.

Share your film to be in the running for prizes totaling \$25,000 CAD and have your film featured in the LTAW Virtual Theatre as part of our 2021 Film Festival. The LTAW 2021 Film Festival is hosted by the Global Institute for Water Security at the University of Saskatchewan.

Make your research stand out with ORCID

Join the rapidly growing network of USask academics setting up their own ORCID (Open Researcher and Contributor ID) identifier.

Open to faculty, lecturers, graduate students and post-doctoral fellows—anyone who researches—ORCID is free to use and takes less than a minute to set up. Your ORCID ID is a career-long, unique-to-you, 16-digit identifier that ensures you are more consistently and accurately credited for your work, and helps to advance the university's reputation.



Register now for your ID make sure to **link it to your USask NSID**.

For more information on ORCID and how to get started, visit library.usask.ca/orcid

Upcoming events

- (April 20) **Webinar: Over the rainbow for Canadian horticulture** - Looking back and thinking forward, presented by Prof. Deborah Buszard, Ph.D., F. I. Hort. (UK), and Former Principal of UBC Okanagan, contact agbio.communications@usask.ca for details.
Register.
- (April 27) **JSGS Public Lecture ~ Pandemics Vs. Endemics Vs. Epidemics: Risks of Non-Innovative Health Systems**
- (April 29) **JSGS Public Lecture ~ COVID Vaccines: From the production line to the people**
- (April 29) **Virtual Water Gallery Launch Event** - 10:30 am CST, launch of the gallery featuring artworks created in conversation between artists, water experts, knowledge

keepers, and the public to co-explore water challenges. [Register](#).

- (April 30) **SSHRC Town Hall** with President Dr. **Ted Hewitt** (PhD)-- 11:30am-1:00pm- Short presentation by Dr. Hewitt, open Q&A session, and a panel discussion on community-engaged research and the social impact of research moderated by USask SSHRC Leader Dr. **Dawn Wallin** (PhD). [Register](#).

In the news

- VIDO's COVID-19 research and vaccine development was featured in the [Globe and Mail](#), [The Regina Leader-Post](#), on [Global News](#), and [CKOM](#), and in the [Halifax Chronicle-Herald](#)
- The story "[USask model for predicting mountain snowpack provides clearer picture of spring runoff, impacts of climate change](#)" was featured by *MSN News Canada*, *The Weather Network*, and *CTV News*, and seen by more than 70 million people
- CHASR's research on [Canadian's perceptions about the impacts of the pandemic](#) was featured by *CBC News Network*, *Yahoo! Canada*, and *Le Soleil*, and viewed by nearly 10 million readers
- USask researchers leadership in [the newly launched \\$9-million federal COVID Variant Rapid-Response Network](#) was featured by *CBC News Network*, *Global News*, and *Q107 Toronto*, and viewed by more than 8 million people



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