

## CURRICULUM VITAE

### **Dr. Julie Loisel**

Department of Geography, Texas A&M University

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<http://www.julieloisel.com> (website)

### **Education**

- 2012     **Ph.D. in Earth and Environmental Sciences, Lehigh University, USA**  
*Autogenic and allogenic controls on carbon dynamics in peatlands from Alaska and Patagonia*  
Committee: Zicheng Yu (advisor), Robert Booth, Frank Pazzaglia, Nigel Roulet
- 2008     **M.Sc. in Physical Geography, Université du Québec - Montréal, Canada**  
*Late-Holocene paleoecological reconstruction from two peatlands, James Bay Lowlands*  
Committee: Michelle Garneau (advisor), Benoit St-Onge, Pierre Richard, Ed Mitchell
- 2006     **B.Sc. in Physical Geography, Université du Québec - Montréal, Canada**

### **Academic Appointments**

- 2017-     **Assistant Professor**  
Department of Geography, Texas A&M University
- 2015, 16   **Visiting Assistant Professor**  
Department of Geography, Texas A&M University

### **Post-Doctoral Research Scholar**

- 2014, 15   **Southwest climate change and its impacts on terrestrial ecosystems.**  
Mentor: Glen MacDonald (University of California – Los Angeles, USA). US-DOI.
- 2013, 14   **Carbon accumulation in moss banks of the Antarctic Peninsula.**  
Mentor: Zicheng Yu (Lehigh University, USA). NSF.
- 2012, 13   **Sensitivity of circum-arctic peatland carbon to Holocene warm climates.**  
Mentor: Zicheng Yu (Lehigh University, USA). NSF.

### **Teaching Experience**

#### **Assistant Professor**

- 2018     **Past Climates** (GEOG442, GEOS442)  
Department of Geography, Texas A&M University

- 2017-19 **Workshop in Environmental Studies** (GEOG380)  
Department of Geography, Texas A&M University
- 2015-18 **Planet Earth** (GEOG203)  
Department of Geography, Texas A&M University  
*\*\*\* in-class, online, and hybrid formats \*\*\**
- 2017 **Field Geography** (GEOG450) – leader of a study abroad trip to Peru  
Department of Geography, Texas A&M University
- 2017, 19 **Science and Politics of Climate Change** (GEOS444)  
Department of Geography, Texas A&M University
- 2016-17 **Introduction to Geosciences, Freshmen Seminar** (GEOS101)  
Department of Geography, Texas A&M University

*Adjunct Faculty (during my PhD and Post-Doc)*

- 2014 **Science of Environmental Issues – Energy and the Environment** (EES004)  
Department of Earth & Environmental Sciences, Lehigh University
- 2013 **Science of Environmental Issues – System complexity & Chaos** (EES004)  
Department of Earth & Environmental Sciences, Lehigh University
- 2011 **Terrestrial Ecosystem Ecology** (EES250)  
Department of Earth & Environmental Sciences, Lehigh University

*Teaching Assistant*

- 2011 **Field Camp, Geology and the Environment** (EES341)  
Department of Earth & Environmental Sciences, Lehigh University
- 2009, 10 **Terrestrial Ecosystem Ecology** (EES250)  
Department of Earth & Environmental Sciences, Lehigh University
- 2008 **Lab. Methods in Physical Geography** (GEO5032)  
Département de Géographie, Université du Québec – Montréal
- 2006, 07 **Field Camp, Ecosystem Dynamics** (GEO3082)  
Département de Géographie, Université du Québec – Montréal
- 2004-06 **Climatology** (GEO1062)  
Département de Géographie, Université du Québec – Montréal

2005, 06 **Biogeography** (GEO2082)  
Département de Géographie, Université du Québec – Montréal

2005 **Hydroclimatology** (GEO3061)  
Département de Géographie, Université du Québec – Montréal

### Student mentoring

As a research mentor, my work includes lab and field training, supervising research grant proposal writing and thesis or report redaction, as well as preparing students for presentations.

2016-19 Supervisor of 10-20 undergraduate students working in my laboratory every semester.  
Texas A&M University (GEOG491 and GEOG485 – independent research credits).

2018, 19 Undergraduate thesis supervisor for students J Hillin and A Lemos.  
Texas A&M University.

2017, 18 Undergraduate thesis supervisor for students C Brewer, M Cheta, and M Martinez.  
Texas A&M University.

2016, 17 Undergraduate thesis supervisor for students K Von Ness and C Kohlmeyer.  
Texas A&M University.  
*\*\*\* Kate's thesis won the prize for best STEM thesis across the University \*\*\**

2016 Host supervisor of Ph.D. student and NSERC fellow D Karran for 4 months.  
Texas A&M University.

2010, 11 Undergraduate thesis supervisor for student G Sills.  
Lehigh University.

2007, 08 Undergraduate thesis supervisor for student C Lacroix.  
Université du Québec – Montréal.

### Research Experience

#### Visiting Scholar

2014 **Lignin, phenols, carbohydrates, and amino acid extraction and analysis of peat.**  
Collaborator and host: Karl Kaiser (Texas A&M University – Galveston)

2012 **Modeling non-linear ecosystem shifts**  
Mentor and host: Paolo D'Odorico (University of Virginia, USA)

2011 **Cellulose extraction and isotopic analysis (C,H,O) of *Sphagnum* moss**  
Mentors and hosts: Tim Daley and Neil Loader (Swansea University, Wales)

2007 **Peat humification analysis**  
Mentor and host: Frank Chambers (University of Gloucestershire, England)

2005 **Pollen analysis**  
Mentor and host: Pierre Richard (Université de Montréal, Canada)

### **Peer-Reviewed Publications**

#### Articles in Review

Xia Z, Zheng Y, Stelling J, **Loisel J**, Huang Y, Yu Y. Submitted. Understanding environmental controls on the carbon and water isotopes in peatland Sphagnum mosses. *Geochim Cosmochim Acta*.

Karran D, **Loisel J**, Von Ness K\*, Westbrook C, Kohlmeyer C\*, Bedard-Haughn A. Enduring effects of local environmental factors on peat development in a beaver-inhabited montane fen. *Quaternary Science Reviews*.

\*Undergraduate student author

#### Published Peer-Reviewed Book Chapters (invited)

**Loisel J**. 2015. Peatlands as carbon sinks / *Las turberas como sumideros de carbono*, Chapter 11 p. 297-315. In: E Domínguez and D Vega-Valdés (eds.). *Funciones y servicios ecosistémicos de las turberas en Magallanes*. INIA N° 33. Punta Arenas, Chile. 334 pp.

#### Published articles

Treat C, Broothaerts N, Dalton A, Dommain R, Douglas T, Drexler J, Finkelstein S, Grosse G, Hope G, Hutchings J, Jones M, Kleinen T, Kuhry P, Lacourse T, Lähteenoja O, **Loisel J**, Notebaert B, Payne R, Peteet D, Sannel B, Stelling J, Strauss J, Swindles G, Talbot J, Tarnocai C, Verstraeten G, Williams C, Xia Z, Yu Z, Brovkin V. 2019. Widespread global peatland establishment and persistence since the last interglacial. *Proceedings of the National Academy of Sciences*.

Galka M, Szal M, Broder T, **Loisel J**, Knorr K-H. 2019. Peatbog resilience to pollution and climate change over the past 2700 years in the Harz Mountains, Germany. *Ecological Indicators* 97, 183-193.

**Loisel J**, Gallego-Sala A. 2018. A forward modeling approach to paleoclimatic interpretation of peat cores. *Quaternary Perspectives*, International Union for Quaternary Research (INQUA).

Amesbury MJ, Booth RK, Roland TB, Bunbury J, Clifford MJ, ..., **Loisel J**, ..., Sullivan ME, Swindles GT, Talbot J, van Bellen S, Warner BG. 2018. Towards a global synthesis of peatland testate amoeba ecology: development of a new continental-scale palaeohydrological transfer function for North America and comparison to European data. *Quaternary Science Reviews* 201, 481-500.

**Loisel J**, Gallego-Sala A. 2018. New research directions for the PAGES C-PEAT working group. *PAGES Newsletter*, Past Global Changes (PAGES).

Gallego-Sala A, Charman D, Brewer S, Page S, Prentice C, ..., **Loisel J**, ..., van Geel B, Wang G, Yu Z, Zaragoza-Castells J, Zhao Y. 2018. Latitudinal limits to the predicted increase of the peatland carbon sink with warming. *Nature Climate Change*, <https://doi.org/10.1038/s41558-018-0271-1>.

Xia Z, Yu Z, **Loisel J**. 2018. Centennial-scale dynamics of the Southern Hemisphere westerly winds across the Drake Passage over the past two millennia. *Geology*, <https://doi.org/10.1130/G40187.1>

Stelling J, Yu Z, Beilman DW, **Loisel J**. 2018. Dynamic response of moss peatbank ecosystems to late Holocene hydroclimate change in the western Antarctic Peninsula. *Quaternary Science Reviews*, 188: 77-89, <https://doi.org/10.1016/j.quascirev.2017.10.033>.

**Loisel J**, MacDonald GM, Thomson M. 2017. Little Ice Age climatic erraticism as an analogue for future enhanced hydroclimatic variability across the American Southwest. *PLoS One*, doi:10.1371/journal.pone.0186282.

**Loisel J**, Yu Z, Beilman DW, Kaiser K, Parnikoza I. 2017. Past and present peatland development in Antarctica under warm climates. *Scientific Reports* 7, doi:10.1038/s41598-017-12479-0.

Harden J, Hugelius G, Ahlström A, Blankinship J, Bond-Lamberty B, Lawrence C, **Loisel J**, Malhotra A, Jackson R, Ogle S, Phillips C, Ryals R, Todd-Brown K, Vargas R, Vargas S, Cotrufo F, Keiluweit M, Heckman K, Crow S, Silver W, DeLonge M, Nave L. 2017. Pathways for the science community to characterize the state, vulnerabilities, and management opportunities of soil organic matter. *Global Change Biology*, doi: 10.1111/gcb.13896.

*\*\*One of the top 25 most downloaded GCB articles in 2018\*\**

**Loisel J**, Malhotra A, Phillips C. 2017. A new platform for managing soil carbon and soil health. *Eos Magazine*, 98, American Geophysical Union (AGU), <https://doi.org/10.1029/2017EO080753>.

**Loisel J**, van Bellen S, Pelletier L, Talbot J, Hugelius G, Karran D, Yu Z, Nichols J, Holmquist J. 2016. Insights and issues with estimating northern peatland carbon stocks and fluxes since the Last Glacial Maximum. *Invited review*. *Earth Science Reviews*, doi: 10.1016/j.earscirev.2016.12.001.

Yu Z, Beilman DW, **Loisel J**. 2016. Transformations of landscape and peat-forming ecosystems responding to late Holocene climate change in the western Antarctic Peninsula. *Geophysical Research Letters*. 43. doi: 10.1002/2016GL069380.

Treat CC, Jones MC, Camill P, Garneau M, Gallego-Sala A, Harden JW, Hugelius G, Klein ES, Kokfelt U, Kuhry P, **Loisel J**, Mathijssen PJH, O'Donnell JA, Oksanen PO, Ronkainen TM, Sannel ABK, Talbot J, Tarnocai CM, Väliranta M. 2015. Effects of permafrost aggradation on peat properties as determined from a pan-arctic synthesis of plant macrofossils. *Journal of Geophysical Research – Biogeosciences*. 121(1): 78-94. doi:10.1002/2015JG003061.

**Loisel J**, Yu Z, Beilman DW, Camill P, Alm J, Amesbury MJ, Anderson D, Andersson S, Bochicchio C, Barber K, Belyea LR, Bunbury J, Chambers FM, Charman DJ, De Vleeschouwer F, Fiałkiewicz-Kozieł B, Finkelstein SA, Gałka M, Garneau M, Hammarlund D, Hinchcliffe W,

Holmquist J, Hughes P, Jones MC, Klein ES, Kokfelt U, Korhola A, Kuhry P, Lamarre A, Lamentowicz M, Large D, Lavoie M, MacDonald G, Magnan G, Mäkilä M, Mallon G, Mathijssen P, Mauquoy D, McCarroll J, Moore TR, Nichols J, O'Reilly B, Oksanen P, Packalen M, Peteet D, Richard PJH, Robinson S, Ronkainen T, Rundgren M, Sannel ABK, Tarnocai C, Thom T, Tuittila E-S, Turetsky M, Väliranta M, van der Linden M, van Geel B, van Bellen S, Vitt D, Zhao Y, Zhou W. 2014. A database and synthesis of northern peatland soil properties and Holocene carbon and nitrogen accumulation. *The Holocene* 24(9), 1028-42.

Yu Z, **Loisel J**, Charman DJ, Beilman DW, Camill P. 2014. Holocene peatland carbon dynamics in the circum-Arctic region: an Introduction. *The Holocene* 24(9), 1021-27.

**Loisel J**, Yu Z, Charman D. 2014. A synthesis of northern peatland carbon accumulation history. *Quaternary Perspectives Magazine*, International Quaternary Association (INQUA).

Yu Z, **Loisel J**. 2014. Holocene circum-Arctic peatland carbon dynamics. *PAGES Newsletter*, Past Global Changes (PAGES), 22(1): 41.

**Loisel J**, Yu Z. 2013. Surface vegetation patterning controls carbon accumulation in peatlands. *Geophysical Research Letters*, 40: 1-6, doi:10.1002/grl.50744.

**Loisel J**, Yu Z. 2013. Holocene peatland carbon dynamics in Patagonia. *Quaternary Science Reviews*, 69: 125-141.

**Loisel J**, Yu Z, Parsekian A, Nolan J, Slater L. 2013. Quantifying landscape morphology influence on peatland lateral expansion using ground penetrating radar (GPR) and peat core analysis. *Journal of Geophysical Research – Biogeosciences*, 118, 10.1002/jgrg20029.

Yu Z, **Loisel J**, Turetsky MR, Cai S, Zhao Y, Frohling S, MacDonald GM, Bubier JL. 2013. Evidence for elevated emissions from high-latitude wetlands causing high atmospheric CH<sub>4</sub> concentration in the early Holocene. *Global Biogeochemical Cycles*, 27, 10.1002/gbc20025.

**Loisel J**, Yu Z. 2013. Recent acceleration of carbon accumulation in a boreal peatland, south-central Alaska. *Journal of Geophysical Research – Biogeosciences*, 118, 10.1029/2012jg001978.

Charman D, Beilman D, Blaauw M, Booth RK, Brewer S, Chambers F, Christen JA, Gallego-Sala AV, Harrison SP, Hughes PDM, Jackson S, Korhola A, Mauquoy D, Mitchell F, Prentice IC, van der Linden M, De Vleeschouwer F, Yu Z, Alm J, Bauer IE, McCorish Y, Garneau M, Hohl V, Huang Y, Karofeld E, Le Roux G, **Loisel J**, Moschen R, Nichols JE, Nieminen TM, MacDonald GM, Phadtare NR, Rausch N, Sillasoo Ü, Swindles GT, Tuittila E-S, Ukonmaanaho L, Väliranta M, van Bellen S, van Geel B, Vitt D, Zhao Y. 2013. Climate-related changes in peatland carbon accumulation during the last millennium. *Biogeosciences*, 10, 929-944, 10.5194/bg-10-929-2013.

**Loisel J**, Gallego-Sala AV, Yu Z. 2012. Global-scale pattern of peatland *Sphagnum* growth driven by photosynthetically active radiation and growing season length. *Biogeosciences*, 9: 2737-2746.

Yu Z, **Loisel J**, Brosseau D, Beilman D, Hunt S. 2010. Global peatland dynamics since the Last Glacial Maximum. *Geophysical Research Letters* 37, L13402, 10.1029/2010GL043584.  
\*\*\*Research spotlight article in EOS\*\*\*

**Loisel J**, Garneau M. 2010. Late-Holocene paleoecohydrology and carbon accumulation estimates from two boreal peat bogs in eastern Canada: potential and limits of multi-proxy analyses. *Palaeogeography, Palaeoclimatology, Palaeoecology* 291:493-533.

**Loisel J**, Garneau M, Hélie J-F. 2010. *Sphagnum*  $\delta^{13}\text{C}$  values as indicators of paleohydrological changes in a peat bog. *The Holocene* 20(2): 285-291.

**Loisel J**, Garneau M, Hélie J-F. 2009. Modern *Sphagnum*  $\delta^{13}\text{C}$  signatures follow a surface- moisture gradient in two boreal peat bogs, James Bay lowlands, Québec. *J of Quaternary Science* 24(3): 209-214.

Ali AA, Ghaleb B, Garneau M, Asnong H, **Loisel J**. 2008. Recent peat accumulation rates in minerotrophic peatlands of Bay James region, Eastern Canada, inferred by  $^{210}\text{Pb}$  and  $^{137}\text{Cs}$  radiometric techniques. *Applied Radiation and Isotopes* 66: 1350-1358.

### **Most Relevant Conferences and Seminar Presentations (1<sup>st</sup> author only)**

#### Invited Presentations

**Loisel J**. 2018. Carbon in peatlands. Invited oral presentation, *Department of Ecosystem Science and Management, Texas A&M University, College Station, USA.*

**Loisel J**. 2018. Carbon sequestration in peatlands in a warmer world. Invited oral presentation, *Department of Geography and the Environment, University of Texas – Austin, Austin, USA.*

**Loisel J**. 2018. Patagonian peatlands. Invited oral presentation, *Instituto Antartico Chileno, Magallanes University, Punta Arenas, Chile.*

**Loisel J**, Harden J, Hugelius G. 2017. A Soil Service Index: Peatland soils as a case study for quantifying the value, vulnerability, and status of soils. Invited oral presentation, *AGU Fall Meeting, New Orleans, USA.*

**Loisel, J**. 2015. A bipolar perspective on Holocene carbon accumulation in peatlands. Invited oral presentation, *Department of Geography, Texas A&M University, College Station, USA.*

**Loisel J**. 2015. Modern *Sphagnum* growth driven by photosynthetically active radiation and growing season length: implications for Holocene carbon sequestration in peatlands. Invited oral presentation, *Botanical Society of America Annual Meeting, Edmonton, Canada.*

**Loisel J**. 2014. Peatland dynamics during warm climate intervals. Invited oral presentation, *Department of Biology, Villanova University, Villanova, USA.*

**Loisel J.** 2014. Insights and issues with quantifying Holocene peatland lateral expansion rate and associated carbon stocks. Invited oral presentation, *Department of Earth and Environmental Science, Rutgers University, New Brunswick, USA.*

**Loisel J, Yu Z, Beilman DW, Camill P, Holocene Peat Carbon Network.** 2013. A synthesis of northern peatland soil properties and Holocene carbon accumulation. Invited oral presentation, *AGU Fall meeting, San Francisco, USA.*

**Loisel J.** 2013. A bipolar perspective on carbon accumulation in peatlands over the Holocene. Invited oral presentation, *Lamont-Doherty Earth Observatory, Columbia University, Palisades, USA.*

**Loisel J.** 2013. Holocene history of high-latitude peatlands. Invited oral presentation, *Department of Earth Science, University of California – Santa Barbara, Santa Barbara, USA.*

**Loisel J.** 2013. A bottom-up approach for estimating the carbon density of circum-arctic peatlands. Invited oral presentation, *Department of Geography, McGill University, Montreal, Canada.*

**Loisel J.** 2012. The dynamic histories of Alaskan and Patagonian peatlands. Invited oral presentation, *Department of Geography, University of Toronto - Mississauga, Mississauga, Canada.*

**Loisel J.** 2011. Recent- and long-term peat-carbon accumulation: rates, timing, and climatic controls. Invited oral presentation, *School of Environment & Society, Swansea University, Swansea, UK.*

**Loisel J.** 2007. Carbon accumulation in Canadian boreal peatlands: Can climatic information be inferred from *Sphagnum*  $\delta^{13}\text{C}$  values? Invited oral presentation, *Centre for Environmental Change and Quaternary, University of Gloucestershire, Cheltenham, UK.*

*Presentations with Proceedings or Published Abstracts*

**Loisel J, \*Hillin J, \*Martinez M, \*Cheta M, \*Campbell P.** 2018. Peat-Based Proxies from Cushion Plants in the High Andes: Potential for New Paleoenvironment and Paleoclimate Archives. Poster presentation, *AGU Fall Meeting, Washington DC, USA.*  
\*Undergraduate student author

**Loisel J.** 2018. Peatland Sensitivity to Hydroclimatological Conditions in the Peruvian Andes. Oral presentation, *AAG Annual Meeting, New Orleans, USA.*

**Loisel J, MacDonald G, Thomson M.** 2017. The future ‘warm LIA’ scenario across the American Southwest. Oral presentation, *GSA Annual Meeting, Seattle, USA.*

**Loisel J, Yu Z, Beilman D, Parnikoza I.** 2017. Past and present peatland development in Antarctica under warm climates. Oral presentation, *GSA Annual Meeting, Seattle, USA.*



**Loisel J**, Booth R, Charman D, van Bellen S, Yu, Z. 2017. Testate amoebae communities sensitive to surface moisture conditions in Patagonian peatlands. Poster presentation, *AGU Fall Meeting*, New Orleans, USA.

**Loisel J**, Nichols J, Kaiser K, Beilman D, Yu Z. 2016. Cellulose and lignin carbon isotope signatures in *Sphagnum* moss reveal complementary environmental properties. Poster presentation, *AGU Fall Meeting*, San Francisco, USA.

**Loisel J**, Jepson W. 2016. Creating a common culture of evidence-based climate change science in higher education. Oral presentation, *AAG Annual Meeting*, San Francisco, USA.

**Loisel J**, MacDonald G, Kremenetski K, Holmquist J. 2015. Timing of fen-bog transition across the northern peatland domain. *INQUA Congress*, Nagoya, Japan.

**Loisel J**, MacDonald G. 2015. Late-Holocene Changes in Climate Variability, Variance, and Periodicity in the US Southwest, and Effects on Landscape Dynamics. Poster presentation, *Pacific Climate Workshop*, Pacific Grove, USA.

**Loisel J**, Yu Z, Beilman D, Kaiser K. 2014. Developmental history of an intriguing peat-forming community along the West Antarctic Peninsula. Poster presentation, *AGU Fall meeting*, San Francisco, USA.

**Loisel J**, Yu Z, Beilman D, Kaiser K. 2014. Biochemical, geochemical, and paleoecological analyses of a newly discovered peatland on the West Antarctic Peninsula. Oral presentation, *GSA Annual meeting*, Vancouver, Canada.

**Loisel J**, Nichols J, Beilman D, Yu Z, Kaiser K, Booth R. 2014. Solving the conundrum of carbon isotope signature in *Sphagnum* moss. Poster presentation, *GSA Annual meeting*, Vancouver, Canada.

**Loisel J**, Yu Z, Holocene Peat Carbon Network. 2014. Insights and issues with estimating Holocene peatland carbon stocks: a synthesis and review. Oral presentation, *EGU Annual meeting*, Vienna, Austria.

**Loisel J**, Yu Z, Beilman D, Bochicchio C, Dirksen O, Dirksen V. 2013. Holocene peatland-carbon dynamics in Kamchatka, Far East Russia. Poster presentation, *AGU Fall meeting*, San Francisco, USA.

**Loisel J**, Yu Z. 2013. Carbon accumulation in circum-arctic peatlands over the Holocene: a synthesis. Oral presentation, *American Association of Geographers*, Los Angeles, USA.

**Loisel J**, Yu Z. 2012. The unique developmental history of Patagonian peatlands. Oral presentation, *GSA Annual meeting*, Charlotte, USA.

**Loisel J**, Yu Z. 2012. Climate control of carbon sequestration in peatlands mediated by local-scale ecohydrological feedbacks. Oral presentation, *AGU Fall meeting*, San Francisco, USA.

**Loisel J**, Yu Z, D’Odorico P. 2012. Peatland dynamics in Patagonia: abrupt mid-Holocene fen-to-bog transition and carbon sequestration implications. Oral presentation, *14<sup>th</sup> International Peat Congress*, Stockholm, Sweden.

**Loisel J**, Yu Z. 2011. Southern peatlands: a new perspective on Holocene carbon dynamics. Oral presentation, *GSA Annual Meeting*, Minneapolis, USA.

**Loisel J**, Yu Z. 2011. Recent acceleration of carbon accumulation rates in wet boreal peatlands. Poster presentation, *AGU Fall Meeting*, San Francisco, USA.

**Loisel J**, Yu Z. 2010. Holocene peat-carbon dynamics in Patagonia: timing, rates, and potential causes. Oral presentation, *2nd International LOTRED-South America Symposium (PAGES)*, Valdivia, Chile.

**Loisel J**, Nolan J, Yu Z, Parsekian A, Slater L. 2010. The influence of landscape morphology on peatland dynamics and carbon accumulation inferred from ground penetrating radar (GPR) and peat core analysis. Poster presentation, *AGU Fall Meeting*, San Francisco, USA.

**Loisel J**, Yu Z, Jones M. 2009. Expanding peatlands in Alaska caused by accelerated glacier melting under a warming climate. Oral presentation, *AGU Joint Assembly*, Toronto, Canada.

**Loisel J**, Yu Z, Jones M, Booth RK. 2008. Expanding sloping bog systems under a continental climate in south-central Alaska: possible causes and carbon-cycle implications. Poster presentation, *AGU Fall Meeting*, San Francisco, USA.

**Loisel J**, Garneau M, Hélie J-F. 2007. *Sphagnum*  $\delta^{13}\text{C}$  values as potential indicators of palaeo-hydrological changes in boreal peat bogs. Poster presentation, *AGU Fall Meeting*, San Francisco, USA.

#### Other Relevant Conference Presentations

**Loisel J**, Yu Z. 2011. Post-Little Ice Age warming induces a state shift in peat-carbon accumulation rates in Alaska. Oral presentation, *41st Arctic Workshop*, Montreal, Canada.

**Loisel J**, Yu Z, Jones M. 2009. Expanding peatlands in south-central Alaska: a response to glaciers-climate feedbacks? Poster presentation, *2nd International Symposium: Peatlands in the Global Carbon Cycle*, Prague, Czech Republic.

**Loisel J**, Garneau M. 2008. The effects of moisture, climate and vegetation on long-term carbon sequestration rates in a boreal peatland, James Bay, Québec, Oral presentation, *GAC-MAC Annual Meeting*, Québec, Canada.

**Loisel J**, Garneau M, Hélie J-F. 2007. Testate amoebae, *Sphagnum* carbon isotopic composition and other proxy data as palaeoindicators of surface-moisture changes in two boreal peatlands during the

late Holocene: preliminary results. Oral presentation, *CANQUA Conference*, Ottawa, Canada.

**Loisel J**, Garneau M, Hélie J-F. 2007. Carbon accumulation in boreal peatlands estimated by *Sphagnum* carbon isotopic composition and proxy indicators. Poster presentation, *1st International Symposium: Peatlands in the Global Carbon Cycle*, Wageningen, The Netherlands.

## **Research Grants and Proposals**

### Pending Proposals

#### **Google AI Impact Challenge**

PIs: Zhangyang Wang, **Julie Loisel**

**\$500,000**

*Artificial Intelligence techniques applied to monitor rapidly changing arctic ecosystems*

#### **USDA NIFA**

PIs: Jen Harden, Gustaf Hugelius, **Julie Loisel**, Rebecca Ryals, Rob Jackson

**\$300,000**

*Networking soil information by aligning data to sustainability, resilience, and soil health*

### Funded Research Projects

#### **US National Science Foundation, MSB Program**

(08/2018-07/2023)

PIs: Zic Yu, Phil Camill, Steve Frolking, Julie Loisel, Qianlai Zhuang

**\$2,018,958**

*Collaborative Research: RUI: MSB-FRA: Peat Expansion in Arctic Tundra – Pattern, Process, and the Implication for the Carbon Cycle in a Changing Climate (TundraPEAT)*

#### **Texas A&M X-Grant**

(07/2018-06/2020)

PIs: Julie Loisel, Atlas Wang, Andrew Klein

**\$500,000**

*Monitoring rapidly changing arctic ecosystems using high-resolution satellite-based datasets and artificial intelligence*

#### **Texas A&M Triads for Transformation Grant**

(04/2018-03/2020)

PIs: Jason West, Brendan Roark, Julie Loisel

**\$30,000**

*Tracing Biological Processes Across Scales With Compound-Specific Isotope Analysis (Csia)*

#### **Texas Fund for Geography Education Grant Program**

(01/2018-12/2018)

PI: Julie Loisel

**\$47,961**

*I Dig It: A soil education toolkit for high school geography teachers*

#### **Poland OPUS21**

(06/2017-06/2020)

PI: Mariusz Galka

**\$121,571**

*Resilience of Sphagnum moss communities: response to Holocene climate change and effects on carbon accumulation rates in ombrotrophic mountain peatlands in Central Europe*

*\*\*\*I'm a co-Investigator on this grant*

#### **National Geographic Society, Committee for Research and Exploration** (12/2017-11/2018)

PI: Julie Loisel

**\$21,820**

*The value of Magallanes peatlands on the carbon market*

- Instructional Technology Services, Texas A&M University** (01/2017-12/2019)  
 PIs: Julie Loisel & Charles Lafon **\$74,856**  
*Bringing Research Experience to the Classroom via Virtual Science Field Trips, GEOG203*
- Department of Atmospheric Sciences, Texas A&M University** (07/2016-09/2017)  
 PIs: Julie Loisel & Gunnar Schade **\$18,000**  
*The impacts of hydraulic fracturing on land-use change and air quality in the Eagle Ford Shale Region of South Texas – implementing an educational program for middle and high school students*
- US National Science Foundation, P2C2 Program** (07/2015-06/2017)  
 PIs: Zicheng Yu & Yongsong Huang **\$303,703**  
*Water isotopes in peat mosses as proxies for understanding atmospheric circulation changes in southern Patagonia*  
 \*\*\*I participated in project design and proposal writing
- US National Science Foundation, Antarctic Program** (05/2013-05/2016)  
 PIs: Zicheng Yu & David Beilman **\$238,669**  
*Response of Carbon Accumulation in Moss Peatbanks to Past Warm Climates in the Antarctic Peninsula*  
 \*\*\*I participated in project design and proposal writing, in addition to being hired as post-doc on this project
- US National Science Foundation, DDIG, Ecosystems Program** (07/2011-12/2012)  
 PIs: Julie Loisel and Zicheng Yu **\$14,610**  
*Impacts of temperature and precipitation on peat-carbon dynamics in Alaska and Patagonia*  
 \*\*\* My proposal was ranked 'Outstanding' by all four reviewers
- Dept. of Earth & Env. Sci. at Lehigh University, Palmer Research Grant** (09/2011-04/2012)  
 PI: Julie Loisel **\$2000**  
*Peatland dynamics in Patagonia: abrupt mid-Holocene fen-to-bog transition and carbon sequestration*
- Dept. of Earth & Env. Sci. at Lehigh University, Palmer Research Grant** (09/2010-04/2011)  
 PI: Julie Loisel **\$2000**  
*Abrupt shifts of the Southern Hemisphere westerlies during the Holocene thermal maximum*
- Lehigh University Faculty Innovation Grant** (09/2009-09/2010)  
 PIs: Zicheng Yu and Julie Loisel **\$25,000**  
*Holocene carbon dynamics of peatlands in Patagonia: toward a global synthesis*
- Dept. of Earth & Env. Sci. at Lehigh University, Palmer Research Grant** (09/2009-04/2010)  
 PI: Julie Loisel **\$2000**  
*Holocene peatland development in southeastern Patagonia: an important data and knowledge gap*
- Geological Society of America, Kerry Kelt Research Award** (09/2009-09/2010)  
 PI: Julie Loisel **\$300**  
*Expanding peatlands in south-central Alaska: a response to glaciers-climate feedbacks?*

\*\*\* *Limnogeology Division Special Award* \*\*\*

**Indian & Northern Affairs Canada, Northern Scientific Program** (05/2007-05/2008)  
PIs: Julie Loisel and Michelle Garneau **\$2000**

**Fellowships and Competitive Scholarships**

**Alexander Graham Bell Canada Doctoral Postgraduate Scholarship** (08/2008-08/2011)  
Natural Sciences and Engineering Research Council of Canada, stipend  
\*\*\* *The most prestigious award offered by the Canadian Government to PhD students* \*\*\*

**Dean's PhD Fellowship, College of Arts and Sciences** (08/2011-07/2012)  
Lehigh University, tuition & stipend

**Quebec Doctoral Research Scholarship B2** (08/2008-08/2011) - declined -  
Fonds québécois de recherche sur la nature et les technologies, stipend

**College of Arts and Sciences Scholarship** (08/2008-06/2011)  
Lehigh University, tuition

**Quebec Masters Research Scholarship B1** (06/2007-06/2008)  
Fonds québécois de recherche sur la nature et les technologies, stipend

**Fairfax Financial Holdings Ltd Scholarship** (09/2004-09/2006)  
Association of Universities and Colleges of Canada, stipend

**Alexander Graham Bell Canada Masters Postgraduate Scholarship** (06/2006-06/2007)  
Natural Sciences and Engineering Research Council of Canada, stipend  
\*\*\* *The most prestigious award offered by the Canadian Government to MSc students* \*\*\*

**Excellence in Research Scholarship** (02/2006-05/2006)  
Université du Québec à Montréal Foundation, stipend

**Student Exchange Program Scholarship** (03/2006-06/2006) - declined -  
Ministère de l'Éducation, Loisir et Sport du Québec (for U. Lausanne), stipend

**Atmospheric and Meteorological Science Award** (05/2005-08/2005)  
Natural Sciences and Engineering Research Council and Environment Canada, stipend

**Undergraduate Student Research Award** (05/2005-08/2005)  
Natural Sciences and Engineering Research Council of Canada, stipend

**Undergraduate Student Research Award** (05/2004-08/2004)  
Natural Sciences and Engineering Research Council of Canada, stipend

**Canada Excellence Award for Leadership** (09/2004-09/2005)  
Canada Millennium Scholarship Foundation, stipend

**Workshops and Technical Course Attendance**

- 2018 **PAGES-INQUA C-PEAT Workshop on Tipping Points**, organized by J Loisel  
Texas A&M University (College Station, USA)
- 2017 **International Soil Carbon Network action group workshop**, organized by J Harden  
Stanford School of Earth, Energy, and Environmental Sciences (Stanford, USA)
- 2016 **NOVUS III Workshop on ecosystem disturbance**, organized by K McLauchlan  
NSF RCN, Cedar Creek LTER, and University of Minnesota (Minneapolis, USA)
- 2015 **Embedding research in undergraduate classes**, thought by D Mogk  
American Geophysical Union (San Francisco, USA)
- 2014 **Introduction to ground-based lidar for Earth Science Research**, thought by C Crosby  
Geological Society of America (Vancouver, Canada)
- 2013 **Near-surface geophysics for non-geophysicists**, thought by G Baker  
Geological Society of America (Denver, USA)
- 2013 **Plant macrofossil identification**, thought by C Yansa and GM Macdonald  
Association of American Geographers (Los Angeles, USA)
- 2013 **Tackling the statistical challenges of interpreting past environmental change**  
Center for Discrete Mathematics and Theoretical Computer Science (Newark, USA)
- 2012 **Mars for Earthlings: Teaching modules integrating Earth and Planetary Science**  
Geological Society of America (Charlotte, USA)
- 2012 **Preparing for an academic career in the geosciences**  
Cutting Edge Research Group (Chapel Hill, USA)
- 2012 **Science and policy conference**  
American Geophysical Union (Washington D.C., USA)
- 2012 **Science communication**  
National Geographic Society (Washington D.C., USA)
- 2010 **Teacher development series**  
Lehigh University (Bethlehem, USA)
- 2008 **4th international workshop on the ecology of *Sphagnum***, organized by D Vitt & J Shaw

PeatNet (Anchorage and Juneau, USA)

2006 **Peatland ecology and bryophyte identification**, thought by L Rochefort  
Université Laval (Québec, Canada)

Field research experience

2018 Southern Patagonia, Chile  
2017 Kananaskis Research Station, Alberta, Canada  
2017 Cordillera Vilcanota, Andes, Peru  
2016 Cedar Creek Ecological Reserve, Minnesota  
2014 Rocky Mountains, Utah  
2014 Antarctic Peninsula  
2013 Mackenzie River Basin, Alberta and NW Territories, Canada  
2011 Big Island, Hawai'i (field course)  
2010, 14 Southern Patagonia, Chile and Argentina  
2009 Northern Apennines, Italy (field course)  
2008-10 South-Central, South-Eastern, and the Interior, Alaska  
2006, 07 James Bay Lowlands, Québec, Canada  
2004, 05 Lanoraie Peatland Conservation Area, Québec, Canada

**Organizational Memberships**

Association of American Geographers, AAG	American Geophysical Union, AGU
Ecological Society of America, ESA	Geological Society of America, GSA
Canadian Association of Palynologists, CAP	Canadian Quaternary Association, CANQUA
Botanical Society of America, BSA	International Peat Society, IPC
International Soil Carbon Network, ISCN	

**Science Education / Social Venture Experience in Sustainability Science**

2013: I was awarded a **Lehigh University Core Competencies Grant** award (\$2500) as well as the prestigious **Baker Startup Grant for Social Ventures** (\$2500) at the Annual Eureka Venture Series for Entrepreneurship (Baker Institute, Lehigh University) to implement 'Turning Trash into Treasure', a unique and easy-to-use composting kit for schools (see below). The kit includes Earth Science lessons and experiments, the equipment required for composting cafeteria food scraps, entrepreneurial activities for kids, and more.

2013: Developed and implemented a **composting program** entitled 'Mission Compost: Turning Trash into Treasure' at Broughal Community Middle School, Bethlehem USA.

*\*\*\*Thanks to this initiative, Broughal was awarded a U.S. Dept. of Education Green Ribbon in 2013*

**Service**

Scientific community

2008- Peer reviewer for over 80 scientific research articles submitted to international journals

including *Nature*, *PNAS*, *EPSL*, *GRL*, *QSR*, *GCA*, *JGR*, *Ecology*, *Earth Science Reviews*, etc.

- 2019 NSF Review Panelist.
- 2018 NSF Review Panelist.
- 2017 Peer reviewer for proposals submitted to NSF, NERC, and NSERC.
- 2017- Scientific Steering Group member, International Soil Carbon Network (ISCN).
- 2018- Co-leader of the Steering Group Committee, *C-PEAT (Carbon in Peat on Earth through Time)*, a *Past Global Changes (PAGES)* Working Group on climate forcings.
- 2018- Associate Editor, *Climate of the Past*
- 2018- Associate Editor, *Scientific Reports*
- 2014-17 Steering Group Committee Member, *C-PEAT*.
- 2014- Lead session chair in multiple conferences, including GSA, AGU, and AAG meetings
- 2016 Guest Editor for a special issue of *Quaternary International* on American Southwest paleoclimatology
- 2014 Guest Editor for a special issue of *The Holocene* on Holocene carbon dynamics in the circum-arctic region

Department, College, University

- 2019- Steering Committee Member of the College of Geoscience Strategic Plan Team
- 2018- Member of the Faculty Advisory Committee, TAMU School of Innovation
- 2017- Faculty Committee Member, Geography Undergraduate Student Program
- 2017- Co-organizer, Geography Speaker Series