October 2018 - Issue #10

# Discovery Digest

Highlights of U of S research news

*In this issue:* USask launches Livestock and Forage Centre of Excellence, USask and U of G sign MOU, SSRL gauges Saskatchewan viewpoints, $8M from NSERC for tackling social and climate issues, 25 years of SuperDARN, and more!

**Every month, USask Research Profile and Impact highlights research from across campus. *Discovery Digest* is a glimpse into how U of S research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world.**

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## USask launches Livestock and Forage Centre of Excellence

USask and its industry and government partners have launched the world-class Livestock and Forage Centre of Excellence (LFCE), a $38-million complex of field and science laboratories that will be a powerhouse for innovative research, teaching and industry engagement in all facets of livestock and forage production. LFCE is the largest and most comprehensive centre of its kind in Canada

Kris Ringwall, currently director of the North Dakota State University Dickinson Research Extension Centre, is the new director of LFCE, and will begin work Nov. 1. **Read the details**.

## USask and U of G sign MOU to collaborate on food security CFREFs

**Left to right, GIFS Executive-Director Maurice Moloney, U of G Vice-President Reseach Malcolm Campbell, and USask Vice-President Research Karen Chad**

Today Karen Chad, USask Vice-President Research, and Malcolm Campbell, University of Guelph (U of G) Vice-President Research, signed a memorandum of understanding (MOU) to collaborate on joint activities to advance global food security and food systems, building on the work of their Canada First Research Excellence Fund (CFREF) programs—the **USask Designing Crops for Global Food Security** and **U of G's Food from Thought.**

In what's believed to be the first MOU between CFREFs, the two programs plan to pool expertise, create an integrated 'knowledge supply chain' linking their research to the commercial supply chain for food and agricultural products, and offer a comprehensive training platform for students, post-doctoral fellows and other research personnel.

**USask's Plant Phenotyping and Imaging Research Centre (P2IRC)**, managed by the Global Institute for Food Security, will benefit through increased co-operation on food processing research and novel technology expertise. U of G will gain access to advances in arable crops and breeding and to a wide range of research infrastructure at USask.

## Saskatchewanians weigh in on gun laws, Trump's values

SSRL
SOCIAL SCIENCES RESEARCH LABORATORIES

The USask Social Sciences Research Laboratories (SSRL) has entered into a new partnership with CBC Saskatchewan, surveying residents of Saskatchewan on 'hot button' topics, including most recently **on U.S. President Donald Trump's values**. SSRL also has an ongoing partnership called **"Taking the Pulse,"** with the StarPhoenix and Regina Leader Post, polling a representative sample of Saskatchewanians four times per year, **most recently on attitudes towards current Canadian gun ownership laws**.

## Celebrating space research at USask: SuperDARN turns 25, ISS turns 20

In celebration of 25 years of SuperDARN research at USask and 20 years since the launch of the International Space Station, the Research Profile and Impact unit has released a new website showcasing space research of all types at USask – ranging from human health in space, to space weather monitoring, to remote sensing of the Earth. **Check it out here.**

## $8M for research to tackle social, climate issues

The Natural Sciences and Engineering Research Council of Canada (NSERC) has awarded Discovery grants to 45 USask faculty members and scholarships to 29 graduate students -- a total of more than $8 million. The funded projects range from safeguarding Indigenous communities from a nasty parasite that's spreading northward, to designing multiplayer video games that promote player cohesion instead of a toxic play environment, to reducing greenhouse gas emissions from the cattle industry. **Read the details.**

## Our changing climate: Taller plants muscling out short grasses, bushes on tundra -- *Nature*

Taller plant species such as willow shrubs and birches have been slowly taking over from low-

growing grasses and bushes in the Arctic biome over the past three decades as the circumpolar region warms up, says a report based on data gathered from 117 tundra sites. Jill Johnstone, an adjunct biology professor at USask, was among nearly 130 international scientists who recently co-authored the **paper in the journal *Nature*** . The changing climate is also affecting the habitat of species such as caribou and the productivity of plants such as cranberries.

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## Major accolades

### USask 'Father of Agricultural Medicine' Named to Canadian Medical Hall of Fame

USask Distinguished Research Chair Dr. **Jim Dosman**—the 'father of agricultural medicine in Canada'—is among six Canadians named to the Canadian Medical Hall of Fame for contributions to medicine and the health sciences that have led to extraordinary improvements in human health. Dosman is the founding director of the university's Canadian Centre for Health and Safety in Agriculture—a unique-in-Canada centre for research, education and health promotion, with particular focus on the health effects of agricultural exposures on rural populations.

As a physician and specialist in respiratory medicine, Dosman undertook foundational work on the effects of dust exposure among grain workers. It led to the establishment of a nationwide database supporting research and training. His work has improved health and provided better safety for agricultural workers in Canada and the world.

Previous USask laureates include Harold Johns, Sylvia Fedoruk, and Emmett Hall.

### USask toxicologist awarded national recognition

Karsten Liber, Toxicology Centre director and Distinguished professor in SENS, has been awarded the *2018 Outstanding Contributions to Canadian Ecotoxicology* award by the Canadian Ecotoxicity Workshop (CEW). Liber was cited for building the largest academic ecotoxicology program in Canada, as well as for his research and mentorship contributions.

### Convocation research and internationalization awards announced

The world's most-cited field hydrologist, **Jeffrey McDonnell** is being awarded the Distinguished Researcher Award at the Fall 2018 Convocation on Oct. 27. An innovative researcher and mentor of young scientists, McDonnell is associate director of the Global Institute for Water Security and professor in the School of Environment and Sustainability. McDonnell has fundamentally advanced global understanding of how landscapes store and release water.

History professor **Kathryn Labelle** will receive the New Researcher award for her internationally recognized work on Indigenous history. Her painstaking and innovative research that retraced the dispersal of the Wendat people from Ontario's Lake Huron region in the 17th century upended long-held assumptions of historians.

Mathematics and statistics professor **Raj Srinivasan** will be awarded the George Ivany Award for Internationalization for his efforts with India to establish summer workshops, undergraduate internships, faculty exchanges and collaborative teaching.

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## A "Green and White" Globe

### USask UNESCO Chair World Peace Day video released


USask has released a video produced by Research Profile and Impact as part of celebrations for International Day of Peace. The video connects work being done at USask by **Maureen Reed** and **Jim Robson** who hold the UNESCO chair in biocultural diversity, sustainability, reconciliation and renewal, with the ultimate goal of achieving world peace. **Watch the video**.

### Home from Away : a photovoice study

Librarian **Vicky Duncan** and master's student **Samuel Schultz** are opening a new exhibit entitled, "Home from Away," a photovoice study of how international graduate students at USask adjust to a new research and cultural context. The exhibit features photos, interview excerpts, videos, and objects from international graduate students documenting their experiences adjusting to life at USask. Three of the participants were also featured in a series of videos. The exhibit runs in the Murray Library Link from November 1, 2018, until January 31, 2019.

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## Indigenous Research

### USask researchers partner with First Nations community to measure climate change

Geography and planning professors **Bob Patrick** and **Krys Chutko** are working with the Okanese First Nation in southern Saskatchewan on a project to track and adapt to the effects of climate change on reserve lands, installing four automated climate monitoring stations on Okanese land to record and share data on the local temperature, rainfall, humidity, air pressure and wind. The stations are part of a project called *Kikawinaw Askiy: Reconciling with Indigenous Sacred Ecology*. In partnership with USask, the initiative is supported by $125,000 in funding over three years from Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). **Read more here.**

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## Health Research

### Testing efficacy of cannabis to treat dementia

USask and Sundial Growers Inc. of Alberta have signed a three-year memorandum of understanding (MOU) to collaborate in exploring opportunities for clinical testing and other cannabis-related research activities. As a first step in the collaboration, researchers at the USask Cannabis Research Initiative of Saskatchewan (CRIS) will work with Sundial to undertake clinical trials to study the efficacy of cannabis as a treatment for dementia. **See more details on CRIS.**

### Study finds non-epileptic seizure patients may receive wrong treatment

Nearly 2,000 patients in Saskatchewan and 72,000 across Canada experience seizure-like episodes that are unrelated to epilepsy, but about half of them aren't receiving proper follow-up care, says a report by an international group of researchers led by USask neurologist **Jose Téllez-Zenteno**. Neurologist **Alexandra Carter** is lead author of the paper. Psychogenic non-epileptic seizures (PNES) have a psychological underpinning based on a history of abuse. PNES patients are often misdiagnosed as having epilepsy, leading to inappropriate drug treatment.

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## Renewable energy research

### Gearing up to power the North with renewables

Geography and planning professor **Bram Noble** has been awarded an Insight grant of $92,000 by the Social Sciences and Humanities Research Council (SSHRC) to develop an efficient impact assessment process for renewable energy projects. Canada has committed to an electricity system by 2030 that will be 90-per-cent carbon non-emitting, a move that requires transitioning to renewable energy such as wind, solar and biomass.

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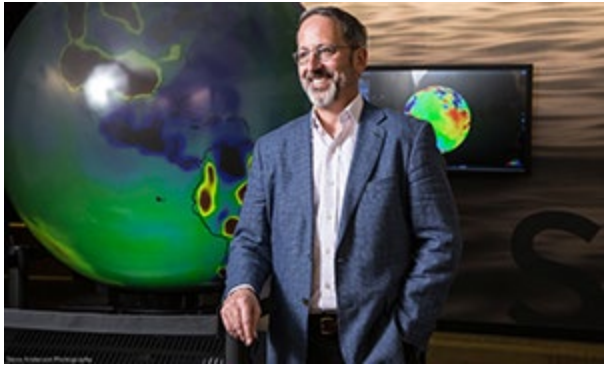
## Water resources research

### Famiglietti gives invited talk to World Bank MENA



**Jay Famiglietti**, Canada 150 Research Chair in Hydrology and Remote Sensing, gave an invited presentation on **Changing global freshwater availability and implications for water security** to the World Bank in Washington, D.C. on Sept. 27.  Famiglietti presented to an audience of economists, political scientists, and the bank's chief economist for the Middle East North Africa (MENA) region. Discussions ranged from raising awareness of water issues with political leadership and the wider public, improving data collection, and sharing data across political boundaries.

## USask researcher only non-American on USGS water report

**Howard Wheater,** Canada Excellence Research Chair Laureate, was the only non-U.S. member of a committee contributing to a report for the United States National Academy of Science, Engineering, and Medicine. The report on future water priorities released in September will inform decision-making for the U.S. Geological Survey. **Read the report** .

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## In_ THE CONVERSATION

**The Conversation Canada demystified**

Organized by the Research Profile and Impact unit of the Office of the Vice-President Research, a series of workshops was delivered by The Conversation Canada editor-in-chief Scott White on campus to an audience of more than 75 faculty, post-doctoral fellows, lecturers, graduate students, and communicators. If you missed the workshop -- **read a short explainer on how to write for the Conversation Canada.**

**What the Supreme Court ruling means for Indigenous consultation** - *Dwight Newman*

The headlines suggest the Supreme Court of Canada has ruled against Indigenous consultation. But its recent ruling is much more nuanced and complex than that.

***This item was also published in the National Post.***

**Broke your arm? Exercise the other one to strengthen it...** - *Jonathan Farthing and Justin Andrushko*

A research study shows that training the opposite limb can actually help preserve muscle in a broken and immobilized one.

**How a new vaccine could save cattle herds – and livelihoods** - *Jose Perez-Casal*

Lung plague attacks cattle causing disease and death, and more than US$60 million in losses annually in Africa. A new vaccine aims to prevent the disease.

**How to make computers faster and climate friendly** - *Seokbum Ko*

The Internet of Things is contributing to climate change. Innovation in computer design could help mitigate the problem.

**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 USask is a founding member. **Read more here** and **get in touch with Sarath Peiris**.

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## Young Innovators

**USask study hones in on causes of MS disability**

A USask research team including PhD student **Hannah Salapa** and **Dr. Michael Levin**,

Saskatchewan Multiple Sclerosis Clinical Research Chair, is a step closer to finding a cause of the nerve cell death experienced by people with multiple sclerosis (MS), a discovery that could lead to better treatments for this permanent and debilitating disease.

### Call the Midwife

USask researcher **Nazeem Muhajarine** and recent PhD grad **Daphne McRae,** working with research partners at UBC found that midwifery care may be key to better childbirth outcomes for low-income women. The story was featured in *The StarPhoenix* as part of the on-going *Young Innovators* series. Muhajarine and McRae also co-authored an article in *The Conversation Canada* about their research.

### Uncovering the secret winter life of lakes

Denitrification in lakes happens under ice as quickly as it does in the summer, USask PhD student Emily Cavaliere, supervised by Prof. Helen Baulch, has found. The research was published in the journal *Biogeochemistry* and featured in *The StarPhoenix* as part of the on-going *Young Innovators* series.

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## Commercialization

### Edwards School of Business launches research excellence portal

The Edwards School of Business has launched an interactive website to highlight its research impact through research stories, and promote research collaborations around the world. The portal showcases the many areas of research strength of Edwards' faculty aligned with the USask signature areas of research. **Check it out.**

### Company based on USask ag-tech raises $250M, now valued at $3.5B

Indigo, a company built on a discovery made by food and bioproduct sciences professor **Vladimir Vujanovic,** Agri-Food Innovation Chair in Agricultural Microbiology and Bioproducts, and founded with the help of USask Innovation Enterprise has raised $250M and increased its total valuation to $3.5B. In 2013, Innovation Enterprise helped create Indigo as a startup company, providing a licence to use the technology in return for equity and shares.

Vujanovic and his research group developed a technology to enhance crop yields by applying beneficial microbes which improve heat- and drought-resistance to seeds.

This new investment significantly increases the value of Indigo shares held by USask, and will allow the company to bring USask technology to additional global markets, increasing future royalty revenues. Innovation Enterprise continues to work with Vujanovic and Indigo to test new technologies.

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## Upcoming events

### Call for proposals

**The Fedoruk Centre at the University of Saskatchewan** has announced a new call for project proposals for funding that meet their objectives for nuclear innovation.

The total budget for this call is $500,000. Proposals are due November 30. **Further details are available through the Fedoruk Centre website.**

## Improving agriculture through digital technologies: 3rd Annual P2IRC Symposium


The Plant Phenotyping and Imaging Research Centre (P2IRC) at the Global Institute for Food Security (GIFS) host its third annual symposium Oct. 17-18 at the Delta Bessborough Hotel. The theme of the symposium is "**Mobilizing P2IRC: Process. Target. Engagement.**" and will feature world-renowned international researchers, P2IRC researchers from across Canada, industry representatives, and students. Attendees will also have access to state-of-the-art virtual reality and 3D displays, exhibits from ag-tech companies and 60 student posters

## Distinguished lecture series – Global Water Futures

**Barbara Sherwood-Lollar,** University of Toronto Canada Research Chair in Isotope Geochemistry of the Earth and the Environment, presented a lecture on Oct. 17,. The lecture is part of the Global Institute for Water Security-hosted *Breakthroughs in Water Security Research* Distinguished lecture series. The next lecture in the series, presented by UW-Madison professor **Steven Loheide,** will be held Oct. 24th. **Details about the lecture, the series, and a livestream are available**.

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### We want your feedback! What do you think of Discovery Digest?

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For more information,
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