Supplement

In this supplement additional figures are shown presenting the statistical distributions of the analysed data for all stations and time periods.

Aditionally, one textfile for each station is provided containing the filtered hourly values for snow depth (HS), the depth of new snow (HN), the depth of new snow corrected for snow settling (HN_corr), the snow water quivalent (SWE), the water of snowfall (HNW), the calculated new snow density and the density corrected for snow settling.

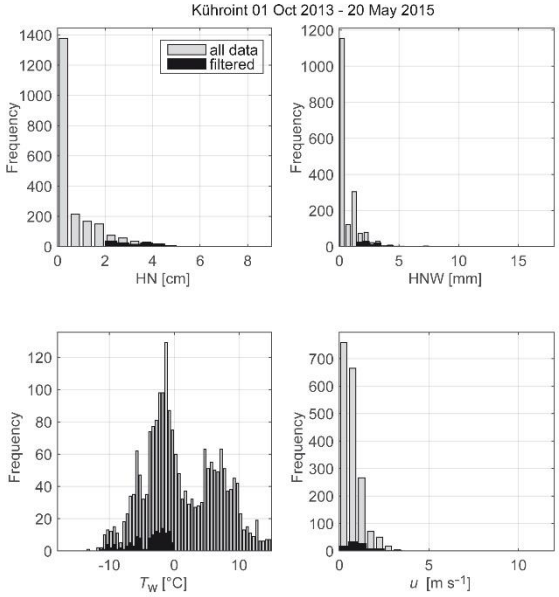

Figure S01: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Kühroint station for the period 1 (1 Oct 2013- 20 May 2015).

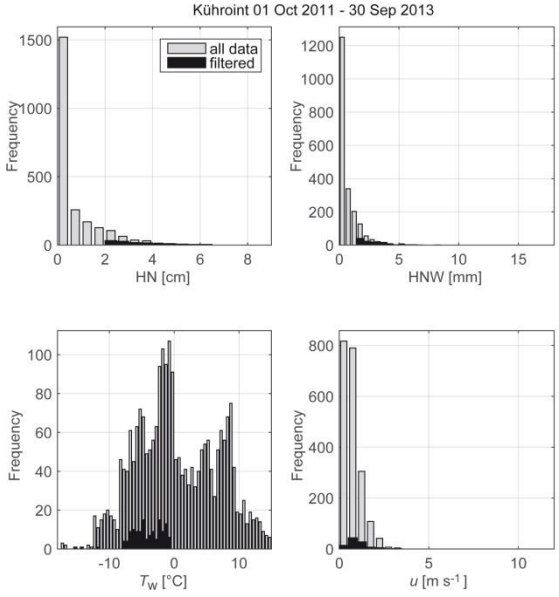

Figure S02: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Kühroint station for the period 2 (1 Oct 2011 - 30 Sep 2013).

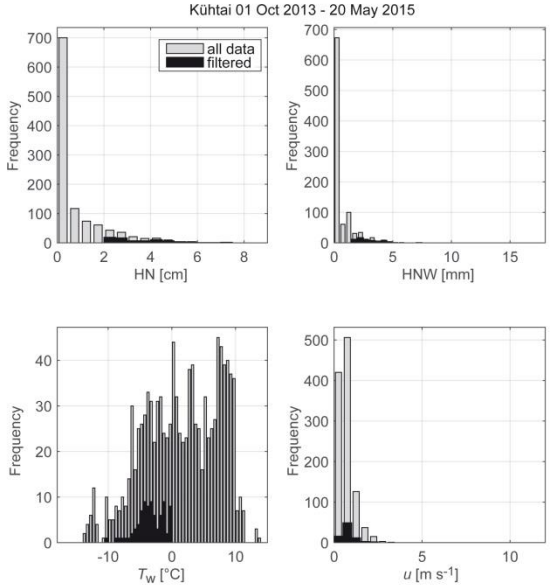

Figure S023: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Kühtai station for the period 1 (1 Oct 2013 - 20 May 2015).

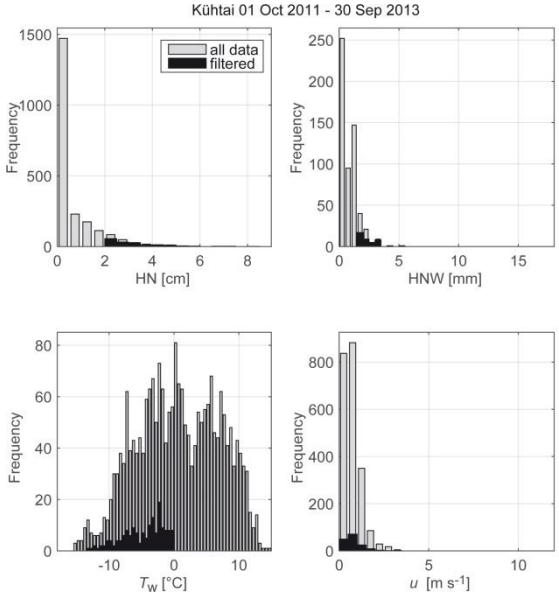

Figure S04: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Kühtai station for the period 2 (1 Oct 2011 - 30 Sep 2013).

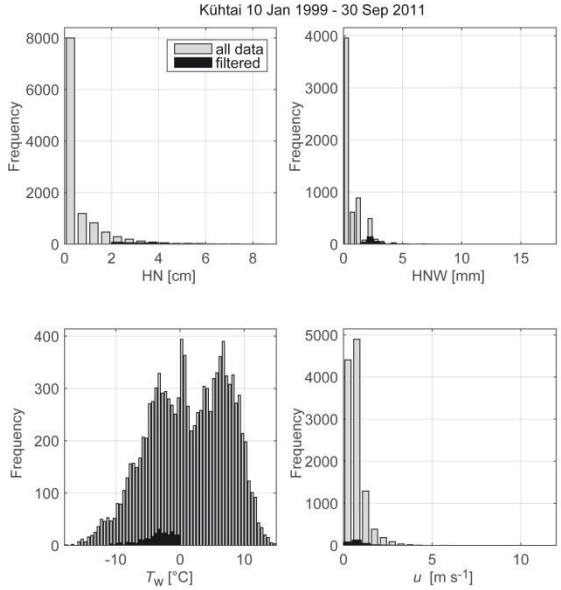

Figure S05: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1} at Kühtai station for the period 3 (1 Oct 1999 - 30 Sep 2011).

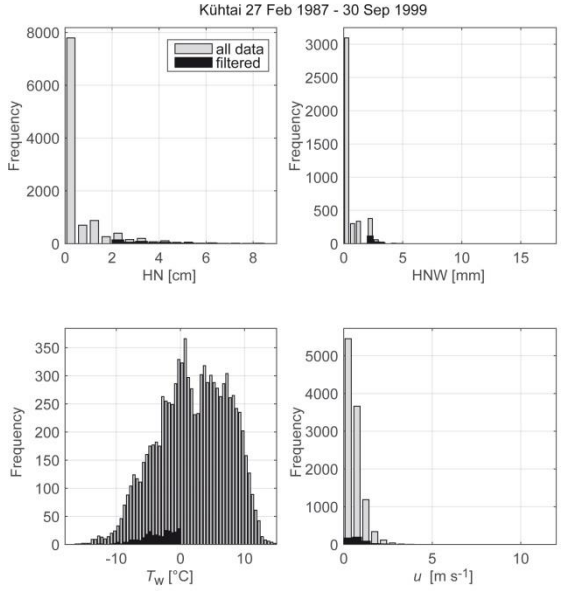

Figure S06: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Kühtai station for the period 4 (27 Feb 1987 - 30 Sep 1999).

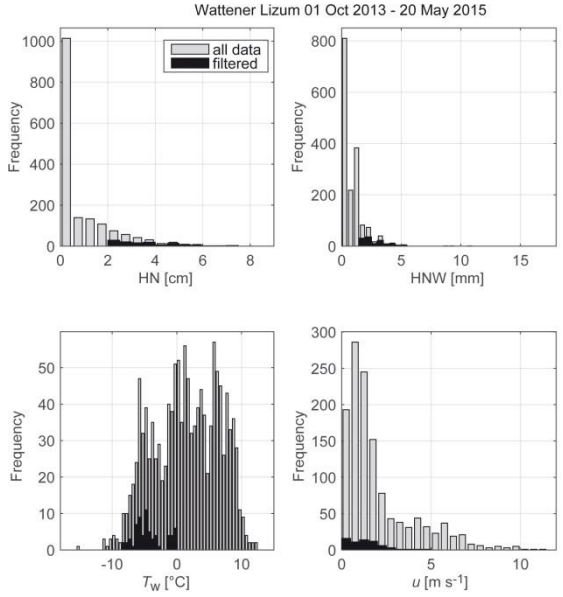

Figure S07: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Wattener Lizum for the period 1 (1 Oct 2013 - 20 May 2015).

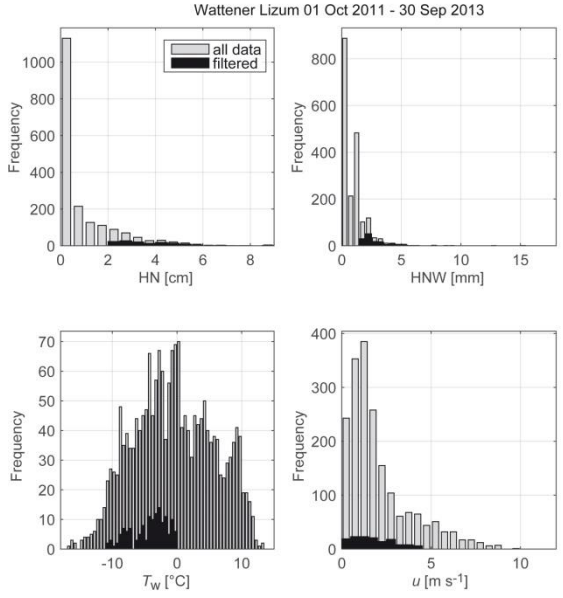

Figure S08: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Wattener Lizum station for the period 2 (1 Oct 2011 - 30 Sep 2013).

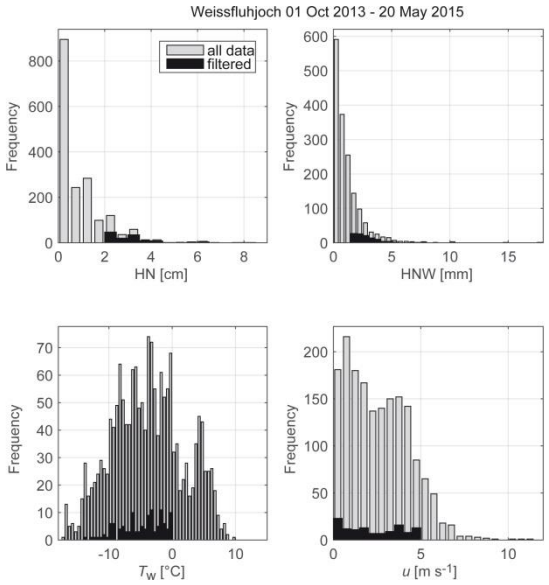

Figure S09: Histogram plots of all data consisting precipitation signal and positive HS changes and of the data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0 C and u < 5 m s^{-1} at Weissfluhjoch station for the period 1 (1 Oct 2013 - 20 May 2015).

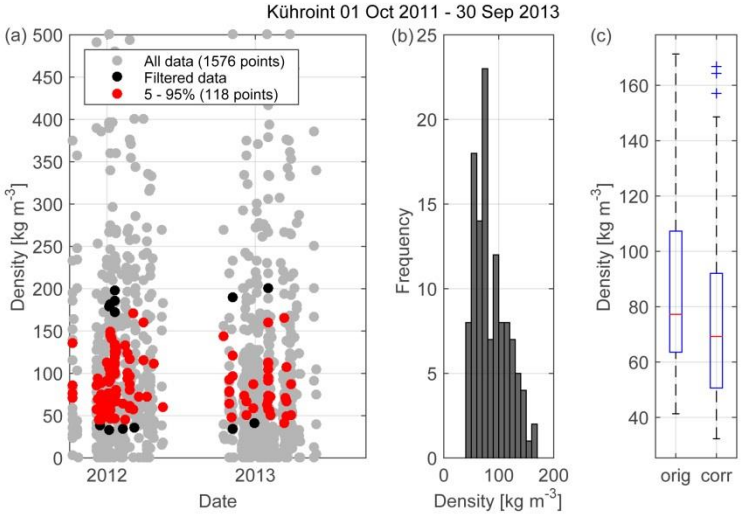

Figure S10: Distribution of calculated snow densities at Kühroint station for the period 2 (1 Oct 2011 - 30 Sep 2013). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

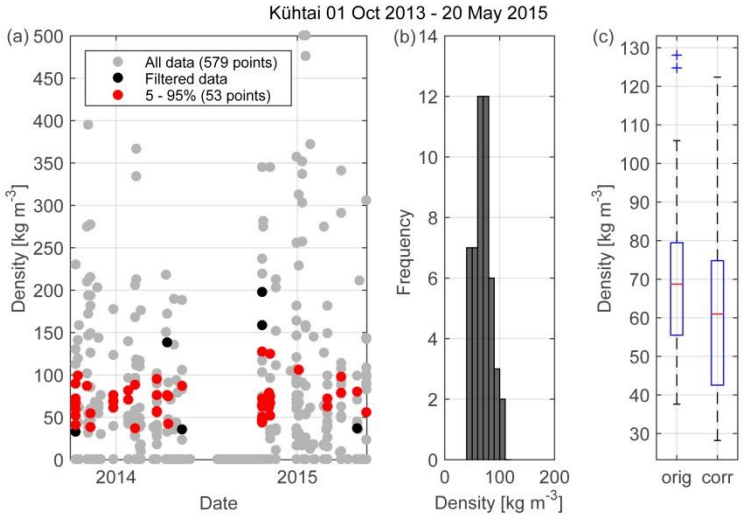

Figure S11: Distribution of calculated snow densities at Kühtai station for the period 1 (1 Oct 2013 - 20 May 2015). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

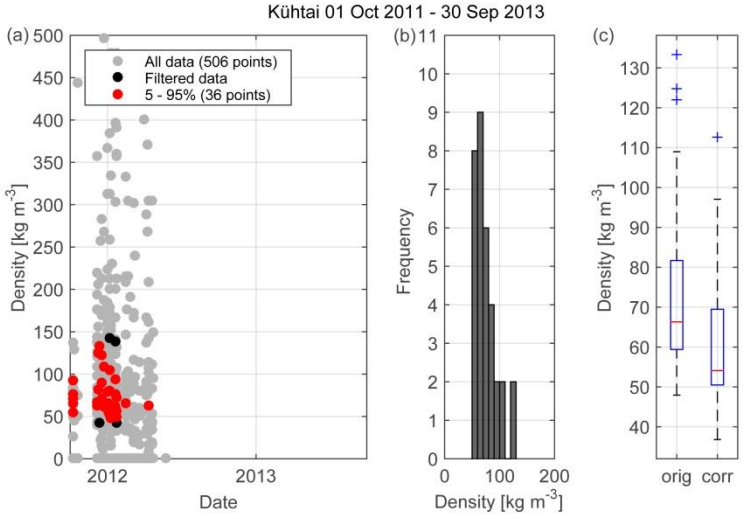

Figure S12: Distribution of calculated snow densities at Kühtai station for the period 2 (1 Oct 2011 - 30 Sep 2013). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

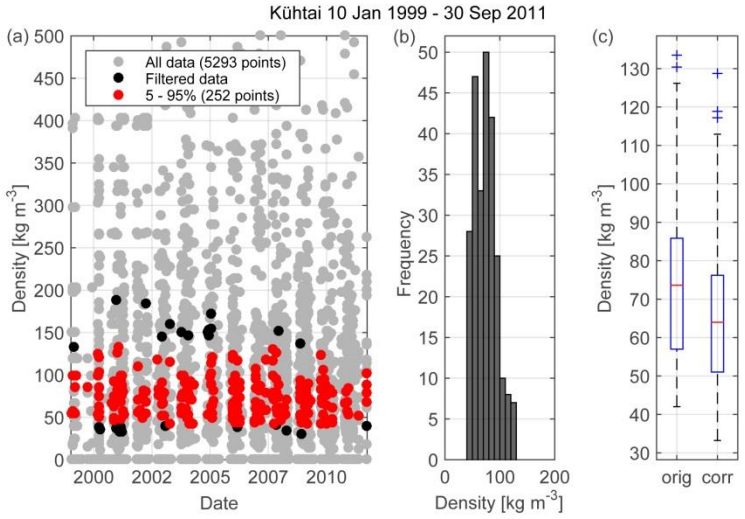

Figure S13: Distribution of calculated snow densities at Kühtai station for the period 3 (1 Oct 1999 - 30 Sep 2011). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

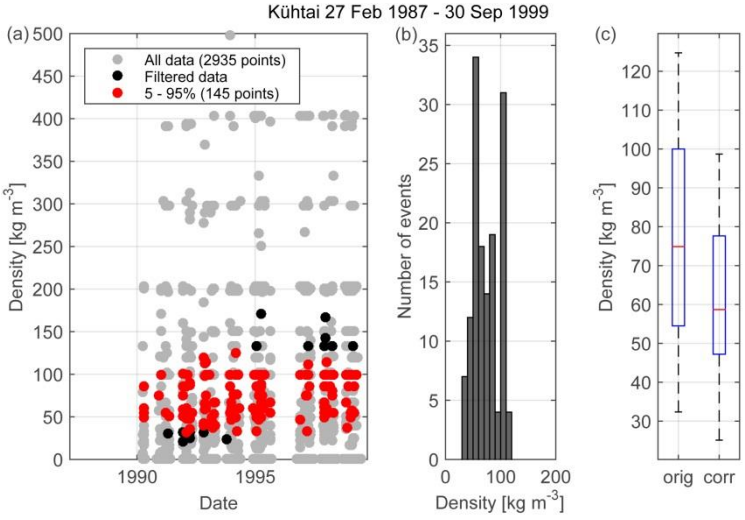

Figure S14: Distribution of calculated snow densities at Kühtai station for the period 4 (27 Feb 1987 - 30 Sep 1999). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

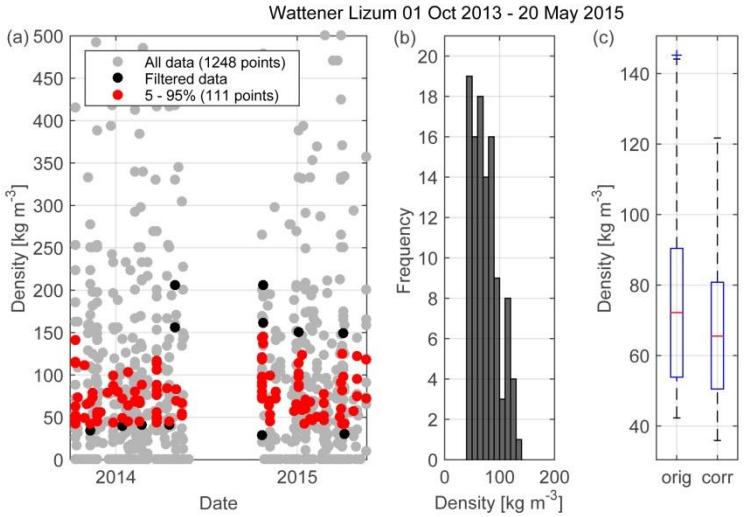

Figure S15: Distribution of calculated snow densities at Wattener Lizum station for the period 1 (1 Oct 2013 - 20 May 2015). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

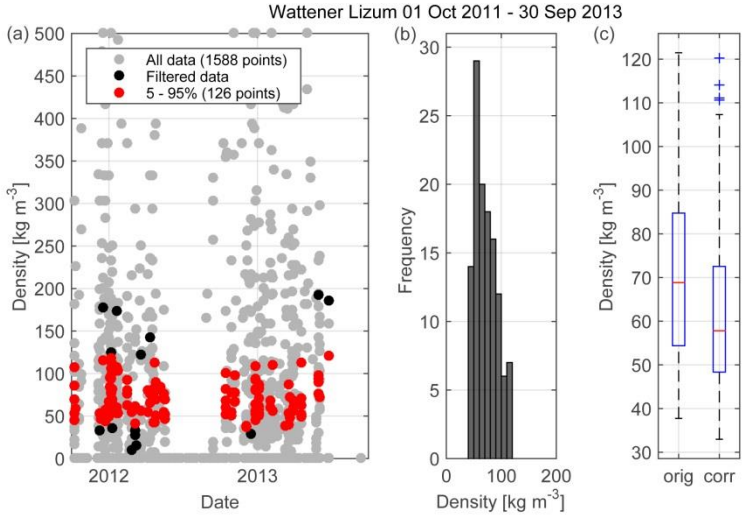

Figure S16: Distribution of calculated snow densities at Wattener Lizum station for the period 2 (1 Oct 2011 - 30 Sep 2013). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.

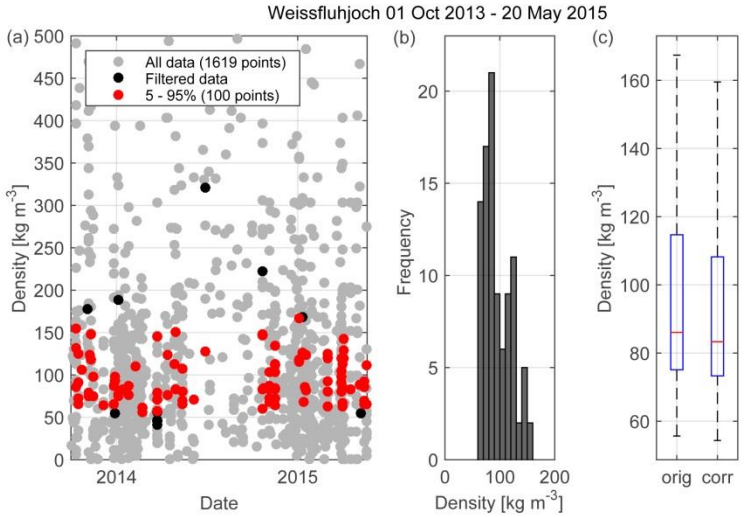

Figure S17: Distribution of calculated snow densities at Weissfluhjoch station for the period 1 (1 Oct 2013 - 20 May 2015). (a) All data with precipitation signal and positive HS changes, all data filtered with HN > 2 cm, HNW > 1.5 mm, T_w < 0°C and u < 5 m s^{-1}, and filtered data reduced by cutting off at 5 % and 95 % percentiles. (b) Histogram of all filtered densities. (c) The boxplot showing median, 25 % and 75 % interquartile range of uncorrected densities and densities corrected for settling of the snowpack.