

## FOCUS SESSION 10

# The challenge of public communication of science in Limnology & Paleolimnology

**Uara Carrillo**

*LDAAV-UNRN, Bariloche, Argentina*  
*ucarrillo@comahue-conicet.gob.ar*

**Fernanda Charqueño-Celis**

*CENAC-APN, Bariloche, Argentina*

**Julieta Massaferrero**

*CENAC-APN, Bariloche, Argentina*

**Sandra Murriello**

*CITECDE-UNRN, Bariloche, Argentina*

## Lake Nahuel Huapi, what lies beneath art, science and the creative process

Roddick, I.<sup>1</sup>, Escudero, S.<sup>2</sup>, Piñero, P.<sup>3</sup>

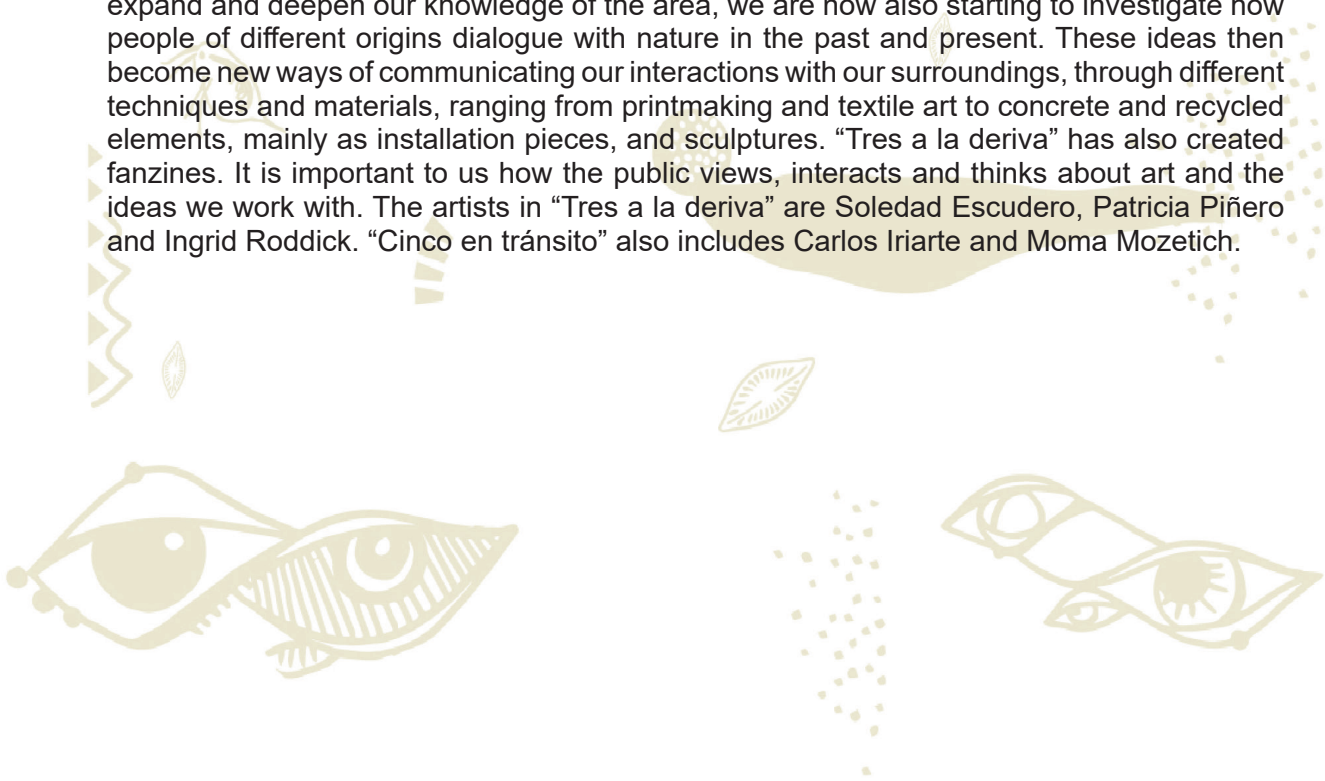
<sup>1</sup>Visual artist, AAPB (Asociación de Artistas Plásticos de Bariloche), Bariloche, Río Negro, Argentina

<sup>2</sup>Visual artist, AAPB (Asociación de Artistas Plásticos de Bariloche), Bariloche, Río Negro, Argentina

<sup>3</sup>Visual artist and educational curator, AAPB (Asociación de Artistas Plásticos de Bariloche), Bariloche, Río Negro, Argentina and MACRO (Museo de Arte Contemporáneo de Monterrey), Monterrey, México

\*Corresponding author: [iroddicka@yahoo.com.ar](mailto:iroddicka@yahoo.com.ar)

“Tres a la deriva” (Three adrift), and “Cinco en tránsito” (Five in transit) are two artist collectives that are connected by interests and members. One of the ideas we explore comes from Guy Debord’s philosophy. He called psychogeography the ways in which humans wander the urban environments using the word “dérive”. Hence our names and some of our interests. Bariloche grew inside a National Park and by Lake Nahuel Huapi. How does the lake and its surroundings shape each other, and how is the memory of its existence recorded? How does this affect the way we feel and interact with the city and with nature? As artists we question the relationship we have with our environment, sometimes imagining how our discarded trash becomes a part of it and others, asking scientists that study it, what captivates and motivates them, this in turn, inspires us. Rapoport and Rubio’s discovery of aquatic arthropods, led us to name one of our soft sculptures “Nahuelensis sp.”, and later, the “Críptides Nahuelensikes” piece draws on the shape of these animals and the lake’s. Mónica Díaz’s passion for algae triggered our series of “Algae Blooms”. Always trying to expand and deepen our knowledge of the area, we are now also starting to investigate how people of different origins dialogue with nature in the past and present. These ideas then become new ways of communicating our interactions with our surroundings, through different techniques and materials, ranging from printmaking and textile art to concrete and recycled elements, mainly as installation pieces, and sculptures. “Tres a la deriva” has also created fanzines. It is important to us how the public views, interacts and thinks about art and the ideas we work with. The artists in “Tres a la deriva” are Soledad Escudero, Patricia Piñero and Ingrid Roddick. “Cinco en tránsito” also includes Carlos Iriarte and Moma Mozetich.



**PAGES Horizons: an outreach magazine about paleosciences**

Loutre, M.F.<sup>1\*</sup>, Vanni re, B.<sup>2,3</sup>, Gil-Romera, G.<sup>4</sup>, Eggleston, S.<sup>1</sup>

<sup>1</sup> Past Global Changes, Switzerland

<sup>2</sup> CNRS, Universit  Bourgo ne Franche-Comt , France

<sup>3</sup> University of Bern, Switzerland

<sup>4</sup> Philipps-Marburg University, Marburg, Germany

\*Corresponding author: [marie-france.loutre@pages.unibe.ch](mailto:marie-france.loutre@pages.unibe.ch)

Past Global Changes (PAGES) recently established *PAGES Horizons*, a new publication for teenagers, young adults, and general public interested in Earth's history. *PAGES Horizons* highlights how understanding the science of the past can help in critical environmental issues such as the modern climate crisis, and more generally the current global change. The magazine strives to communicate sound scientific facts using an uncomplicated language, diverse graphic outputs, and an attractive visual format. The first two issues of *Horizons* (2021, 2022) have provided scientific information from the scientists themselves to strengthen links and communication between the academic and non-academic worlds. The aim is to provide scientific knowledge in order to make readers aware that lessons from the past can help us to understand the current global change and what can be done to aim a sustainable future. *PAGES Horizons* includes articles about different environments and regions around the globe, and about the interactions of climate, ecosystems and humans. Here, we would like to invite paleoecologists to share their ideas and comments on the first two issues, to encourage discussions to create new opportunities, to invite colleagues across the paleosciences to join this project and contribute with articles, and to develop our network of collaborators and the dissemination of this science outreach project. *Horizons* is a great adventure, not only because we have the opportunity to address the wide public, but also because it challenges us, paleoecologists, to communicate our research to a different audience!



## The scientific communication journal from Nahuel Huapi National Park

Seijas, S.<sup>1\*</sup>, Quintana, F.<sup>2</sup>, Belmonte, D.<sup>1</sup>

<sup>1</sup>División Conservación. Dpto. Conservación y Educación Ambiental. PNNH. APN. Directora MACROSCOPIA

<sup>2</sup>Voluntaria rentada CENAC - División Conservación - Dpto. Conservación y Educación Ambiental - PNNH – APN. Editora MACROSCOPIA

\*Corresponding author: [macroscopia2015@gmail.com](mailto:macroscopia2015@gmail.com)

This magazine brought up twelve years ago, from the idea of Juan Salguero, the main head of the Nahuel Huapi National Park (PNNH) then. By that time, the country's political and social context was favorable to the development of these ideas leading the appearance of this magazine. Simultaneously, the applied studies and conservation program (CENAC) involving scientific researchers and students working in the line of the national park conservation issues was encouraged. The magazine aims of publicizing and disseminating studies, research and conservation projects carried out in the PNNH. The first edition was published in 2010, coordinated by the Environmental Conservation and Education Department. Since then, the CENAC researchers team participate in the editorial committee. Along these years, all of us who actively participate are motivated in displaying the wide variety of scientific and technical research that are performed in the one of the principal protected area in northern Patagonia, among them limnology studies. Some examples can be read in the numbers 1, 4, 5 of our magazine. Actually, we are developing the 11ed edition and permanently focused in improving the graphical design, thinking in our readers. We can assure that this magazine plays a very important role displaying a wide range of scientific issues performed both by leading researchers and by early career researchers, bringing them the opportunity to make it work accessible to all the public.



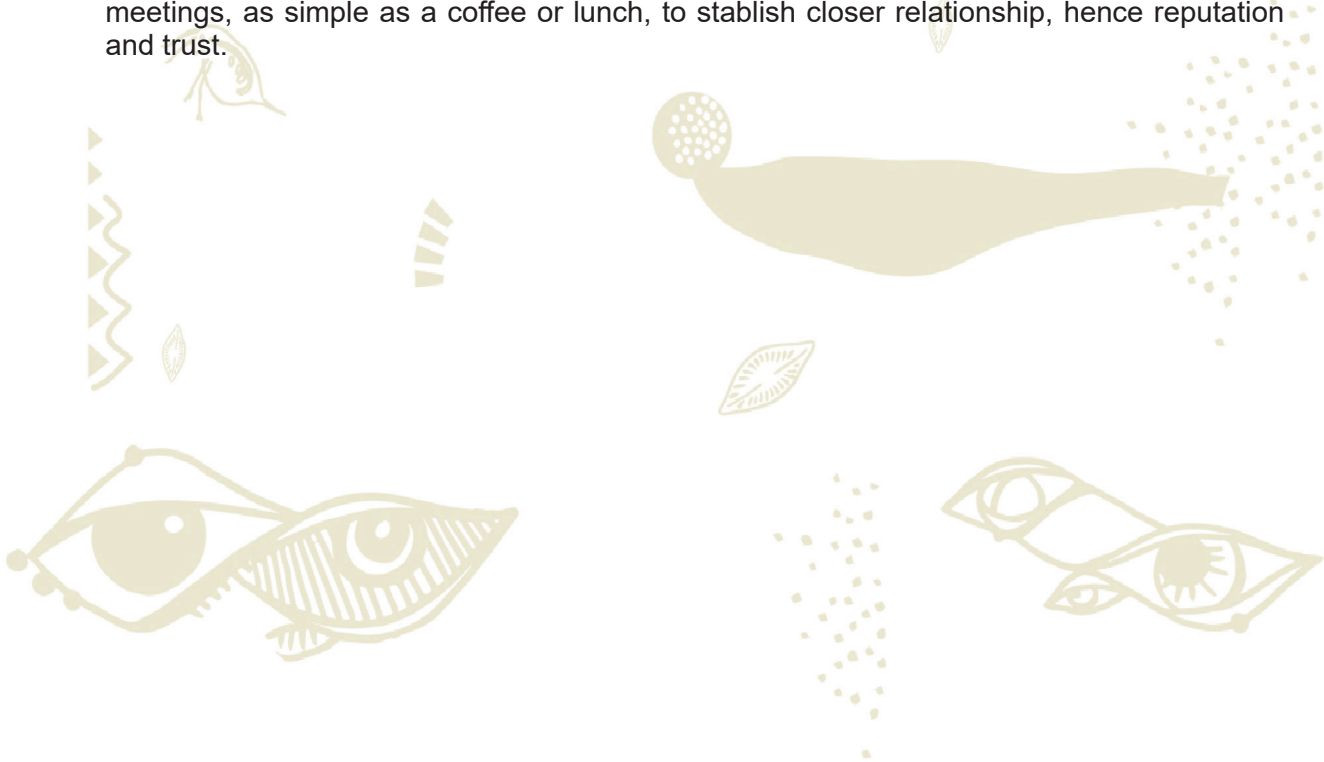
## Rethinking Palaeolimnology for Society: co-production strategies for an effective science-policy interface

Martin-Puertas, C.<sup>1</sup>, Milner, A.<sup>1</sup>

<sup>1</sup> Department of Geography, Royal Holloway University of London

\*Corresponding author: [celia.martinpuertas@rhul.ac.uk](mailto:celia.martinpuertas@rhul.ac.uk)

There is a recognised gap between data generated by environmental and climate scientists (limno- and palaeolimnologists) and evidence needed by policy makers; for example, in relation to the future impacts of climate change on regional climate. This is in part because influencing policy through research is complex and requires skills that might not be valued or common in research systems. Palaeolimnologists do not often have impact beyond academia because research questions are theoretically driven instead of responding to societal needs. The current situation of our Earth's system, together with the social movements for climate justice, urge a step change in how policy and scientists approach climate change. Funded by UK Research and Innovation and supported by both Ministerial Departments and stakeholders, we (palaeolimnologists) are developing a co-production model of research where scientists and stakeholders work in a synergy to develop research questions, produce research, and communicate effectively, to contribute to the policymaking system. Evidence-based insights and improvements in how to better communicate uncertainties to both policy and media are key areas to develop. Regarding pathways to engage with policy makers and, more important, how to get them to be engaged with us, we recommend informal regular meetings, as simple as a coffee or lunch, to establish closer relationship, hence reputation and trust.



## The rhythm of lakes: dancing the climate of the past

Rubio-Sandoval, K.<sup>1\*</sup>, Martínez-Abarca, R.<sup>2</sup>, Yanez Montalvo, A.F.<sup>3</sup>, Cruz Hernández, T.E.<sup>4</sup>  
Post, D.<sup>5</sup>

<sup>1</sup> MARUM – Center for Marine Environmental Sciences, University of Bremen, Bremen, Germany

<sup>2</sup> Institut für Geosysteme und Bioindikation, Technische Universität Braunschweig, Braunschweig, Germany

<sup>3</sup> Laboratorio de ecología bacteriana, Instituto de Ecología, Universidad Nacional Autónoma de México, México

<sup>4</sup> Musa de la Danza, Estudio el arte de Danzar, México

<sup>5</sup> No ascription

\*Corresponding author: [krubiosandoval@marum.de](mailto:krubiosandoval@marum.de)

Lake sedimentary records are excellent archives of the variability in the climate system. Changes in the climate along Earth history, particularly during the last 2.5 million years, have been modeled by a variety of drivers interacting over different time scales. These forcings include Milankovitch cycles, atmospheric interactions, ecosystem variations, and even human activity. We aim to share the principles of paleolimnology through the arts, specifically using the versatility of oriental dances. We will create a video to illustrate which are the climatic drivers that have modified the climate during glacial and interglacial periods, as well as the importance of their role during the lacustrine sediment's deposition. Communicating this knowledge with the non-scientific community is relevant because our society has played an important role in the modeling of ecosystems in the last decades. Using easy and attractive media such as the arts may promote a better comprehension about our labor as paleo-scientists and may be key in future climate decisions.



## Climate change in the Los Lagos region, Chile: 'Laguna Verde' as a platform for outreach, education and inclusion

Crespo, J. E.\*

Dept. Biological Sciences & Biodiversity, Lab of Natural Sciences and Sustainability (IBAM Program),  
Universidad de Los Lagos, Osorno, Chile

\*Corresponding author: [jcrespo@ulagos.cl](mailto:jcrespo@ulagos.cl)

Aquatic ecosystems are important natural laboratories because they record in their sediments the effects of local and regional environmental change, whether of natural or anthropogenic origin. The climate change in Laguna Verde, located near Ensenada in the Los Lagos Region, Chile, is studied using chironomid insects as paleoindicators. Laguna Verde is located in Vicente Pérez Rosales National Park and belongs National Forestry Corporation (CONAF). Information to the visitors includes the installation of sediment core, a bathymetric map of laguna Verde, an edition of booklets about chironomids, and media positioning through the web, Twitter, and talks to schools and public organisations. Some key subjects are the protection of water bodies, the ecosystem importance of chironomids and the relevance of environmental reconstructions. The collaboration of CONAF Park Rangers during the fieldwork and the partial funding of DI-ULagos (RTI-22) is appreciated.



## Science and Paleolimnology in Social Media

Caballero, M.<sup>1\*</sup>, Soler-Arechalde, A-M.<sup>1</sup>

<sup>1</sup> Instituto de Geofísica, Universidad Nacional Autónoma de México, Ciudad Universitaria, Coyoacán, CP 04510, CDMX, México

\*Corresponding author: [maga@igeofisica.unam.mx](mailto:maga@igeofisica.unam.mx)

Modern society is characterized by a wide use of social media, mostly amongst the younger sections of our population. However most of the information that circulates in social media has no validation from scientists or scientific institutions and therefore frequently lacks validity and accuracy. At times the information that circulates involves false statements that could eventually even put people's integrity in danger. To improve this situation scientists and scientific institutions (universities, science museums, etc.) need to be more actively involved in social media, be ready to rapidly provide validation (or not) of the information and be active in preparing outreach material in an "easy to digest", social-media friendly format. However, to have a true impact in society, scientific institutions need to become more active in social media and work together with communication specialists, facilitating the collaboration between social media experts, scientists, technicians and students. The fields of Earth Sciences, limnology and paleolimnology, are of particular relevance in scientific outreach as they are closely related with controversial issues regarding for example human impact on the environment, pollution, etc. We will share experiences that come from two different kinds of outreach efforts from scientific institutions in Mexico, on the one hand the social media from a small, institutional science museum ("Museo de Geofísica") and on the other hand the social media run by scientists in a research laboratory ("Laboratorio de Paleolimnología").





## How to communicate on social media

Sanchez, F.<sup>1\*</sup>

<sup>1</sup>#ArteDeEmprender. Social Networks: @flowerpower.emprende

\*Corresponding author: [flowerpower.emprende@gmail.com](mailto:flowerpower.emprende@gmail.com)

I've been working on advertising since 2015, in all these years i've noticed that all the good ideas have a great development on how they are communicated. That's why I propose this meeting to show you the best way you can use social media to communicate your innovation ideas and make sure that it will be shown to the right target. We are going to have a trip through LinkedIn, Web and Instagram: what type of content, the different tools and the different objectives you find in each social media. At the end of the meeting, we will discuss all the questions that this information brings you to explore those tools in science communication. Enjoy the ride!!

