

Spot the Difference

Sometimes, scientist become obsessed. Their obsession varies depending on the person and on the topic. This is an example of one figure for one paper where the lead author obsessed over the figure. The original version, shown below, was created by a co-author as two separate figures. As the figures both illustrate background information, the subsequent goals was to provide it all in one figure. This sequence shows the evolution of a figure. Like the kids game, “spot the difference.”

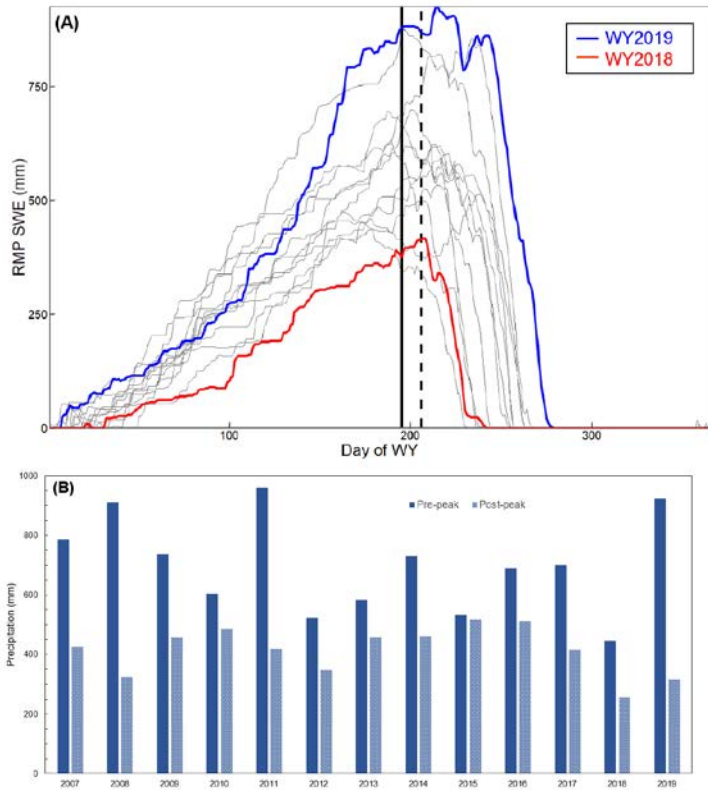


Figure 2. Daily SWE from RMP SNOTEL (A) from WY2007 to WY2019. Average date of peak SWE at the station is 25 April (dashed line) whereas at SASP average peak SWE is 13 April (solid line). WY2019 had the maximum peak SWE and WY2018 had the minimum peak SWE for the period of record, all other years are in grey. Precipitation inputs (B) before peak SWE are all larger than inputs after peak SWE for SASP. “Pre-peak” and “post-peak” identification is specific to date of peak SWE for the individual WY, and precipitation is considered over the entire WY

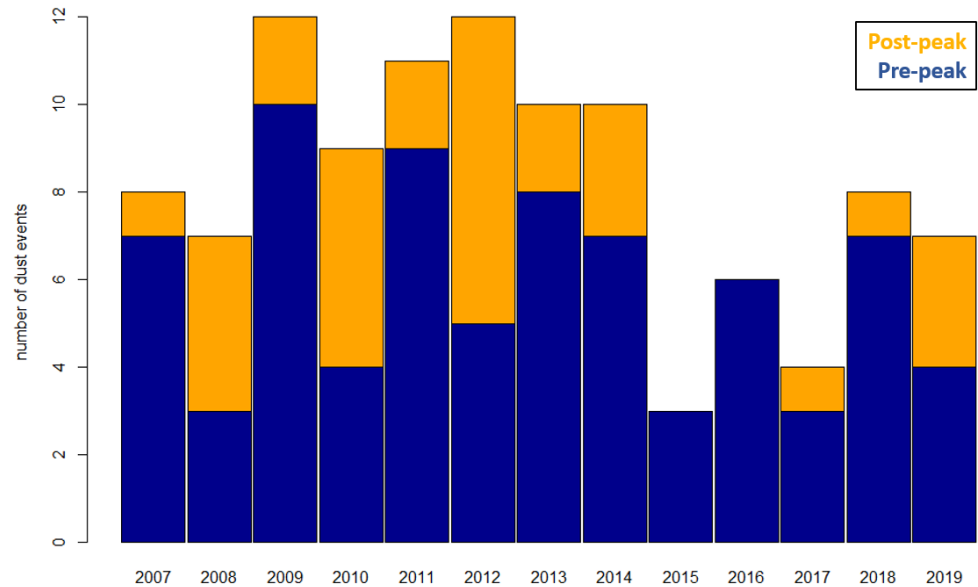
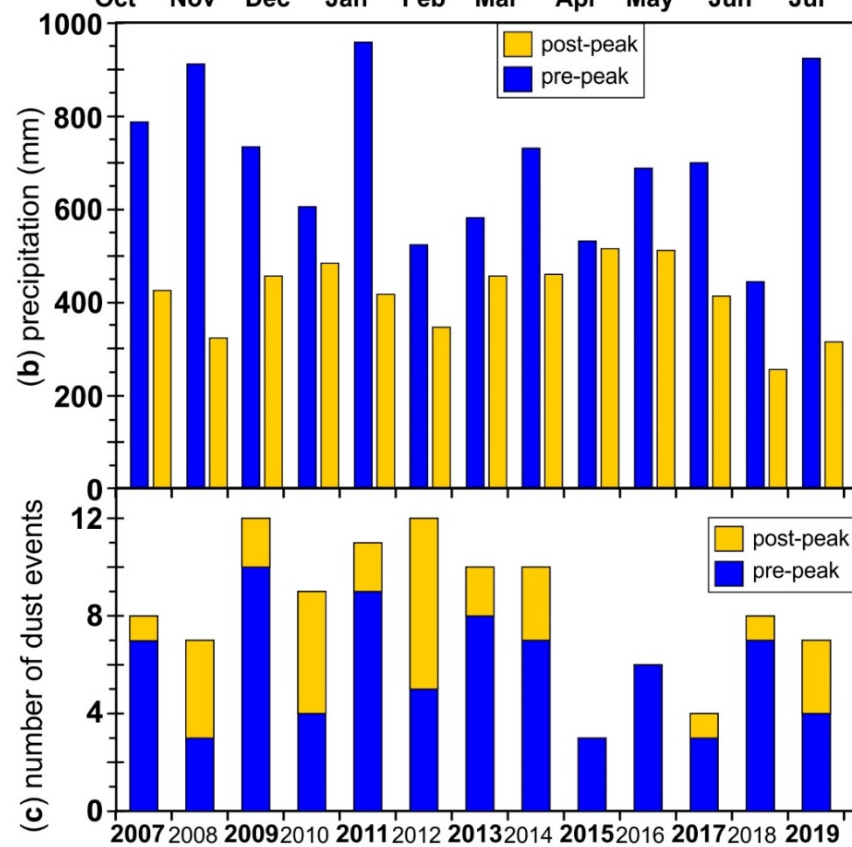
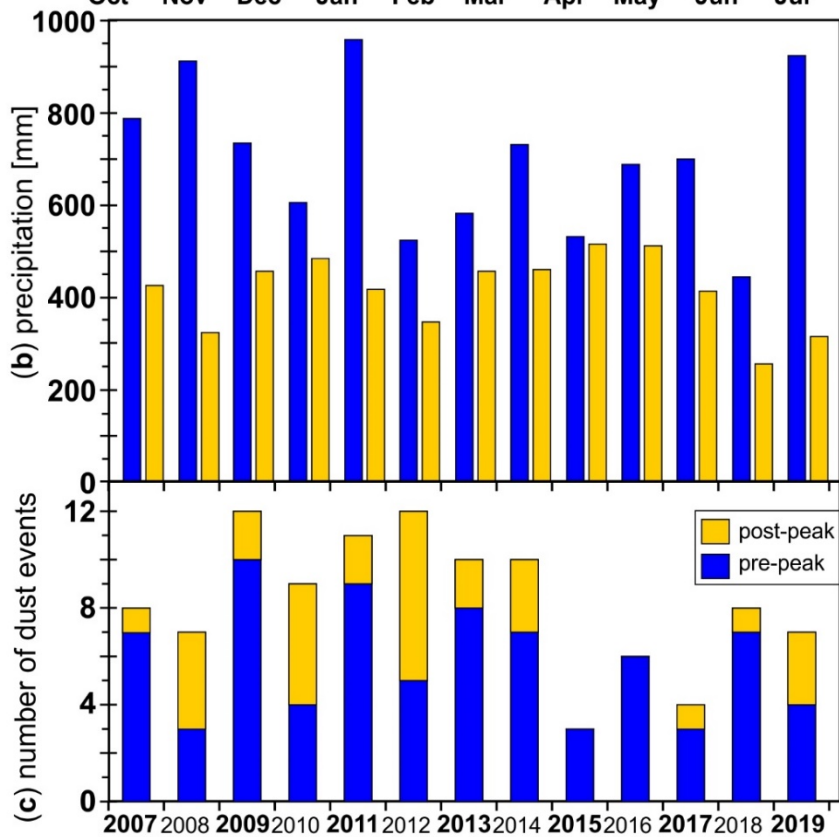
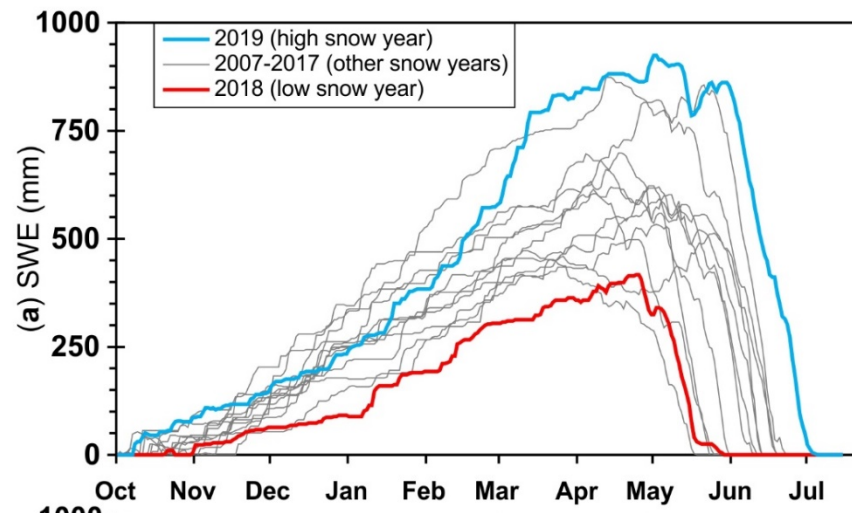
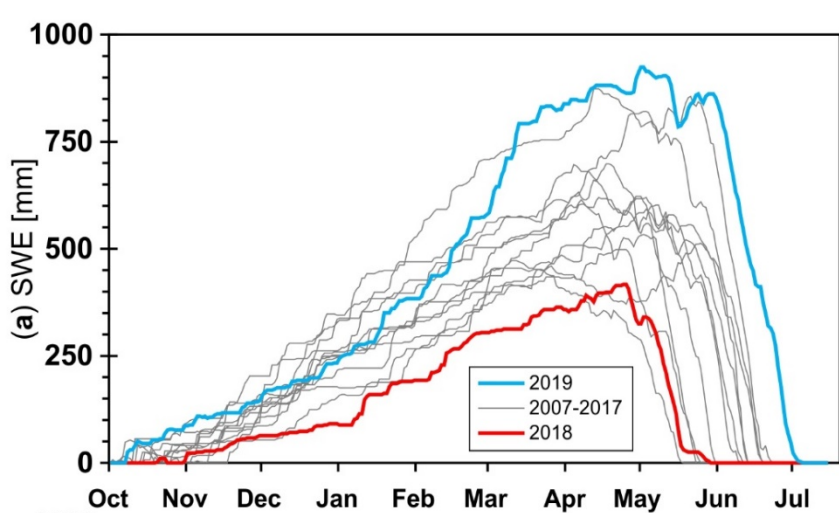
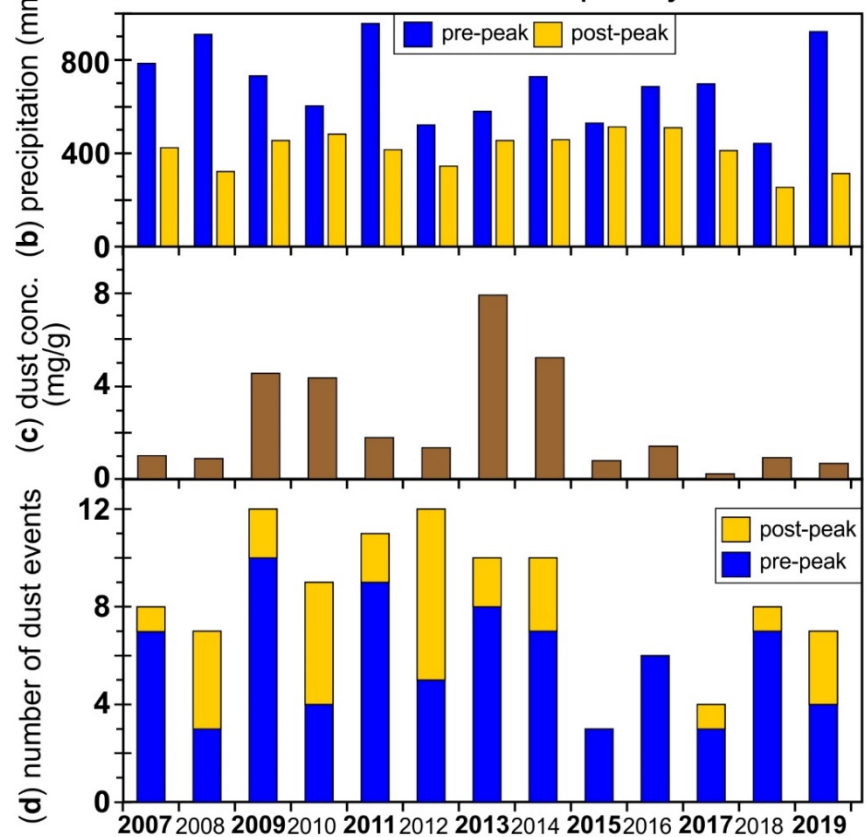
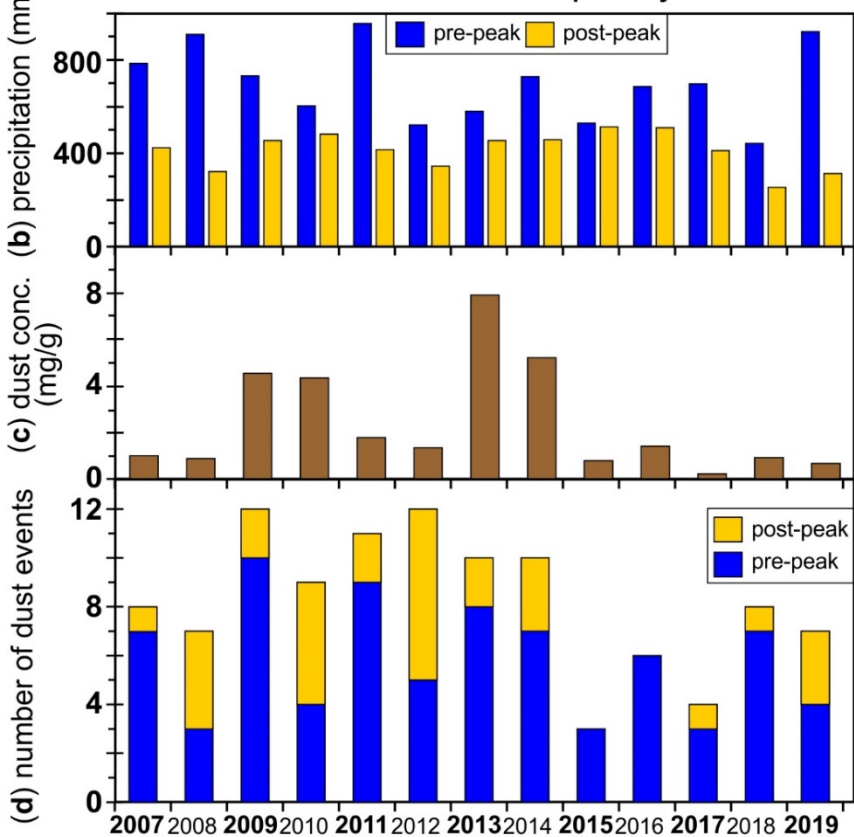
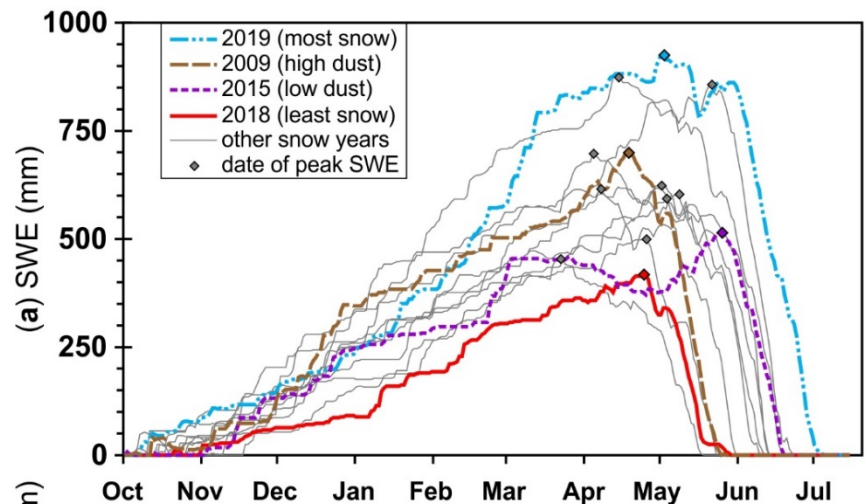
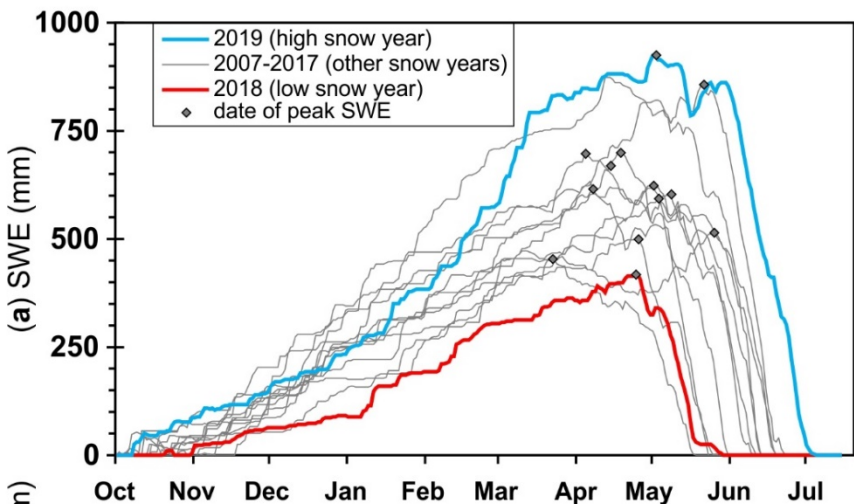


Figure 3. Dust events recorded at SASP from WY2007 to 2019. “Pre-peak” and “post-peak” identification is specific to date of peak SWE for the individual WY. Three water years had 50% or more dust events deposit after peak SWE (WY2008, WY2010, and WY2012).



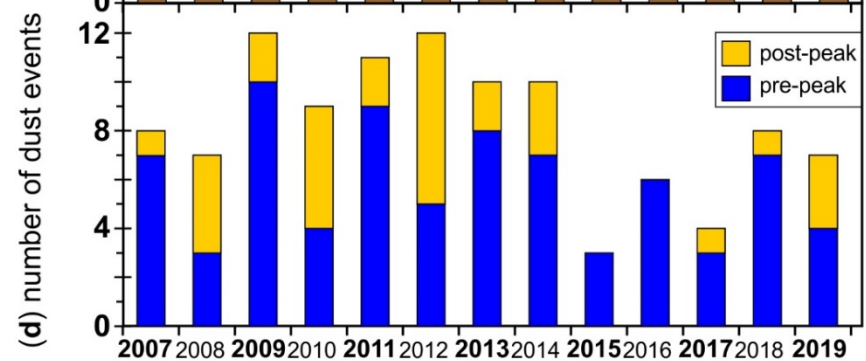
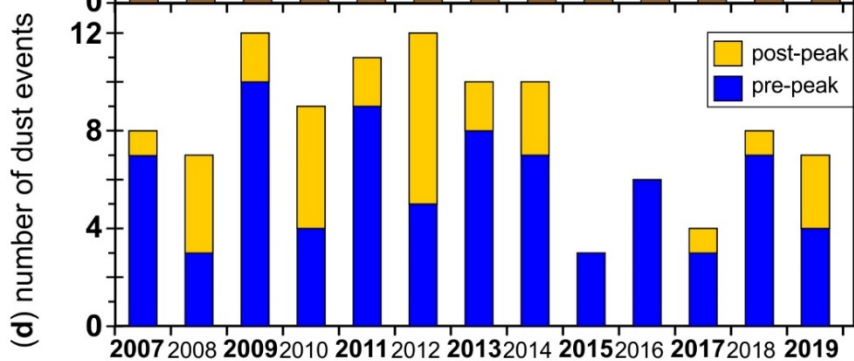
background

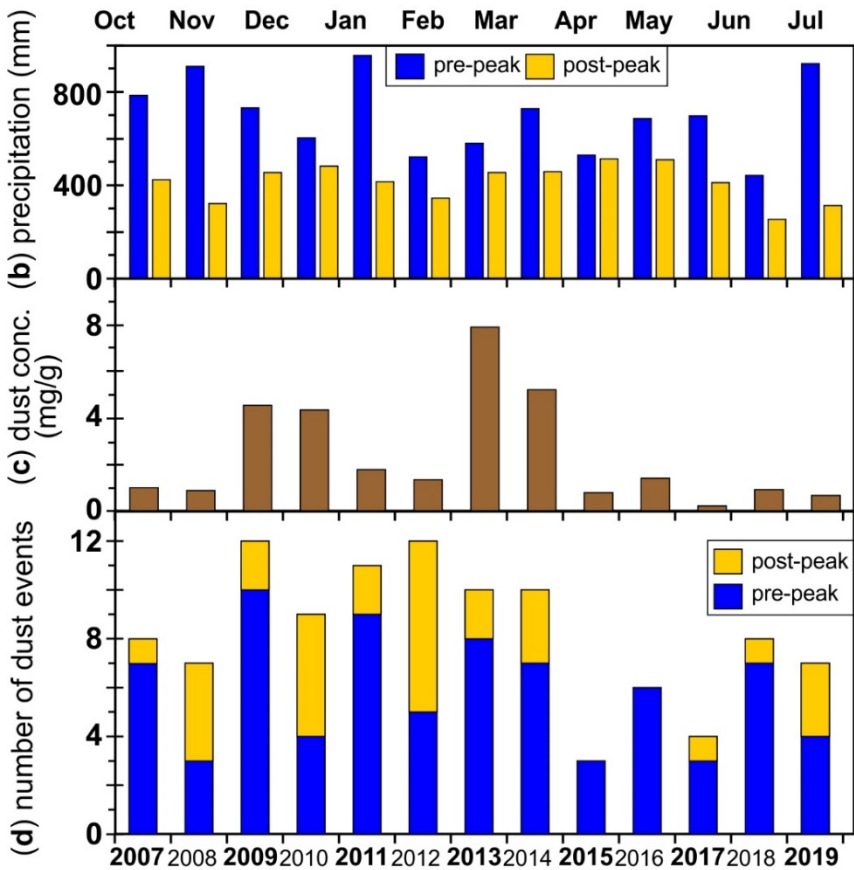
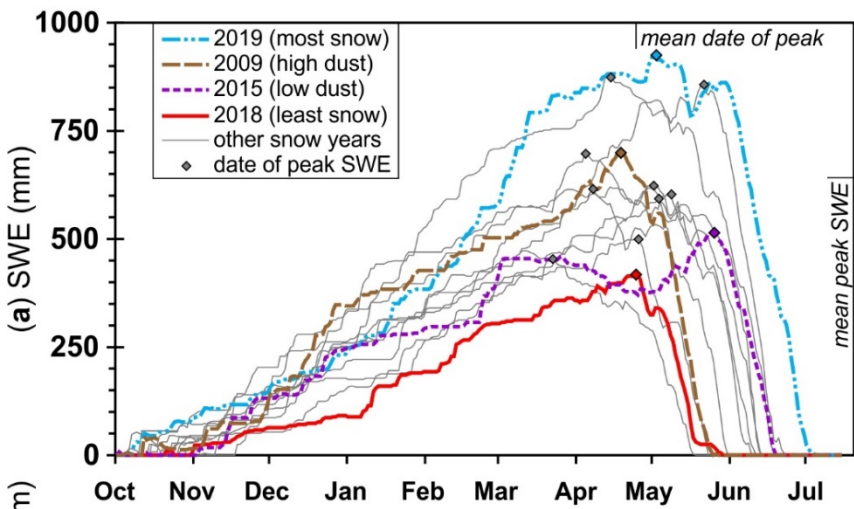
background_v2



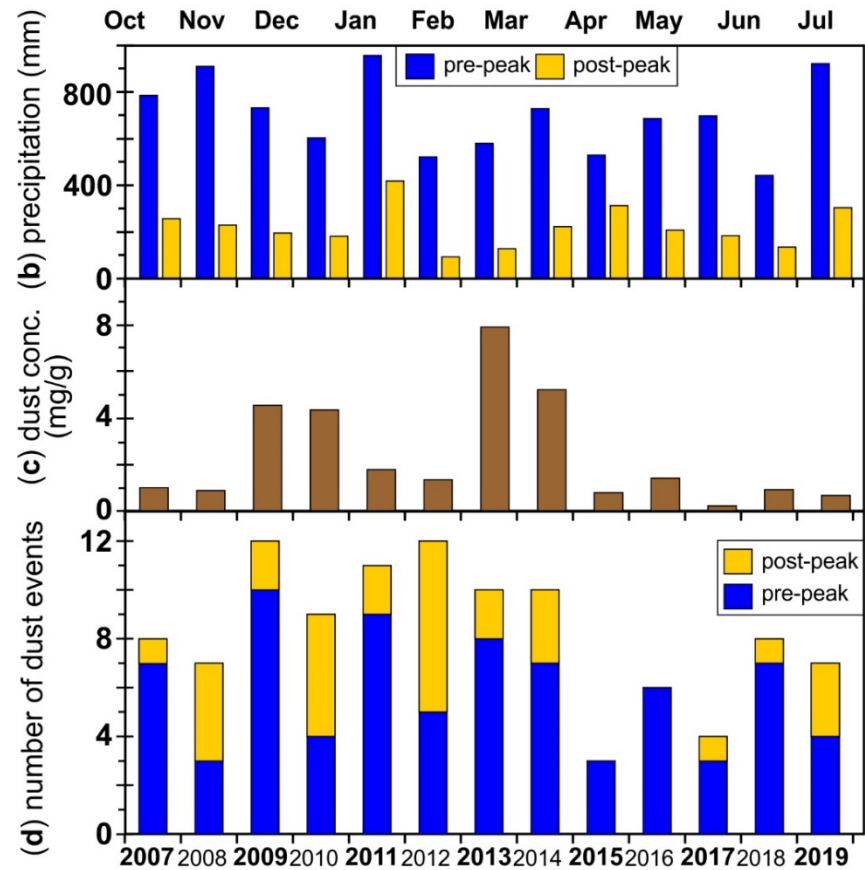
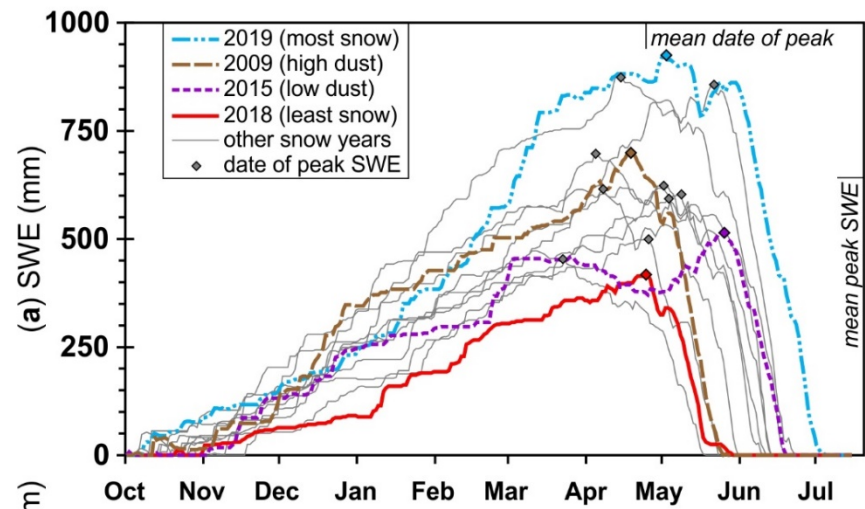
background_v3

background_v4

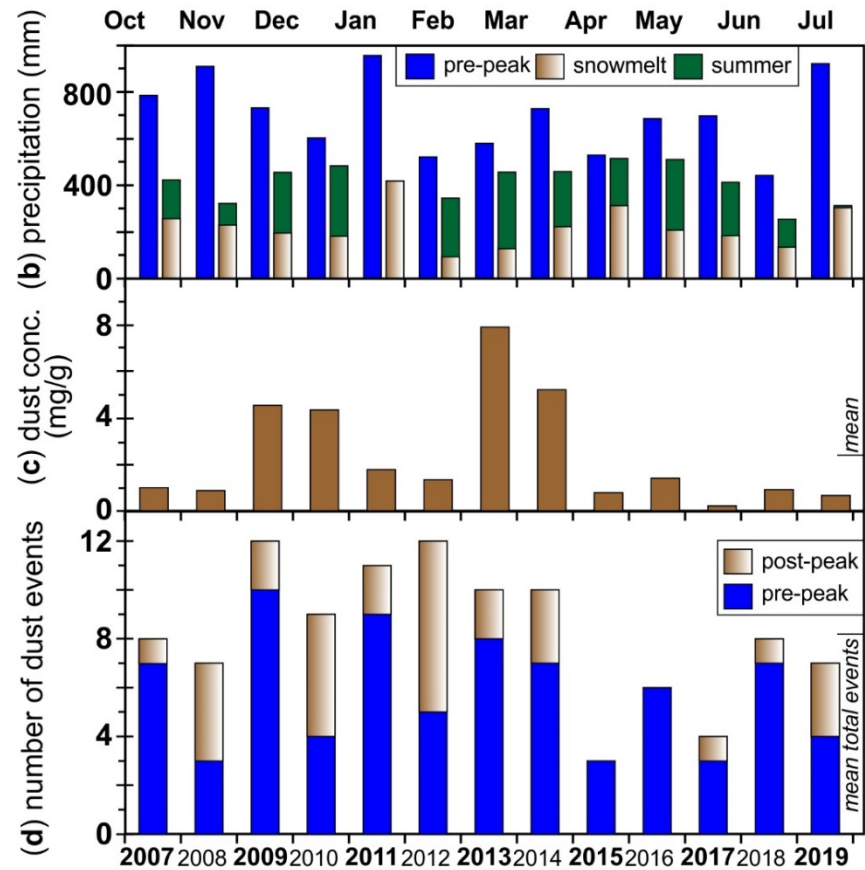
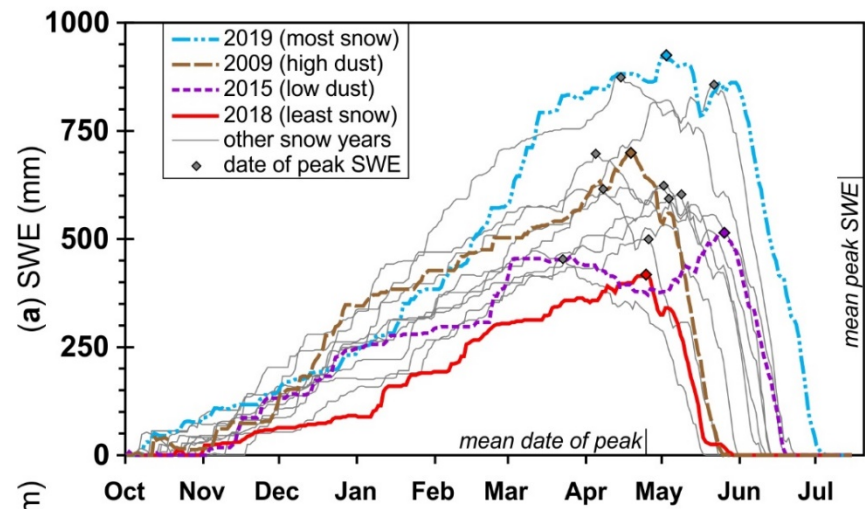
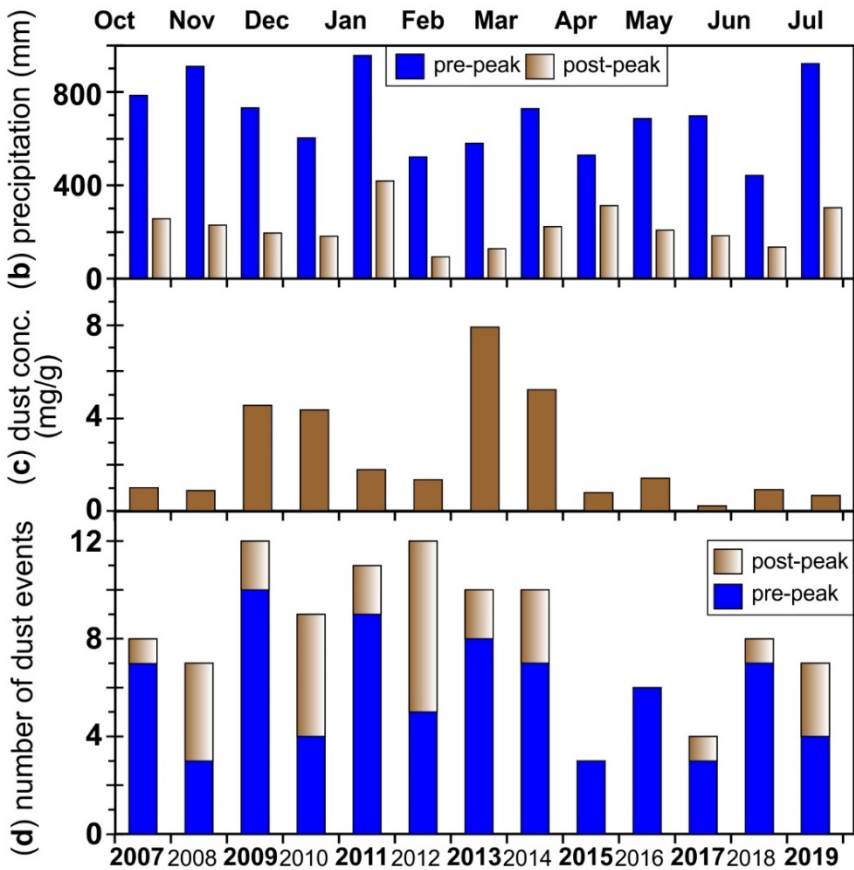
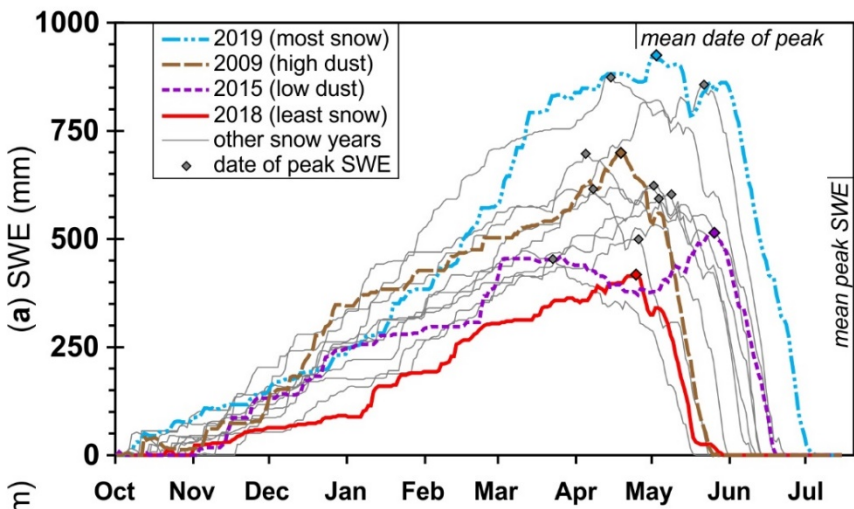




background_v4b

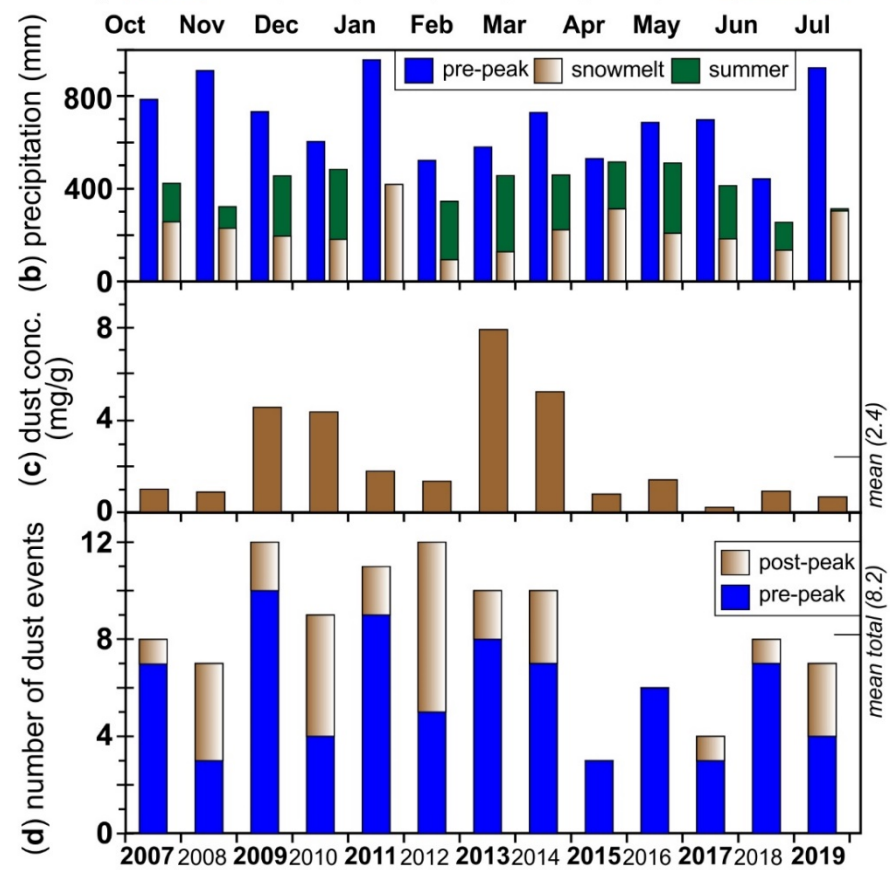
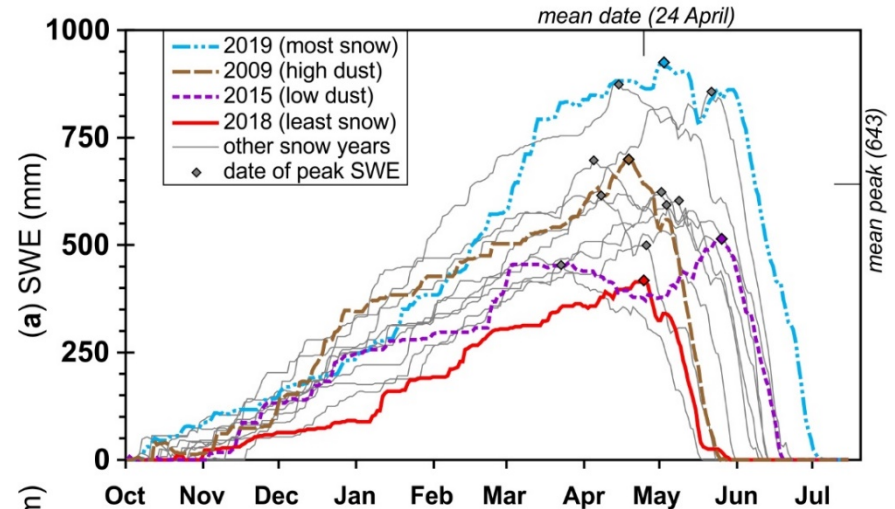
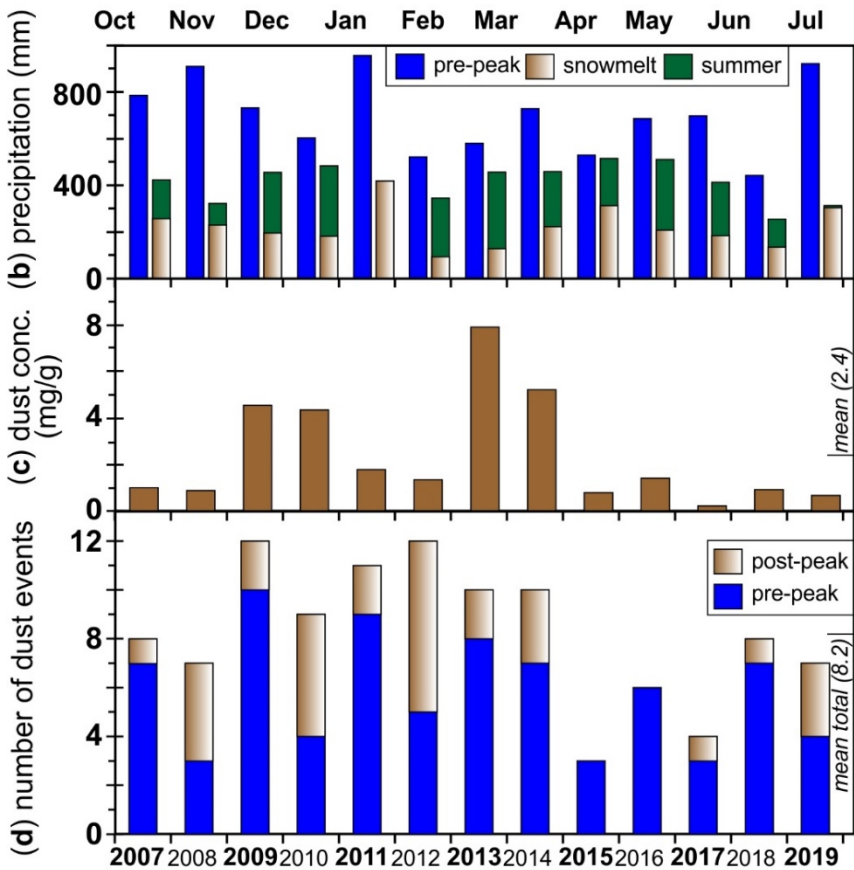
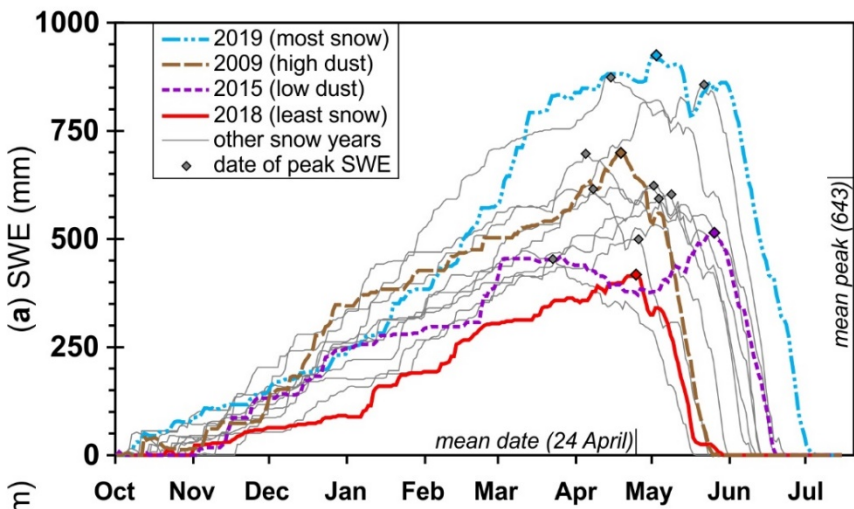


background_v5



background_v5b

background_v5c



background_v5d

background_v5e

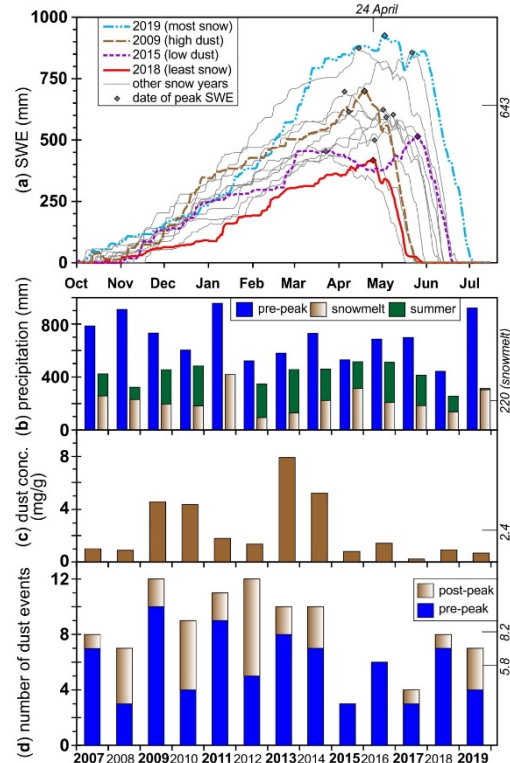
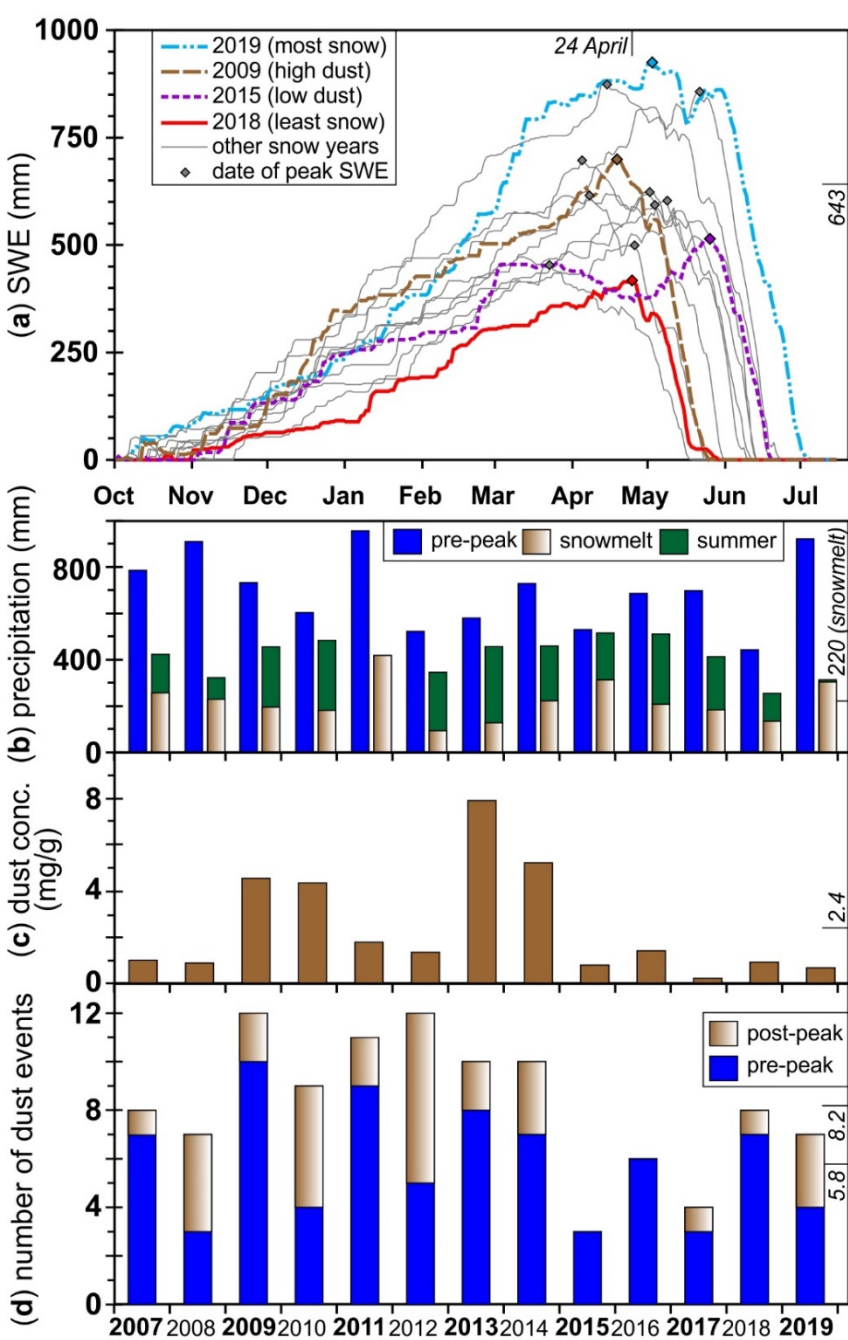


Figure 2. Snow and related data from WY2007 to WY2019 illustrating (a) daily SWE from Red Mountain Pass SNOTEL highlighting WY2019 as the maximum peak SWE, WY2009 as a high dust year, WY2015 as a low dust year, and WY2018 as the minimum peak SWE for the period of record (other years are in grey), (b) annual total precipitation at SASP divided as pre-peak SWE, and post-peak SWE divided into during and after (summer) snowmelt, (c) year-end dust concentrations, and (d) the number of dust events recorded at SASP observed pre- and post-peak SWE. The mean for each time series is noted on the top or right vertical axis.

What are the Differences

The changes in the figures are major and result in a new version (2, 3, ...), or minor and results in a new sub-version (b, c, ...). The decision to make a new version versus sub-version is somewhat arbitrary, but used for version control. Old versions are kept, in case a previous version, or sub-version is deemed more appropriate by the authors, or through the review process. Below are the changes for “spot the difference.” Note that the figure captions also evolve as the figures change, but usually not among sub-versions.

- **Version 0 vs. Version 1:**
 - Combine the graphs
 - Use the same colors for pre and post-peak
 - Line up the years
 - Add actual date to top y-axis
 - Add sub-figure labels on y-axis
 - Make the figure more “crisp”
- **Version 1 vs. Version 2:**
 - Improve legend (technically should not be a next version)
- **Version 2 vs. Version 3:**
 - Add peak SWE date in a)
 - Add dust concentration
- **Version 3 vs. Version 4:**
 - Highlight high and low dust years in a)
- **Version 4 vs. Version 4b:**
 - Add mean date of peak and SWE amount
- **Version 4b vs. Version 5:**
 - Correct post-peak precipitation in figure b) to represent precipitation during snowmelt and ending when snow disappears
- **Version 5 vs. Version 5b:**
 - Change color of post-peak
- **Version 5b vs. Version 5c:**
 - Add summer precipitation to figure b)
 - Add other mean quantities on axis
- **Version 5c vs. Version 5d:**
 - Add actual mean quantity to label on axis
- **Version 5d vs. Version 5e:**
 - Move location of mean on label on axis
- **Version 5e vs. Version 5f:**
 - Change mean on label on axis to be the value only
- **Version 5f vs. Version 5e:**
 - Move location of mean on label on axis

And then the Reviewer wanted v6

The paper <<https://doi.org/10.3390/hydrology9030047>> received a review of Minor Revisions. For this figure, one reviewer wanted the addition of the annual runoff into the figure. This is the only figure that a reviewer asked us to change. It is almost as if they knew something about this figure ...

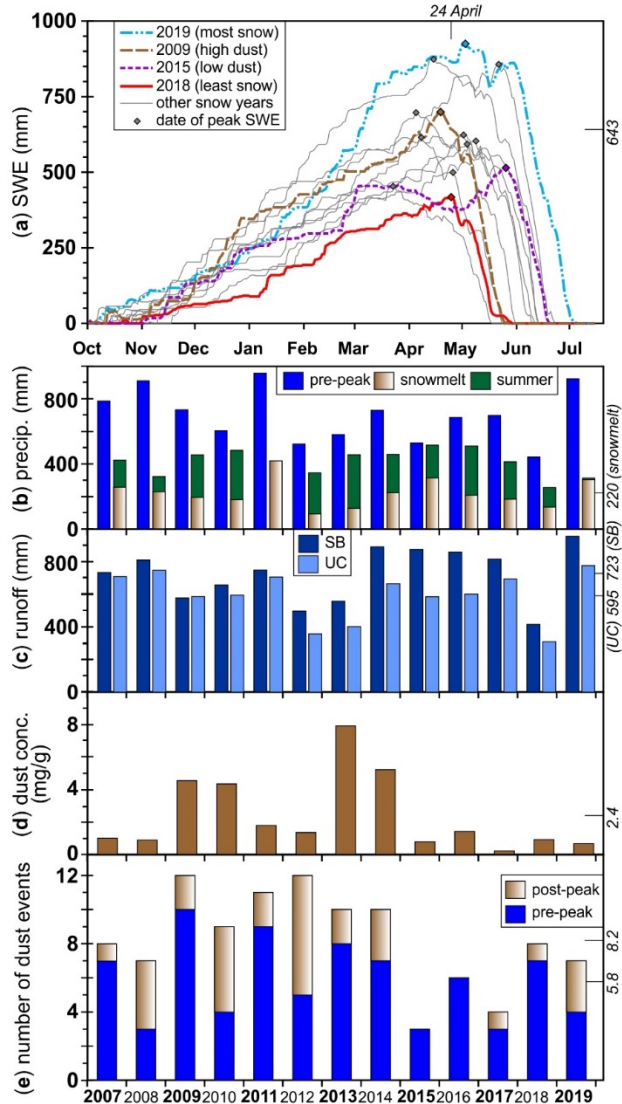


Figure 3. Snow and related data from WY2007 to WY2019 illustrating (a) daily SWE from Red Mountain Pass SNOTEL highlighting WY2019 as the maximum peak SWE, WY2009 as a high dust year, WY2015 as a low dust year, and WY2018 as the minimum peak SWE for the period of record (other years are in grey), (b) annual total precipitation at SASP divided as pre-peak SWE, and post-peak SWE divided into during and after (summer) snowmelt, (c) the annual runoff volume at SBSG and UCO, (d) year-end dust concentrations, and (e) the number of dust events recorded at SASP observed pre- and post-peak SWE. The mean for each time series is noted on the top or right vertical axis.

Here's the final paper:

Fassnacht, S.R., C.R. Duncan, A.K.D. Pfohl, R.W. Webb, J.E. Derry, W.E. Sanford, D.C. Reimanis, and L.G. Duskocil, 2022. Drivers of Dust-Enhanced Snowpack Melt-out and Streamflow Timing. *Hydrology*, 9(3), 47.

<https://doi.org/10.3390/hydrology9030047>