

June 2018 - Issue #6

Discovery Digest

Highlights of U of S research news

In this issue: Incidence of epilepsy in Indigenous population double national average, \$2M for new sport science facility, \$1.38M for improving the Internet of Things, \$1.58M for SuperDARN, much, much more...

Each month, U of S Research Profile and Impact assembles a selection of research stories from across campus. It's a glimpse into how U of S research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world.



USask study: incidence of epilepsy in Indigenous population double the national average

Just published in *Seizure: European Journal of Epilepsy*, USask health researchers **Lizbeth Hernández-Ronquillo**, **Lillian Thorpe**, **Punam Pahwa** and **Jose Téllez-Zenteno** established for the first time a Canadian national incidence rate of epilepsy (62 new cases of epilepsy per 100,000 people per year) and discovered the rate in self-identified First Nations patients is double (122 per 100,000). [Read more here.](#)



\$2 million to build new sport science and health facility

USask alumni and long-time donors **Ron and Jane Graham** have made a donation of \$2,068,000 for a sport science and health facility within Merlis Belsher Place. The new facility, which will be named the *Ron and Jane Graham Sport Science and Health Centre*, will serve to enhance the performance, conditioning, recovery and education of athletes. The facility will support research into injury prevention, nutrition and conditioning, and performance and recovery.



Better connected devices: Improving the Internet of Things

USask engineering researcher **Ha Nguyen** has been awarded \$1.38 million by the Natural Sciences and Engineering Research Council of Canada (NSERC)—and matching funding from industry partner Cisco Systems—for a five-year research chair to help address the huge demand the Internet of Things (IoT) will create for transmitting and tracking data. The IoT aims to seamlessly connect via the Internet computing devices embedded in everyday objects—such as smart-phones, refrigerators, cars, and traffic lights—enabling them to send and receive data. **Nguyen**, NSERC-Cisco Industrial Research Chair in Low-Power Wireless Access for Sensor Networks, aims to develop a low-power data transmission network that can relay signals for up to 20 kilometres and efficiently serve indoor and underground applications.



SuperDARN Canada awarded funding through province's Innovation and Science Fund

The Super Dual Auroral Radar Network of Canada (SuperDARN), headquartered at USask, will receive \$1.58 million over five years through Innovation Saskatchewan's Innovation and Science Fund, with matching funding already committed by the Canada Foundation for Innovation. Led by **Kathryn McWilliams** (physics) and **Jean-Pierre St-Maurice** (physics) in Canada, SuperDARN is an international network of high-frequency radars operated and maintained by multiple universities and research institutions across the globe to monitor space weather.

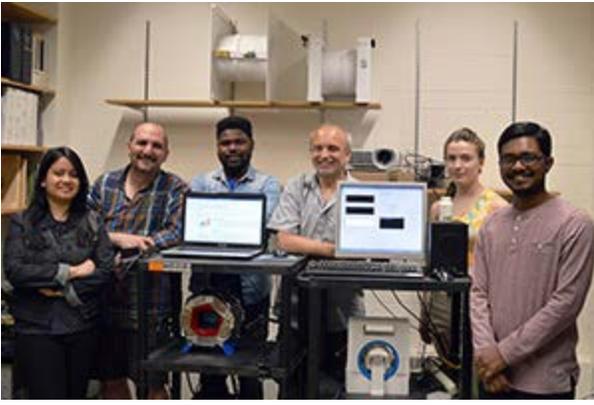
Signature Area Research



Canada's leading researchers tackle critical issues facing water security

This month, USask water scientists and others from across the country held what is believed to be the first major science gathering on a First Nation in Canada. The inaugural meeting of the USask-led Global Water Futures (GWF) program on the Six Nations of the Grand River and at McMaster University focused on critically important issues related to Canada's fresh water resources. Pictured left to right are **Elan Henhawk**, Elder of the Six Nations of the Grand River, with **Phani Adapa**, Assistant Director, Global Institute for Water Security (GIWS), and **John Pomeroy**, Canada Research Chair in Water Resources and Climate Change and Director, Global Water Futures program

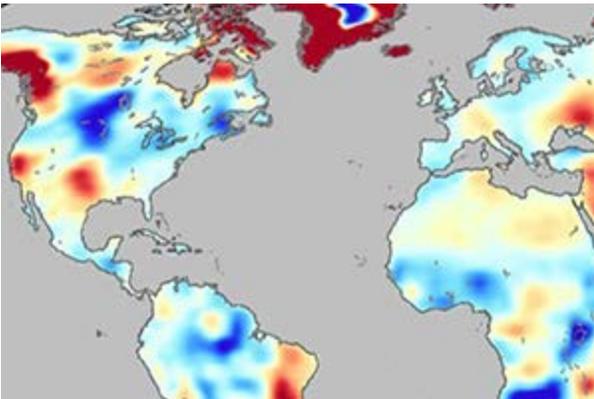
Health Research



Novel MRI aimed at space

Gordon Sarty, interim chair of biomedical engineering and head of psychology, was awarded a \$100,000 contract on May 25 by the Canadian Space Agency to design and engineer a lightweight, ankle-sized MRI device for use on the International Space Station. The goal is to test it on astronauts aboard the space station by the early 2020s to monitor their bone health. Next, he plans to design a portable helmet-sized MRI for use in remote areas such as northern Saskatchewan, where it can save lives of patients with potentially fatal head injuries.

Featured in...



L.A. Times Op-ed: Earth's dismal water future, mapped

Incoming Director of the USask Global Institute for Water Security (GIWS) and Canada 150 Chair in Hydrology and Remote Sensing **Jay Famiglietti** has penned an op-ed in the Los Angeles Times based on **his research published last month in the journal *Nature***.

In **THE CONVERSATION**



What the Kinder Morgan decision says about investing in Canada

In *The Conversation Canada*, **Carin Holroyd** (political studies) and **Ken Coates** (JSGS, Canada Research Chair in Regional Innovation) write that in purchasing the Trans Mountain pipeline, the Canadian government is admitting it cannot guarantee that a legal, comprehensively reviewed and fully authorized major project will proceed to completion under private ownership.



Canada's Paris-pipeline paradox

Writing in *The Conversation Canada*, **Markus Hecker** (Canada Research Chair in Predictive Aquatic Toxicology) and Jackie Dawson (University of Ottawa, Canada Research Chair in Environment, Society and Policy) ask and answer, “Can Canada move towards a green economy and meet the GHG reduction targets of the Paris agreement while simultaneously expanding the fossil fuel economy via public ownership of what was the Kinder Morgan pipeline?”



Viruses can cause global pandemics, but where did the first virus come from?

While viruses grab our attention with their potential to cause widespread death and disease, where did they first come from? PhD student **Arinjay Banerjee**, writing with Prof. **Vikram Misra** (veterinary medicine) and Prof. Karen Mossman (McMaster University) examines possible theories in *The Conversation Canada*.

Write about your own research in The Conversation

Want to reach a broad audience with your research? Consider submitting an item to the Conversation, an academic journalism hub of which U of S is a co-founding member. [Read more here](#) or [get in touch with Sarath Peiris](#).

Social Sciences and Humanities Research



New book explores queer history on the Prairies

USask history professor **Valerie Korinek** has just published *Prairie Fairies: A History of Queer Communities and People in Western Canada, 1930-1985*. The book draws on oral, archival and cultural histories to explore the experiences of queer urban and rural people on the Prairies, with a particular focus on the cities of Saskatoon, Regina, Winnipeg, Edmonton and Calgary.

Undergraduate Research



USask archaeology student makes 'extremely rare' find at Wanuskewin

Second-year USask archaeology student **Lauren Rooney** discovered an Iniskim, an 800-year-old bison-shaped figure collected by the Blackfoot people, made from a 66-million-year-old fossil. Rooney made the discovery at the Wolf Willow dig site at Wanuskewin Heritage Park, a national historic site located five kilometres north of Saskatoon, while on a USask field school program.

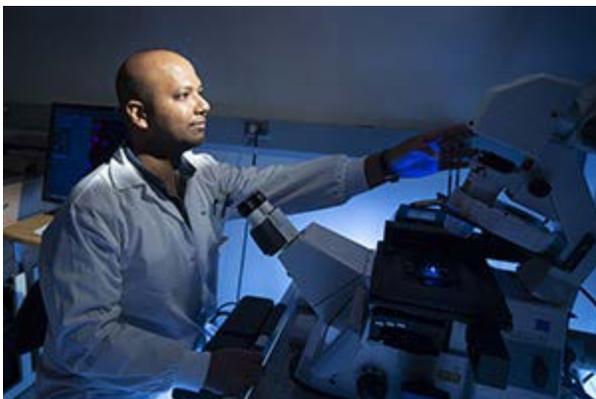
In the arts



USask students get a taste of theatre in London

Two USask education students from the Thunderchild First Nation were among a class of 13 who travelled in May to England to enrich their knowledge of theatre. Over two weeks, cousins **Bobby Jo Okanee** and **Maxine Thunderchild** and their classmates accompanied drama professor **Dwayne Brenna** on a whirlwind tour of London and surrounds as part of Drama 285 – Theatre Studies in England. Students participated in workshops in voice, acting, and puppetry, and attended 11 performances at venues such as the New Globe, Old Vic, and National theatres. Pictured: Maxine Thunderchild at a puppetry workshop.

Young Innovators



USask study targets enzyme's role in breast cancer

USask graduate student **Raghuveera Goel**, supervised by **Eriq Lukong** (biochemistry), has just identified and mapped 660 proteins targeted by the SRMS enzyme. The research could be a gamechanger for better understanding breast cancer. Goel's work is featured in *The Young Innovators series appearing in the Saskatoon StarPhoenix*.



The left hand *does* know what the right is doing

PhD student **Justin Andrushko** and kinesiology professor **Jonathan Farthing** have found that when you immobilize an arm, exercising the same free limb on the other side of the body may be key to maintaining strength and muscle size in the immobilized limb. These findings, published in *the Journal of Applied Physiology*, may one day be applied to standard of practice for injury recovery. [Read more in the Young Innovators series](#). The work was also featured in a recent article in *The New York Times*.

Commercialization



USask Innovation Enterprise named Canadian hub for AIMday™ program

USask's commercialization unit *Innovation Enterprise* has been named the Canadian AIMday hub, following an agreement with Sweden's Uppsala University. Developed by Uppsala University in 2008, the AIMday concept of industry-academic matchmaking events has been applied in five countries and in areas such as cancer research, diagnostics, materials science, aging and imaging. USask is the second university that has been assigned the role as an AIMday hub in a country outside of Sweden.

A Green and White Globe



USask faculty named to Arctic research groups

Emily Jenkins (veterinary medicine) and **David Natcher** (agriculture and resource economics) have been chosen to represent Canada on the International Arctic Science Committee (IASC), a non-governmental organization that encourages co-operation in all aspects of Arctic research. Jenkins will serve on IASC's terrestrial working group starting in January. Natcher will join IASC's social and human working group in September.



Improving access to Mozambique maternity waiting homes

A maternal health project in Mozambique led by USask researcher **Nazeem Muhajarine** has been awarded \$100,000 by **Grand Challenges Canada**, which funds innovators in low- and middle-income nations and Canada. The money will be used to assess the feasibility of providing money to pregnant women in rural or remote areas to help them travel to maternity waiting homes close to health centres. Muhajarine says improving women's access to the waiting homes, which provide ante-natal obstetric care and post-natal information on newborn care, could help reduce Mozambique's maternal mortality rate that's among the highest in the world. Muhajarine has previously written about his work in ***The Conversation Canada***.

Diversity in STEM



Assistant VP Research champions '30 by 30' in *Globe and Mail*

Dena McMartin, USask assistant Vice-President Research, was recently profiled in *The Globe and Mail*, arguing for more diversity in the engineering profession, and championing the 30 by 30 initiative – the goal of raising the percentage of new engineers who are women to 30 by 2030.

Engineers bring a particular skillset to the table, and their ability to offer solutions can be enhanced encouraging more diversity within their ranks, including women, people of colour, and Indigenous people, said McMartin.

Upcoming events



Few spots remaining! 2018 International One Health Congress at USask

USask and One Health Platform Foundation are hosting world's premier conference for the global One Health community June 22-25th. Sign up today, before it's too late. The focus of the conference is *One Health in underserved communities* -- recognizing the complex interplay of environmental, animal and human health in underprivileged or subsistence societies.

Participants can choose from 28 sessions in three tracks: One Health Science, Antimicrobial



Will there be enough food to feed the world?

The USask Global Institute for Food Security (GIFS) is hosting 60 of the world's pre-eminent researchers, thinkers, and policy makers from 20 countries at *2018 Emerging Technologies for Global Food Security* conference, June 19-21, to answer that very question. The conference will also include a debate moderated by Rex Murphy on whether forestry and agriculture are the key to mitigating carbon dioxide and climate change, **June 21, 3-5pm, free and open to the public.** [Read more details.](#) [Visit the conference website.](#)

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