

## ***Interactive comment on “Assimilation of satellite data to optimize large scale hydrological model parameters: a case study for the SWOT mission” by V. Pedinotti et al.***

**Anonymous Referee #1**

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Dear editor,

This paper presents an interesting study on the role of assimilation of satellite data to optimize large scale hydrological model parameters and to better estimate the Manning coefficient. The paper contributes to shed some light on the understanding of large river basins, which are particularly victims of data scarcity due to different circumstances, and in this regard the paper is worth being published. However, some parts of the manuscripts are not clear enough and some improvement should be introduced. Specific comments on these issues are reported herein.

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\* Page 4480, line 16, the reference (Papa et al., 2012). There is confusion in the year of publication. In the reference list, page 4508, lines 18-20, the year indicated is 2010. Please correct to year 2010.

\* ECMWF page 4481, line 12 appears for the first time in the text. So abbreviation has to be defined.

\* Page 4482, line 4, replace “he” by “they”. Same page line 12, “qmodeling”. I think q has to be deleted. Same page line 22, the sentence: “The domain study area. . . . .” “Make it two sentences, and avoid too many use of the word “which”.

\* Page 4483, line 9. The sentence “The confined aquifer improves the recession law. . .” What is the recession law? Not clear.

\* Page 4484, line 20, “the Basin has. . .” Change “Capital B to small b”.

\* Page 4489, line 11, sentence “First, a realistic modeling of the studied basin in needed. . .” Replace “in “by “is”. \* Page 449, line 3, sentence “. . .the satellite starts its first orbit on 1 January 2002)”. Change “starts to “started”.

\* Page 4503, line 18, the word “scenarii” before the sentence that starts by “Thus, the estimation of . . .”. It is not clear what it means.

\* Page 4520, Fig.8. The legend is not clear for the 1 day and 3 day subcycles. It says “straight line” for the 1 day subcycle and “dashed line” for the 3 day subcycle. But there are no dashed or straight lines, but colored lines. Provide also title for the vertical axis.

\* Page 4530, Fig.18. Provide title for the axes.

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