

Interactive comment on “Brief communication: Organochlorine pesticides in an archived firn core from Law Dome, East Antarctica” by M. Bigot et al.

Anonymous Referee #1

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The paper describes the methods used and the results from analyzing two bulk samples from the upper sections from an ice core from Law Dome for Organochlorine pesticides (OCPs). There has been no similar studies from Antarctica published before so therefore this is an important contribution to our knowledge about the fate of contaminants in the atmosphere. The paper is well written and its main focus is on the analytical methods; basically how to handle ice core samples that has been archived for a long time. Naturally, this is important knowledge as such studies described here will likely be on similar situations; i.e. left-over material after some of the fundamental sampling and analyses for dating and climate studies have been completed.

However, before the paper is accepted I would like the authors to provide more and accurate glaciological information about the ice coring site which is completely lacking and are of importance for any studies using material from ice cores.

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- The position of Law Dome is likely not familiar to many readers and it is important to include information about where it is situated, altitude, annual accumulation rate and mean annual temperature. All these factors are likely to have an impact of the fate of contaminants during transport, deposition and post-deposition and thus on the concentration found.

- From glaciological perspective Law Dome is not part of the “East Antarctic Ice Shelf”; an expression that is used in this paper which is not correct. There are many ice shelves around the Antarctic continent but they are separate from each other and thus do not form a unit, which is implied here. Also, despite its coastal location Law Dome is not part of any ice shelf. It is a local ice dome with an altitude of close to 1400 m which is much higher than any ice shelf and therefore it is very confusing when melting ice shelves are referred to both in the “Introduction” and “Conclusions”. Furthermore, it is not unlikely that the sources and transport paths to Law Dome and lower elevation ice shelves are different and thus it is not a good idea to mix these things freely in the discussion.

p. 5, line 3-4. “Both samples, however, also contained traces of our storage and handling contamination markers, PBDEs, indicating that sampling and/or storage conditions of the archived firn cores introduced organic contamination.” I would like to see some more information/ideas around this aspect. For instance, is the type of plastic bags used important?

Finally, “polar regions” should not be capitalized as now is done through the manuscript.

I recommend that the paper is accepted after these comments are considered.

Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2016-178, 2016.

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