

## ***Interactive comment on “Evaluation of wind profiles from the NERC MST Radar, Aberystwyth, UK” by C. F. Lee et al.***

### **Anonymous Referee #1**

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Review on: Evaluation of Wind Profiles from the NERC MST Radar, Aberystwyth, UK  
by Christopher F. Lee, Geraint Vaughan, and David A. Hooper

The manuscript presents a detailed evaluation of the wind measurements conducted with the Aberystwyth MST radar before and after the renovation. The authors focus on the quality of the wind measurements and discuss the relevant error sources (e.g. aspect sensitivity, mountain waves, random noise, etc.). The manuscript is well-written and presents in a concise way the main conclusions using the established knowledge. The Figures are of good quality and are well-described in the manuscript and support the relevant points. The different sections provide a good balance and include a good selection of references. The manuscript should be published in AMT and we respectfully ask the authors think about the minor points given below and may modify

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the manuscript.

some technical points:

Line 57 The authors discuss the assumption of the homogeneity of the wind field with some references. However, the reviewer believes that the discussion at least should mention some of the existing approaches to deal with such distorted wind fields. Browning and Wexler 1968, Waldteufel and Corbin, 1978 presented first approaches leading to the velocity azimuth display and the volume velocity processing. It may be suitable to include this pioneer works.

Line 78 The authors mention that anisotropic scatter can alter the beam pointing angle to move closer to the zenith, which is often referred as aspect sensitivity. As mentioned by the authors is this theory not supported by spatial interferometric measurements (e.g. Kawano and Fukao, 2001, and many others). Is it possible to investigate this with the here used MST radar? Does the MST radar have interferometric capabilities?

Line 76-104 The discussion of the aspect sensitivity is based on the work of Hocking et al., 1986 and is essential for the conclusions of the authors concerning the wind measurements. The discussion should maybe extended regarding the effect, that some MST radars with beam steering capabilities show a power drop for the oblique beams due to the beam steering itself compared to the zenith beam. Do the authors correct for this effect considering the antenna radiation diagram for the off-zenith beams using NEC simulations or other approaches?

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