The Cryosphere

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Discussions

EGU

Interactive comment on "Monitoring the temperature dependent elastic and anelastic properties in isotropic polycrystalline ice using resonant ultrasound spectroscopy" *by* M. J. Vaughan et al.

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Overall, a very nice piece of work. See below for some questions about the chi-squared values, and please see attached pdf copy of the manuscript with additional comments annotated.

In line 8, page 3, it is stated that "iteration is terminated for values of chi-squared of between 12 and 14." Does this mean that the final value of chi-squared is between 12 and 14? These values seem large. Two possible explanations are (1) that the sample is not isotropic or (2) that the error estimates are overly optimistic. Do you have a sense

about which one of these explanations might be more important? Did you try to fit an anisotropic model e.g. VTI? And see if that improved the fit or increased the value of chi-squared (the latter is more likely)?

In addition, I am surprised by the relative contribution of the first peak to the overall chi-squared value, as shown in Table 1. It is very small. In the work by Kasper and I we found substantial misfit between the measured and predicted frequency of the first peak. This is described as a 'curious property' of RUS measurements by Migliori and Sarro (1997). I am intrigued why you do not see similar behavior.

Please also note the supplement to this comment:
http://www.the-cryosphere-discuss.net/tc-2016-127/tc-2016-127-SC1-supplement.pdf

Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2016-127, 2016.