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OnManitoba

CONNECTING ALUMNI AND FRIENDS OF THE UNIVERSITY OF MANITOBA



**SØREN
RYSGAARD**

Canada Excellence Research
Chair in Arctic Geomicrobiology
and Climate Change

SPECIAL FEATURE

**Arctic Research
at the U of M**

As Arctic climate change researchers put their heads together to uncover new information about the changing nature of the region, and what that means for you and me, we know one thing is certain:

the University of Manitoba is now tops in the world when it comes to researching at the top of the world.

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The University of Manitoba received the Canada Excellence Research Chair (CERC) in Arctic Geomicrobiology and Climate Change in May to further its world-class investigations of sea ice in the Arctic. The federal government awarded only 19 of these prestigious prizes to top research groups at universities nation-wide. Their aim is to attract the world's best talent to Canadian institutions. Coming to the U of M is chairholder and Greenland recruit Søren Rysgaard, a renowned geomicrobiologist, along with \$10 million to further explore the Arctic—on a micro scale—during the next seven years. Rysgaard will join the already internationally recognized Centre

for Earth Observation Science, led by Canada Research Chair in Arctic System Science David Barber [BPE/82, MNRM/89].

Thanks to even more funding from the university, the Province of Manitoba and a private donor—bringing the total to roughly \$35 million—the CEOS team will grow substantially and enjoy an expanded workspace atop the Wallace Building.

In this special feature, we introduce you to the CERC chairholder, hear from a very excited university president, and profile an alumnus whose personal contribution will help ensure the U of M's Arctic research team stays strong for years to come.



Photo: Laurel McFadden / ArcticNet

Søren Rysgaard Q&A

On a hot May afternoon, Søren Rysgaard strolls into a meeting room on the fourth floor of the Wallace Building, dressed from head to toe in technical gear more suited to inclement Arctic weather than blue skies and prairie sunshine. He wears an undeniable intensity across his forehead and eyes, but a handshake and a quick flash of a smile disarm the towering Dane, all six feet, six inches, and reveal his soft-spoken and thoughtful nature. (Turns out the hard scientist, a father of six, lulls his youngest kids to sleep by strumming his guitar.)

With just days to go before Rysgaard's May 17 introduction as the U of M's Canada Excellence Research Chair (CERC) in Arctic Geomicrobiology and Climate Change, and in spite of a morning jam-packed with photo ops and interviews, the acclaimed investigator is relaxed, elbows resting on the boardroom table, hands touching at the fingertips. It's tempting to get caught up in speculation about what Rysgaard and his U of M colleagues might discover over the next seven years as they explore the North on a micro scale. They do, after all, represent the largest Arctic research collaboration in history. Instead, we zero in on Rysgaard himself.

Growing up, I wanted to do something related to the ocean because I watched Jacques Cousteau and I was fascinated by his adventures.

After high school, I spent a year in Iceland on a remote farm. When I came home, I thought about studying genetics but the practical side of genetics was boring. I happened upon microbiology and it just kind of grew from there. My main attraction was the collaborative approach of the microbiology group. I remember coffee sessions that would start at nine in the morning and carry through the day.

Canada, I would say, is ahead in terms of focusing on Arctic sea ice research. I've been working with people like David Barber for many years now. Canada's collaborative approach—setting up an icebreaker and inviting researchers from around the world—is leading-edge.

My children stopped listening to me describe my research a long time ago.

What do I look forward to in Manitoba? The weather. We don't have days (at home in Greenland) where you can go out with just a T-shirt on. And here, you can plan events more spur of the moment than in Greenland. I look forward to showing my children all the trees as they have not seen those in years. Culture as well; you have a lot of that here.

Canadians seem to speak their mind and just be easy going.

Our research sometimes requires the invention of special devices. One of those, a micro monitor that measures oxygen levels in the ice, now has a medical application as well. It is used to monitor oxygen levels in human blood in small capillaries. This allows doctors to monitor the area surrounding an operation.

I used to be away a lot so my work took its toll on my relationship with my oldest kids. I moved the whole family to Greenland so we could all be together.



This photo and Cover: Katie Chalmers-Brooks

My two oldest kids go to school in Denmark. My daughter spent a year in my lab but today she's studying art. I feel everyone should pursue what interests them and makes them happy. And besides, her pursuit of art will teach me something new.

I used to work with music on but now I find I need total silence.

There is definitely a shift going on in the climate, and it is not explained away by natural processes.

Our goal, right now, is to better understand (the Arctic) region. What is there, what are the processes, the types of life? It's been a traditionally under-explored region because of its remoteness. I'm happy to see this is changing.

I am an outdoorsman; you have to be when you live up in Greenland.

I get very excited about my work and I am fascinated by sea ice. There is so much going on in there.

There are only 150 kilometres of road in my town in Greenland. Everyone has a boat. You sail between the fjords to visit friends.

I leave my work at the office or lab. I don't bring it home. I have kids climbing up all over me so home is my time to be with family.

My kids have been with me on the ice and in the labs. It's been a great opportunity for them to see what I do and meet different and interesting characters from around the world.

I've collaborated with some young students and they have such a strong curiosity. If they keep that curiosity, then we have hope.

Arctic research program like none other

As news of major federal government funding for Arctic research at the University of Manitoba spreads, plans to make room for a growing team of Arctic scientists is already underway.

In May, the University of Manitoba was awarded a \$10-million Canada Excellence Research Chair (CERC) in Arctic Microbiology and Climate Change. The chairholder, world-renowned geomicrobiologist and Greenland import Søren Rysgaard, is teaming up with the U of M's Centre for Earth Observation Science (CEOS) to explore the Arctic on a micro-scale over the next seven years.

Lending his support for the expansion of the team's facilities, alongside the university and the provincial government, is U of M graduate and Faculty of Environment, Earth, and Resources namesake Clayton H. Riddell [BSc(Hons)/59, DSc/04]. Riddell has contributed \$2.5 million towards construction of a fifth floor on the Wallace Building. This latest donation builds on his previous gift to the faculty in 2004 of \$10 million.

At the May 17 CERC announcement, Riddell, a respected geologist with decades of exploration work in Canada's north, spoke of the need to strike a balance in the Arctic when he observed that "Growth in the Arctic will and must occur...with a sensitivity to the Arctic and its people."

Thanks to the contributions of Riddell and others, the new space will offer 60,000 square feet of specialized labs and classrooms. The build comes with an \$8-million price tag and will accommodate the influx of grad students and researchers set to converge on the U of M to work with the pre-eminent team in the field of Arctic climate and sea ice research. At the same time, CEOS will see its membership grow to more than 100 members or about triple its current size. The new research and study space will be called the Nellie Cournoyea Arctic Research Facility to honour one of Canada's first female premiers (Cournoyea was leader of the Northwest Territories from 1991-95) and staunch advocate for the protection of the Arctic and its inhabitants.

"The opportunity for U of M to become the leader in Arctic research is very exciting. The addition of the Nellie Cournoyea Arctic Research Facility recognizes a great Canadian whose tireless efforts have and continue to benefit the North and its residents," says Riddell.

Cournoyea, an Officer of the Order of Canada, says it is "a privilege and a great honour to have been recognized in this manner." During her remarks at the CERC announcement, she stressed the importance of research in the Arctic that is "relevant" and that it was much needed. Echoing Riddell's sentiments about the future of Northern development, Cournoyea said, "We are an adaptable

people. We try not to live under illusions or delusions that things will remain the same." She also alluded to the special partnership that exists between Arctic researchers and the people of the region. "We are far away and we know we need friends, and we know we need supporters."

Norman Halden, dean of the Clayton H. Riddell Faculty of Environment, Earth, and Resources says the university's comprehensive Arctic research program – including the new facility, the existing icebreaker-turned-research vessel CCGS Amundsen based in the far North and the experimental sea-ice research facility located in Smartpark – is "like nowhere else in the world."

The Nellie Cournoyea Arctic Research Facility is slated for completion in 2011.



Clayton H. Riddell [BSc(Hons)/59, DSc/04]

Photo: Katie Chalmers-Brooks

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World-class research finds its home at the University of Manitoba



Many will have heard me talk about why I love the work I do: I consistently tell people it is because both the cause, and the company, are great.

I can think of no better demonstration of this than the recent announcement that the University of Manitoba has been awarded a Canada Excellence Research Chair (CERC), which is an investment of such magnitude that it will dramatically increase our world-renowned capacity to contribute to an area of research of global importance.

For the most part, our endeavours can be seen as layers of achievement, building over time, and opportunities to be part of a singular, transformative event are rare. The announcement that the University of Manitoba had been awarded a CERC in Arctic Geomicrobiology marks what legitimately could be described as one of these rare occurrences.

The CERC program was announced by Canada's federal government in 2008 as part of its strategy to strengthen our country's ability to compete globally. It sought both to concentrate resources in areas of science and technology that were identified as priorities for the country and to act as a magnet for research talent. It represented a way to encourage the best and brightest home-grown researchers to choose to stay in Canada while also attracting the best from elsewhere in the world to our research institutions to pursue their work.

An ambitious goal supported by a major infusion of resources, the CERC represents a federal investment of \$10 million over seven years, a level unprecedented in Canada. It also already has prompted major funding commitments from the Province of Manitoba and our alumnus Dr. Clayton H. Riddell. In all, this initial investment is expected to leverage an additional \$25 million over its lifetime, all of which will support world-class Arctic research.

The work that will be sparked by this investment is critically important. We are learning more all the time about the importance of the Arctic ecosystem and how the changes we observe there can

represent an early warning system. Work to understand how and why our climate is changing, its anticipated impacts, and how we can adapt to them is underway all over the world. There is little dispute that these are questions to which we must have answers. Our new Chair – Dr. Søren Rysgaard – will be looking at life at the microbial level in arctic sea ice. His work will expand our knowledge about how the sea ice habitat will be altered by a changing climate, and how this affects carbon dioxide balance and carbon sequestration.

Securing the CERC required a strong commitment to growing our capability, a great deal of work from people both inside and outside of the university community, and a vision of possibility. Having been chosen recognizes these things, and more; our selection also recognizes our inherent strength as a research institution and specifically, our reputation as a preeminent Arctic climate research facility. We were selected based on the strength of the proposed research program and on the reputation of our existing Centre for Earth Observation Science team, whose contributions have attracted this investment and Dr. Rysgaard, and spurred a larger partnership with the Greenland Climate Research Centre at the Greenland Institute of Natural Resources.

Every so often, something occurs that allows us to extend our reach further than previously we had thought possible. I believe the CERC to be one of those factors for our University and I am tremendously excited for the opportunities it presents. It cements the University of Manitoba's position as one of Canada's top research-intensive universities, as one of only 13 universities in the country that were awarded CERCs. I am confident that the University of Manitoba will be known globally as the place to undertake Arctic research, and that the excitement that is building around the Chair will spread as new collaborations are born, and other world-class researchers increasingly choose to make the University of Manitoba the home for their own pursuits.

David Barnard president and vice-chancellor