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May 2021**

Evan Sterling, P.Eng., MLIS  
Science and Engineering Librarian

# You have probably run into this before

Article | Published: 29 March 2021

## An on-skin platform for wireless monitoring of flow rate, cumulative loss and temperature of sweat in real time

Kyeongha Kwon, Jong Uk Kim, Yujun Deng, Siddharth R. Krishnan Lee, Chun-Ju Su, Injae Yoo, Yixin Wu, Lindsay Lipschultz, Jae-Hwa Park, Tae-il Kim, Roozbeh Ghaffari, Stephen Lee, Yonggang Huang

*Nature Electronics* **4**, 302–312 (2021) | [Cite this article](#)

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### Abstract

Monitoring the flow rate, cumulative loss and temperature of sweat provides physiological insights for the diagnosis of thermoregulation to heat stress. However, obtaining accurate, continuous

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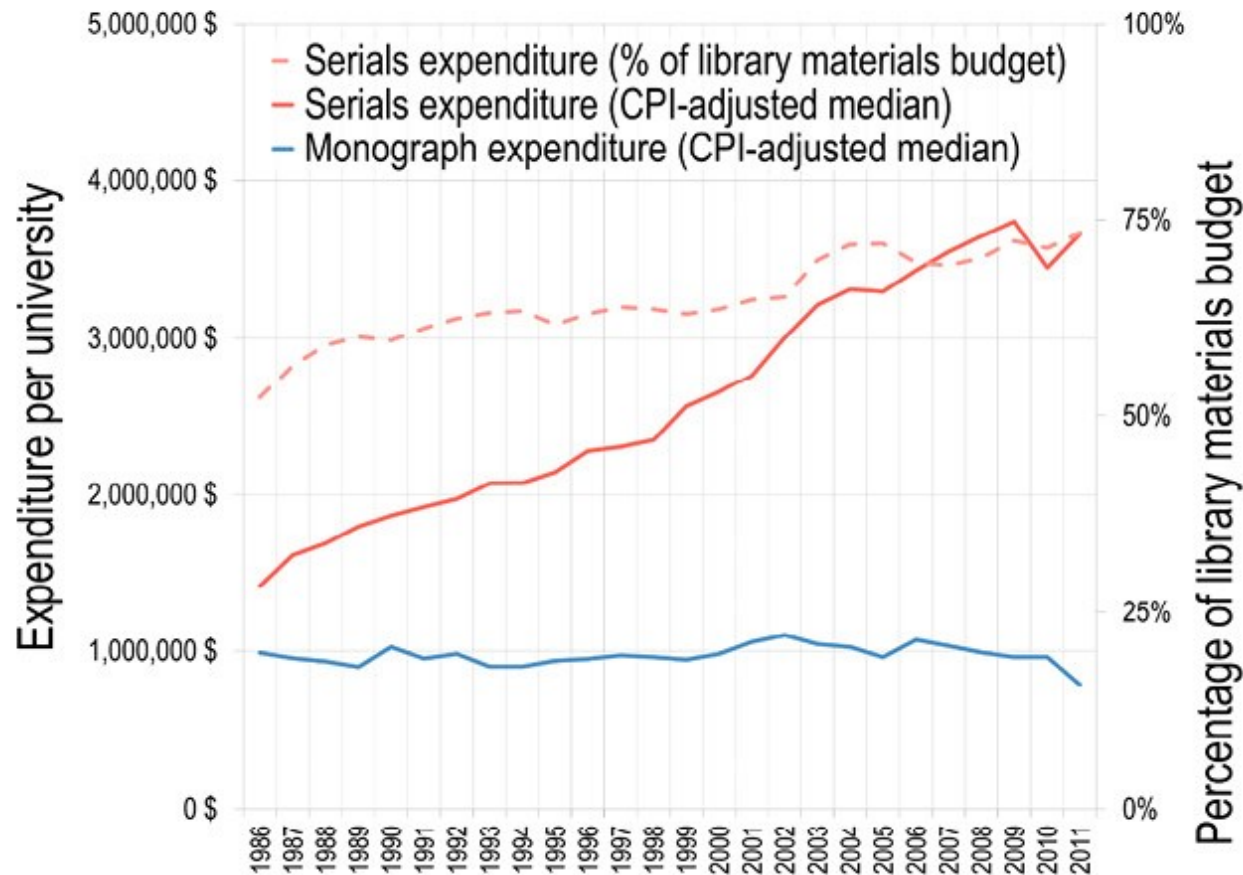
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- ▶ Libraries paid for subscriptions to all the journals, and everyone got what they needed

## Closed-access research

- ▶ But now the amount of research, and number of journals has exploded, and no library can afford them all
- ▶ At uOttawa, we still have access to almost all of the top journals in mechanical engineering, but other universities don't



Shu, F., Mongeon, P., Haustein, S., Siler, K., Alperin, J., & Larivière, V. (2018). Is It Such a Big Deal? On the Cost of Journal Use in the Digital Era. *College & Research Libraries*, 79(6), 785–798.

<https://doi.org/10.5860/crl.79.6.785>

## Open-access research

- ▶ **Open-access** papers are available for anyone to read for free online
- ▶ Governments don't want to pay to fund research grants, and then pay again for access to the research that they funded
- ▶ Many researchers also want their research to be widely read/available

## Open-access research

- ▶ Your work being open-access makes it easier for people to use and cite it – especially people in industry, and from developing countries

## OA requirements

- ▶ For research funded by NSERC grants in 2015 or later (as well as CIHR and other funding agencies), the journal articles of that research need to be made open-access [as per this policy](#)
  - ▶ Does not apply to conference papers



## How are we doing?

- ▶ For NSERC research at uOttawa as a whole, about 50% of the articles that should be open, are open right now
- ▶ For Mech Eng, it is only 33%
- ▶ In fields like biomedical eng, much more research is open

I found this using an advanced Scopus

## How are we doing?

- ▶ Google Scholar has just added a ‘tracker’ that attempts to show this compliance for individual author profiles
- ▶ It is not super-accurate but is a good barometer



## Natalie Baddour

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Professor (Full), Department of Mechanical Engineering, [University of Ottawa](#)

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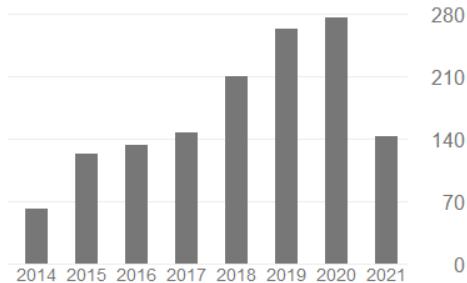
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<p><a href="#">Evaluation of a smartphone human activity recognition application with able-bodied and stroke participants</a></p> <p>NA Capela, ED Lemaire, N Baddour, M Rudolf, N Goljar, H Burger Journal of neuroengineering and rehabilitation 13 (1), 1-10</p>	75	2016
<p><a href="#">Novel algorithm for a smartphone-based 6-minute walk test application: algorithm, application development, and evaluation</a></p> <p>NA Capela, ED Lemaire, N Baddour Journal of neuroengineering and rehabilitation 12 (1), 1-13</p>	75	2015
<p><a href="#">Operational and convolution properties of two-dimensional Fourier transforms in polar coordinates</a></p> <p>N Baddour JOSA A 26 (8), 1767-1777</p>	74	2009
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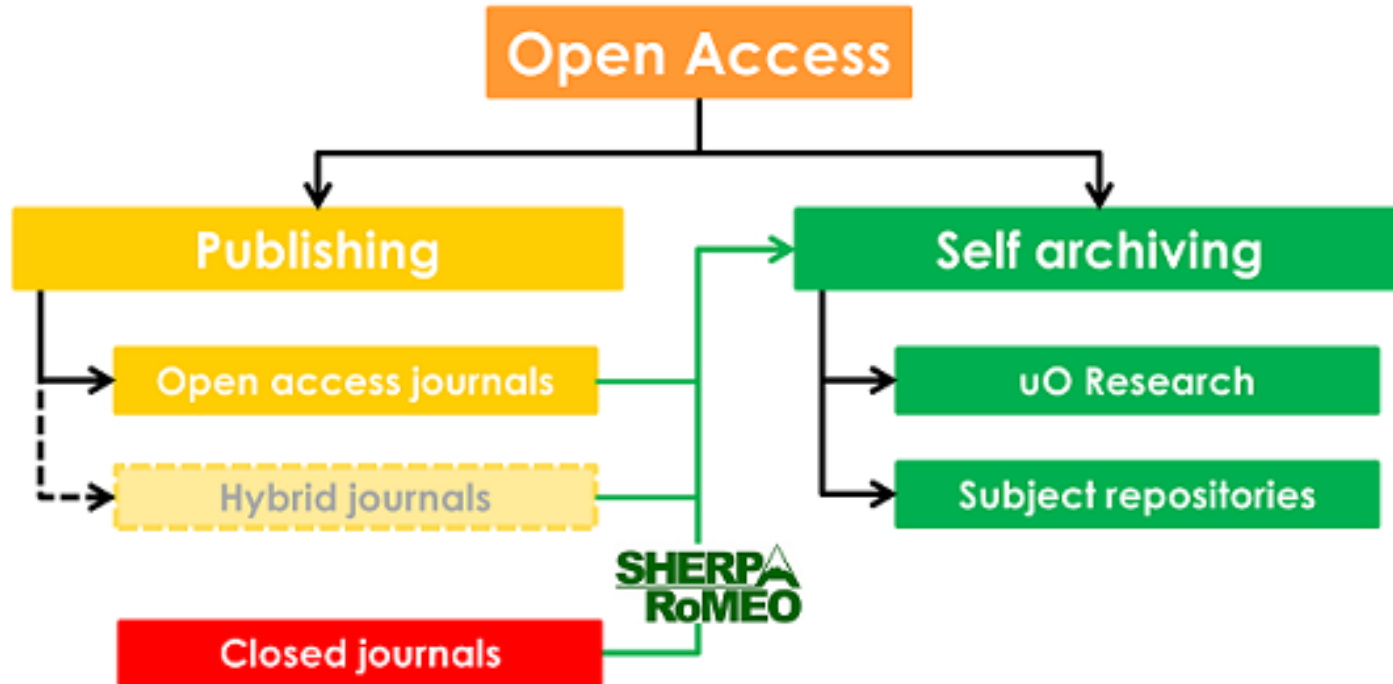
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# The two ways to do OA

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## Self-archiving

- ▶ Virtually all major publishers allow you to share the *accepted manuscript* of a journal article in an institutional or disciplinary repository within 0, 12 or 24 months of publication
  - ▶ This includes Elsevier, Springer, T&F, IEEE, ASME
  - ▶ Sites ResearchGate, Google Drive, Semantic Scholar, etc do not qualify according to the rules of NSERC or publishers



# Article versions

## 1 Seismic velocity model of the crust in the northern Canadian Cordillera from Rayleigh 2 wave dispersion data

3 Shutian Ma and Pascal Audet\*

4 Department of Earth and Environmental Sciences, University of Ottawa

5 \*Corresponding author: [pascal.audet@uottawa.ca](mailto:pascal.audet@uottawa.ca)

### 6 Abstract

7 Models of seismic velocity structure of the crust in the seismically active northern Canadian  
8 Cordillera remain poorly constrained, despite their importance in the accurate location and  
9 characterization of regional earthquakes. On 29 August 2014, a moderate earthquake with  
10 magnitude  $M_B$  5.0 occurred in the Northwest Territories, Canada, ~100 km to the east of the  
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ARTICLE

## Seismic velocity model of the crust in the northern Canadian Cordillera from Rayleigh wave dispersion data

Shutian Ma and Pascal Audet

**Abstract:** Models of the seismic velocity structure of the crust in the seismically active northern Canadian Cordillera remain poorly constrained, despite their importance in the accurate location and characterization of regional earthquakes. On 29 August 2014, a moderate earthquake with magnitude 5.0, which generated high-quality Rayleigh wave data, occurred in the Northwest Territories, Canada, ~100 km to the east of the Cordilleran Deformation Front. We carefully selected 23 seismic stations that recorded the Rayleigh waves and divided them into 13 groups according to the azimuth angle between the earthquake and the stations; these groups mostly sample the Cordillera. In each group, we measured Rayleigh wave group velocity dispersion, which we inverted for one-dimensional shear-wave velocity models of the crust. We thus obtained 13 models that consistently show low seismic velocities with respect to reference models, with a slow upper and lower crust surrounding a relatively fast mid-crustal layer. The average of the 13 models is consistent with receiver function data in the central portion of the Cordillera. Finally, we compared earthquake locations determined by the Geological Survey of Canada using a simple homogeneous crust over a mantle half space with those estimated using the new crustal velocity model, and show that estimates can differ by as much as 10 km.

**Résumé:** Les modèles de structure de vitesse sismique de la croûte dans la partie nord de la Cordillère, sismiquement active, demeurent mal définis malgré leur importance pour la localisation précise et la caractérisation des séismes régionaux. Le 29 août 2014, un séisme d'une magnitude de 5.0 s'est produit dans les Territoires du Nord-Ouest, Canada, à environ 100 km à l'est du front de déformation de la Cordillère, générant des données d'ondes de Rayleigh de grande qualité. Nous avons soigneusement sélectionné 23 stations sismiques qui ont enregistré les ondes de Rayleigh et nous les avons divisées en 13 groupes selon l'angle d'azimut entre l'épicentre du séisme et les stations; ces groupes ont donné un bon échantillonnage de la Cordillère. Dans chaque groupe, nous avons mesuré la dispersion de la vitesse de groupe d'ondes de Rayleigh, que nous avons inversée pour obtenir des modèles unidimensionnels de vitesse de l'onde de cisaillement. Nous avons ainsi obtenu 13 modèles qui montrent de manière constante des basses vitesses sismiques par rapport aux modèles de référence, avec une croûte supérieure et une croûte inférieure qui se situent de part et d'autre d'une couche médiane à vitesse relativement élevée. La moyenne des 13 modèles concorde avec les données télé-sismiques dans la partie centrale de la Cordillère. Finalement, nous comparons les localisations des tremblements de terre déterminées par la Commission géologique du Canada, en utilisant une croûte simple et homogène au-dessus d'un manteau uniforme, avec celles estimées par le nouveau modèle de vitesse de la croûte et nous montrons que les estimations d'épicentres peuvent différer de 10 km. [Traduit par la Rédaction]

### Introduction

The northern Canadian Cordillera (NCC) is one of the most tectonically and seismically active regions in Canada (Hyndman et al. 2005) and encompasses the entire Yukon Territory and the western part of the Northwest Territories. The NCC is separated from the adjacent Canadian Shield by an abrupt change in topography at the Cordilleran Deformation Front (Fig. 1). Within the NCC, several bands of seismicity roughly follow the northwest-southeast-striking Denali and Tintina faults, and a more diffuse northwest-southeast-trending band of seismicity that cuts through the Mackenzie Mountains and follows the strike of the Defor-

mined from regional earthquakes are ~4 mm/year with a  $b$  value of 1 (Hyndman et al. 2005). Earthquake catalogues are complete to magnitude ( $M$ ) ~3 (Leonard et al. 2008) everywhere except near the Denali Fault, where an increase in seismic station coverage improved the detection limit and allows catalogue completeness down to  $M$  ~1 (Meighan et al. 2013). These earthquake parameters are useful in building seismic hazard maps for the southwestern part of the NCC (Cassidy et al. 2005); however, uncertainties in hazard estimates are large in other parts of the Cordillera.

Most earthquakes that occur in the NCC have large location uncertainties because of (1) a very sparse network of seismograph

‘Accepted manuscript’  
after peer-review

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# Rules

NSERC's policy requires that the article be OA using one of the two paths within 12 months

- ▶ If your article is > 24 months old you can post the accepted manuscript in uoResearch right away
- ▶ If < 24 months old, you should check rules first. A [site called Sherpa Romeo](#) collects publisher rules, or you can email me

## Rules

- ▶ Many publishers ask/require you to include a link to the official journal version of the article if you self-archive the manuscript
- ▶ It's a good idea to include the full citation and ask readers to cite that, rather than link to the self-archived version, so that all your citations go to the same place
- ▶ You can include this as a footer if you have the Word document, or add a note when

## Which repository to use

- ▶ You can use a disciplinary repository but there aren't really any prominent ones in mechanical engineering
- ▶ Fortunately, uOttawa has one!
  
- ▶ Of course, you should check with your co-authors before doing this
  - ▶ It's possible one of them already deposited it somewhere

# Submitting to uoResearch

- ▶ Submitting to uoResearch is pretty easy – no need to enter your info, just use your uOttawa account and have the article DOI

<https://ruor.uottawa.ca/>



## Submitting to uoResearch

- ▶ If you aren't allowed to post your paper yet, you can submit it today and set an 'embargo date' when it will automatically be released

# How will this OA version be found?

- ▶ Papers in uoResearch are indexed by Google Scholar within a few days
- ▶ The official version is linked from the title, and the free version to the right

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## [Seismic velocity model of the crust in the northern Canadian Cordillera from Rayleigh wave dispersion data](#)

S Ma, [P Audet](#) - Canadian Journal of Earth Sciences, 2017 - [pubs.geoscienceworld.org](#)

Abstract Models of the seismic velocity structure of the crust in the seismically active northern Canadian Cordillera remain poorly constrained, despite their importance in the accurate location and characterization of regional earthquakes. On 29 August 2014, a moderate ...

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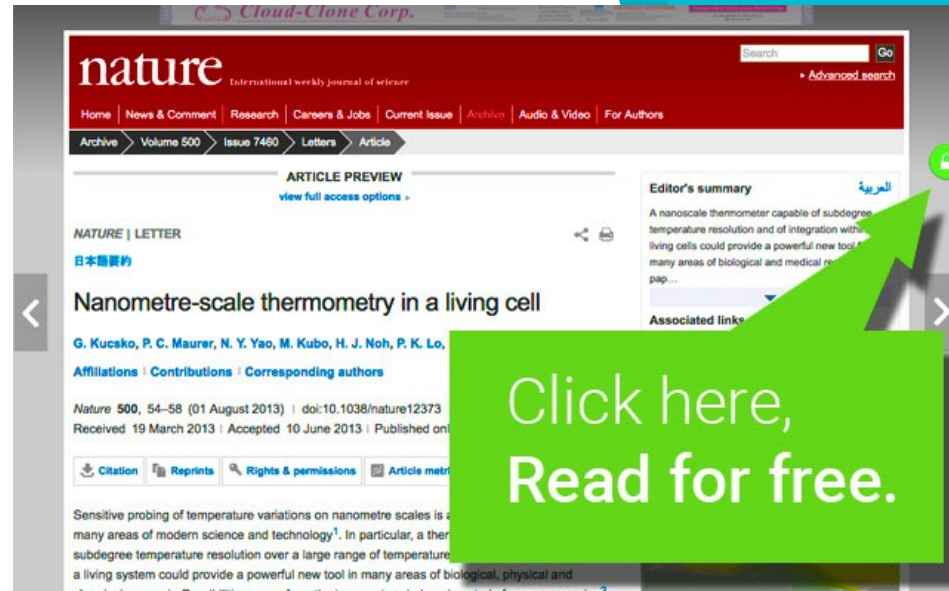
1 Seismic velocity model of the crust in the northern Canadian Cordillera from Rayleigh wave dispersion data  
Ma, ST and Audet, P  
Feb 2017 | Canadian Journal Of Earth Sciences  
Models of the seismic velocity structure of the crust in the seismically active northern Canadian Cordillera remain poorly constrained, despite their importance in the accurate location and characterization of regional earthquakes. On 29 August 2014, a moderate earthquake with magnitude 5.0, which generated high-quality Rayleigh wave data, occurred ... [Show more](#)  
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2 Structure and fabric of the crust and uppermost mantle in the northern Canadian Cordillera from Rayleigh-wave tomography



# Finding open-access research

- ▶ A database called Unpaywall contains links to legal free versions of 30m articles
- ▶ These links are integrated into library's Omni search
- ▶ Browser extension will automatically notify you when there is an OA version



The screenshot shows the Nature journal website interface. At the top, there is a search bar and navigation links for Home, News & Comment, Research, Careers & Jobs, Current Issue, Archive, Audio & Video, and For Authors. Below this, there are breadcrumb links for Archive, Volume 500, Issue 7490, Letters, and Article. The main content area displays the article title "Nanometre-scale thermometry in a living cell" by G. Kucsko, P. C. Maurer, N. Y. Yao, M. Kubo, H. J. Noh, P. K. Lo, et al. The article is categorized as "NATURE | LETTER" and "日本要約". A green arrow points to the "view full access options" link. A green box with white text says "Click here, Read for free." The article preview includes the journal name "Nature", volume "500", pages "54–58", date "(01 August 2013)", and DOI "10.1038/nature12373". It also shows the reception and acceptance dates: "Received 19 March 2013 | Accepted 10 June 2013 | Published online 28 July 2013". The article abstract begins with "Sensitive probing of temperature variations on nanometre scales is a key challenge in many areas of modern science and technology<sup>1</sup>. In particular, a thermometer with subdegree temperature resolution over a large range of temperatures in a living system could provide a powerful new tool in many areas of biological, physical and chemical research."

# Theses

- ▶ As part of the PhD thesis completion process, you submit your thesis to the uoResearch repository using a similar process to an article
- ▶ Masters theses are not required to do this
- ▶ You need to ensure you have permission for any images you use from another source, or for including an article that was published elsewhere

## Research data

- ▶ The Canadian Tri Agencies have released a [roadmap this spring](#) that calls for researchers to develop data management plans for their research data
  - ▶ How will data be collected, stored, organized, shared among collaborators
- ▶ NSERC will likely introduce a requirement to share some form of research data in the next few years (unless there is an ethical reason for not sharing)

## Any questions?

- ▶ You can always email me for help
- ▶ See this page from the library's Scholarly Communications team for a summary of OA methods  
<https://scholarlycommunication.uottawa.ca/open-access/practice-open-access>
- ▶ [Evan.sterling@uottawa.ca](mailto:Evan.sterling@uottawa.ca)