

Corrigendum

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Because of an incorrect assumption about the spatial resolution of the National Weather Service's Snow Data Assimilation System (SNODAS), the authors have identified an important error in our recent paper comparing various estimates of SWE in the Sierra Nevada (Wrzesien et al. 2017). The assumed SNODAS spatial resolution of 1 km (gridcell area of 1 km²) should have been 30 arc s. At the latitudes where SNODAS is available, this assumption leads to gridcell areas considerably smaller than 1 km² (Fig. 1). Though Carroll et al. (2001) and much of the literature erroneously identify the resolution of SNODAS as 1 km or 1 km² (see literature list below), we acknowledge that this is an error we should have caught. Generally, the new SWE values for SNODAS are ~67% of the previous estimates, since actual areas of SNODAS grid cells are ~67% of our previous assumption (see Fig. 1).

We summarize the changes to the SNODAS SWE values for both peak SWE and 1 April SWE (Table 1). We have also included the peak SWE and 1 April SWE values for the reference mean, since those values are also affected by the new SNODAS calculations. In Table 2, we show the updated percent difference values between all three WRF simulations and the reference mean. These are also depicted in the updated Fig. 7 from the original paper.

Despite the changes, the overall conclusion of the paper remains well supported. The three reference datasets together still provide the best guess of actual snow conditions for the Sierra Nevada. With the updated SNODAS values, SNODAS and the Sierra Nevada Snow Reanalysis (SNSR) are in closer agreement with one another. WRF estimates are still within $\pm 50\%$ of the reference mean (except for WRF 27 km in 2014, which was not within $\pm 50\%$ in the previous estimate, either). Our results still show that regional climate models, such as WRF, provide estimates that are more reasonable than global/continental United States plus southern Canada (CONUS+) products, as can be seen from the updated versions of both Fig. 3 and Fig. 7.

Though the principal conclusions of the original manuscript are unchanged, we regret any inconvenience our incorrect SNODAS assumption may have caused.

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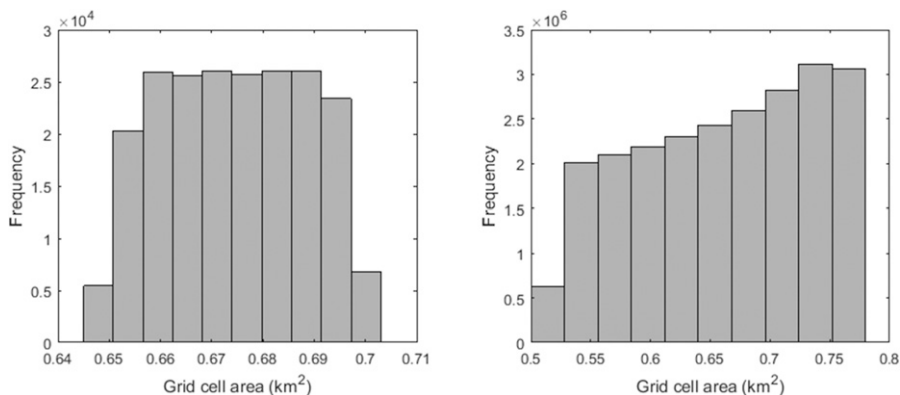


FIG. 1. Frequency histograms for the area of individual SNODAS grid cells for the (left) Sierra Nevada study domain and (right) entire SNODAS dataset.

TABLE 1. Updated SWE values (km³) from SNODAS and the reference dataset mean.

Variable	New value	Old value
SNODAS peak SWE 2005	22.7	33.6
SNODAS peak SWE 2009	16.9	25.2
SNODAS peak SWE 2014	5.6	8.3
SNODAS 1 April SWE 2005	22.4	33.1
SNODAS 1 April SWE 2009	13.6	20.3
SNODAS 1 April SWE 2014	5.1	7.5
Reference average peak SWE 2005	22.3	27.7
Reference average peak SWE 2009	15.6	19.8
Reference average peak SWE 2014	5.4	6.7
Reference average 1 April SWE 2005	24.5	27.4
Reference average 1 April SWE 2009	14.7	16.1
Reference average 1 April SWE 2014	5.3	5.8

TABLE 2. Updated comparison between WRF and the reference dataset mean. Italics indicate a closer match now between the WRF estimate and the reference mean.

Variable	New percent difference	Old percent difference
WRF 3-km peak SWE 2005	+32	+6
WRF 3-km peak SWE 2009	+43	+13
WRF 3-km peak SWE 2014	+15	-8
WRF 3-km 1 April SWE 2005	+8	-3
WRF 3-km 1 April SWE 2009	+13	+3
WRF 3-km 1 April SWE 2014	-7	+16
WRF 9-km peak SWE 2005	+15	-8
WRF 9-km peak SWE 2009	+27	+0.4
WRF 9-km peak SWE 2014	+8	-16
WRF 9-km 1 April SWE 2005	+1	-10
WRF 9-km 1 April SWE 2009	+10	+0.2
WRF 9-km 1 April SWE 2014	-21	-28
WRF 27-km peak SWE 2005	+3	-47
WRF 27-km peak SWE 2009	+4	-63
WRF 27-km peak SWE 2014	-8	-64
WRF 27-km 1 April SWE 2005	-22	-30
WRF 27-km 1 April SWE 2009	-19	-26
WRF 27-km 1 April SWE 2014	-67	-70

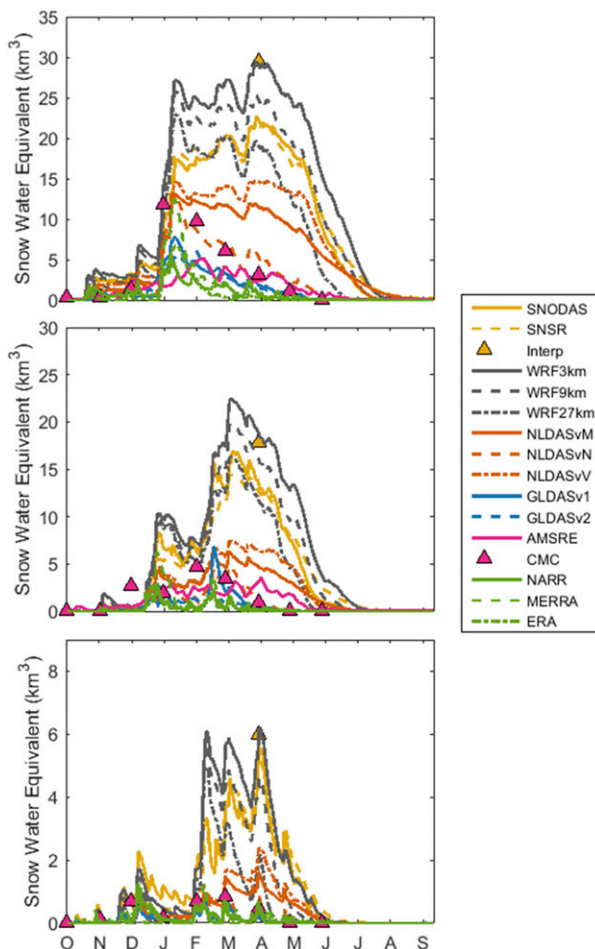


FIG. 3. Updated SNODAS time series of daily SWE. Daily values for all other datasets remain the same.

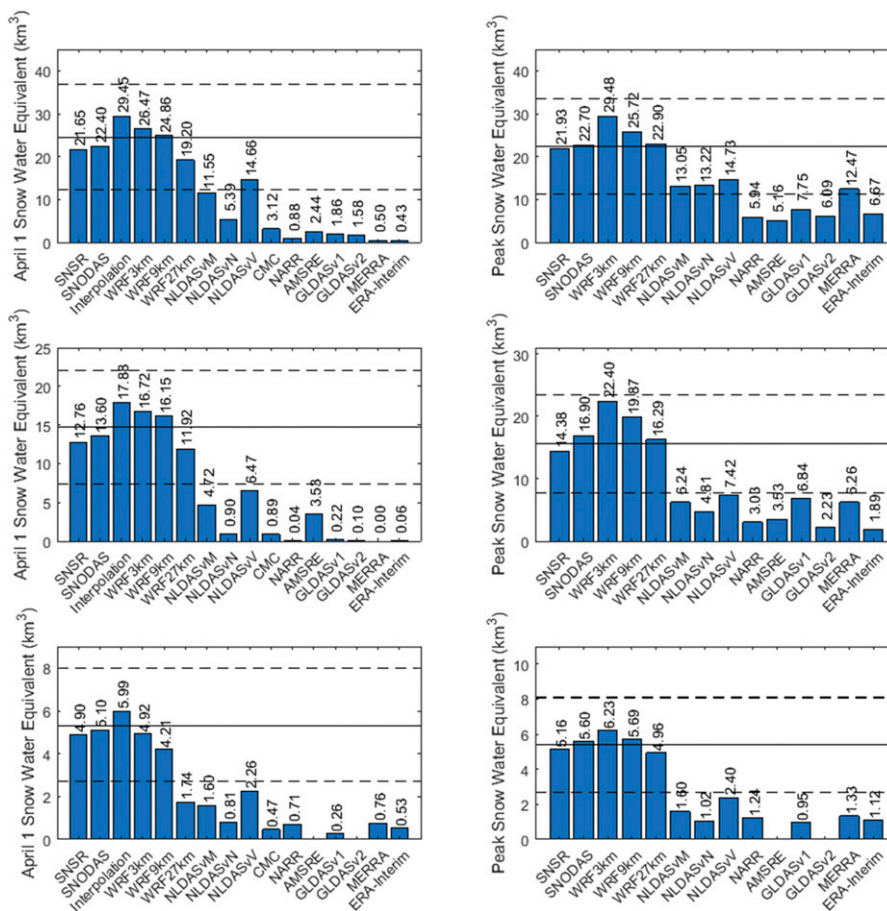


FIG. 7. Updated SNODAS values and reference dataset averages. The solid black horizontal line indicates the reference average and the dashed lines are $\pm 50\%$ of the mean.

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