Review of: "Why Should Urbanites be Earth/Geosciences Literate?"

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This paper discusses the role of geoscience literacy for sustainable urban life. The paper is interesting and deal with a key topic; however, I think that some key points should be added to the discussion. I try to synthesize these below.

1. The lack of geoenvironmental knowledge is particularly relevant for many actors working as professionals and public functionaries/technicians in municipalities, water services management, etc. (e.g., urban planners, architects, civil engineers, etc.). For example, many University curricula related to architecture and planning have not specific courses related to environmental and engineering geology; sometimes there is some course in general geology (e.g., minerals, rocks, rock-cycle, etc.), but not something specifically highlighting human-geoenvironmental interactions as in applied geosciences (i.e., involving applied geology, applied geochemistry, hydrogeology, etc.). What it is especially missing is a general knowledge of geoenvironmental geology (in the broad sense of the book of Keller, 2011) and the perception that our landscape is dynamic and heterogenous. There are exceptions around, as in case of my university, where applied geology is taught to students in architecture and planning: the feedbacks from students are very positive, especially after they start to work as professionals and they get soon a glance of the interactions between the built environment and multiple geoenvironmental factors. This is in line also to what outlined in the nice work of Rogers et al. (2023), which also suggests that geosciences scientific communities should do more efforts in communication the relevance of geosciences for society. I think that in our teaching programs we should start dealing with problems facing society (e.g., natural hazards, pollution of soil and water, land use changes, natural resources, etc.) and showing how geosciences are useful to deal with these.

Keller, A, 2011. Introduction to Environmental Geology. 5° Edition, Pearson, 800 pp.

Rogers, Steven & Giles, Sam & Dowey, Natasha & Greene, Sarah & Bhatia, Rehemat & Landeghem, Katrien & King, Chris. (2023). “you just look at rocks, and have beards” Perceptions of geology from the UK: a qualitative analysis from an online survey.. 10.31223/X5MD4N.

https://doi.org/10.31223/X5MD4N

https://www.geosociety.org/GSA/gsa/positions/position6.aspx

2. In regard to the analogy with meteorology: “The question remains when drawing on the example of weather/meteorology: How to apply similar strategies in other geoscience disciplines to enhance public understanding and

appreciation of the role of geosciences in urban living?....". Here, I will also highlight that there are also negative aspects and risks related to how meteorology is communicated to and perceived by people. Simplification and sensationalism of environmental phenomena are emblematic in this context. Not to cite the general confusion that people have on the notions of climate and meteorology. For example, there is a tendency of the media (and politicians?) to explain disasters related to floods as always and almost related to extreme meteorological events, highlighting the impact climate change. Many times it is true, but the reality is much more complex and other anthropic factors (land use changes, hydraulic modifications on the hydrologic network, urban sprawl, etc.) contribute to or determine these kind of disasters. This comment is also relative to this sentence: "The physical changes we can observe now in the geosphere (e.g., climate change) directly".

3. I think that the complexity of urban environments, the necessity to study geosphere-anthroposphere interactions in the long term, the role of new technologies and geocomputation, the necessity of multidisciplinary approaches, are points that can be briefly outlined in this paper. For example, we discuss these points here:

Trevisani, Sebastiano, and Pietro Daniel Omodeo. 2021. "Earth Scientists and Sustainable Development: Geocomputing, New Technologies, and the Humanities" Land 10, no. 3: 294. https://doi.org/10.3390/land10030294

Trevisani, S., Omodeo, P.D. (2023). Mapping Transitions and Alterations in Complex Environments. In: Hensel, M.U., Sunguroğlu Hensel, D., Binder, C.R., Ludwig, F. (eds) Introduction to Designing Environments. Designing Environments. Springer, Cham. https://doi.org/10.1007/978-3-031-34378-0_3

4. Finally, the geosciences literacy should be accompanied also by some knowledge on how environmentalism developed, especially in western countries. For example:

Richard Nixon and the Rise of American Environmentalism, How a Republican president ushered in the EPA. By Meir Rinde: https://sciencehistory.org/stories/magazine/richard-nixon-and-the-rise-of-american-environmentalism/