

EGU21-10072

<https://doi.org/10.5194/egusphere-egu21-10072>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## **Environmental exposure to Natural Asbestos Occurrences, a concern to human health: promotion of scientific knowledge for students and of people awareness.**

**Claudia Ricchiuti<sup>1</sup>**, Rosalda Punturo<sup>1</sup>, Andrea Bloise<sup>2</sup>, Eugenio Fazio<sup>1</sup>, and Gabriele Lanzafame<sup>1</sup>

<sup>1</sup>Department of Biological, Geological and Environmental Sciences, University of Catania, I-95129 Catania, Italy

([claudia.ricchiuti@unict.it](mailto:claudia.ricchiuti@unict.it))

<sup>2</sup>Department of Biology, Ecology and Earth Sciences, University of Calabria, I-87036 Rende, CS, Italy

In the last decades, it has been widely demonstrated the risk to human health related to asbestos fibres exposure. Asbestos is a generic term used to indicate six fibrous silicate minerals belonging to serpentine (i.e. chrysotile) and amphibole (i.e. tremolite, actinolite, anthophyllite, amosite, crocidolite) groups (WHO, 1986; NIOSH 2008). Due to their physical properties, these minerals have been exploited to create Asbestos-Containing Materials (ACMs) and therefore, today are widely present in various parts of the globe. In the same way, asbestos fibres present in rocks and soils, or those that have not been extracted for commercial purposes (Natural Occurrence of Asbestos, NOA; Harper, 2008), are widespread in the environment (Virta, 2006; Ricchiuti et al., 2020). It is worth noting that human activities as well as weathering processes may promote the dispersion of fibres derived from NOA into the environment; moreover, despite nowadays asbestos has been banned by most countries over the world, it may be still found within artifacts and asbestos-bearing rocks used as dimension stone.

In the present contribution, we present some educational activities aimed to schools and population with the purposes of: i) promoting the knowledge of natural asbestos fibres as natural hazards to students, as well as ii) sensitize the population to the natural asbestos issue and iii) increasing people's awareness in environmental conservation, suggesting good practices for sustainable coexistence with natural resources.

To this aim, we also provide a summary of NOA distribution in the world and of the analytical techniques and methodological approach (i.e. OM, SEM-EDS, TEM-EDS, EPMA, XRPD, XRF, SR- $\mu$ CT) mainly used for a full characterization of asbestos-containing rocks and soils.

### References

Harper, M., 2008, 10th Anniversary critical review: naturally occurring asbestos. *Journal of Environmental Monitoring*, v. 10, pp. 1394-1408

NIOSH, 2008, Current Intelligence Bulletin (June 2008-Revised Draft) Asbestos and Other Elongated Mineral Particles: State of the Science and Roadmap for Research.

Ricchiuti, C., Bloise, A., Punturo, R., Occurrence of asbestos in soils: state of the art. *Episodes* 2020;43:881-891.

Virta, R., 2006., Worldwide asbestos supply and consumption trends from 1900 through 2003. U.S. Geological Survey Circular 1298, 80 p.

WHO, 1986, Asbestos and other natural mineral fibres. Programme on Chemical Safety. World Health Organization. Environmental Health Criteria 53, Geneva.