Many thanks for your careful check. We have followed your advice and checked the all citations and references. We have deleted duplicate references (Line 345-360) and modified citations in the text (Line 51-53, 54-56, 130-131, 254-255).

1) Line 51-53: *As one part of the Climate Change Initiative (CCI), the European Space Agency (ESA) published a long-term surface SM dataset, and the latest version (v06.1) covered the period of 1978–2020* (https://www.esa-soilmoisture-cci.org/, last access: 10 Apr. 2022) (Dorigo et al., 2017a; Gruber et al., 2019; Preimesberger et al., 2021).

we have modified the citations to “*As one part of the Climate Change Initiative (CCI), the European Space Agency (ESA) published a long-term surface SM dataset, and the latest version (v06.1) covered the period of 1978–2020* (https://www.esa-soilmoisture-cci.org/, last access: 10 Apr. 2022) (Dorigo et al., 2017; Gruber et al., 2019; Preimesberger et al., 2021).”.

2) Line 54-56: *The ESA CCI SM products are consistent with the observed values at some grassland and farmland sites in China* (Liu et al., 2011; Albergel et al., 2013; Dorigo et al., 55 2015, 2017b), however, they have a coarse spatial resolution (~27 km) and lots of coverage gaps (Llamas et al., 2020; Guevara et al., 2021).

we have modified the citations to “The ESA CCI SM products are consistent with the observed values at some grassland and farmland sites in China (Liu et al., 2011; Albergel et al., 2013; Dorigo et al., 2015, 2017), however, they have a coarse spatial resolution (~27 km) and lots of coverage gaps (Llamas et al., 2020; Guevara et al., 2021).”.

3) Line 130-131: *We used the v05.2 product for comparison because of its advantages comparing with active/passive products* (Liu et al., 2012; Dorigo et al., 2017c).

we have modified the citations to “We used the v05.2 product for comparison because of its advantages comparing with active/passive products (Liu et al., 2012; Dorigo et al., 2017).”.

3) Line 254-255: *We ascribed such improvement partly into some corrections based on in situ observations for ESA 255 CCI SM* (Dorigo et al., 2017b).
we have modified the citations to "We ascribed such improvement partly into some corrections based on in situ observations for ESA CCI SM (Dorigo et al., 2017).".

4) Line 345-360 □


