



Interactive comment on “The role of karst in engineering and environmental geosciences” by H. C. Ho

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General comments

The contribution submitted by H.C. Ho devotes to an attempt of discussion or reflection on the role of Karst's knowledge on Engineering and Environmental Geosciences. It departs from a novelty contribution as a large part of the main sections are inspired in the Ford and Williams (2007) introduction chapter. It reviews some topics and research lines in Engineering and Environmental Geosciences karst studies, but it does not analyze or states the actual advances or problems in each one of these topics. There is not clear (i.e. there are not detailed any study case as karst studies improve engineering and environmental geosciences practices; risk issues in terms of infrastructure or human security, etc...) how karst studies focusing in urbanization and

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agricultural development acts as an agent between human and the environment. Additionally there are many other lines of applied karst research to be considered from an applied perspective. In that sense there are many studies on caves and tourism impact (Fernandez-Cortes et al., 2006 and Faimon et al., 2006) or limestone buildings weathering (Smith et al., 2011).

Specific comments

There are some flaws in definition section. Author initially uses the widely accepted definition from Ford and Williams (2007) but finally try to build its own definition. In doing so he forgot that karst are more than subsoil features and processes. Perhaps the key contribution from Ford and Williams (2007) is to stress karst landforms as those comprising terrain with distinctive hydrology and landforms that arise from a combination of high rock solubility and well developed secondary porosity. But at the same time they stress how in this distinctive hydrology subaerial (exokarstic systems) and subsoil systems (endokarstic system) are close related and cannot be separated. In that sense, the definition and main issues on karst considered by author are decanting a vast tradition in exokarstic studies and their relation with forms, processes and subsoil hydrology (check Ginés et al. 2009 in order to have a wider overview). It is widely accepted to use karst as a generic term, but although authors use Palmer's or White's definition it would better additional quotations indicating which type of subsystem (endo or exokarstic) are they dealing with.

Section on Karst terrain in the world is a little bit confusing. On one hand there is an interesting revision of recent key contributions and conceptual proposals as "island karst" by Prof. Mylroie. Nevertheless I invite you to think about if island karst –understood to karst systems controlled by sea-level fluctuations and balances between fresh and salt water– are just a distinctive feature of oceanic islands or appear elsewhere; also in the continent. Conversely, can you find in alpine islands "continental karst" or "classical karst" landforms? Despite that your sentence on "stream erosion" as governing process can introduce some distortion regarding to conventional karst definition (re-

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member! distinctive hydrology from classical fluvial systems) I guess what you mean. What I mean is that these classifications need of a detailed explanation and contextualization.

Of minor interest is that most of your examples are concentrated on U.S.A and some in China. There is a vast literature in order to address a section of karst terrain in the world...

About the role of karst in Earth Sciences it was expected some kind of argumentation with detailed examples. The flavour is of a list of research issues rather than a discussion on karst approaches for planning or risk issues. There are recent contributions that are interesting to address as Dorale et al. (2010) or Lundberg et al. (2010) where many speleothems (not just stalagmites) are used to characterize Quaternary sea level highstands and lowstands. Additionally those sorts of speleothems have been also explored in order to quantify Quaternary neotectonics tilting (Fornós et al., 2005).

Regarding to the conclusion section, as I commented above, it lacks some kind of specific example or quantification above the goodness of karst research on applied issues (Ford and Williams textbook are plenty of them). It is also confusing the way in which you define or use sinkholes. I guess that this has some sort of liaison with the flaws in your definition and the necessary links between exokarst and endokarst.

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