Individual heating cycles are shown in Fig. 14 (a) for both altitudes from interval A, with PMSE power and measurement error provided by the EISCAT GUISDAP analysis. The corresponding average overshoot cycle for the respective altitude is shown on the right in Fig. 14 (b) in blue is the corresponding average overshoot cycle for the respective altitude. As can be seen, the overshoot is relatively strong for many of the heating cycles, especially the strong overshoot seen in cycle 15 for both altitudes with relatively high but decreasing overshoot on both sides of the cycle. Note the two y-axis scales for the different altitudes, where the heating cycles from altitude 88 km have such a low background PMSE power that the scale is an order of magnitude lower than the altitude below. Both altitudes have relatively low background PMSE power compared to intervals B and C, with the PMSE at 88 km altitude barely present or the irregularities on the limit of being seen by the VHF radar. It is thus interesting to find such large overshoot cycles for this particular interval.

\[\text{Figure 14.} \text{ Individual overshoot curves (a) from interval A (from Fig. 13 shown with their corresponding altitude average on the right-hand side (b). Heating cycle numbers are shown at the bottom, and the on-and-off period for the averaged cycles. Note that the Y-axis scale for altitude 88 km is an order of magnitude smaller than for altitude 87.7 km.}\]

Individual heating cycles from intervals B and C are shown in Fig. 15 (a) with their corresponding altitude average on the right-hand side in blue (Fig. 15 (b) (Note that here the y-axis scale is the same for all the altitude ranges). They cover heating cycles 21, 22, and 23. The overshoots are present for the lower altitudes but are not as high as in interval A. However, the overshoot does not decline evenly but increases again before reaching the initial signal level. This influence can be seen in the averaged heating curve for altitude 86.7 km, where after about 120 seconds, the power starts to increase again. This is either because of the beginning influence of particle precipitation on the ionosphere or variation of the PMSE structure due to the long relaxation time (Havnes et al., 2015). This influence is very strong in the subsequent cycle (cycle 24), where the PMSE power increases during the heater-on period. This type of ionospheric variation can influence the observations to the extent that