# Rb density vs heat exchanger temperature measurement

26.09.19

Fabian & Jan

Very preliminary!!!

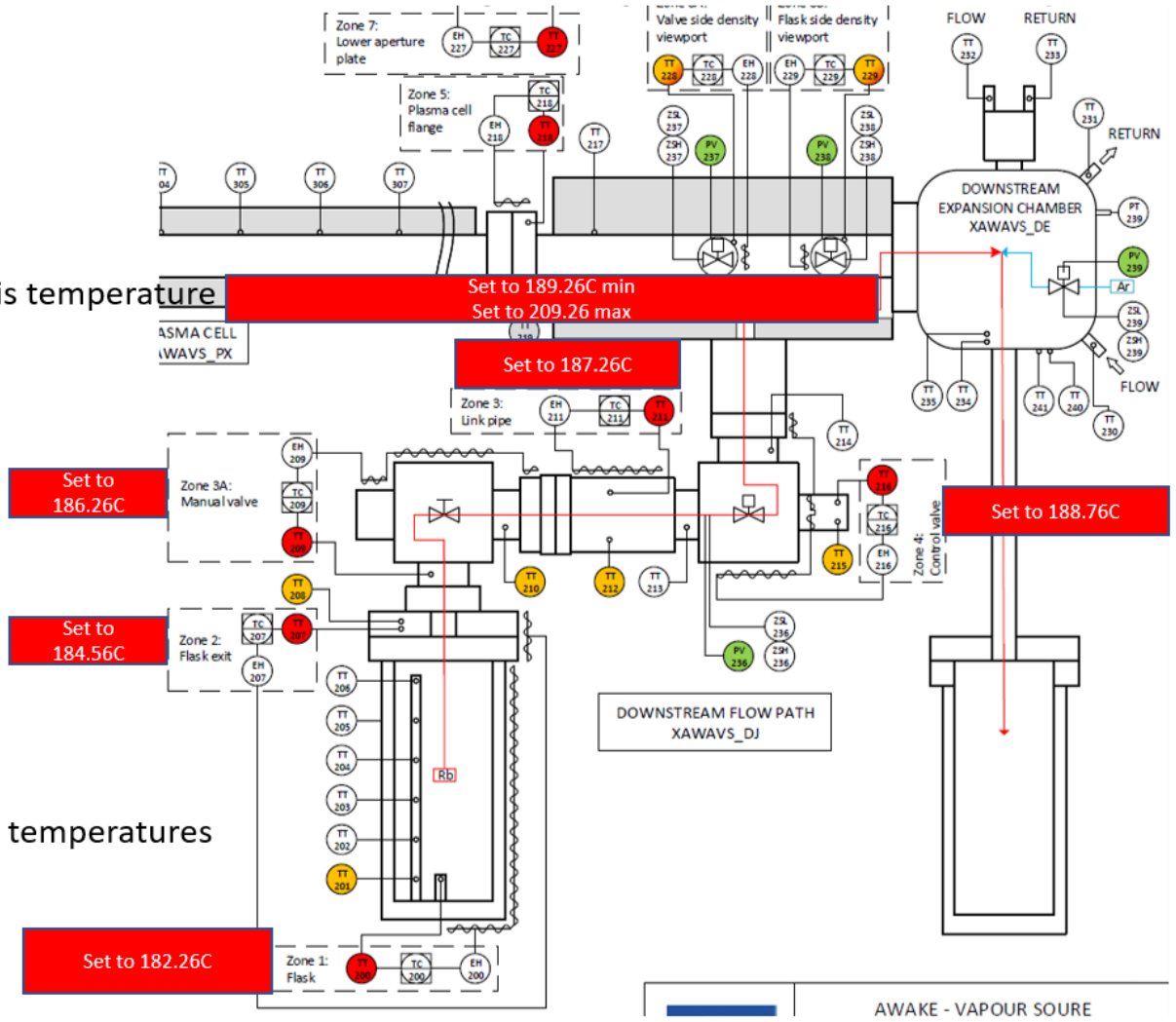
# The idea:

Only vary this temperature

Default: 15°C offset
First point: 7°

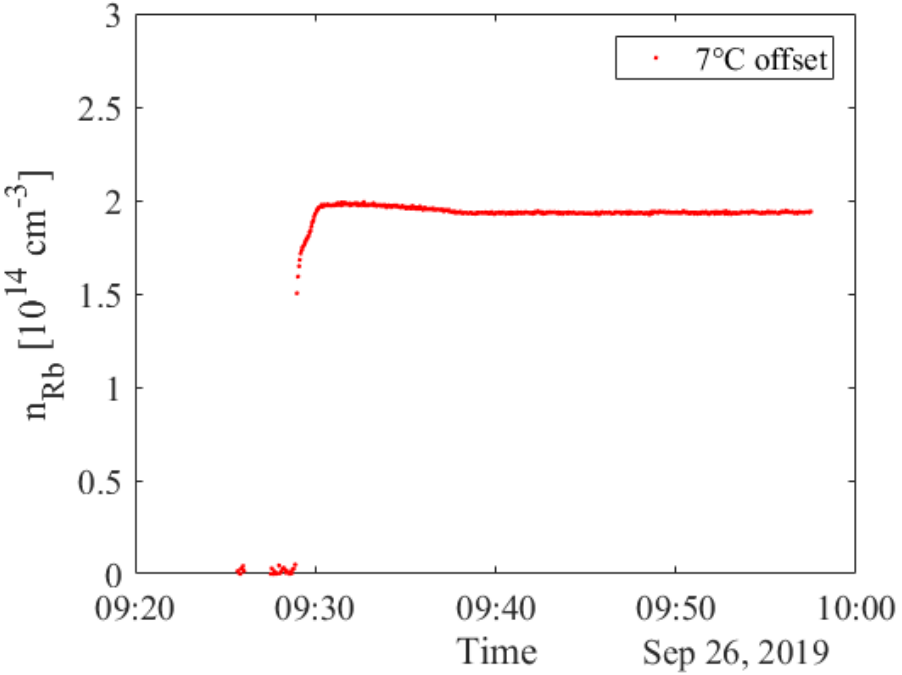
Changed the flow path!

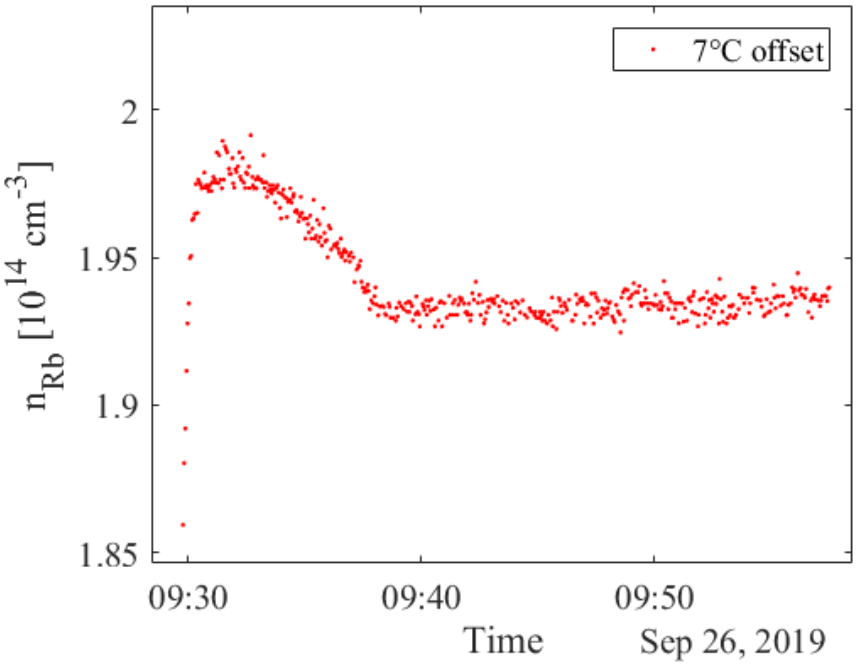
Fix all other temperatures



# First Data point (this morning)

Offset: 7°C



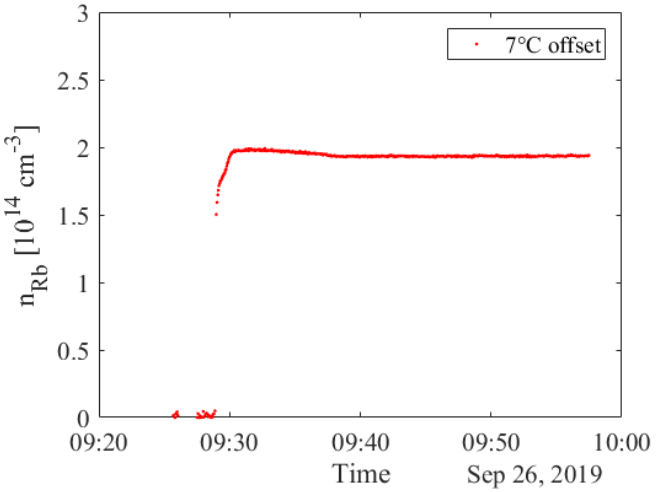



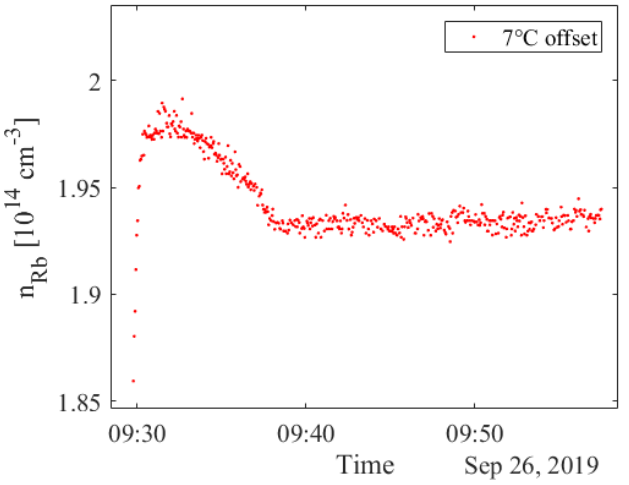
# Data points (12:00)

**Result for the Rb vapor density:**

**Measured**:

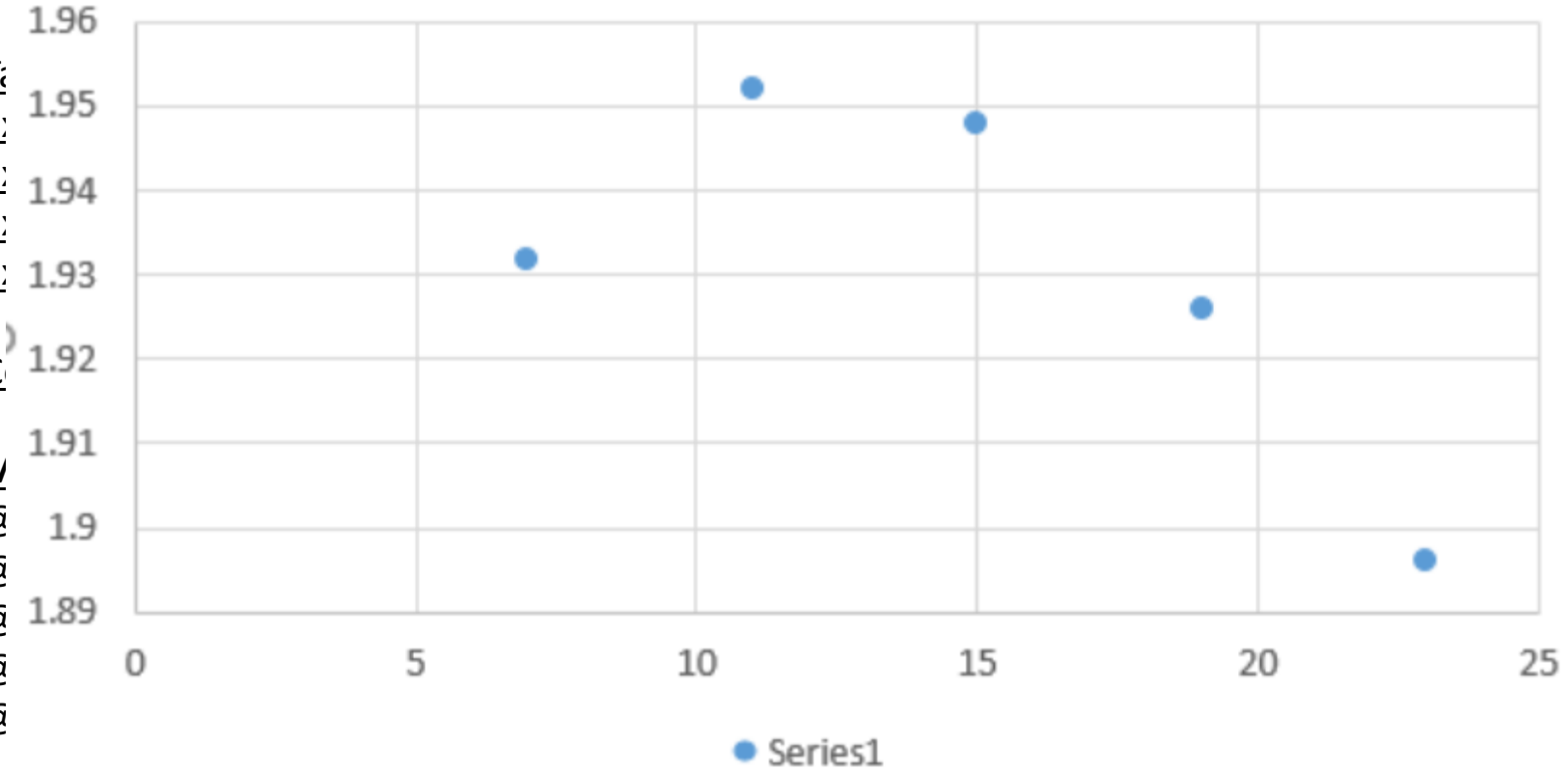
@ 7°C offset: $(1.934 \pm 0.004) \times 10^{14}$ cm$^{-3}$
@ 11°C offset: $(1.952 \pm 0.003) \times 10^{14}$ cm$^{-3}$
@ 15°C offset: $(1.948 \pm 0.003) \times 10^{14}$ cm$^{-3}$
@ 19°C offset: $(1.928 \pm 0.004) \times 10^{14}$ cm$^{-3}$
@ 23°C offset: $(1.896 \pm 0.005) \times 10^{14}$ cm$^{-3}$



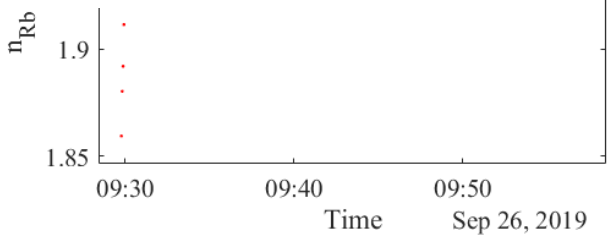



# Data points (12:00)

**Result for the Rb vapor density:**






Difference: 0.018 x $10^{14}$ $cm^{-3}$ for ΔT = 4°C

ΔT/T = 4 / 462.4 = 0.865 %

$\Delta n_{Rb}/n_{Rb}$ = + 0.018 / 1.934 = + 0.931 %