

## ***Interactive comment on “Multi-scale estimation of surface moisture in a semi-arid region using ENVISAT ASAR radar data” by M. Zribi et al.***

### **Anonymous Referee #2**

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The paper presents an interesting approach working on SAR images in the context of soil moisture estimation in semi-arid areas. For this application, the paper can for sure provide useful hints for the use of SAR in these habitats.

However, some aspects need further clarifications. They are indicated below and divided in major and minor comments.

### Major comments

In the two approaches presented, the authors use a linear relationship where there are some coefficients to be estimated from the data. This is illustrated at p.8054, equation (2) and at p. 8055 equation (4) (it is said that  $b$  is derived from the data).The same

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is for equation (11), where it is said that “the slope of this relationship is estimated from measurements..”. In these cases, the authors should explain how they divided the dataset into training, test and validation and how they estimate these variables in the linear relationships. Furthermore the stability of these variables should be addressed. For equations (5) and (6) how is chosen the reference image?

Minor comments - In the title, they mention “Multi-scale” but it is not clear how and where the multi-scale analysis is performed? - At p. 8054-8055, point1 and point 5 are the same procedure?

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 8045, 2010.

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