

Canadian Association of Palynologists
Association Canadienne des Palynologues

NEWSLETTER

Volume 45

Number 1

May 2022

President's Message

As spring sets in and we are all making plans for the summer, I would like to bring to your attention a few items of information.

For this year's CAP Student Award, we received several excellent applications which allowed us to select two winners. It is my great pleasure to congratulate Kelsey Koerner, PhD candidate at the Institute of Marine Sciences in Rimouski (ISMER) and Nidhi Patel, MSc candidate from Brandon University. Kelsey's project looks at the Evolution of oceanography and primary production over the late Holocene in northwestern Baffin Bay and Nidhi's work focuses on a spore-pollen record of terrestrial vegetation's response to the K/Pg mass extinction event, Oyster Bay Formation, in British Columbia.

The next Annual General Meeting of the Canadian Association of Palynologists will be held on August 16th (2022) in Montreal in conjunction with Ecological Society of America annual meeting (Montréal, August 14-18). This year's meeting includes a special celebration of one of our most distinguished members: Pierre Richard. Please mark your calendars and consider joining us in person or via Zoom (details to follow). I would also like to ask all supervisors and heads of labs to

encourage your graduate students to take part in the meeting. I also welcome suggestions of venue options for our 2023 Annual General Meeting.

CAP is accepting nominations or self-nominations for the position of President Elect. Individuals interested in contributing to the CAP Executive, should send me (ifpendea@lakeheadu.ca) a letter of interest along their CV by July 1st, 2022. The list of candidates will be posted on our website and circulated by e-mail to CAP members prior to our AGM on August 16th.

Last but not least, I would like to take this opportunity to thank all our members for their support and for their hard work in promoting the Canadian palynology through their research and teaching. I particularly would like to thank our Executive members, Francine McCarthy, for her hard work as Secretary-Treasurer, Manuel Bringué, for his dedication to updating and improving our association's website, Estelle Allan for her passion and hard work as Newsletter Editor, and Terri Lacourse for representing us on the international stage as IFPS councillor. I would also like to express my gratitude to our Engagement team, Diana Tirlea and Nick Riddick. Their outreach efforts are already paying off; our new membership and membership renewals have increased substantially.

Hope to see you all in August!

Florin Pendea
CAP President
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CAP EXECUTIVE 2022

President: Florin Pendea
Newsletter Editor: Estelle Allan
Secretary-Treasurer: Francine McCarthy
Website Editor: Manuel Bringué
IFPS Councillor: Terri Lacourse

Editor's Notes

Thanks a lot to all who contributed material for this edition of the CAP Newsletter: A. de Vernal, J. Falardeau, K. Koerner and N. Patel.

Deadline for NextCAP Newsletter

Please submit items for the next issue of the CAP Newsletter (Volume 45, Number 2, December 2022) by December 15, 2022. Conference reports, announcements, field trip reports, notices of new books, dissertation abstracts, book reviews, news, and essays on topics relevant to Canadian palynology, in English or French, are all welcome. Please send contributions to:

Estelle Allan
CAP Newsletter Editor
estelle.allan@mcgill.ca

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International seminar



The 12th edition of the International Conference on Modern and Fossil Dinoflagellates (DINO12) will take place from 4th to 8th of July 2022 at the Auditorio Alfredo Kraus de Las Palmas de Gran Canaria, Canary Islands, Spain. The Organizing committee aims to hold the event in-person but will also give the opportunity to join online.

The conference will be based on the common topic of global warming, but preserving the essence of the meeting, in which the dinoflagellates and their cysts are the major protagonists.

For more information:
<https://dino12conference.com/>



The 54th Annual Meeting of AAPSP will take place at the Universidad de Caldas, Manizales, Colombia, from 7th to 11th of August 2022. The meeting will have a hybrid format (in-person/online). The meeting is organized jointly with The Latin America Association of Paleobotany and Palynology (ALPP) and the Online Pollen Catalogs Network (RCPoL).

For more information: <https://palynology.org/>



The XXI Congress of the International Union for Quaternary Research, will take place from 13th to 20th of July 2023 at the Sapienza University, Rome, Italy. The scientific program has been planned as in-person presentations only, with a full scientific program, including plenary talks, session keynotes, symposia, and courses. The theme of the congress will be “**Time for Change**”, emphasizing the critical role of Quaternary sciences in contributing the knowledge we need to face current societal and climate challenges.

For more information: <https://inquareoma2023.org/>

CAP Annual Meeting

It is with great pleasure that we invite you to the CAP Annual Meeting on August 16th, 2022 at 4 pm in Montréal. The meeting will take place in Montréal, both in-person and online. The meeting will be held in conjunction with the Ecological Society of America annual meeting (Montréal, August 14-18), which several CAP members are attending. The event will take place on the 6th floor of the President Kennedy building at the University of Québec in Montreal (UQAM, 201, President Kennedy, room PK-6610), near Metro Place-des-Arts.

Following the meeting, we invite you to join us to celebrate the career of Pierre J.H. Richard. Pierre is a pioneer in the field of palynology in Canada. His reconstruction of the paleovegetation of Québec is a remarkable contribution that was instrumental to the understanding of vegetation dynamics since the

déglaciation. If you are a former student or a colleague of Pierre and would like to share some memories with the group or say a little word, please send me a message (estelle.allan@mcgill.ca). After the meeting, you are welcome to join us for a get-together and dinner (location to be determined).

To facilitate the organization of the event, please confirm your presence at estelle.allan@mcgill.ca. See you soon in Montréal,

Réunion annuelle de l'ACP

C'est avec grand plaisir que nous vous convions le 16 août 2022 à 16h à Montréal à la réunion annuelle de l'ACP. La réunion se tiendra à Montréal et en ligne. La réunion aura lieu en parallèle à celle de l'Ecological Society of America (Montréal du 14 au 18 août) à laquelle plusieurs de nos membres participent. L'événement aura lieu au 6^{ème} étage du bâtiment Président Kennedy de l'Université du Québec à Montréal (UQAM, 201, Président Kennedy ; salle PK-6610), près du Métro Place des Arts.

À la suite de la réunion, nous avons le plaisir de vous inviter à nous rejoindre pour célébrer la carrière de Pierre J.H. Richard. Pierre est un pionnier en palynologie au Canada. Ses travaux sur la paléovégétation du Québec ont contribué de façon remarquable à la compréhension de la dynamique du couvert végétal depuis la déglaciation. Si vous êtes un ou une ancien(ne) élève ou collègue de Pierre, que vous souhaitez partager de bons souvenirs ou lui dire un petit mot, merci de m'envoyer un message (estelle.allan@mcgill.ca). Pour finir la journée, si le cœur vous en dit, rejoignez-nous pour un 5 à 7 et pour souper (endroit encore à définir).

Pour faciliter l'organisation de l'événement merci de confirmer votre présence à estelle.allan@mcgill.ca. À très bientôt à Montréal,



Student Award

A big "thank you" to all applicants to the 2022 CAP Student Award competition. This year, the competition was strong and the Awards Selection Committee had a difficult job choosing among the candidates. Nevertheless, we were able to identify two very deserving applications, namely Kelsey Koerner, PhD candidate in Oceanography at the Institute of Marine Sciences in Rimouski (ISMER), and Nidhi Patel, MSc candidate in Environmental and Life Sciences at Brandon University.

Merci aux étudiants qui ont posé leur candidature pour le prix étudiant de l'ACP 2022. Cette année, la compétition était forte, et le comité de sélection a eu beaucoup de difficulté à choisir parmi les candidats. En conséquence, nous avons décidé de partager le prix entre deux étudiants méritants. Le prix étudiant de l'ACP a été attribué à Kelsey Koerner, candidate au doctorat en océanographie à l'Institut des sciences de la mer de Rimouski (ISMER), et à Nidhi Patel, candidate à la maîtrise en sciences en de l'environnement et de la vie à l'Université de Brandon.

Evolution of oceanography and export primary production over the late Holocene in northwestern Baffin Bay

Kelsey A. Koerner¹, André Rochon¹, Audrey Limoges²

¹ Institut des sciences de la mer de Rimouski, Rimouski, Québec

² University of New Brunswick, Fredericton, New Brunswick

The Arctic is warming three times the global average rate in a phenomenon known as Arctic amplification. With this warming there is an increase in sea and continental ice melting,

resulting in freshening of sea-surface waters, which are then exported from the Arctic to lower latitudes. Northern Baffin Bay is a major gateway for this freshwater export via Nares Strait and the Canadian Arctic Archipelago in Jones and Lancaster Sounds. Importantly, northern Baffin Bay is also host to the North Water (NOW) polynya, an area of open water in a region characterized by high sea-ice concentrations. These open water conditions allow for an earlier and longer phytoplankton bloom that helps sustain a large and diverse food web, which is important for the surrounding communities in Greenland and Nunavut. The sustained open water conditions of the NOW are reliant on three main factors. The first is the consolidation of ice bridges in Nares Strait that prevent sea ice and freshwater from flowing into the NOW region. The second are strong northerly winds that push any newly formed sea ice towards southern Baffin Bay. Finally, due in part to the strong northerly winds, the upwelling of the relatively warm Atlantic derived West Greenland Current in the eastern portion of the polynya helps inhibiting sea-ice formation. In recent decades, the formation of the ice bridges in Nares Strait has become more variable, sometimes failing to form completely, notably in 2022, 2019, 2017, 2010, 2009, and 2007. In these cases, there is increased freshwater and ice flowing along the Canadian coast, into northern Baffin Bay.

Our objective is to assess the impact of this increased freshwater input to northwestern Baffin Bay on the NOW's export primary production and water column conditions using a combination of micropaleontological (dinoflagellate cysts, diatoms, benthic foraminifera), and geochemical (TOC, $\delta^{13}\text{C}$, $\delta^{15}\text{N}$) proxies. This project will allow for a better understanding of the response of primary producers to changes in freshwater input into northwestern Baffin Bay and put the recent Arctic climate warming in context with the long-term variability of the system. We anticipate that the increased freshwater flow into the NOW region will impact the type and timing of primary production

in the region, which could have important consequences on the marine food web. As such, this research will provide key information about the past response of the system to environmental changes and freshwater input, which can help projecting the future functioning of the NOW polynya.

L'Arctique se réchauffe trois fois plus rapidement que la moyenne mondiale dans un phénomène connu sous le nom d'amplification Arctique. Ce réchauffement s'accompagne d'une augmentation de la fonte des glaces marines et continentales, entraînant un rafraîchissement des eaux de surface de la mer, qui sont ensuite exportées de l'Arctique vers des latitudes plus basses. Le nord de la baie de Baffin est une porte d'entrée majeure pour cette exportation d'eau douce via le détroit de Nares et les détroits de Jones et de Lancaster dans l'archipel arctique canadien. Fait important, le nord de la baie de Baffin abrite également la polynie des eaux du Nord (NOW), une zone d'eau libre dans une région caractérisée par de fortes concentrations de glace de mer. Ces conditions d'eau libre permettent une prolifération de phytoplancton plus précoce et plus longue qui aide à maintenir un réseau trophique large et diversifié, ce qui est important pour les communautés environnantes du Groenland et du Nunavut. Les conditions d'eau libre soutenues du NOW sont liées à trois facteurs principaux. Le premier est la consolidation des ponts de glace dans le détroit de Nares qui empêchent la glace de mer et l'eau douce de s'écouler dans la région NOW. Le deuxième est la présence de forts vents venant du nord qui poussent toute glace de mer nouvellement formée vers le sud de la baie de Baffin. Enfin, en partie à cause de ces vents, la remontée du courant relativement chaud du Groenland occidental dérivé de l'Atlantique dans la partie orientale de la polynie aide à inhiber la formation de glace de mer. Au cours des dernières décennies, la formation des ponts de glace dans le détroit de Nares est devenue plus variable, ne se formant parfois pas complètement, notamment en

2022, 2019, 2017, 2010, 2009 et 2007. Dans ces cas, une augmentation de l'eau douce et de l'écoulement de glace le long de la côte canadienne, dans le nord de la baie de Baffin sont observées.

Notre objectif est d'évaluer l'impact de cet apport accru d'eau douce dans le nord-ouest de la baie de Baffin sur la production primaire d'exportation du NOW et les conditions de la colonne d'eau en utilisant une combinaison d'outils micropaléontologiques (kystes de dinoflagellés, diatomées, foraminifères benthiques) et géochimiques (TOC, $\delta^{13}\text{C}$, $\delta^{15}\text{N}$). Ce projet permettra de mieux comprendre la réaction des producteurs primaires aux changements d'apport d'eau douce dans le nord-ouest de la baie de Baffin et de replacer le récent réchauffement climatique de l'Arctique dans la variabilité à long terme du système. Nous prévoyons que l'augmentation du débit d'eau douce dans la région NOW aura un impact sur le type et la temporalité de la production primaire dans la région, ce qui pourrait avoir des conséquences importantes sur le réseau trophique marin. En tant que telle, cette recherche fournira des informations clés sur la réponse passée du système aux changements environnementaux et à l'apport d'eau douce, ce qui permettrait une projection du fonctionnement futur de la polynie NOW.



Spore and pollen record of coastal vegetation on east coast of Vancouver Island just prior to and after the end-Cretaceous extinction.

Nidhi U. Patel¹, David R. Greenwood¹ and Jennifer M. Galloway²

¹ Dept. of Biology, Brandon University, 270-18th Street, Brandon, Manitoba, R7A 6A9, Canada;

² GSC Calgary

Land plants around the globe experienced a major turnover at the end of the Cretaceous 66.04 million years ago (i.e., latest Maastrichtian) in what is referred to as the Cretaceous-Paleogene (K-Pg) mass extinction event. The K-Pg mass extinction is now thought to be brought upon by some combination of an asteroid impact at Chicxulub, Mexico and the incessant volcanism in India. Our knowledge of terrestrial plants in north America from this time is based on sporepollen record and other plant macrofossils recovered from sites located mostly within the continental interior. During the Cretaceous, the Western Interior Seaway divided the north American continent, and this geographic barrier gave rise to two distinct land floras- the eastern Normapolles floristic province (defined by dominant pollen taxa such as hamamelids, Betulaceae, and early Juglandaceae) and the western *Aquilapollenites* floristic province (mainly extinct groups in the *Aquilapollenites*). However, west coast sites spanning latest Maastrichtian to Danian have unique vegetation and are considered a separate 'Continental Margin' floristic province (CM) with relatively abundant *Proteacidites* pollen, lack of *Aquilapollenites* pollen and rare occurrence of *Normapolles* pollen. In this study, I examine a series of samples from the near-coastal marine Oyster Bay Formation (OBF) on the east coast of Vancouver Island, British Columbia, documenting the character of vegetation at the end of the Maastrichtian and early Paleocene. I expect the nearshore island vegetation to align with CM palynofloras since Vancouver Island is a part of the exotic terranes that were significantly south during

the Maastrichtian around the 35th parallel. My preliminary analysis reveals presence of a diverse suite of terrestrial palynomorphs along with dinocysts and fungal remains in these sediments. Maastrichtian palynofloral assemblage is angiosperm-rich with abundant *Proteacidites* pollen-*Tschudypollis* spp., *Arecipites* spp. that survives into Danian (incl. Betulaceae, Juglandaceae, and Sparganiaceae), ferns (incl. *Cibotiumspora* sp., *Cyathidites* spp, Gleicheniaceae, Osmundaceae and Schizeaceae s.l.), cycads (*Cycadopites* sp.) and conifers (bisaccates and Cupressaceae). Typical fern-spike is not noted as seen in several K-Pg sites is not noted in sediments immediately following the K-Pg event as characterized by high proportions of key fern spore taxa such as *Cyathidites* spp., attributed to a range of fern groups including *Anemia* and extinct Dennstaedtiaceae. During the Maastrichtian the coastal vegetation contained mangroves such as the mangrove palm *Nypa* (as *Spinizonocolpites* sp.) – a taxon also known from sites at the southern end of the WIS and near the Chicxulub impact crater. The sediments will be examined for an Iridium anomaly known to demarcate the K-Pg boundary geochemically.



Avez-vous déjà vu cela ? Have you ever seen this?



Nous avons tous des palynomorphes non identifiés sur nos lames ! Envoyez-moi vos photos, estelle.allan@mcgill.ca, elles seront publiées dans les prochaines éditions de la Newsletter.

Pour cette édition, nous avons un acritarche découvert par Anne de Vernal. Ce spécimen est présent en grand nombre dans la carotte PS87/079 d'âge pléistocène du centre de l'océan Arctique. Le sédiment est essentiellement stérile à l'exception de quelques niveaux. Ces niveaux contiennent un peu de pollen, de rares dinokystes et plusieurs spécimens de l'acritarche en question. Certains spécimens sont assez frais et beaux. Ils sont pâles, la taille du corps est d'environ 19 µm, les processus sont au nombre de 5 à 9 et leur longueur d'environ 20 µm. Ils ont été traités avec une méthode standard incluant HCl (10%) et HF (50%) à froid pour dissoudre respectivement les particules de carbonate et de silicate, ainsi qu'un tamisage à 10 µm.

En avez-vous déjà vu? L'avez-vous déjà identifié? Si oui, merci de nous envoyer vos commentaires, observations.

We all have unidentified palynomorphs on our slides! Send me your pictures, estelle.allan@mcgill.ca, they will be published in the future editions of the Newsletter.

For this edition, we have an acritarch discovered by Anne de Vernal. This specimen is found in large numbers in the Pleistocene sediment core PS87/079 from the central Arctic Ocean. The sediment is essentially barren, except for some levels, which contain a few pollen grains, rare dinocysts, and several specimens of this acritarch. Some specimens are quite fresh and beautiful. They are pale, their body size is about 19 µm, their processes vary between 5 and 9 in number and their length is about 20 µm. The samples were treated with the standard methods including HCl (10%) and cold HF (50%) to dissolve carbonate and silicate particles,

respectively, in addition to sieving at 10 µm.

Have you ever seen one? Have you ever identified it? If so, please send us your comments, observations.



Pour cette édition, nous avons aussi des microfossiles mystères découverts par Jade Falardeau (candidate au doctorat à l'UQAM). Ces étranges microfossiles ont été retrouvés dans le bassin d'Herschel, sur le talus continental de la mer de Beaufort (zones littorales du nord du Yukon). Les spécimens ont été échantillonnés à 212-213 cm d'une carotte de 12 m à 32 m de profondeur d'eau (carotte PG2303). L'âge approximatif de l'échantillon serait de 1080 ± 91 ans CE. La carotte PG2303 (69.513°N-138.895°W) a été collectée avec un carottier à piston sur la glace de mer avec un tripode lors de l'expédition Yukon Coast pilotée par l'Institut Alfred Wegener, Potsdam, au printemps 2016.

Les spécimens ont une ressemblance avec la forme d'une vertèbre, ils ont une texture spongieuse et certains ont une cavité à la base des pointes.

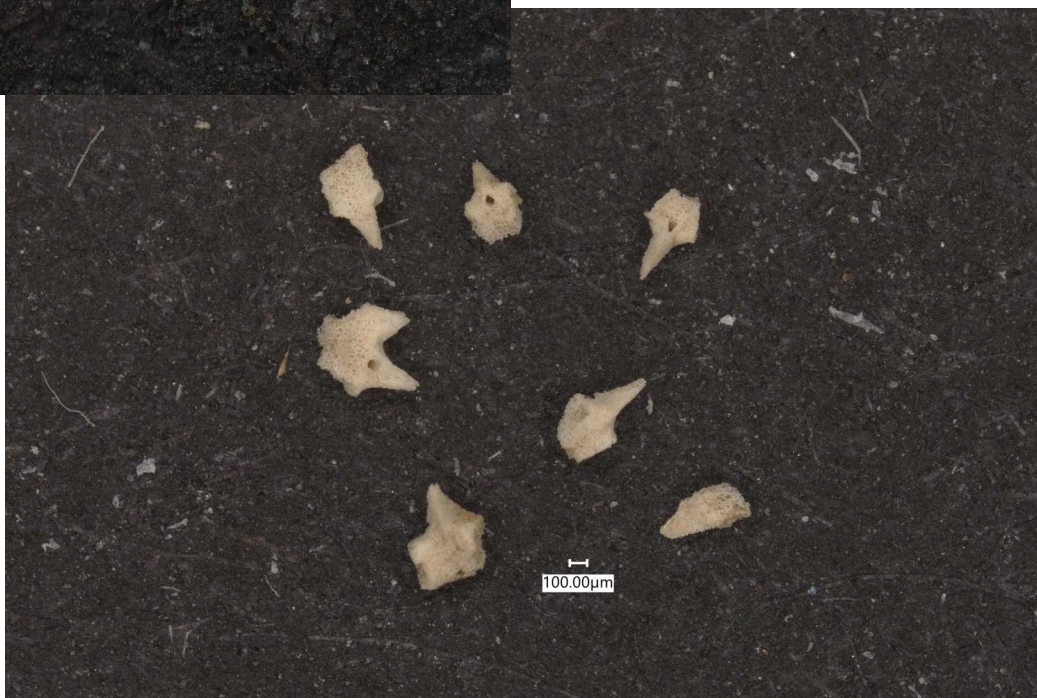
En avez-vous déjà vu? L'avez-vous déjà identifié? Si oui, merci de nous envoyer vos commentaires, observations.

For this edition, we also have mysterious microfossils discovered by Jade Falardeau (Ph.D. candidate at UQAM). These strange microfossils

were found in the Herschel basin on the Beaufort Sea continental shelf (northern Yukon nearshore areas). The specimens were sampled at 212-213 cm from a 12 m long core at 32 m water depth (core PG2303). The approximate age of the sample would be 1080 ± 91 years CE. Core PG2303 (69.513°N - 138.895°W) was collected with a piston corer on the sea ice using a tripod during the Yukon Coast expedition conducted by the Alfred Wegener Institute, Potsdam, in spring 2016.

The shape of the specimens have a resemblance to a vertebra, they have a spongy texture and some of them have a cavity at the base of the spikes.

Have you ever seen one? Have you ever identified it? If so, please send us your comments, observations.





Recent Publications

* denotes a CAP member

Barlow, C. M., *Pellatt, M. G., & Kohfeld, K. E. (2021). Garry oak ecosystem stand history in Southwest British Columbia, Canada: implications of environmental change and indigenous land use for ecological restoration and population recovery. *Biodiversity and Conservation*, 30(6), 1655-1672.

Burke, A., *Peros, M. C., Wren, C. D., Pausata, F. S., Riel-Salvatore, J., Moine, O., ... & Boisard, S. (2021). The archaeology of climate change: The case for cultural diversity. *Proceedings of the National Academy of Sciences*, 118(30).

*Galloway, J. M., *Fensome, R. A., Swindles, G. T., Hadlari, T., Fath, J., Schröder-Adams, C., ... & Pugh, A. (2022). Exploring the role of High Arctic Large Igneous Province volcanism on Early Cretaceous Arctic forests. *Cretaceous Research*, 129, 105022.

Marshall, N. R., *de Vernal, A., Mucci, A., Filippova, A., Kienast, M., Gibb, O., & Hillaire-Marcel, C. (2021). Biogenic carbonate fluxes and preservation in the northwestern Labrador Sea since the Last Glacial Maximum. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 576, 110498.

Marshall, N. R., *de Vernal, A., Mucci, A., Kienast, M., Filippova, A., & Hillaire-Marcel, C. (2021). Carbonate dissolution and environmental parameters govern coccolith vs. alkenone abundances in surface sediments from the northwest North Atlantic. *Marine Micropaleontology*, 169, 102032.

Over, J. S., & *Pospelova, V. (2022). Last interglacial (MIS 5e) sea surface hydrographic conditions in coastal southern California based on dinoflagellate cysts. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 591, 110875.

*Patel, N. U., Greenwood, D. R., Greenwood, C. L., *Galloway, J. M., & Desautels, M. (2022). A reconstruction of the early Paleocene palaeovegetation of Turtle Mountain, southwestern Manitoba, Canada. *Palynology*, 2064555.

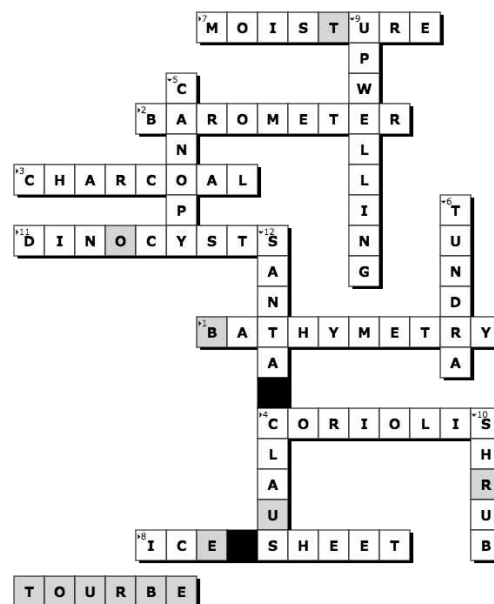
*Pieńkowski, A. J., Husum, K., Furze, M. F., Missana, A. F., Irvall, N., Divine, D. V., & Eilertsen, V. T. (2022). Revised ΔR values for the Barents Sea and its archipelagos as a pre-requisite for accurate and robust marine-based 14C chronologies. *Quaternary Geochronology*, 68, 101244.

Rodengen, T. J., *Pellatt, M. G., & Kohfeld, K. E. Paleoecological Investigation of Vegetation, Climate and Fire History in, and Adjacent to, Kootenay National Park, Southeastern British Columbia, Canada. *Frontiers in Ecology and Evolution*, 948.

*Sobol, M. K., Chazan, M., Scott, L., & *Finkelstein, S. A. (2022). Characterizing the Meghalayan Stage in southern Africa: A multiproxy record of paleoenvironmental change at the southern margin of the Kalahari. *Quaternary International*, 614, 98-110.

Editor's Game

December 2021 solutions

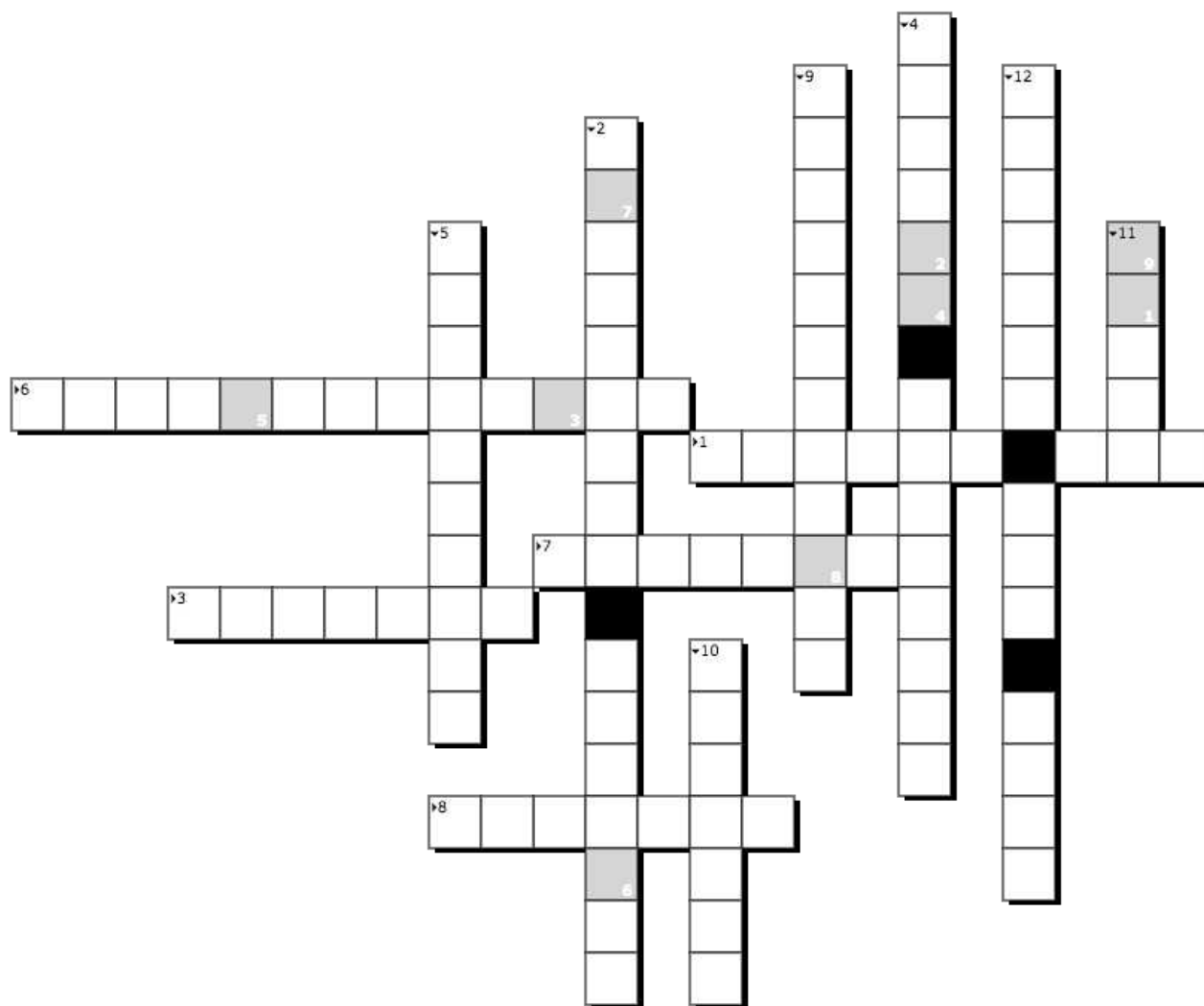


Created with XWords - the free online crossword puzzle generator
<https://www.xwords-generator.de/en>

Editor's Game

1. Marginal sea of the Northern Pacific Ocean
2. Calcified marine unicell, dominant alkenone producer
3. Area of open water surrounded by sea ice
4. Faunal similarities between a down-core sample and a core-top
5. Distinctive opening in the test of fossil dinoflagellates
6. Uppermost divisions in the Cretaceous
7. Dark-coloured sediments that are rich in organic matter
8. Calcium carbonate structure in inner ear
9. Description and interpretation of sequences of rock layers
10. Single-celled alga which has a cell wall of silica
11. Reproductive cell capable of developing into a new individual without fusion with another reproductive cell
12. The first modern quantitative pollen diagram was made in 1916 by?

French word: season of new life and regrowth



1 2 3 4 5 6 7 8 9

CAP Membership Form

Canadian Association of Palynologists / Association Canadienne des Palynologues (CAP) membership is open to all members of the palynological community in Canada and others with an interest in Canadian palynology. The Association is dedicated to the advancement and encouragement of all aspects of palynology in Canada and the promotion of co-operation between palynologists and those engaged in related fields of study. Membership dues include two issues a year of the CAP Newsletter, to which all members are invited to contribute. CAP is affiliated with the International Federation of Palynological Societies (IFPS) and members receive two issues of the IFPS newsletter (PALYNOS) each year.

CAP membership dues are \$15 per year in Canadian or US funds payable at the beginning of the year. Lapsed members are removed from the mailing list after one year, following a reminder. Members may, if they wish, pay for up to three years in advance for a reduced amount of \$40.

You have two options to join or renew:

(1) fill out the online form at <https://capacp.wordpress.com/membership/> and send an e-transfer to CAP Secretary-Treasurer Francine McCarthy (fmccarthy@brocku.ca)

(2) is to complete and print this form and attach a cheque (Canadian bank only) or money order payable to CAP, and mail the form and payment to the following address:

Prof. Francine McCarthy, Dept. of Earth Sciences, Brock University
St Catharines, ON, L2S 3A1, CANADA

Name:

Affiliation:

Address:

Tel:

Fax:

E-mail:

Research interests:

Do you want to make a donation towards the Annual CAP Student Research Award?

Yes No Amount:

New membership Renewal Total amount enclosed:

If you are the head of a palynology laboratory in Canada, may we include your name/address/research interests/webpage in the online "Directory of Canadian Palynology labs" on the CAP website? Yes No

Lab page URL:

Do you permit your name/address/email address to be included in the printed "World Directory of Palynologists" being compiled by IFPS? Yes No