**Referee # 2**

**This paper focuses on the use of different globally available soil moisture products (satellite and reanalysis) to provide initial conditions for an event-based flood model. It is applied on two semi-arid catchments in Morocco and tries to evaluate the added value of these products for real-time flood forecasting in such environment. The manuscript is well written and organized, the methodology is clearly stated and the results convincingly lead to the authors conclusions. I think the paper is almost ready for publication.**

*We would like to thank the reviewer for reading our work and for providing important suggestions in order to improve the paper.*

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**I only have one main concern about the data used to force the model. The quality precipitation data used to force the model is not discussed, while it could highly impact the model performances**

*We agree. The observed precipitation quality was not well discussed, we added in the revised manuscript a description from line 144 to 149: "The precipitation data is missing in some events, especially at high altitude gauges during snowfall events. The percentage of missing value ranges from 2.4% at PR5 to 10.85% at PR7. In other hand, the highest percentage of 19.7% is found at PR1 where the gauge underwent technical problems. Overall, the total percentage of missing value (7.8%) is very low, hence no filling method is used ». A new table also list the data available.*

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**Also, it is not clear which precipitation data is used: it is from rain gages or radar or a combination of both? Given the results, it seems that radar observations are used to force the model. But then, how are used the rainfall stations presented in section 2.2? Are their observations compared to radar?**

*We used in this study rainfall gauges not radar. The radar that we indicate in the line 138 in the section 2.2 is related to the hydrometric data that is measured using a radar sensor in each basin's outlet. No meteorological radar is available in this region.*

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**On the other hand, evapotranspiration is also a crucial variable in semi-arid regions. Is the Oudin formula well suited for such environment?**

*We based our choice on the study of Marchane et al., 2017 on the same basin who compares different equations of evapotranspiration and it is concluded that Oudin estimates are very comparable to other formulas (Hargreaves-Samani and FAO-Penman).*

**Minor remarks:**

1. **L147. Could the authors remind the definition of the runoff coefficient?**

   *We added the definition from line 155 : 157*

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2. **L245. Does the SMA model account for any kind of spatial variability or is it just a simple lumped model?**

   *The SMA model is a lumped model but the daily precipitation had been interpolated over the basin to obtain the mean areal precipitation*

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3. **L323. Please define sigma_theta and MSE**

   *We followed the suggestion of the 1st reviewer and we deleted the entire section*

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4. **L328. What does the # symbol mean?**

   *We deleted this section as the 1st reviewer suggested.*

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5. **L345. Is there any reason related to the model structure for the wide use of SCS-CN in semi-arid contexts? Also, I guess the SCS-CN model is a lumped hydrological model only simulating discharge at the outlet of the catchment. Is that correct?**

   *The widely use of SCS-CN model is related to its simplicity and low number of parameters and also because it requires only rainfall and discharge to simulate runoff at the outlet of the catchment. It has been widely applied in the Mediterranean region. But indeed it is not a model specifically tailored for semi-arid areas.*

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6. **L377. i and n in Eqs. (10-11) are not defined and could probably be simply removed, as in Eq. (9).**

   *We deleted them.*

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7. **Figure 2. Please replace "Correlation" by "Comparison" in the figure caption. The figure does not show only correlations**

   *Done.*

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8. **L410. The authors could show the differences between rainfall at site scale and catchment scale (the latter being used in the SMA model).**

*We do not fully understand this comment. We used data from rain gauges to interpolate rainfall over the whole catchment and compute daily areal rainfall. The use of basin-averaged rainfall is also a good way to smooth out the uncertainties related to individual rain gauges.*

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9. **L421. Is there any possible explanation of the overestimation of soil moisture compared to in-situ measurements (e.g. lower rainfall at the in-situ site than over the entire catchment)?**

*Yes, the location of the soil moisture sensors is probably not representative of the soil type and precipitation amounts of the whole catchment. Indeed, soil moisture probes are located at about 2000 m.a.s.l. and with steep slopes, whereas downstream parts of the basin may have deeper soils able to store more soil moisture.*

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10. **L474. It is Table 4**

*Yes it is Table 4, Thank you.*

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11. **L475. "As shown on Figure 6, the SCS-CN model in calibration..." but "Validation" is written in the caption of Figure 6**

*We deleted ''Figure 6'', thank you.*

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12. **L478. Figure 7 is more likely discussed in section 4.6. Should it be Figure 8?**

*Thank you, we replaced the discussion of the figures 6, 7 and 8 into the section 4.6.*

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13. **L486. Please explain (maybe at the end of section 3.3) why a highly negative correlation (close to -1) means that the simulation is good**

*We added this explanation in the text from line 390 to 392: "The relationship is good when the correlation is near to r= -1. The negative correlation is related to the fact that, the storage capacity (S) is larger when the soil is dry (soil moisture is near to 0) and vice versa".*

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14. **L524. Water uptakes during flood could explain the overestimation of the model compared to discharge observations (events 25/03/11, 29/04/11, 02/04/12, 05/04/13 and 25/11/14). But**

**what could explain that the model completely missed the last three events (16/05/11, 06/06/11 and 28/09/12)?**

*Yes the events 16/05/2011and 06/06/2011 showed an important spatial variation of precipitation with no precipitation observed in the PQI station. In addition to these events the 28/09/2012 showed an overestimation of the validated value of S compared to the calibrated value. This overestimation is related to the ERA5 estimation that considers the soil more saturated than it is. We added these additional explanations from line 552 to 555.*