

## ***Interactive comment on “A comparison of basal reflectivity and ice velocity in East Antarctica” by R. W. Jacobel et al.***

### **Anonymous Referee #2**

Received and published: 31 August 2010

This manuscript uses ground-based radar profiles to examine the relationship between basal reflectivity, bed lubrication and balance velocity for one region of East Antarctica. This is the second time that I have reviewed this manuscript and in general, I find it much improved over the previous draft. I still think that the interpretation would be more effective if the author examined how both driving stress and ice velocity correlate to bed reflectivity. As they point out, there are many regions that are wet, highly reflective but not moving fast (e.g. South Pole). Likely this is because the driving stress cannot get the ice going fast enough, unless there are unusual dynamics at play (e.g. Ice Stream C).

Despite this, the authors do address these issues (somewhat briefly) in the text. My only main suggestion would be to move the discussion on bed roughness up into the

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section titled "radar data and analysis" as it is more appropriate here. A few more specific comments are below:

2.19: motion of what? Be more clear. 5.10: peaks of curves are separated by  $\sim 7$  dB, as this sentence reads it looks as if the author implies that each population is separated by 7 dB

Fig. 3: what variation in the shapes of the Gaussians could affect the values of 'wet' versus 'dry' bed echos? Or rather, what are your error bars on this fit?

Fig. 4: need a scale bar for balance velocities Also, caption is more correctly written as "Areas of high basal refelctivity are independent. . ."

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Interactive comment on The Cryosphere Discuss., 4, 1225, 2010.

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