

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
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Comment on hess-2021-2

Jan Friesen (Referee)

Referee comment on "The International Soil Moisture Network: serving Earth system science for over a decade" by Wouter Dorigo et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-2-RC1>, 2021

The manuscript 'The International Soil Moisture Network: serving Earth system science for over a decade' by Dorigo et al. presents the ISMN, its data providers and tools for quality control and data harmonization. The review also highlights the large diversity of data and its challenges but also the large number of studies that used and benefits from this unique data collection.

Besides a concise description of the ISMN data and the ISMN services in terms of harmonization, where possible, I also see this review as a useful reminder and call for networks and scientists to further use and support this initiative.

Detailed comments:

Line 11: Please, state the number or percentage of data sets that are continuously/regularly updated.

Figure 2: The figure clearly shows the data availability by network. However, many networks are shown as active although no data has been provided within the last 5 or more years. As described not all networks have the capability to provide near-real time data, however I would suggest to highlight networks that are regularly providing data, even if that is in monthly or annual intervals.

Line 139ff: Perspectively, further data access options, such as an API would ease access to the data.

Line 162: Please, specify what 'misuse' includes. Is this mostly the lack of referencing ISMN or are there other misuse cases (e.g. commercial use of the data)?

Figure 7: This is more a positioning comments as Fig 7 seems to belong to section 3.4 not 4.1

Line 325: Reference missing (?)

Section 5.1.4: The inclusion of citizen science data is shown by the GROW dataset where soil moisture sensors have been made available to citizens. Would this also be extended to categorical citizen science data from initiatives such as CrowdWater (<https://crowdwater.ch>) where soil moisture states are collected as categories instead of volumetric soil moisture values?

Line 543 / Section 5.2.2: Long-term data series is not necessarily only linked to citizen science projects. I understand that as few standards as possible are defined in order to provide data to ISMN, however, in view of long-term operation, is there a minimum limit of data before inclusion into ISMN is considered? This does not necessarily concern citizen science projects alone but also short (2-5 year) soil moisture observations limited to project durations.

Minor comments:

Line 81: Please correct to '... Data sets from ...'

Line 221: Please correct to '... absolute quality indicator ...'

Line 302: Please correct to '... downscale ...'

Line 595: Please correct to '... is required to ...'

Table A1: The TAHMO network goes beyond the Sahel Zone, maybe just drop the specification or change to (Sub-Saharan Africa)