Atmos. Meas. Tech. Discuss., 8, C1642–C1643, 2015
www.atmos-meas-tech-discuss.net/8/C1642/2015/

Atmospheric Measurement Techniques Discussions

Interactive comment on "Fuzzy logic filtering of radar reflectivity to remove non-meteorological echoes using dual polarization radar moments" *by* D. R. L. Dufton and C. G. Collier

Anonymous Referee #2

Received and published: 22 June 2015

General comments

The paper present a method, based on fuzzy logic technique, to identify and filter non meteorological echoes in radar data.

Even if the use of such technique is not an innovation in radar processing, as clearly pointed out also by authors through the references cited, the authors push the use of texture parameters as additional parameters to help identification. This is the novelty of this work.

The work present clearly how the authors have carried out the research work. Most,

if not all, of the construction work of the multi-vertex membership functions has been done by using human expert identification, where and when possible this expert opinion has been supported by additional information e.g. raingauges data. This "opinion" is a strong, but contemporary, a weak point of the process. Indeed there is no other way to consolidate classification. Authors could for example try to compare their result with the outcomes of other researchers, in order to highlight an hopefully minor number of mis-classification echoes.

Other weak point, even if not critical, is the limited set of data used. For personal experience one filter technique could be very effective in one event, but it could be less effective in others event with a greater number of rejected "good" data or non rejected "bad" data. A more extensive test is needed.

Further the last week point that need to be pointed out is the behavior of such technique to the attenuation. The paper present a filter technique developed for an X-band radar. As well known short wavelengths are severely affected by such phenomena. A more deep discussion to clarify why it wasn't correct is expected.

The paper is very well written so very few specific comments are report below.

Specific comments.

Page 5027 line 11 - this reference is quite outdated. please add something more new.

Page 5029 line 1 - Zdr ranges depends on the band used. Non Rayleigh scattering effects are present at short wavelengths.

Page 5037 section 3.2.2 - Please explain better the terms of equation 2. The text is no so clear.

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 5025, 2015.