

## **Stories about earthquakes and eruptions in Andean Patagonia**

**Murriello, Sandra<sup>1</sup>**

CITECDE, UNRN, Bariloche, Argentina

**Pierucci, Liliana**

CITECDE, UNRN, Bariloche, Argentina

**Spera, Ailén**

CITECDE, UNRN, Bariloche, Argentina

**Dobreé, Ignacio**

CITECDE, UNRN, Bariloche, Argentina

**Apa, María Elena**

CITECDE, UNRN, Bariloche, Argentina

**Erak, Bárbara**

CITECDE, UNRN, Bariloche, Argentina

**Núñez Freire, Mariano**

CITECDE, UNRN, Bariloche, Argentina

**Salazar Marín, Carolina**

CITECDE, UNRN, Bariloche, Argentina

### *Introduction*

Andean Patagonia, a tourist destination in Argentina and Chile, is a region with an important volcanic and seismic activity but the public policy about disasters prevention is weak as it was evidenced by the consequences of the last volcanic eruptions. Besides, the consequences of these events, and the previous, are not well referenced in official regional history and they are also completely absent in the touristic information. In spite of this, people who lived seismic and/or volcanic events remember the facts with detail and have their own stories about the moment and its consequences. As we believe that this information is useful to prevent future disasters or to know what to do in an emergence situation, we are working on recovering experiences, memories and records by different strategies (inquiries, interviews, artistic interventions, etc.). These stories, in words, in pictures or in videos, are being posted in a virtual repository with free access that operates as a space of collective memory about earthquakes and volcanic eruptions in this region ([www.volcanes.com.ar](http://www.volcanes.com.ar)). It is necessary to say that there is no previous research about this topic in our country and that there is no other digital site to disseminate these vital experiences. This

---

<sup>1</sup> Corresponding author, email: [smurriello@unrn.edu.ar](mailto:smurriello@unrn.edu.ar)

presentation aims to discuss the relevance of this kind of virtual spaces to share different stories about catastrophic events and its potential role in prevention.

### *Social memories to the web*

The last volcanic eruptions of the Hudson (1992), Puyehue-Cordón Caulle (1960, 2011), Chaitén (2008) or Copahue (1992,1995, 2000, 2012) have confronted the Patagonian communities with emergencies for which they were not prepared despite were settled at the East side of the Andes, in territories where ash fall is predictable. The lack of strategies to face these events as well as to overcome their long-term consequences, highlight the lack of prevention in the subject and reveal the weakness of public policies in this regard. Even tourist activity, which became the key to the development of the area since the first decades of the 19th century, which is based on the scenic beauty provided by the geomorphological characteristics of the area, seems to ignore the seismic and volcanic risk. Thus, the disconnection between nature and society becomes a threat.

We have chosen 3 events to analyze how they were lived by the affected communities. One of them is the great earthquake of Valdivia (Chile), which occurred in May 1960 that had a high impact in the North of Patagonia producing a tsunami in Lake Nahuel Huapi, on the banks of which is the city of Bariloche and which was followed two days later by the eruption of the Puyehue volcano. The other event, is the last eruption of the Puyehue-Cordón Caulle that covered the region with ashes in 2011, strongly affecting localities such as Bariloche (Río Negro), Villa Traful (Neuquén) and Villa La Angostura (Neuquén). And the last one is the eruptive cycle of the Copahue volcano, which began in 2012, and we are researching about the situation of the community of Caviahue (Neuquén), established at the foot of the volcano, which is a tourist area for winter sports.

But we ask ourselves how to get closer to the social memories of these events. We choose to reconstruct them from the perspective of those who experienced them, from their stories, from their memories and reflections on their own experiences and those of their family and friends. We consider that the testimony is a fundamental source to gather information about what happened, an exercise of personal and social memory that tries to give some meaning to the past, and a means of personal expression on the part of the one who relates and who asks or listens (Jelin, 2008). The work carried out so far consisted of collecting testimonies through written surveys (136), Facebook page comments (98) and recorded and/or filmed interviews (30) that allowed us to reconstruct the facts from the perspective of those affected in these events (Murriello *et al*, 2018).

We have also focused on the analysis of social representations on social and environmental risk materialized in audiovisual discourses through the analysis of fiction and documentary films (Dobrée & Spera, 2017) and we have begun to analyze press material on the eruptions that

account for the media construction of events. In order to learn more about the expression of these events through artistic expressions, in 2017 we organized a travelling art exhibition called "Patagonia, land of volcanoes. A look from the Art" (*Patagonia tierra de volcanes. Una mirada desde el arte*) where pictorial, sculptural, photographic, musical and theatrical expressions of the region found a public place to be shown (Murriello, 2018).

In the meaning of Delle (2008) we can affirm that within the frame of *collective memory, authorized public memory, social memory* and *social myths* can be differentiated, and that it is *social memory* which supports the memory of the events even when the authorized one, the official, is absent. As we sustain that remembering can be preventive, we consider that to keep alive the *social memory* about the seismic and volcanic events is a factor that would influence in the reduction of the communities' vulnerability.

We consider that is necessary to work to transform this *social memory* in *authorized public memory* through different strategies. The knowledge of the environment and its dynamics, as well as the preservation of ancestral memories (Jóhannesdóttir & Gísladóttir, 2010) and recent ones (Murriello et al, in press), are factors intrinsically linked to the construction of the vulnerability of the potentially affected communities. In order to collaborate in keeping the *social memory* alive, we are working on the creation of a digital repository ([www.volcanes.com.ar](http://www.volcanes.com.ar)) that hosts different kind of records of events that have occurred in the region (Fig.1). Photos, videos, stories, artistic expressions provided by the community will be uploaded. We intend to build this site by a participatory strategy, since we consider it essential to integrate the perception of the affected communities in the prevention of future events of this nature.

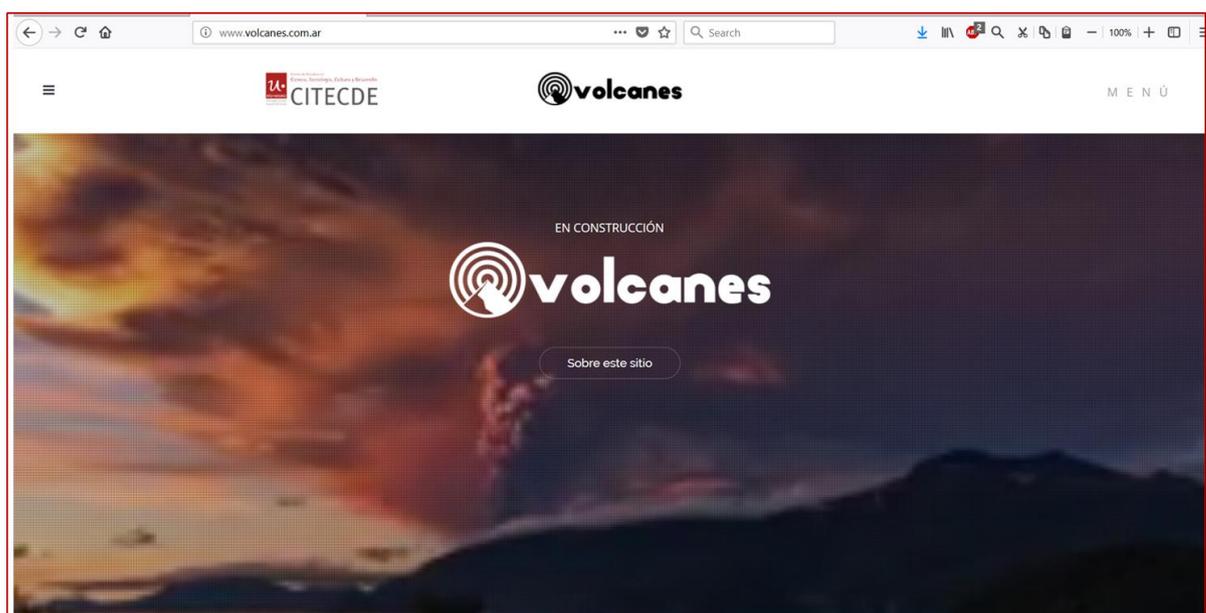


Fig. 1: Layout of the web site [www.volcanes.com.ar](http://www.volcanes.com.ar)

The proposal also includes the development of educative material for children of primary school (9 -12 years old) as we found that there is no information about Patagonian volcanoes at schools, even those situated in localities beside an active one, as happens in Caviahue (Neuquén) which is at the base of Copahue volcano where the professors demand specific information about the eruptive situation they are facing.

We believe that this site, which aspires to become in a future a virtual community museum, is a contribution to the development of reflection-action strategies to face new events and a shared learning space for new generations. Tell stories to the future is a way to keep alive the experiences. We consider that preserving memories is a valuable risk prevention and education strategy and that Internet is a rather new conversational space which is transforming the relationship between science and society (Trench, 2008). In this sense we also pretend to analyze the impact of this website on science communication, a kind of research still scarce.

### References

- Delle J. 2008. A tale of two tunnels: memory, archaeology, and the Underground Railroad. *Journal of Social Archaeology*, 8 (63).
- Dobreé, I. & Spera, A. *La pantalla ignífuga: representaciones cinematográficas de fenómenos volcánicos en films comerciales*. Paper presented at *Segundo Congreso Argentino de Estudios Sociales de la Ciencia y la Tecnología (CAESCyT)*. San Carlos de Bariloche. Actas del Congreso en CD .ISBN 978-987-558-396-2
- Jelín, E. (2008). “¿Quiénes? ¿Cuándo? ¿Para qué? Actores y escenarios de las memorias”. In Ricard Vinyes (Ed), *El estado y la memoria. Gobiernos y ciudadanos frente a los traumas de la historia*. Barcelona: RBA.
- Jóhannesdóttir, G. & Gísladóttir, G. (2010). People living under threat of volcanic hazard in southern Iceland: vulnerability and risk perception. *Nat. Hazards Earth Syst. Sci.*, 10: 407–420
- Murriello, S. (2018). Patagonia, tierra de volcanes. Una mirada desde el arte. *Revista ClimaCom Cultura Científica – pesquisa, jornalismo e arte*. 4(9). Retrieved from <http://climacom.mudancasclimaticas.net.br>. ISSN 2359-4705
- Murriello, S., Pierucci, L., Spera, A., Dobreé, I., Apa, M.E, Nuñez Freire, M. y Salazar Marin, C. (2018) Volcanes en Patagonia: construcción de un espacio de memoria, educación y prevención. *Terrae didáctica*. 14 (4). Manuscript submitted for publication.
- Trench, B. (2008). Internet: turning science communication inside out? In Bucchi, M. & Trench, B.(Eds.), *Handbook of public communication of science and technology* (p.185-198). London-New York: Routledge.