



16th November, 2023

Dear colleagues,

we are happy to share the 11th newsletter of our pyroarchaeology commission with you! In this newsletter we are glad to share some research news (courtesy of Auréade Henry, page 2) with you as well as conference (page 3) and publication news (pages 4 to 6).

With our best wishes

Carolina, Chris and Mareike*

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Research News

The group of Auréade Henry performed some experimental work at the Desert Research Institute in Reno, Nevada and charcoal analysis in the last two years and shared some photos of their work. This work was performed in the frame of Aurélie Liard's Ph.D. project "Paleoenvironments and prehistoric pyrotechnologies in the Bonneville Basin (Nevada, USA) at the Pleistocene-Holocene transition". Aurélie Liard, Auréade Henry (CNRS-CEPAM) and Peter Goebel (university of Idaho) conducted the burning experiments aimed at discriminating the use of green vs. seasoned wood as fuel. This research was present at two conferences, see below.



Photo 1: controlled wood burning in the muffle furnace, DRI, Reno, Nevada (© A. Liard)

Photo 2: experimental open-air fire, DRI, Reno, Nevada (© A. Liard)

Photo 3: cutting sagebrush for the experimental combustions, Highland Ranch Park, Reno, Nevada (© A. Henry)

Photo 4: cutting wood discs for the experimental combustions, DRI, Reno, Nevada (© Z. Servin)

Conference News

- Past

This fall, the **XX UISPP congress, September 3th to 10th, 2023**, took place in Timisoara, Romania and our commission was represented in two sessions:

S17-1 Multifaceted Pyroarchaeology: from environmental to cultural proxies by S. Vandevælde, M.C. Stahlschmidt, C.E. Miller and C. Mallol with 9 contributions and

S8-4 Stone Age engineering techniques and their implication for understanding Neanderthals and early Homo sapiens perspectives by P. Schmidt with 9 contributions

We had a lovely time and stimulating discussion in Timisoara!

Other past conference presentations:

Liard, A., 2023. Burned wood as cultural marker? Archaeological charcoals and early societies of the Great Basin. *The 2023 World Wood Day Online Symposium and the Fifth IUFRO Forest Products Culture Colloquium*, Online, March 2023.

Liard, A., Goebel, P., Rhode, D., Henry, A. 2023. Ten years after: New experiments in anthracology aimed at discriminating the combustion of dry vs. green wood. *XXIVe colloque du GMPCA : Archéométrie 2023*, Nice – France. April 2023.

- Upcoming

The 30th annual Meeting of the European Association of Archaeologist will take place in Rome, 28 - 31 August, 2024, and P. Schmidt, C. Shaw, C.E. Miller and C. Mallol proposed a session called “Pyroarchaeology: fire-related engineering, environment and cultural proxies”. We will hold our annual commission in concert with this session.

In September 2024 the Archaeology Centre at the University of Toronto will be holding a workshop on the topic of Sacred Flames. The goal is to examine the role of fire in ritual contexts and how this topic can be explored archaeologically. If you have any interest in participating or would like further detail please contact Michael Chazan at mchazan@chass.utoronto.ca. The organizers will provide updates as they become available.

Publication News

The current series of special issues is partly still continuing! Our commission is organized a Topical Collection in the journal *Archaeological and Anthropological Sciences* on “Archaeological Sciences Approaches to Pyroarchaeology” - with 10 published now and 2 remaining contributions.

Segolene Vandavelde and colleagues are organizing a Special Issue on “From Fire to Light” in the *Journal of Archaeological Sciences: Reports*, which is almost finalized, while Carme Belarte and colleagues finalized their Special Issue on “Fire installations in Mediterranean Late Prehistory: multidisciplinary approaches to their uses and functions” in the same journal, see the Editorial by Belarte below.

In the last 6 months the following papers were published on pyroarchaeological research (up to October, not a complete list):

- Amicone, S., Memmesheimer, A., Solard, B., Gur-Arieh, S., Rogier, M., Qarni, A.M., Seidler, J., Sconzo, P., Heinze, L., Morandi, L.F., Kiemle, T., Miller, C.E., Nickel, K.G., Berthold, C., 2023. An interdisciplinary approach to the study of kiln firing: a case study from the Campus Galli open-air museum (southern Germany). *Archaeol. Anthropol. Sci.* 15, 111. <https://doi.org/10.1007/s12520-023-01798-1>
- Archer, W., Presnyakova, D., Heinrich, S., Stahlschmidt, M.C., 2023. A Predictive Model for the Non-Destructive Assessment of Stone Age Silcrete Heat Treatment Strategies. *J. Paleolit. Archaeol.* 6, 14. <https://doi.org/10.1007/s41982-023-00141-3>
- Belarte, M.C., Molist, M., Portillo, M., Mateu, M., 2023. Editorial – Fire installations in Mediterranean Late Prehistory: Multidisciplinary approaches to their uses and functions. *J. Archaeol. Sci. Rep.* 49, 104057. <https://doi.org/10.1016/j.jasrep.2023.104057>
- Beldados, A., Ruiz-Giralt, A., 2023. Burning questions: Experiments on the effects of charring on domestic and wild sorghum. *J. Archaeol. Sci. Rep.* 51, 104170. <https://doi.org/10.1016/j.jasrep.2023.104170>
- Breu, A., Türkekul, A., Akyol, Ş., Bach-Gómez, A., Çakal, C., İlker, M.F., Sarı, D., Sarialtun, S., Vijande-Vila, E., Özbal, R., 2023. Caution! Contents were hot: Novel biomarkers to detect the heating of fatty acids in residues from pottery use. *J. Archaeol. Sci.* 159, 105854. <https://doi.org/10.1016/j.jas.2023.105854>
- Budziszewski, A., 2023. Does shape matter? A comparative study of the usage of calibrated sieves in the study of burned human bone from archeological and forensic contexts. *Archaeol. Anthropol. Sci.* 15, 109. <https://doi.org/10.1007/s12520-023-01817-1>

- Buonasera, T., Damick, A., Shoup, D., 2023. Not up in smoke: Lipid and phytolith evidence for the function of combustion features at CA-ALA-11, a San Francisco Bay area shellmound. *J. Archaeol. Sci. Rep.* 51, 104133. <https://doi.org/10.1016/j.jasrep.2023.104133>
- Carrancho, Á., Bradák, B., Herrejón-Lagunilla, Á., Vergès, J.M., 2023. Archaeomagnetic analyses on fumiers burned under controlled experimental conditions. *Quat. Int.* <https://doi.org/10.1016/j.quaint.2023.09.005>
- Davara, J., Jambrina-Enríquez, M., Rodríguez de Vera, C., Herrera-Herrera, A.V., Mallol, C., 2023. Pyrotechnology and lipid biomarker variability in pine tar production. *Archaeol. Anthropol. Sci.* 15, 133. <https://doi.org/10.1007/s12520-023-01829-x>
- Douché, C., Charles, M., 2023. Investigating fuel for firing pottery at the end of the 3rd mill. BCE: The case of Logardan, northern Iraq. *J. Archaeol. Sci. Rep.* 52, 104259. <https://doi.org/10.1016/j.jasrep.2023.104259>
- Gallo, G., Ushakov, S.V., Navrotsky, A., Stahlschmidt, M.C., 2023. Impact of prolonged heating on the color and crystallinity of bone. *Archaeol. Anthropol. Sci.* 15, 143. <https://doi.org/10.1007/s12520-023-01842-0>
- Hoare, S., Preysler, J.B., Kabukcu, C., Emmerich Kamper, T., Sinclair, A.G.M., Torres Navas, C., 2023. There's no smoke without fire: A deep time perspective on the effects of fires on air quality, human health and habitability in the Palaeolithic and prehistory. *J. Archaeol. Sci. Rep.* 52, 104261. <https://doi.org/10.1016/j.jasrep.2023.104261>
- House, A., Bamford, M.K., Greenfield, H.J., van Schalkwyk, L.O., 2023. Furnaces, hearths, rituals, and construction: investigating the utilisation of woody plant species at the Early Iron Age site of Ndongondwane by means of identifying archaeological charcoal. *Archaeol. Anthropol. Sci.* 15, 130. <https://doi.org/10.1007/s12520-023-01825-1>
- Jambrina-Enríquez, M., de Vera, C.R., Davara, J., Herrera-Herrera, A.V., Mallol, C., 2023. Compound-specific carbon isotope analysis of short-chain fatty acids from Pine tissues: characterizing paleo-fire residues and plant exudates. *Archaeol. Anthropol. Sci.* 15, 114. <https://doi.org/10.1007/s12520-023-01815-3>
- Kedar, Y., Kedar, G., Barkai, R., 2023. Lamp for light: How temperature and humidity determine light management in Upper Paleolithic decorated cave environments. *J. Archaeol. Sci. Rep.* 52, 104281. <https://doi.org/10.1016/j.jasrep.2023.104281>
- Langley, A., Needham, A., Kröger, R., Cifuentes-Alcobendas, G., Adegeest, M., Cousen, J., Lance, C., Benton, H., Mansbridge, A.-R., Satchell, A., Tomlinson, L., Rockall-Birtles, F., Lucquin, A., Little, A., 2023. An experimental study of wet-cooking in organic vessels:

- implications for understanding the evolution of cooking technologies. *Archaeol. Anthropol. Sci.* 15, 142. <https://doi.org/10.1007/s12520-023-01843-z>
- Liu, N., Wu, M., Su, R., Liu, Y., Wang, Q., 2023. A new FTIR spectrophotometric method for estimating the firing temperature of ceramic bronze-casting moulds from the Houma foundry, China. *J. Archaeol. Sci. Rep.* 52, 104256. <https://doi.org/10.1016/j.jasrep.2023.104256>
- Martínez de Los Reyes, P.I., Gutiérrez, A., Macho-Callejo, A., García-Morato, S., Moreno-García, M., Fernández-Jalvo, Y., 2023. Let's play with fire! Preliminary results of new experiments on animal bone of thermo-alterations. *Hist. Biol.* 0, 1–12. <https://doi.org/10.1080/08912963.2023.2258912>
- Meinekat, S.A., Milton, E.B.P., Furlotte, B., Zarrillo, S., Rademaker, K., 2023. Fire as high-elevation cold adaptation: An evaluation of fuels and Terminal Pleistocene combustion in the Central Andes. *Quat. Sci. Rev.* 316, 108244. <https://doi.org/10.1016/j.quascirev.2023.108244>
- Padovani, C., 2023. Kilns and potters: Measuring pyrotechnology diversity to assess dynamics of firing techniques diffusion within Southwest Asia Communities, 6500-4700 BCE. *J. Archaeol. Sci. Rep.* 52, 104273. <https://doi.org/10.1016/j.jasrep.2023.104273>
- Patton, N.R., Shulmeister, J., Hua, Q., Almond, P., Rittenour, T.M., Hanson, J.M., Grealy, A., Gilroy, J., Ellerton, D., 2023. Reconstructing Holocene fire records using dune footslope deposits at the Cooloola Sand Mass, Australia. *Quat. Res.* 115, 67–89. <https://doi.org/10.1017/qua.2023.14>
- Polo-Díaz, A., Rabuñal, J.R., Guérin, G., Fernández-López de Pablo, J., 2023. Mesolithic hearth-pits and formation processes: a geoarchaeological investigation of sediments from El Arenal de la Virgen site (SE Iberia). *Archaeol. Anthropol. Sci.* 15, 104. <https://doi.org/10.1007/s12520-023-01794-5>
- Schmidt, P., Koch, T.J., Blessing, M.A., Karakostis, F.A., Harvati, K., Dresely, V., Charrié-Duhaut, A., 2023. Production method of the Königsauë birch tar documents cumulative culture in Neanderthals. *Archaeol. Anthropol. Sci.* 15, 84. <https://doi.org/10.1007/s12520-023-01789-2>
- Sitzia, L., Power, X., Zurro, D., Maalouf, J.P., Cárcamo, J., Chandía, K., Vega, J.M.A., Borie, C., Roa, C., Silva, C., Salazar, D., Vivanco, S., Hernández, V., Aliste, C., Ibacache, S., Lorca, R., 2023. Tracking kelp-type seaweed fuel in the archaeological record through Raman spectroscopy of charred particles: examples from the Atacama Desert coast. *Archaeol. Anthropol. Sci.* 15, 179. <https://doi.org/10.1007/s12520-023-01860-y>

- Stahlschmidt, M.C., Mentzer, S.M., Heinrich, S., Cooper, A., Grote, M.N., McNeill, P.J., Wilder, J.C.-B., Steele, T.E., 2023. Impact of a recent wildfire on tortoises at Cape Point, South Africa, and implications for the interpretation of heated bones in the archaeological record. *Archaeol. Anthropol. Sci.* 15, 126. <https://doi.org/10.1007/s12520-023-01806-4>
- Stancampiano, L.M., Rubio-Jara, S., Panera, J., Uribelarrea, D., Pérez-González, A., Magill, C.R., 2023. Organic geochemical evidence of human-controlled fires at Acheulean site of Valdocarros II (Spain, 245 kya). *Sci. Rep.* 13, 7119. <https://doi.org/10.1038/s41598-023-32673-7>
- Toffolo, M.B., Pinkas, I., Gallo, A.Á., Boaretto, E., 2023a. Crystallinity assessment of anthropogenic calcites using Raman micro-spectroscopy. *Sci. Rep.* 13, 12971. <https://doi.org/10.1038/s41598-023-39842-8>
- Toffolo, M.B., Regev, L., Mintz, E., Dubernet, S., Berna, F., Chadwick, J.R., Maeir, A.M., Boaretto, E., 2023b. Micro-contextual characterization of pyrogenic aragonite diagenesis in archaeological ash: implications for radiocarbon dating of calcium carbonate in combustion features. *Archaeol. Anthropol. Sci.* 15, 177. <https://doi.org/10.1007/s12520-023-01874-6>
- Vandavelde, S., Boucherat, T., Bonneau, A., Deldicque, D., Marié, L., Slimak, L., Petit, C., 2023. ExTraS program: documenting the processes of fixation, recording, and preservation of combustion products in speleothems. *Archaeol. Anthropol. Sci.* 15, 169. <https://doi.org/10.1007/s12520-023-01869-3>
- Ségolène Vandavelde, Adeline Bonneau, Jacques É. Brochier, Thomas F. G. Higham, Christophe Petit, and Ludovic Slimak. Fuliginochronology and Radiocarbon for the Direct Dating of Human Occupation Chronicles in Caves. *Chemistry in the Service of Archaeology*. ACS Books, 105-119. DOI:10.1021/bk-2023-1446.ch005
- Wisher, I., Needham, A., 2023. Illuminating palaeolithic art using virtual reality: A new method for integrating dynamic firelight into interpretations of art production and use. *J. Archaeol. Sci. Rep.* 50, 104102. <https://doi.org/10.1016/j.jasrep.2023.104102>