

## Exercise sheet 01 ‘Applied AI Using R’

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The goal of the first exercise is to become familiar with R and RStudio and to create your first plots. We will in particular work with the ATM dataset that you already encountered in the lecture.

### **Exercise 1.**

Produce Figure 1 and 2.

### **Exercise 2.**

Produce Figure 3, Figure 4 and Figure 5<sup>i</sup>.

### **Exercise 3.**

Produce Figure 6 and 7.

### **Exercise 4.**

Produce Figure 8.

### **Exercise 5** (Climate Change - Geosphere Data).

Using the link to the Geosphere Data Hub, download monthly weather data (daily minimum/maximum air temperature, precipitation amount, snow depth, etc.) for at least two measurement stations (point measurements of all locations) in the federal state of Salzburg over the longest possible period (at least 35 years), and import them into R.

### **Exercise 6.**

Display the data you loaded in the previous task graphically (line plot, boxplots, etc.). Are there any signs of climate warming detectable?

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<sup>i</sup>The axis labels are intentionally not optimized and are meant to indicate what needs to be done.

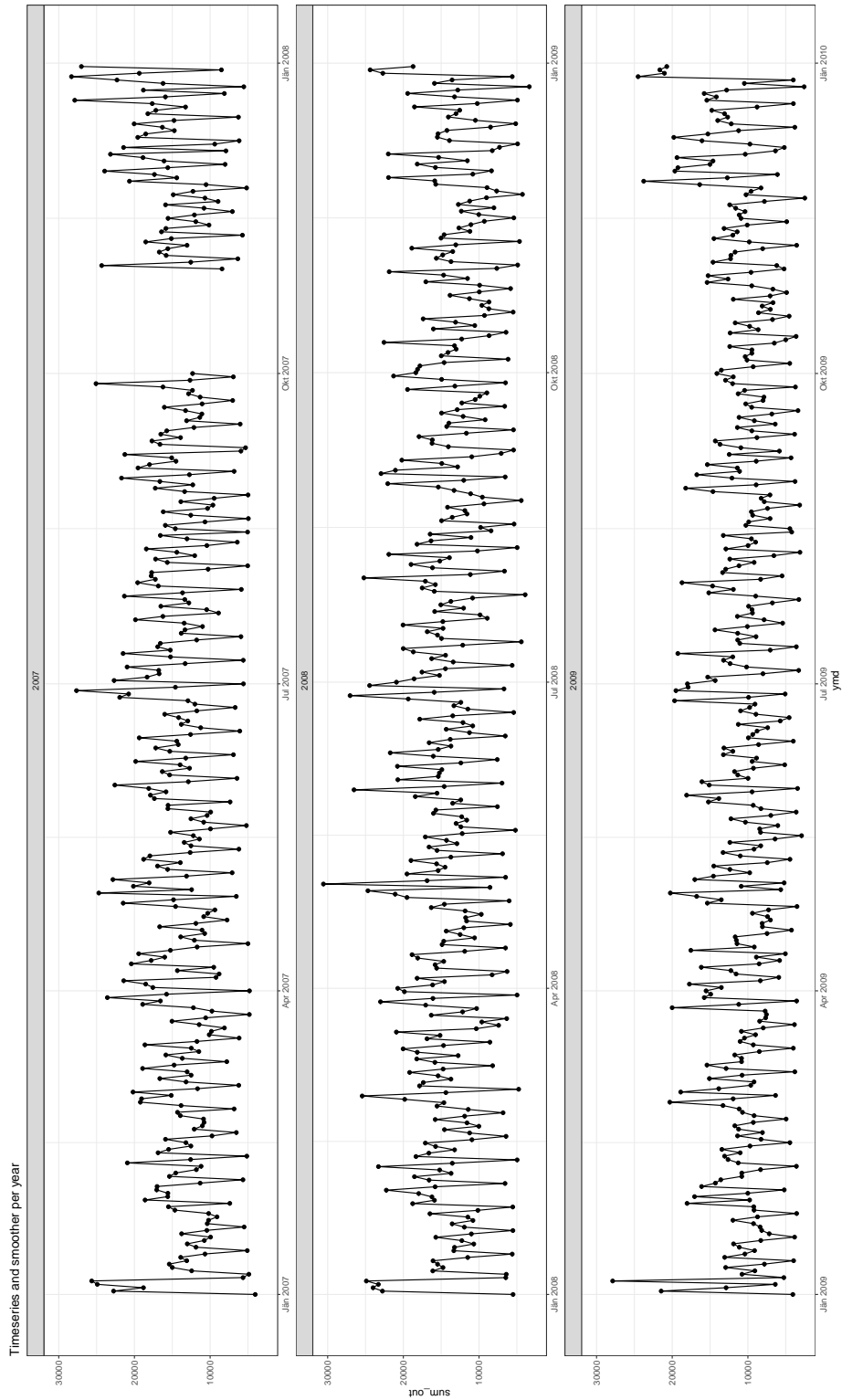


Abbildung 1: ATM Zeitreihe

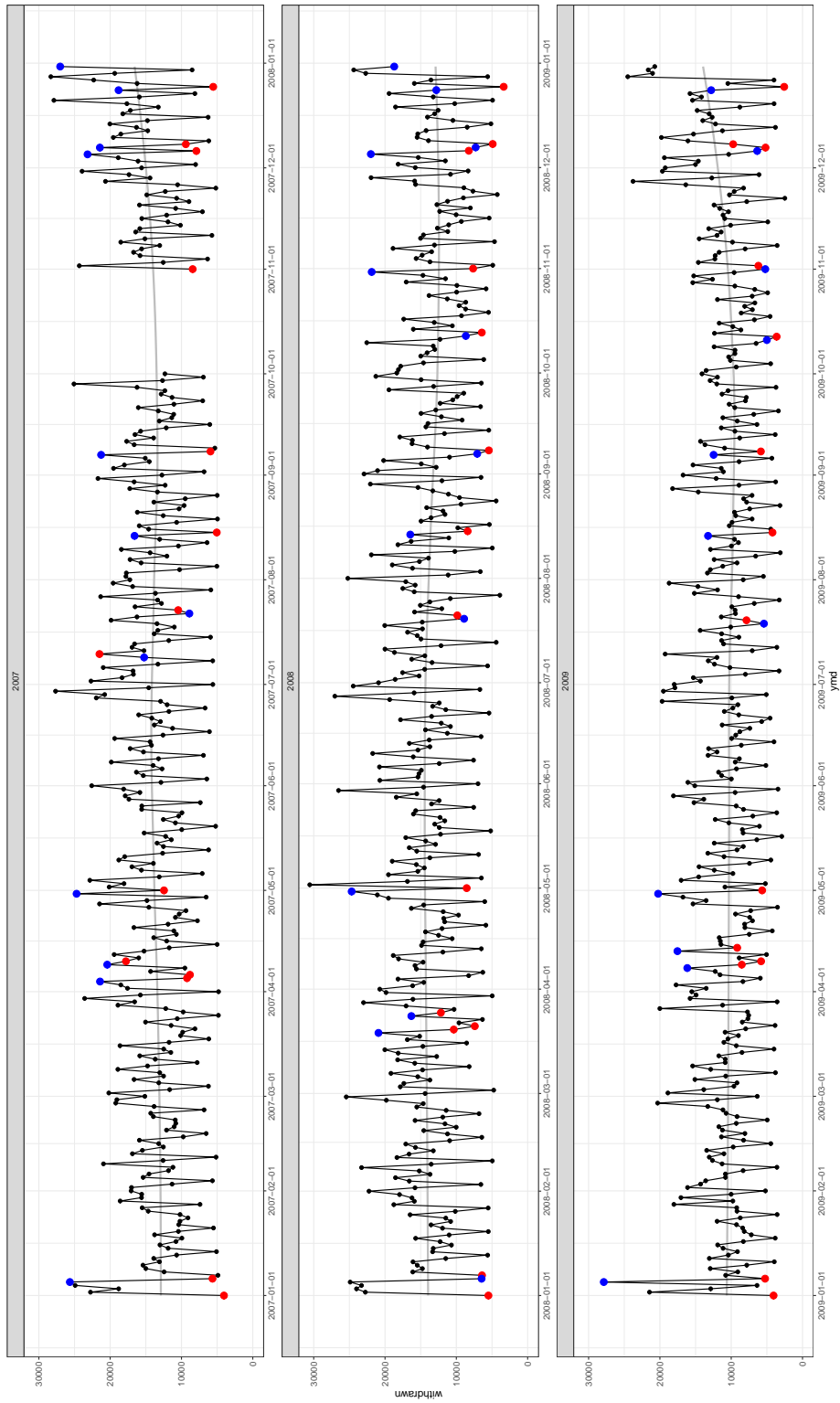


Abbildung 2: ATM Zeitreihe mit mehr Info

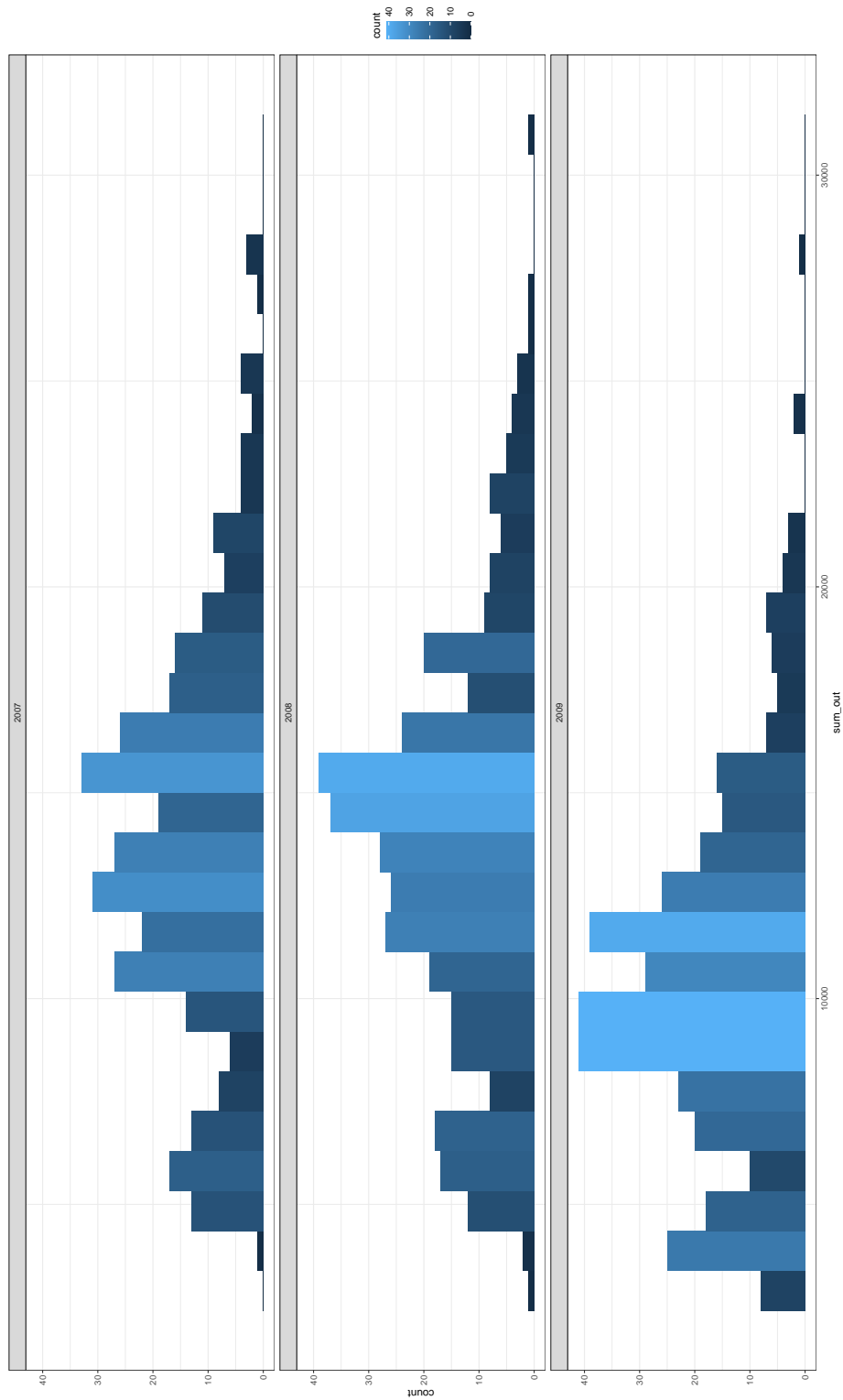


Abbildung 3: ATM jährliches Histogramm

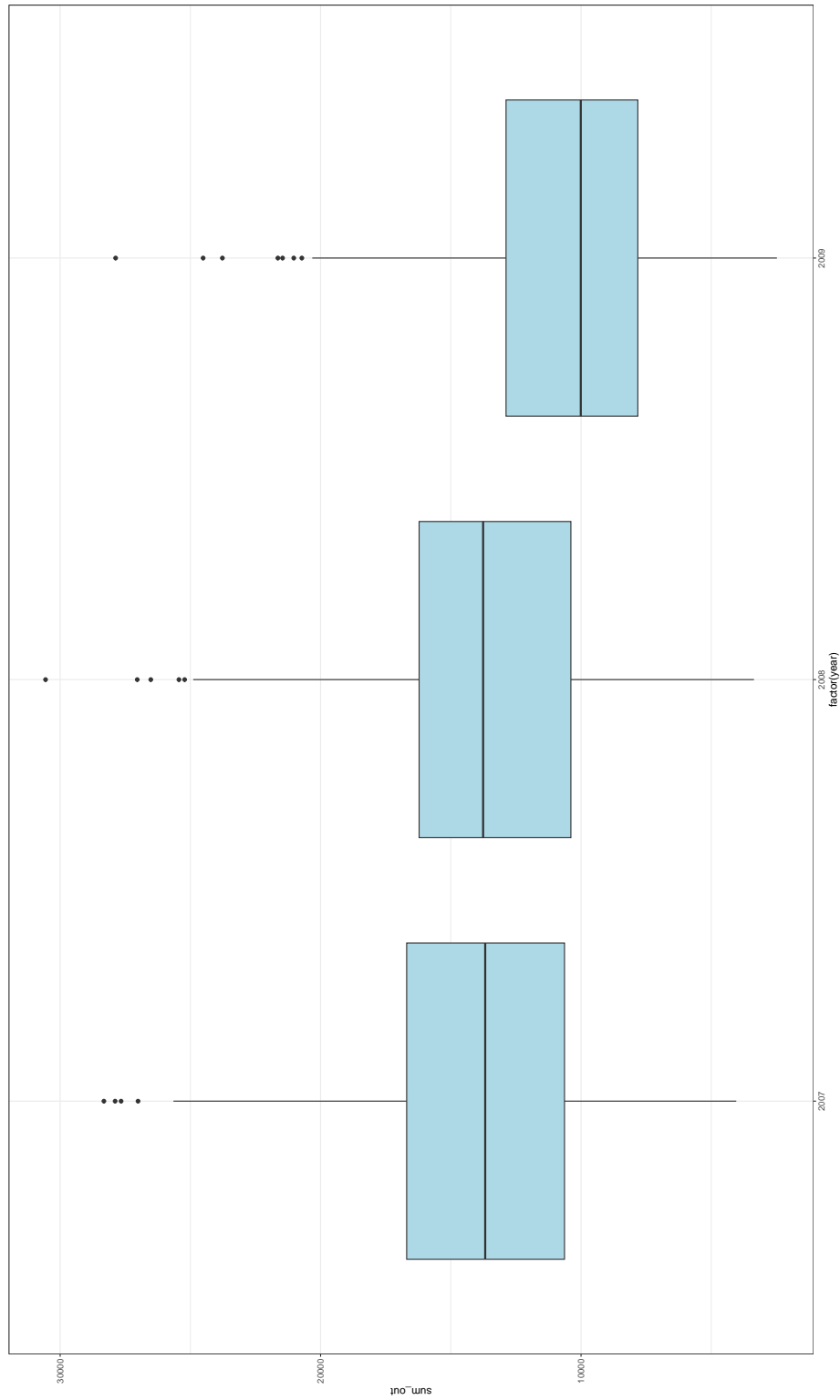


Abbildung 4: ATM jährliche Boxplots

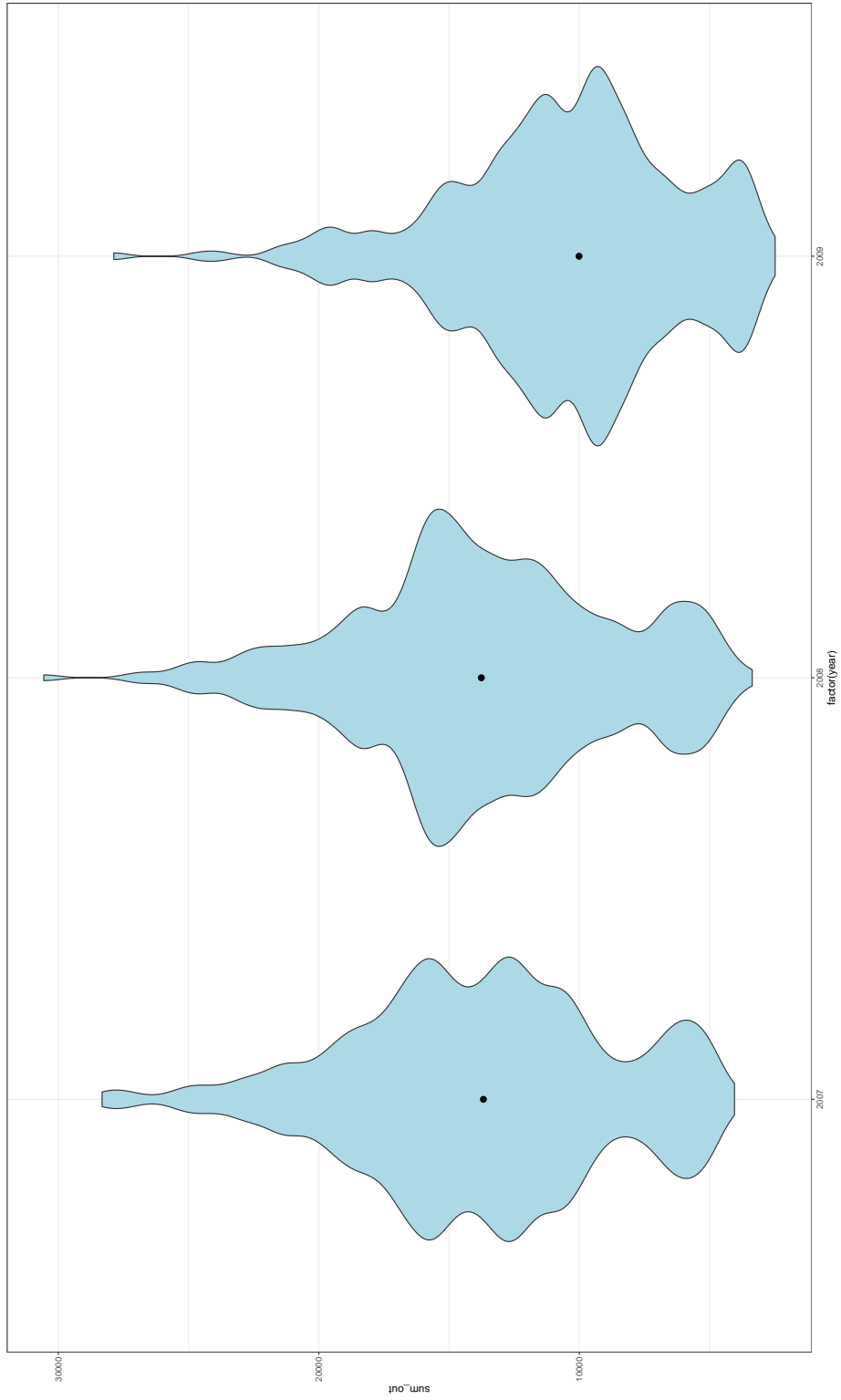


Abbildung 5: ATM jährliche Violin Plots

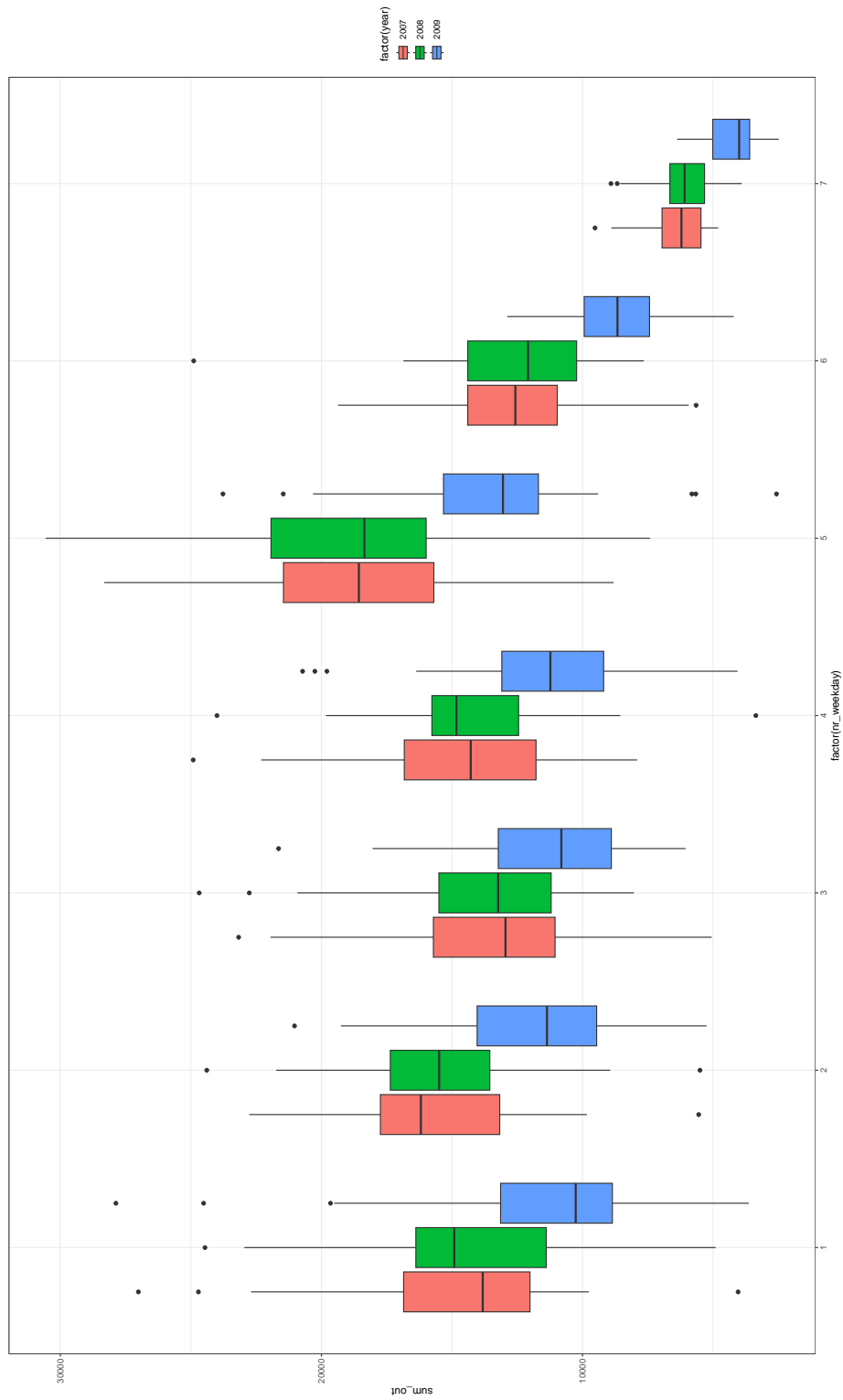


Abbildung 6: ATM Boxplots pro Wochentag und Jahr

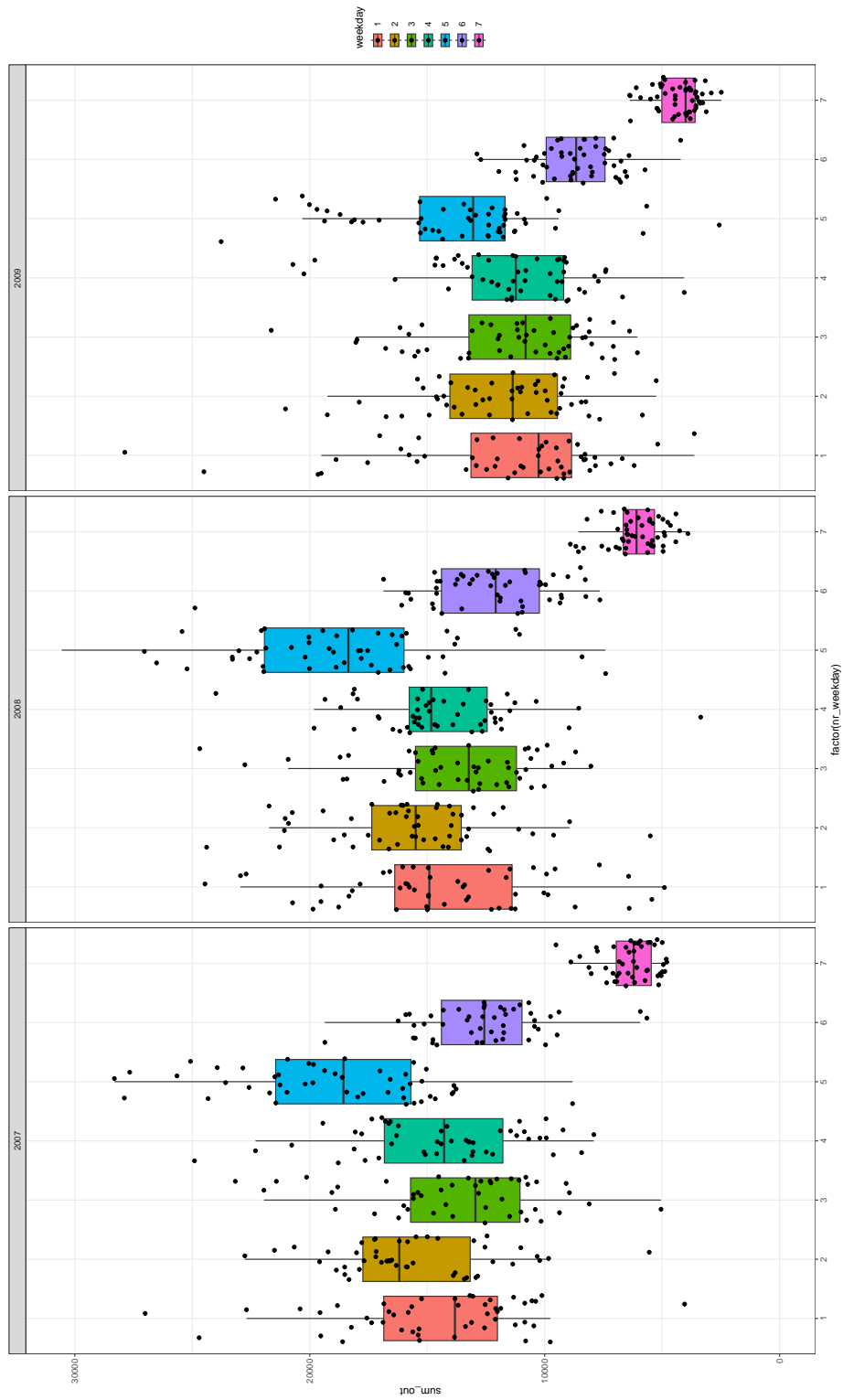


Abbildung 7: ATM Boxplots pro Wochentag und Jahr

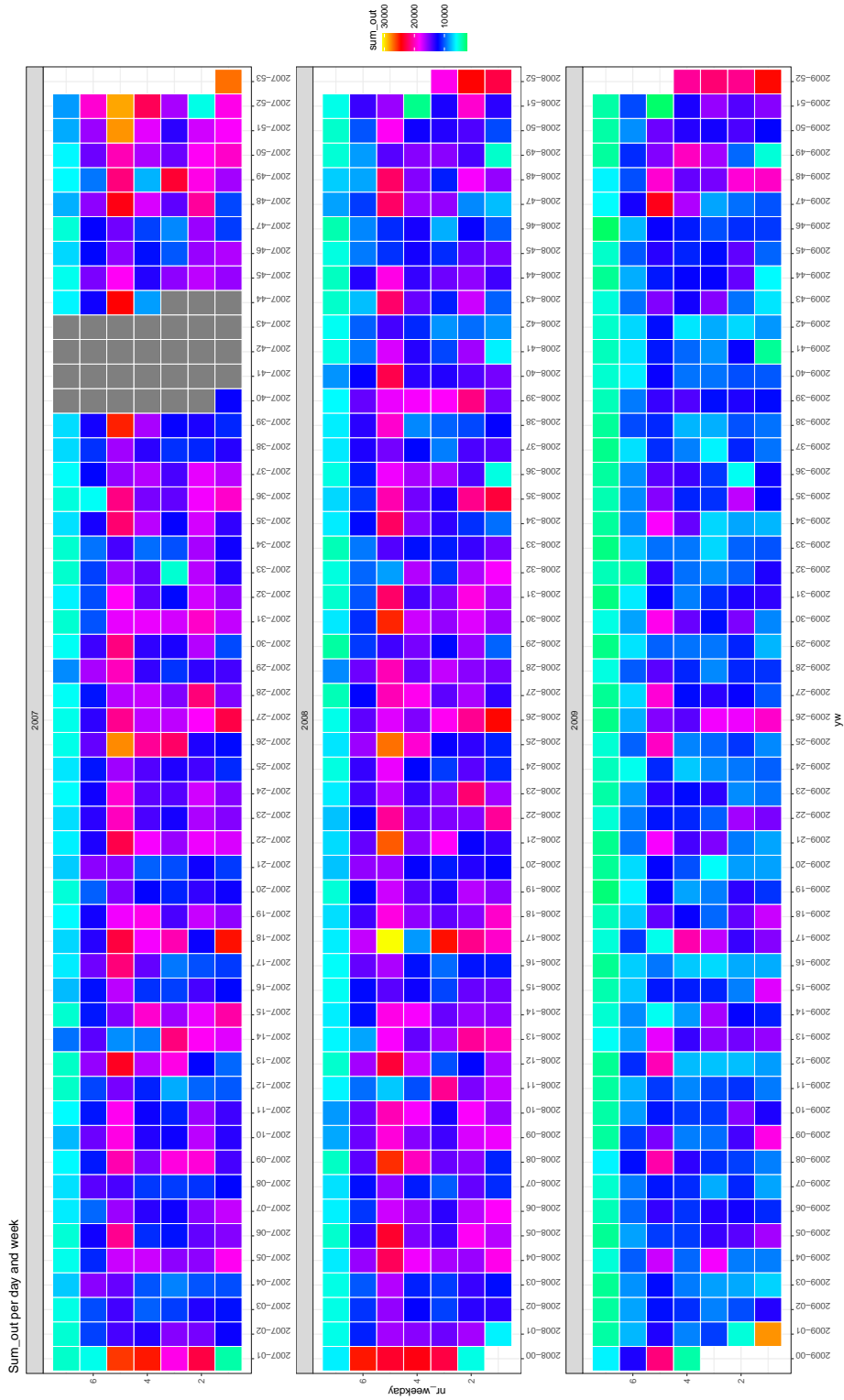


Abbildung 8: ATM heatmap