

## ***Interactive comment on “Ice genesis and its long-term dynamics in Scărișoara Ice Cave, Romania” by A. Perșoiu and A. Pazdur***

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The paper is important in that it represents a proxy record of climate in the temperate zone. Further, it represents a reasonably long record in the Holocene, and importantly appears to range over the Medieval Warm Period (MWP) and Little Ice Age (LIA). The cave has been subjected to fairly extensive study over the years, which makes it unique in this regard.

While I can accept the modeling of the mechanisms of ice formation and ice dynamics, I have some questions in respect of the stable isotope data. Figure 3: while the trends are convincing in terms of the freezing model, Core A shows a step in the curve, which should be explained: e.g. was there loss of ice at this point and what caused it?

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The authors write that similar trends to the modern cores are seen during the MWP and LIA, but where is the stable isotope data? Was it published elsewhere? Perhaps a long core should be taken, in which one might observe (isotopically) a cyclical banding, reflecting summer and winter ice formation over the years. Perhaps this work is intended for the future?

Otherwise, the text is well written in the most part - some minor corrections are suggested below (line by line relative to page numbers):

Page 1910 1. ...has been remarked "on" 2. ...a "lack of" understanding 23. ...hence resurrecting... 24/25. ...is hampered by "the understanding the complex systematics of" ice genesis

P.1911 1. program "has" been... 6. ...make "it" impossible 22. ..with "an" ice covered... 24. "an" not "a" 25. "form" not "forms"

P.1912 5. "speleothems have" developed. Take out first two commas 18. ...to "be" 150-180 days... 20. ...is "a" direct consequence...

P.1913 2. ... the spatial "partition".....is reflected in "the" 7. "closely follows" 17. ...Great Hall, "where" 18. "displacing" 25. "rising" not "uprising"

P.1914 2. ...study "has" two aims... 7. The cores were cut "respectively" in... 11. take out comma 13. take out "tall" 24. "set" not "sets"

P.1915 P.1916 1. "the" not "that". ...is "built up"... 2. shouldn't in situ be italicized? 6. from "top" to bottom. Is this the right sense? 13. ...melting begins, "driven by the infiltration"...

P.1917 2/3. PDB should not be subscripted 7. take out comma 10. take out first comma 22. take out first comma

P.1918 9. "grow" not "grew" 11. filled the cave completely 15. ...must have evolved into the shape of a pyramid, with "a" flat... 25. frozen

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P.1919 2. "has" not "have" 10. the modern "rate" 17. ...will "lead" ... 24 "flow" not "flowing"

P.1920 4. ...acting only... 5. take out "the" 10. take out "of it". It could possibly be that... 14. ice-forming 18 ... is being built up by... 25. "has' allowed... 26. ....ice block has not been directly determined, but... P.1921 P.1922 P.1923 etc

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Interactive comment on The Cryosphere Discuss., 4, 1909, 2010.

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