Clim. Past Discuss., 7, C771–C772, 2011
www.clim-past-discuss.net/7/C771/2011/

Climate of the Past Discussions

Interactive comment on "A refined TALDICE-1a age scale from 55 to 112 ka before present for the Talos Dome ice core based on high-resolution methane measurements" *by* S. Schüpbach et al.

Anonymous Referee #2

Received and published: 9 June 2011

Review of Supback paper

In general, the paper reads fairly well and seems to be an improvement for the age model over the period covered.

As the core was drilled and measured by CFA between 2004 and 2009, it is unclear why the CFA CH4 analyses were not included in the original age model for Talos Dome. Obviously the CFA data were available before the discrete CH4 data were so why not use the CFA-CH4 data in the original timescale development? This will cause confusion in future literature when referring to the "correct" age model for this interval.

One concern I had with the new technique is the question of solubility. From the Schup-

bach et al. 2009 paper, there is discussion of the influence as being the same as that for the ice core samples. I disagree strongly with this assumption. As I understand it, the standard air and degassed water are mixed and then treated as if it was a sample. Given the differing Henry's law solubility coefficients for CH4 as compared with O2 and N2, the amount of time the bubbles spend in contact with the melt water is critical. So, the better way to determine solubility issues associated with gas/bubble interaction during transit would be to introduce the air/degassed water mixture at the melthead. The next step in this discussion is to determine whether the ice core bubble/water stream is in equilibrium at the melt head.

Finally, there is an error in Table 1. When plotting EDC depth vs EDC3 gas age and comparing with similar values from the Buiron paper, the age assigned for 1105.55m is not the same in both publications. From my plot it seems that the error is in table 1 value (not Buiron). I have not investigated this further but a spreadsheet error like this may have propagated to other parameters. Please double check all the calculations and tabulated data

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Interactive comment on Clim. Past Discuss., 7, 1175, 2011.