

Supplementary materials for "On the fine vertical structure of the low troposphere over the coastal margins of East Antarctica"

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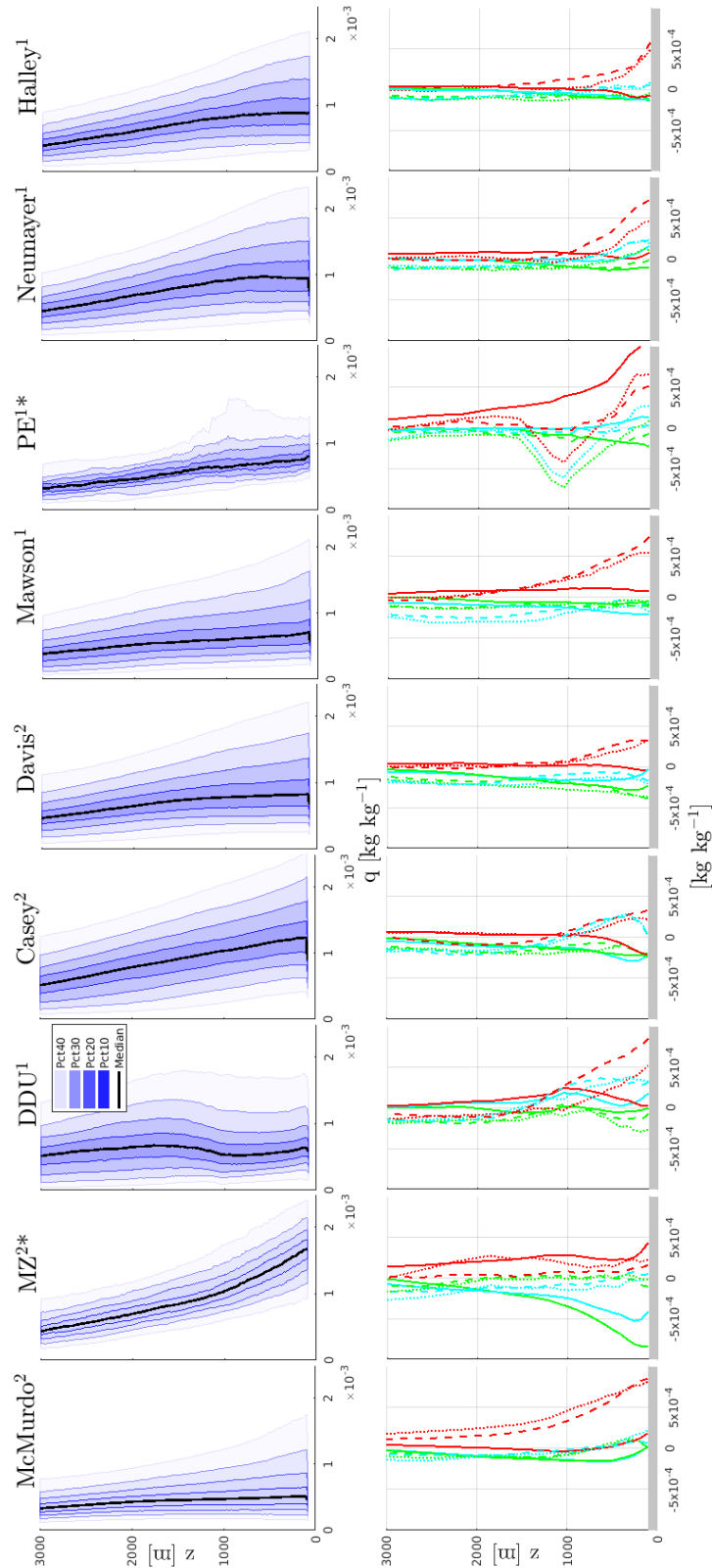


Figure 1. Top row: vertical profiles of the annual specific humidity q radiosonde data at nine Antarctic stations. Black lines are the medians, colored lines refer to the 10th, 20th, 30th, 40th, 60th, 70th, 80th and 90th percentiles. In the legend, 'Pct x ' refers to the shaded area that covers x percents of the data greater than the median and x percents of the data lower than it. Bottom row: median differences (solid lines), 80-20th interquantile difference (dashed lines) and 95-5th interquantile difference (dotted lines) with respect to radiosoundings for specific humidity at nine Antarctic stations. Red, green and cyan lines refer to Polar WRF, ERA5 and ERA-I respectively. Grey strips delimit the first 100 m above the ground surface. In all panels, the altitude z is above ground level. Numbers in exponent near station names in title indicate the number of radiosounding per day at the corresponding station. '**' symbol labels the two stations for which only data from December to February are shown.

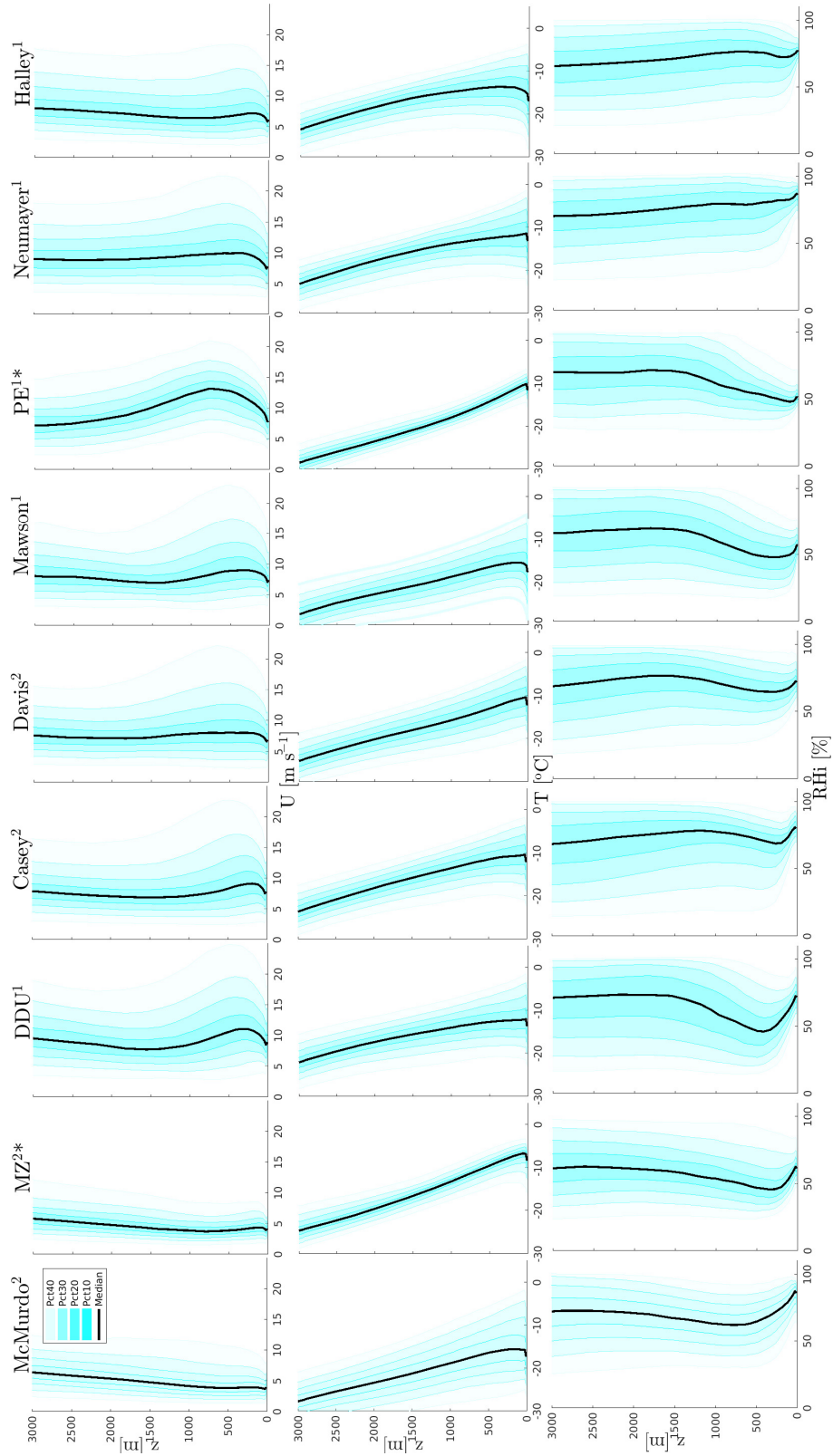


Figure 2. Vertical profiles of the annual wind speed (top row), temperature (middle row) and relative humidity with respect to ice (bottom row) from ERA-Interim (conditioned to radiosonde times) at nine Antarctic stations. Black lines are the medians, colored lines refer to the 10th, 20th, 30th, 40th, 60th, 70th, 80th and 90th percentiles. In the legend, 'Pctx' refers to the shaded area that covers x percent of the data greater than the median and x percent of the data lower than it. The altitude z is above ground level. Numbers in exponent near station names in title indicate the number of radiosounding per day at the corresponding station. '*' symbol labels the two stations for which only data from December to February are shown.

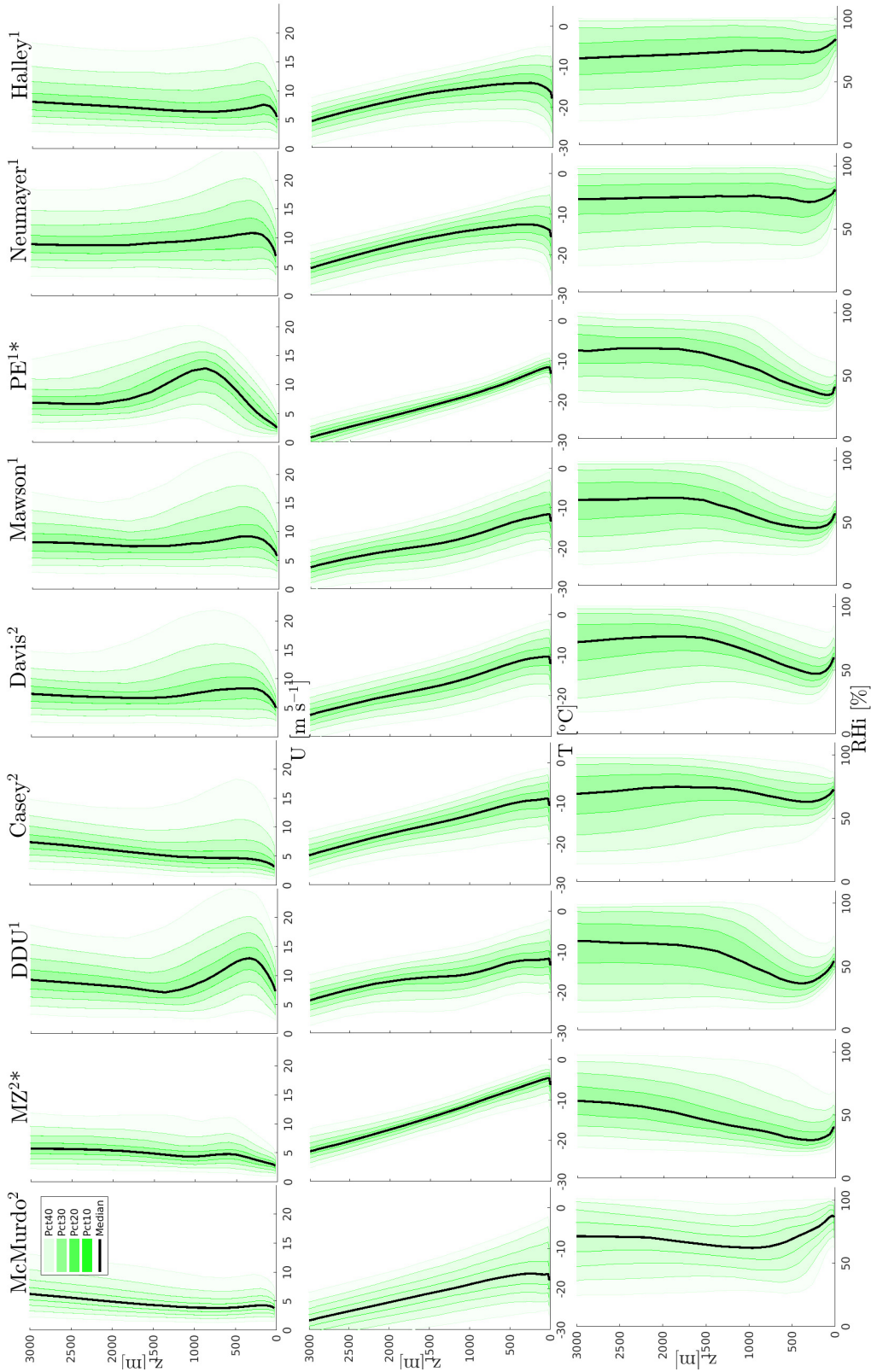


Figure 3. Vertical profiles of the annual wind speed (top row), temperature (middle row) and relative humidity with respect to ice (bottom row) from ERA5 (conditioned to radiosonde times) at nine Antarctic stations. Black lines are the medians, colored lines refer to the 10th, 20th, 30th, 40th, 60th, 70th, 80th and 90th percentiles. In the legend, 'Pct x ' refers to the shaded area that covers x percents of the data greater than the median and x percents of the data lower than it. The altitude z is above ground level. Numbers in exponent near station names in title indicate the number of radiosounding per day at the corresponding station. '*' symbol labels the two stations for which only data from December to February are shown.

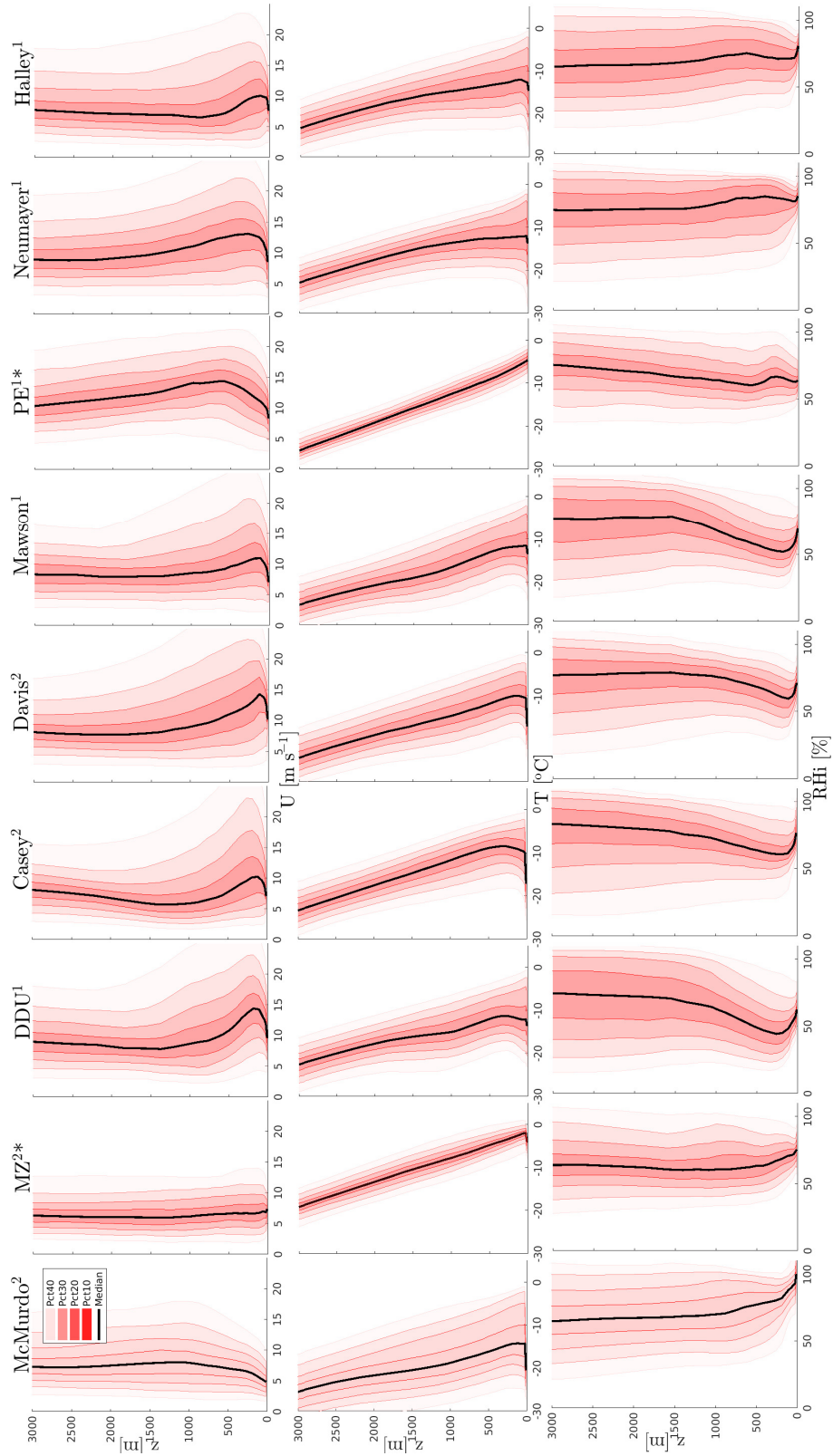


Figure 4. Vertical profiles of the annual wind speed (top row), temperature (middle row) and relative humidity with respect to ice (bottom row) from Polar-WRF (conditioned to radiosonde times) at nine Antarctic stations. Black lines are the medians, colored lines refer to the 10th, 20th, 30th, 40th, 60th, 70th, 80th and 90th percentiles. In the legend, 'Pct x ' refers to the shaded area that covers x percents of the data greater than the median and x percents of the data lower than it. The altitude z is above ground level. Numbers in exponent near station names in title indicate the number of radiosounding per day at the corresponding station. '*' symbol labels the two stations for which only data from December to February are shown.

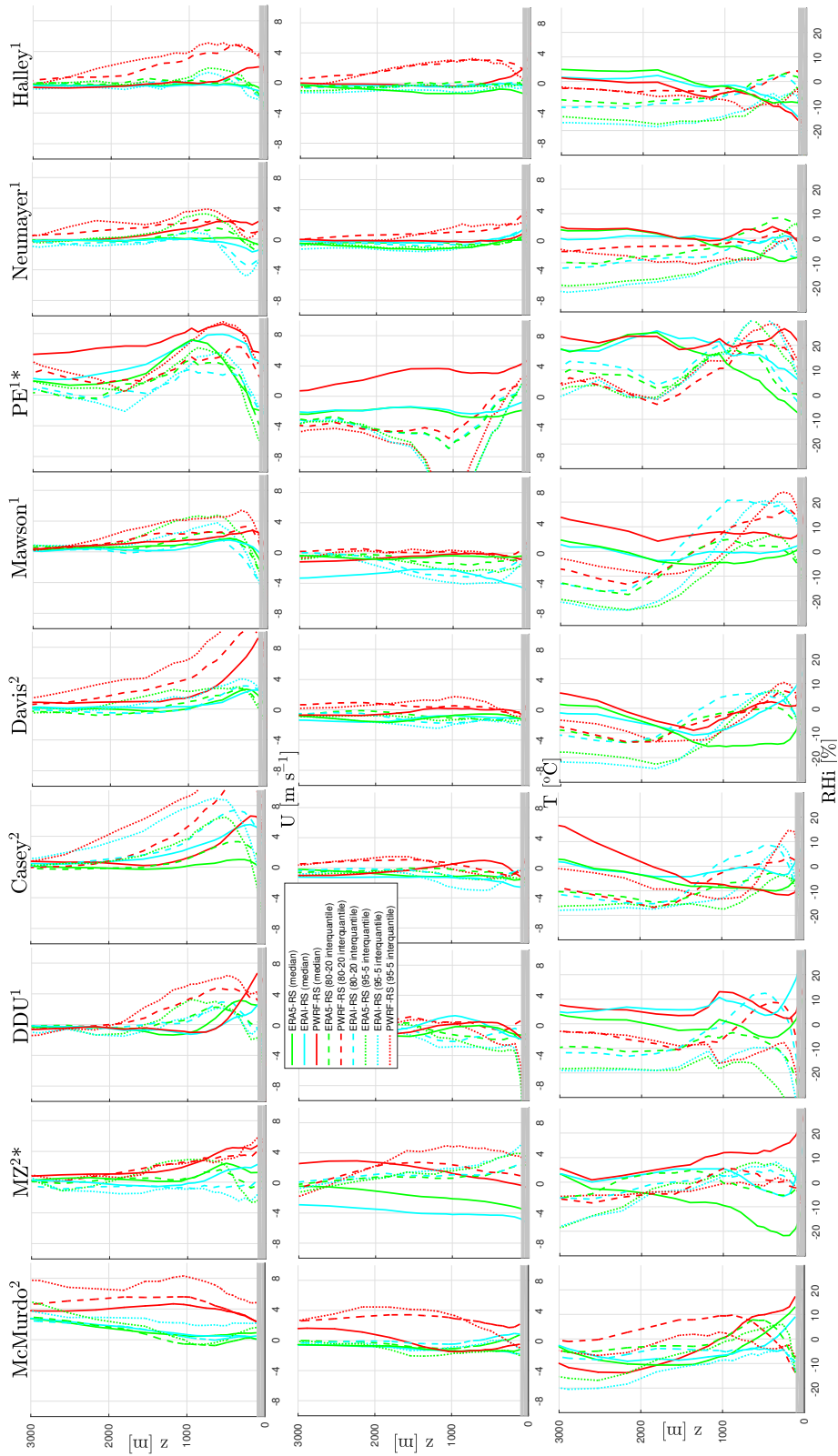


Figure 5. Median differences (solid lines), 80-20th interquartile difference (dashed lines) and 95-5th interquartile difference (dotted lines) with respect to radiosoundings for the wind speed (top row), temperature (middle row) and relative humidity with respect to ice (bottom row) at nine Antarctic stations. Red, green and cyan lines refer to Polar WRF, ERA5 and ERA-I respectively. Grey strips delimit the first 100 m above the ground surface. Polar WRF and ERA reanalyses are conditioned to radiosounding times. Numbers in exponent near station names in title indicate the number of radiosounding per day at the corresponding station. '*' symbol labels the two stations for which only data from December to February are shown.