

Interactive comment on “EBSD in Antarctic and Greenland Ice” by Ilka Weikusat et al.

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Dear Dr. Chauve, Thank you for your comment and figure. We agree with your concern, especially with respect to the N[a] type SGBs. Plotting the rotation axis in a pole figure, in specimen co-ordinates is a useful way to present the data, in addition to the inverse pole figure. We agree that N[a] type SGBs can be tilt or twist boundaries. Furthermore, N[a] twist boundaries will have a different dislocation structure compared to the N[a] tilt boundaries formed by an array of $b=\langle a \rangle$ dislocations. However, since we only have information on the SGB trace and lack information on the 3D orientation of the SGB plane, it is not possible in conventional EBSD on bulk samples to determine the relationship between the rotation axis and the SGB plane. In our interpretation we did assume that most N[a] boundaries are tilt walls, formed by basal slip, as expected from previous work (Hondoh 2000, 2010; Piazzolo EA 2008). We will include your comment in the revised paper and refine the discussion to include the possibility of more complex

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N[a] boundaries. The main message of our paper, that non-basal dislocations are more common than usually assumed from macroscopic behaviour, will remain the same.

Best regards Ilka Weikusat and co-authors

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