

## Applied Mineralogy to extreme environments



This research topic deals the applications of mineralogy in these fields:

- a) *Environment/ Mining*: the aim of th Applied Mineralogy to extreme environments is study is the interactions between the minerals formed in acid drainage environments and the toxic elements in Ligurian and Piedmont sulphides mining areas;
- b) *Speleogenetic* through the minerogenetic characterization of secondary minerals formed in natural and artificial caves (i.e) abandoned mines.

### Keywords:

Applied Mineralogy, speleogenesis, cave minerals

### DISTAV personel

ACADEMICS: Cristina Carbone

RESEARCH ASSISTANT: Sirio Consani, Roberto Badano

**Grants:** public and private sources

### Publications:

1. Sauro F., Cappelletti M., Ghezzi D., Columbu A., Hong Pei-Ying, Zowawi H., Carbone C., Piccini L., Vergara F., Zannoni D. & De Waele J. (2018). Biologically-mediated formation of amorphous silica deposits in orthoquartzite caves. *Scientific report* (2018) 8:17569. DOI:10.1038/s41598-018-35532.
2. D'Angeli I.M., Carbone C., Nagostinis M., Parise M., Vattano M., Madonia G. and De Waele J., 2018. New insights on secondary minerals from Italian sulfuric acid caves. *International Journal of Speleology*, 47 (3), 271-291. Tampa, FL (USA) ISSN 0392-6672. doi.org/10.5038/1827-806X.47.3.2175
3. De Waele J., Carbone C., Sanna L., Vattano M., Galli E. Sauro F., Forti P. (2017). Secondary minerals from salt caves in the Atacama Desert (Chile): a hyperarid and hypersaline environment with potential analogies to the Martian subsurface. *International Journal of Speleology*, 46(19) pag 51-66.
4. Carbone C., Dinelli E., De Waele J (2016). Characterization of minothems at Libiola (NW, Italy): morphological, mineralogical and geochemical study. *International Journal of Speleology*, 45(2) 171-183.

5. S. Consani, C. Carbone, G. Salviulo, F. Zorzi, E. Dinelli, R. Botter, L. Nodari, D. Badocco, G. Lucchetti (2016) Effect of temperature on the release and remobilization of ecotoxic elements in AMD colloidal precipitates: the example of the Libiola copper mine, Liguria (Italy). *Environmental Science and Pollution Research*. Vol 23, 12900–12914.