

## ***Interactive comment on “Organics in environmental ices: sources, chemistry, and impacts” by V. F. McNeill et al.***

**Anonymous Referee #2**

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This article evolved out of a workshop meeting held during the summer of 2011 in New York. The aim of the publication is to follow up on the Grannas et al. 2007 review and to present new measurements that have been made since. The manuscript summarizes new field observations, physical processes, chemical transformations, and biological sources. It concludes with a chapter on the impact of ices on the local, regional, and global carbon cycle.

This article is ambitious, attempting to cover a wide range of topics relating to the role of organics in the cryosphere. It is also ambitious in the sense that it aims to go beyond the somewhat similar overview paper by Grannas et al., from only five years earlier.

This new publication shines in the very extensive consideration of published literature on this topic, incorporating some 200 references. Despite the claim that the focus is

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meant to be a review of the last five years of research, there are numerous places where earlier work is included. In several places the article goes into topics beyond what would have been expected from reading the title. For instance, I would not have expected to find a review of QLL under this topic.

In my opinion the manuscript covers too many fields of research for one article. To a large part it is an enumeration of previously published work, which I do not find all that exciting. It has a bit of a textbook character rather than being tailored towards experts in this field. I would have been more enthusiastic about this paper if individual fields of this research would have been developed in more depth. I believe that it would benefit from following more of a synthesis approach rather than presenting a summary of the research that has been done.

The last sentence of the abstract set the stage for my expectation to learn something new about the role of organics in climate change and the carbon cycle. Even though the paper dedicates a full page to this topic, it does not provide much insight into this question. Instead, a few articles that touch this question are summarized without much synthesis of the published information.

In summary, I think these authors would be better off if they chose to go a different conceptual route, rather than repeating the route taken in the previous Grannas et al. publication. I would find an article presenting a more focused and in depth treatise of particular aspects of organics in snow more valuable instead of trying to squeeze this high number of topics into a single journal publication. There are many topics in the article that could be singled out for a valuable standalone article, such as a review of the QLL, chemical transformations, or the carbon cycle impacts, just to name a few. I encourage the authors to revisit their work in light of this recommendation.

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