

Fig. R1 - 1991-2023 average uncertainty estimates (a) in satellite observations (TCA) used for the GAPFILLED product, (b) only the filled values in the GAPFILLED product, (c) the final GAPFILLED product overall.

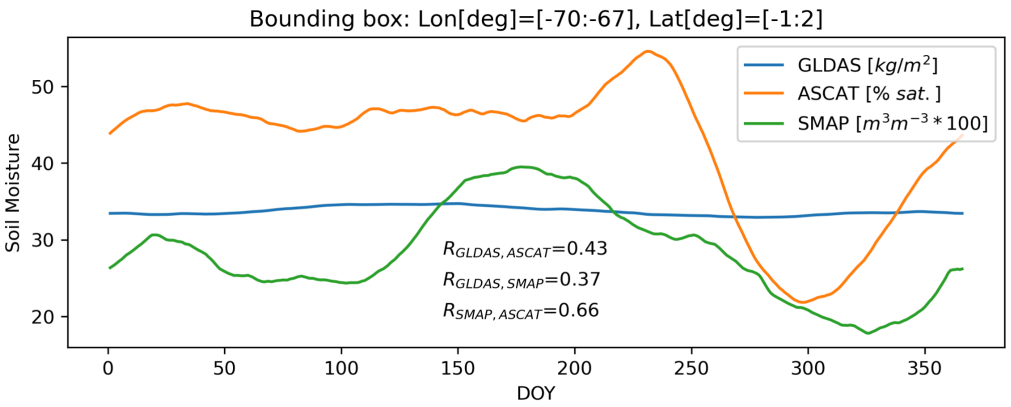
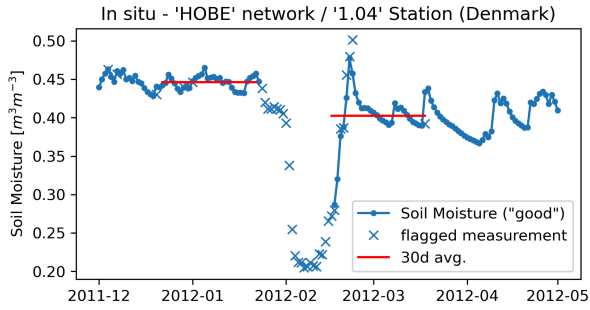
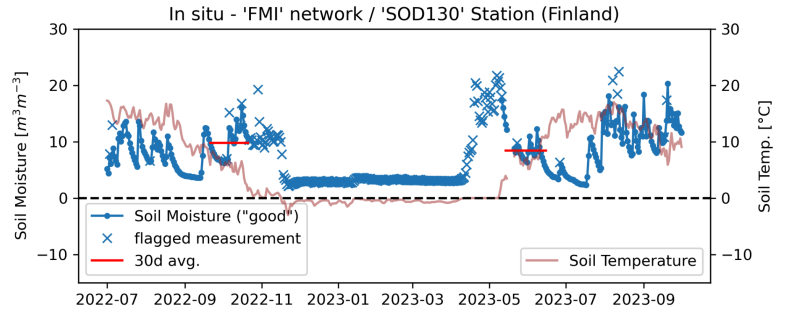


Fig. R2 - Soil moisture climatologies for a region in the Amazon rainforest and Pearson R between them, for GLDAS Noah, ASCAT and SMAP.



(a)



(b)

Fig. R3 - The impact of below or close-to freezing temperature on soil moisture signals which motivate the use of 30-day mean values for linear interpolation (red lines). (a) Time series from the HOBE network in Denmark; (b) Same for the FMI network (Finland); "x" indicate flagged / excluded measurements, which are not used for the 30d average.