

## ***Interactive comment on “Rainfall measurement from opportunistic use of earth-space link in Ku Band” by L. Barthès and C. Mallet***

**Anonymous Referee #1**

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This paper proposes a method to obtain opportunistic rainfall rate measurements from satellite microwave emissions by using an inexpensive receiver. It is an interesting approach, which would allow rainfall measurements in areas that for whatever reason are not covered by the existing radar and rain gauges networks. The structure of the paper is clear and in general terms sufficiently well written although there remain some linguistic issues. I therefore recommend the paper to be accepted for publication after addressing several issues.

General comments: 1- The main reason argued for the deployment of such network is the cost but I would argue that the installation costs of such a device may be higher than that of a rain gauge. I see more advantages respect to the maintenance cost since rain gauges require constant surveillance. Therefore I would stress the fact that such

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setup can provide relatively inexpensive measurements in unpopulated areas where there would be otherwise no measurements at all. 2- I understand the need for a simplified model for the Attenuation-Rain relation but in my opinion the authors should not neglect the temperature dependence. They go a long way analysing the sensitivity to DSD but such relation is much more sensitive to temperature than to DSD. 3- I do not understand why they use spherical drops to compute R and  $K_{fp}$  from the measured DSDs. There are well established relations between drop size and axis ratios so there is no need for this simplification. 4- There are many small grammatical mistakes along the text. (I have only pointed some of them in the specific comments). Please consider revision by a native English speaker.

Specific comments: Page 2114-line 7: at Ku-band Page 2120-line 14: depend both on Page 2121-line 3: July 2008 and July 2010 Page 2121-line 8: polarization dependant Page 2121-line 24: studies Eq. 4: Should be  $K_r(q)$  Page 2122-line 11: relative Page 2122-line 14: obtain Page 2123-line 3: deduced Page 2123-line 18: close Page 2123-line 18: satellite Page 2123-line 20: converters Page 2123-line 21: suppress “before” Page 2124-line 1: note that the influence Page 2125-line 15: precipitation is Page 2131-line 12: parabolic antenna Page 2131-line 18: terms Page 2132-line 3: no more valid Page 2132-line 6: available channels Page 2132-line 16: perfectly suit our problem Page 2132-line 16: we do not know about Page 2132-line 21: using an approach Table 1: use min, not mn Table 3: Features Figures 6 and 7 are not referred in the text. Please number ALL the equations. The first three equations are not numbered.

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