Water vapor: initial analyses with other tracers

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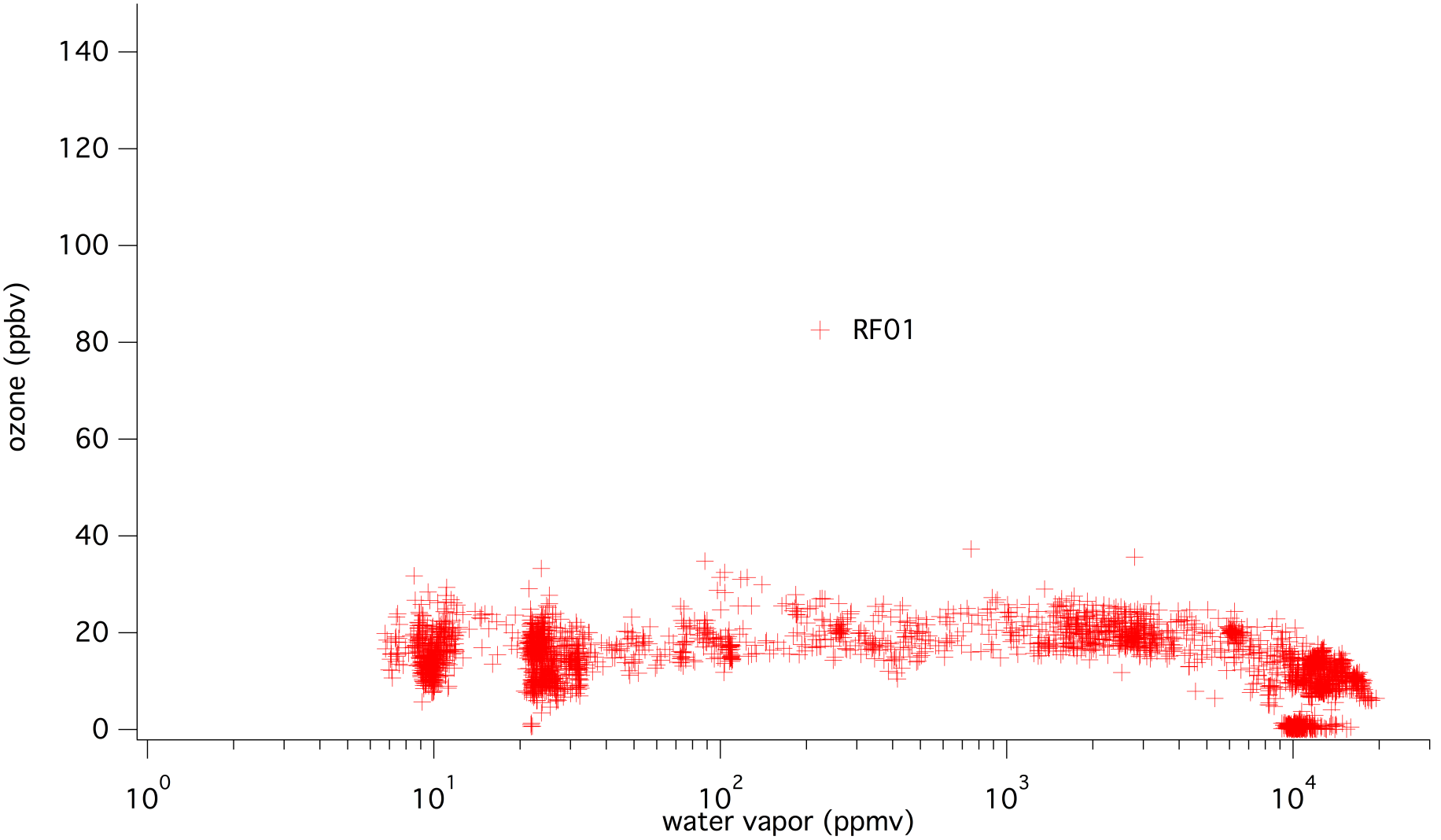
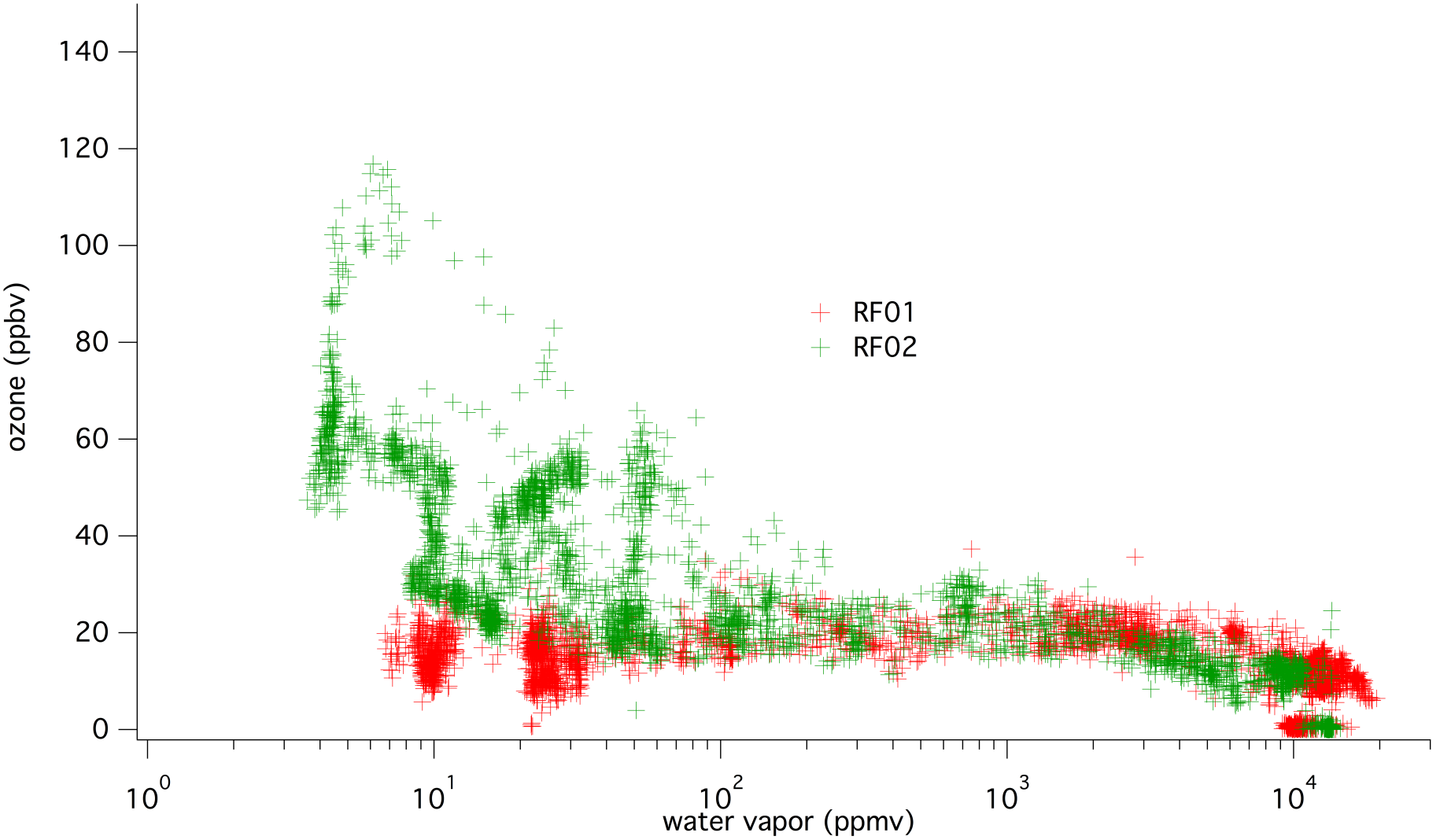
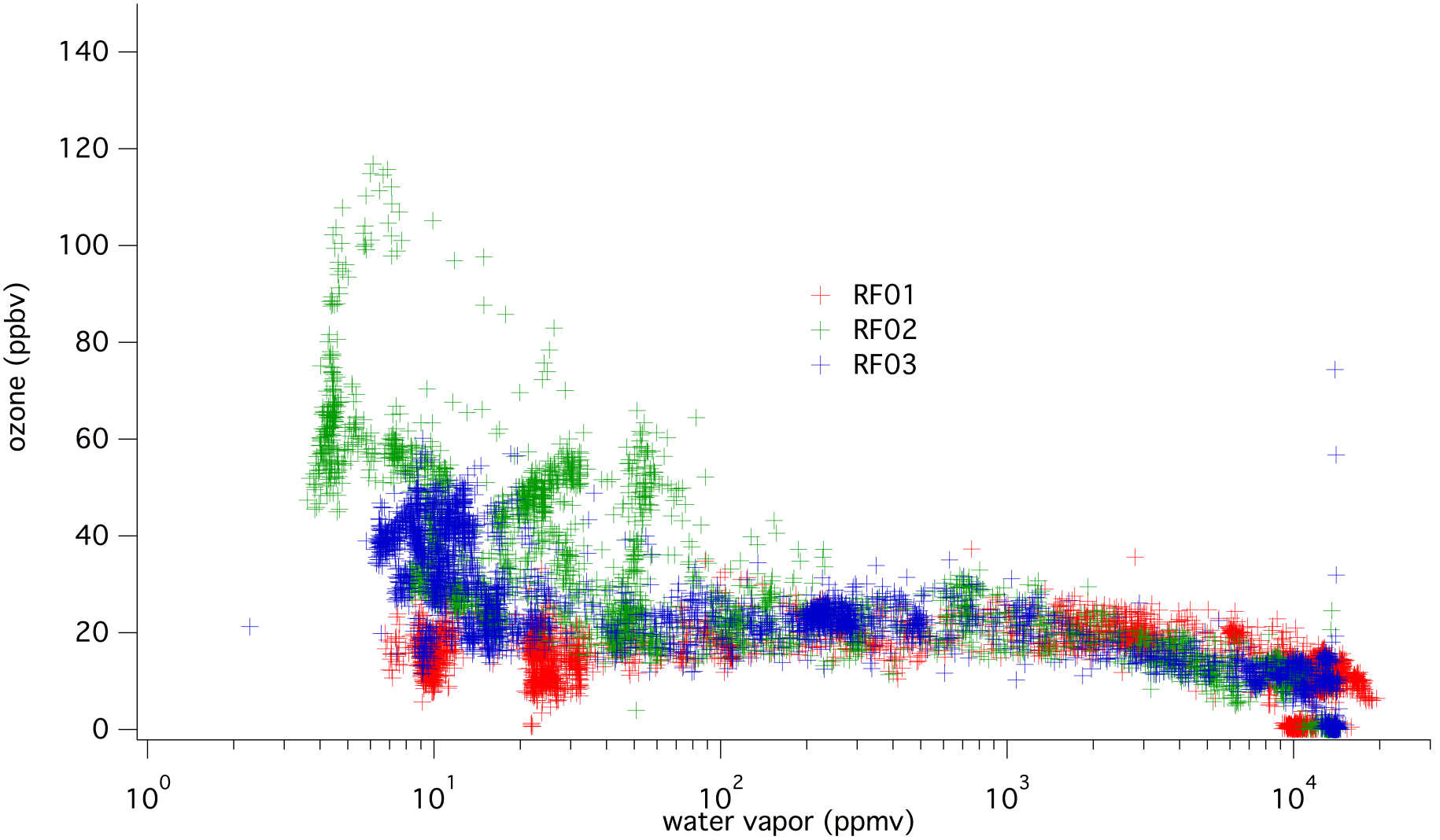
Ozone / water vapor tracer-trace plots



Ozone / water vapor tracer-trace plots



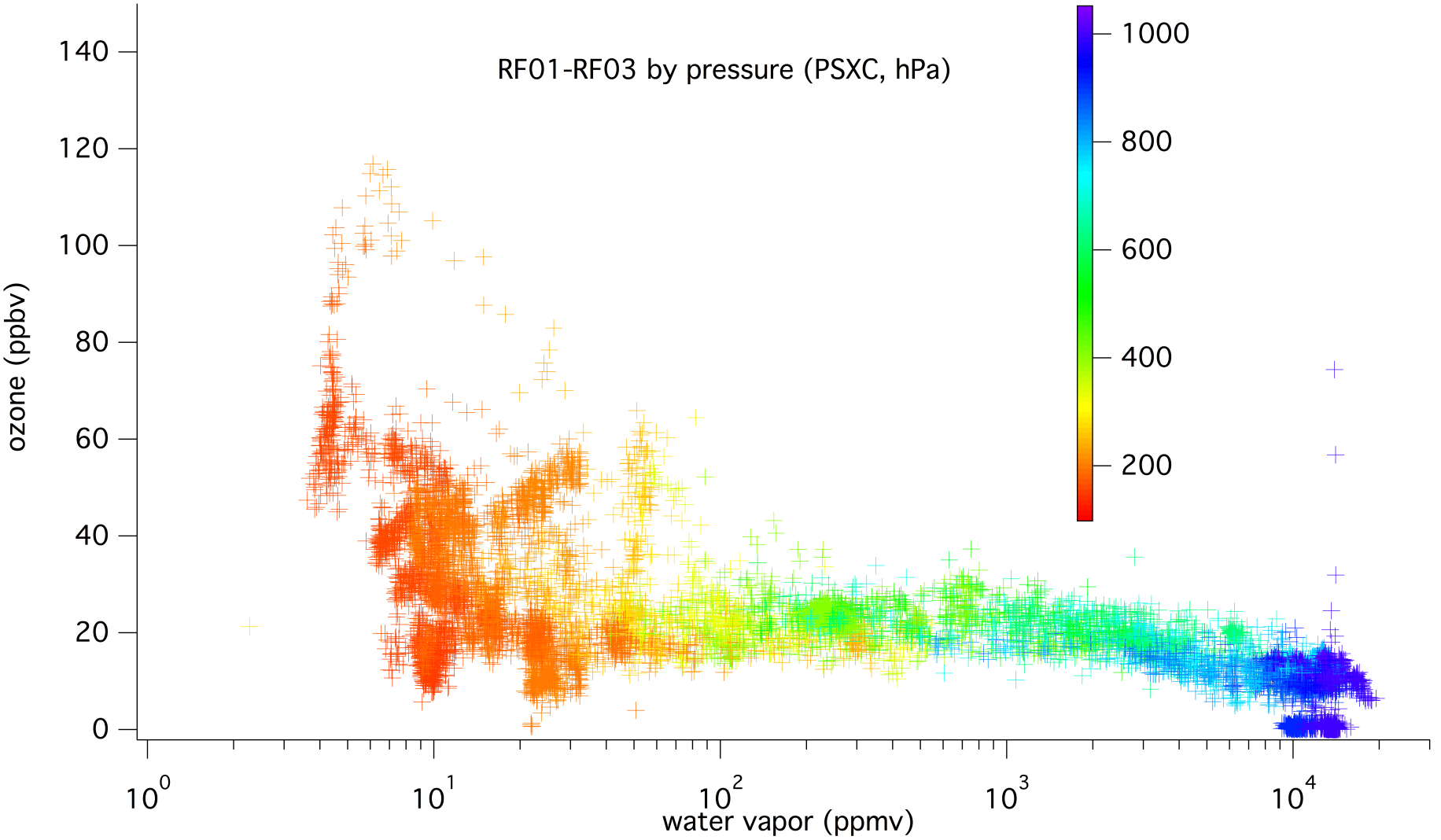
Ozone / water vapor tracer-tracer plots



RF02 and RF03 definitely saw stratospheric-influenced air, unlike RF01

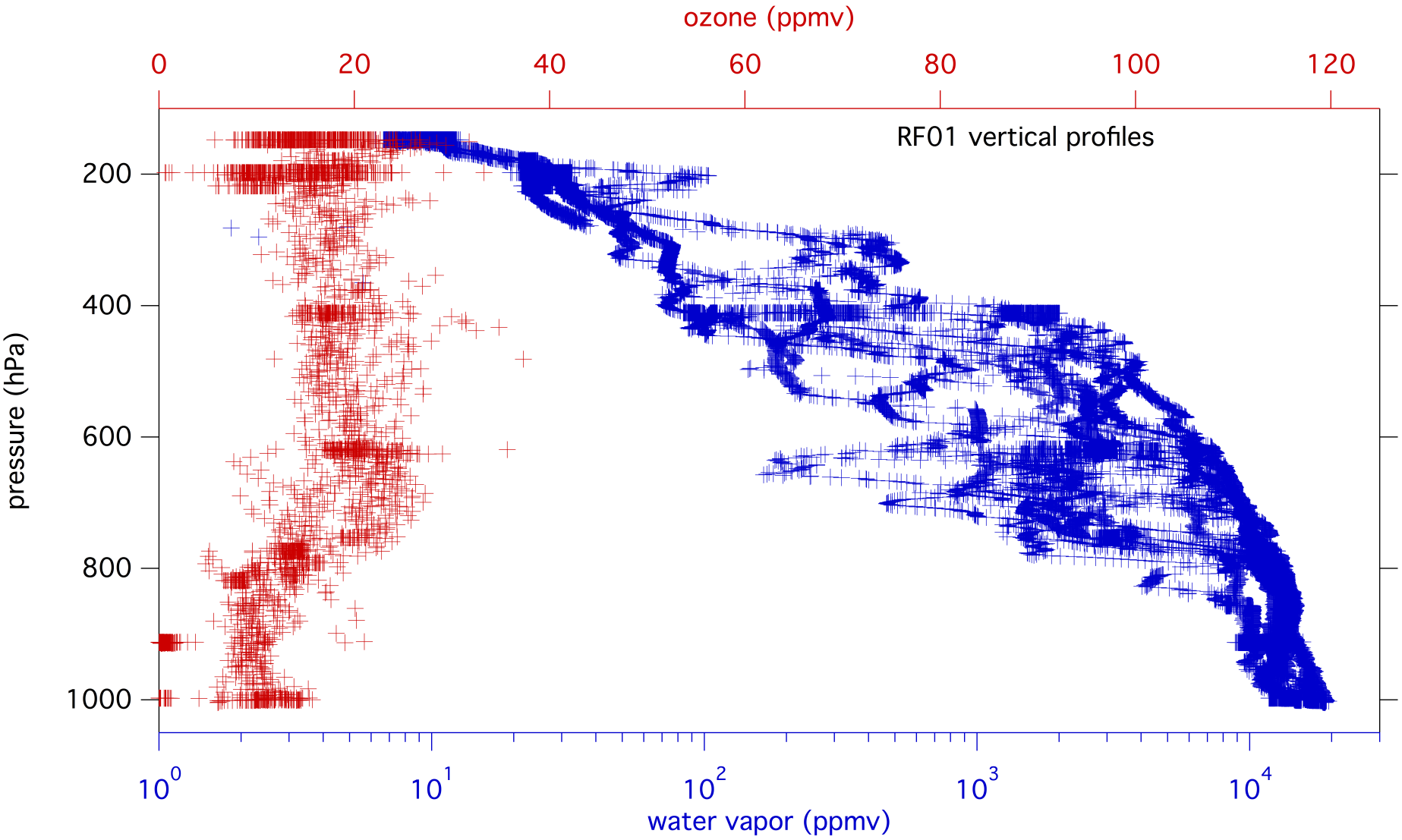
Two slopes in lower and middle troposphere for H_2O/O_3; boundary layer/free trop.?

O_3 vs. H_2O by pressure

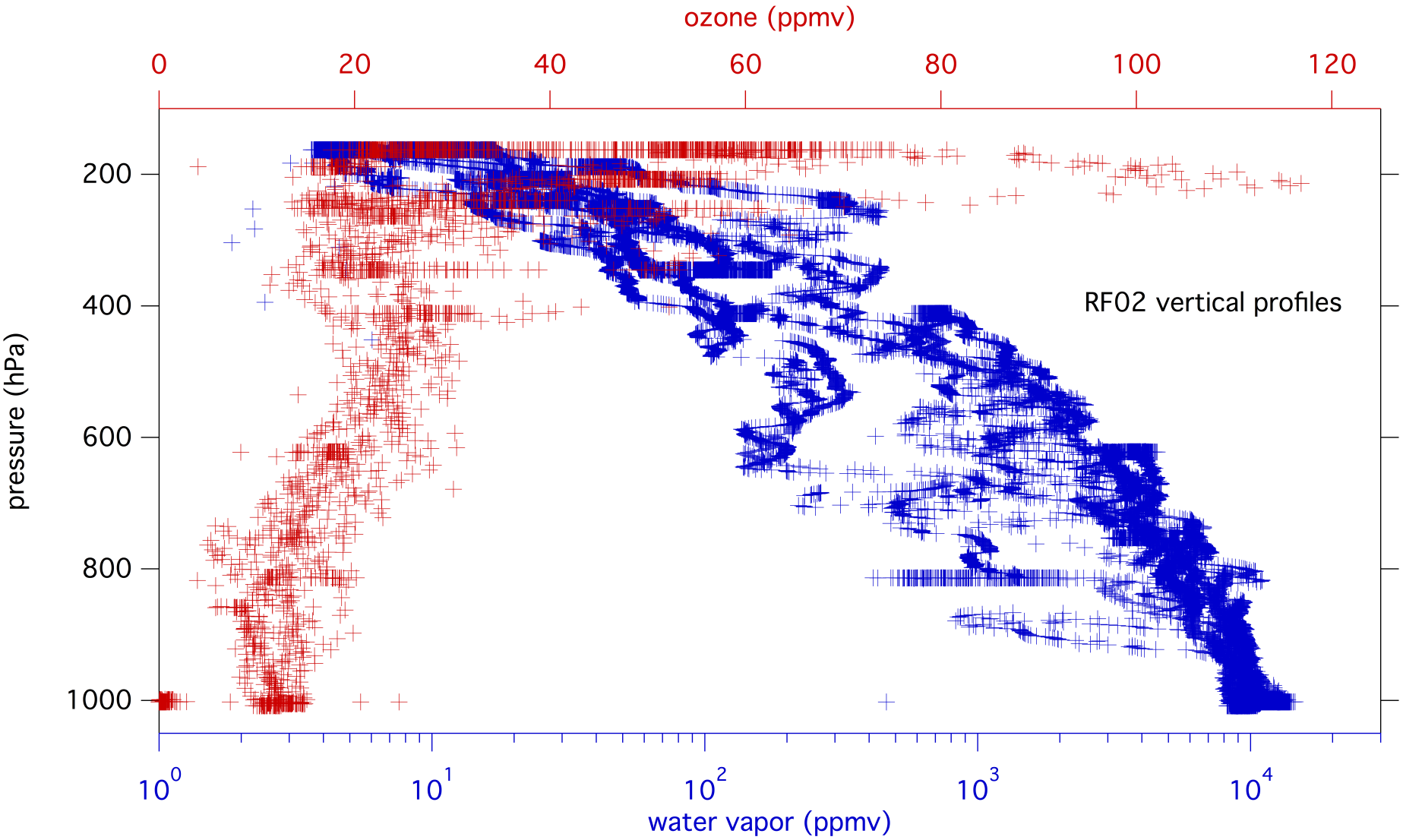


Based upon pressure, not just a boundary layer / free troposphere feature; examine vertical profiles of gases

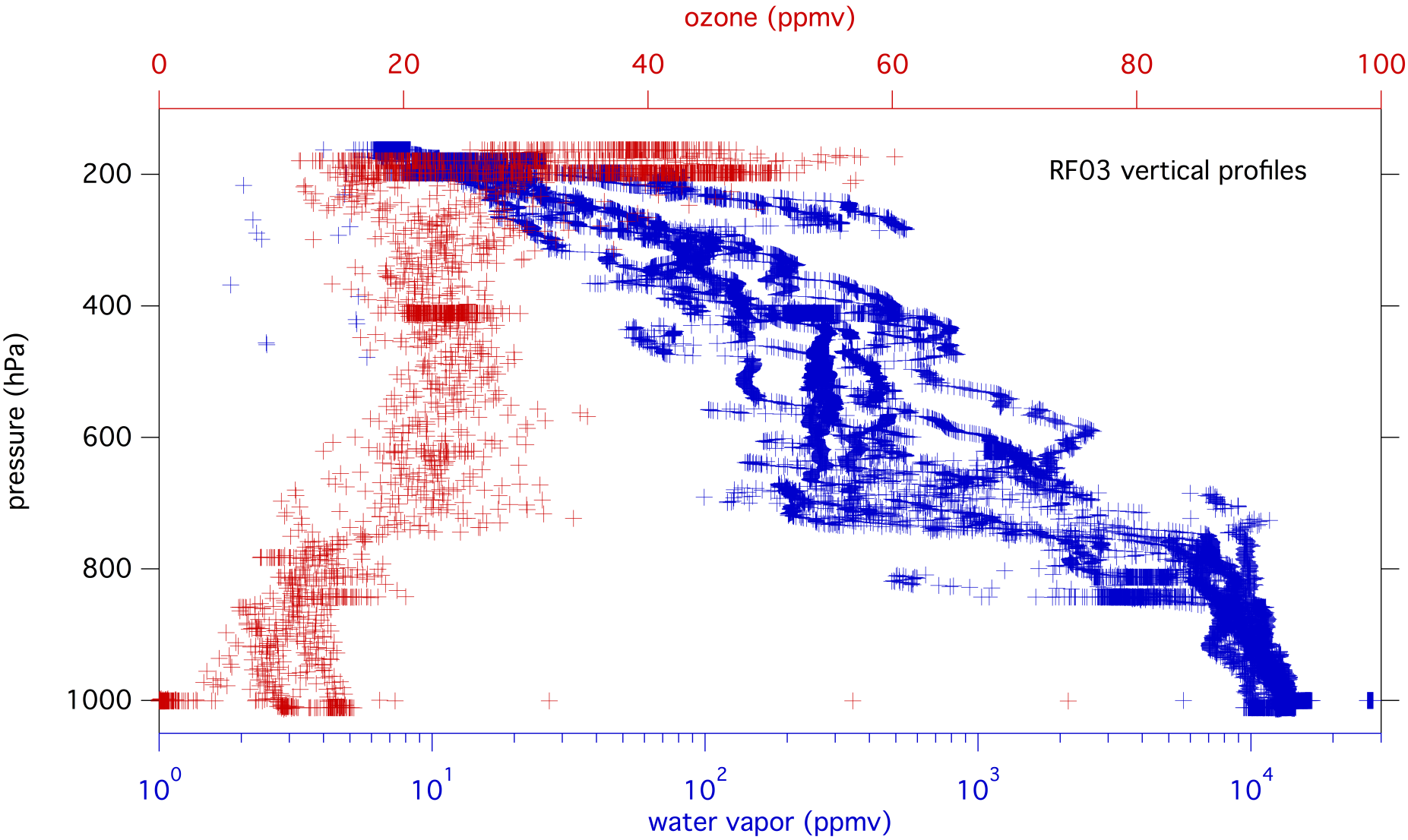
RF01 vertical profiles



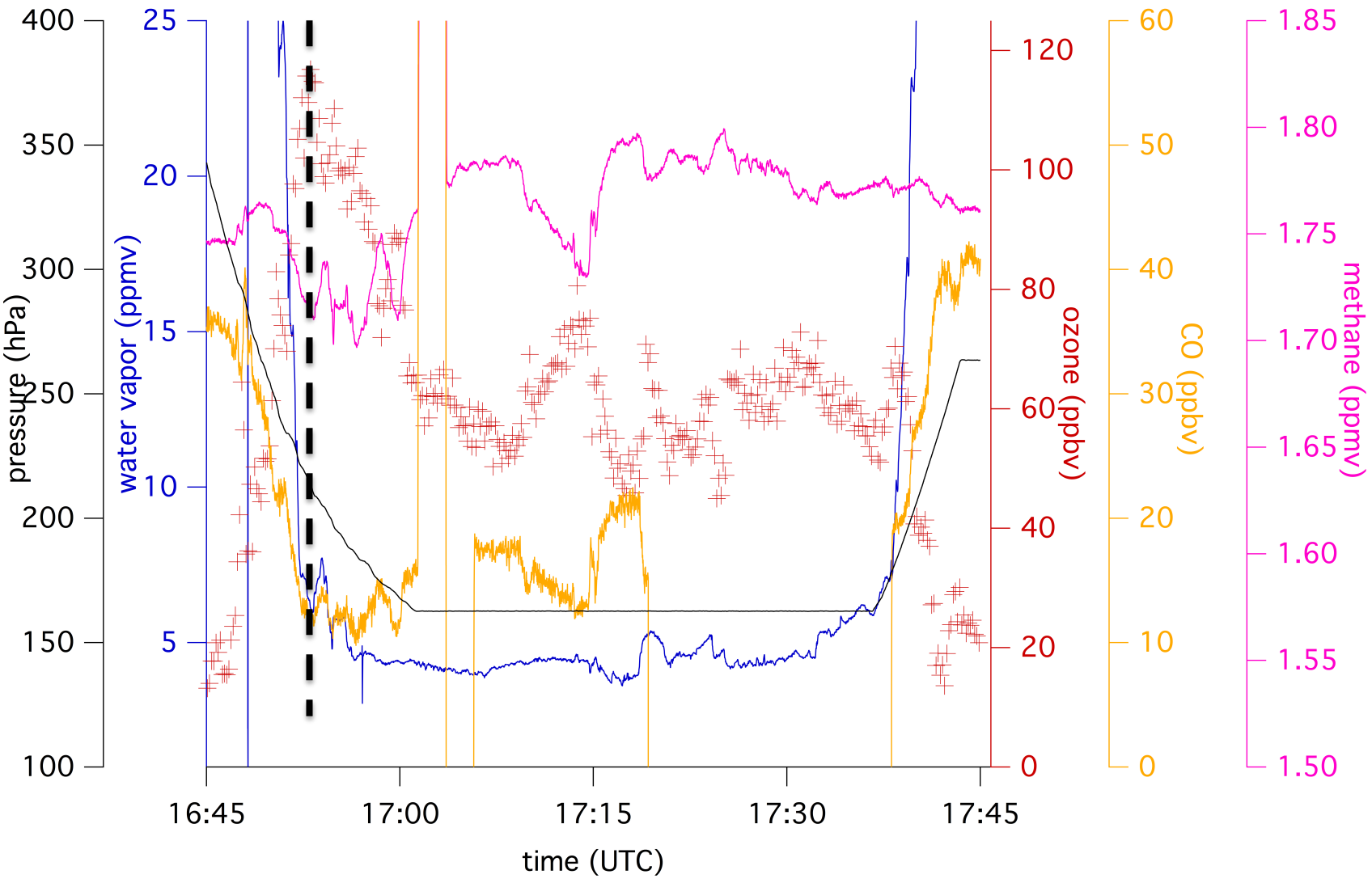
RF02 vertical profiles



RF03 vertical profiles

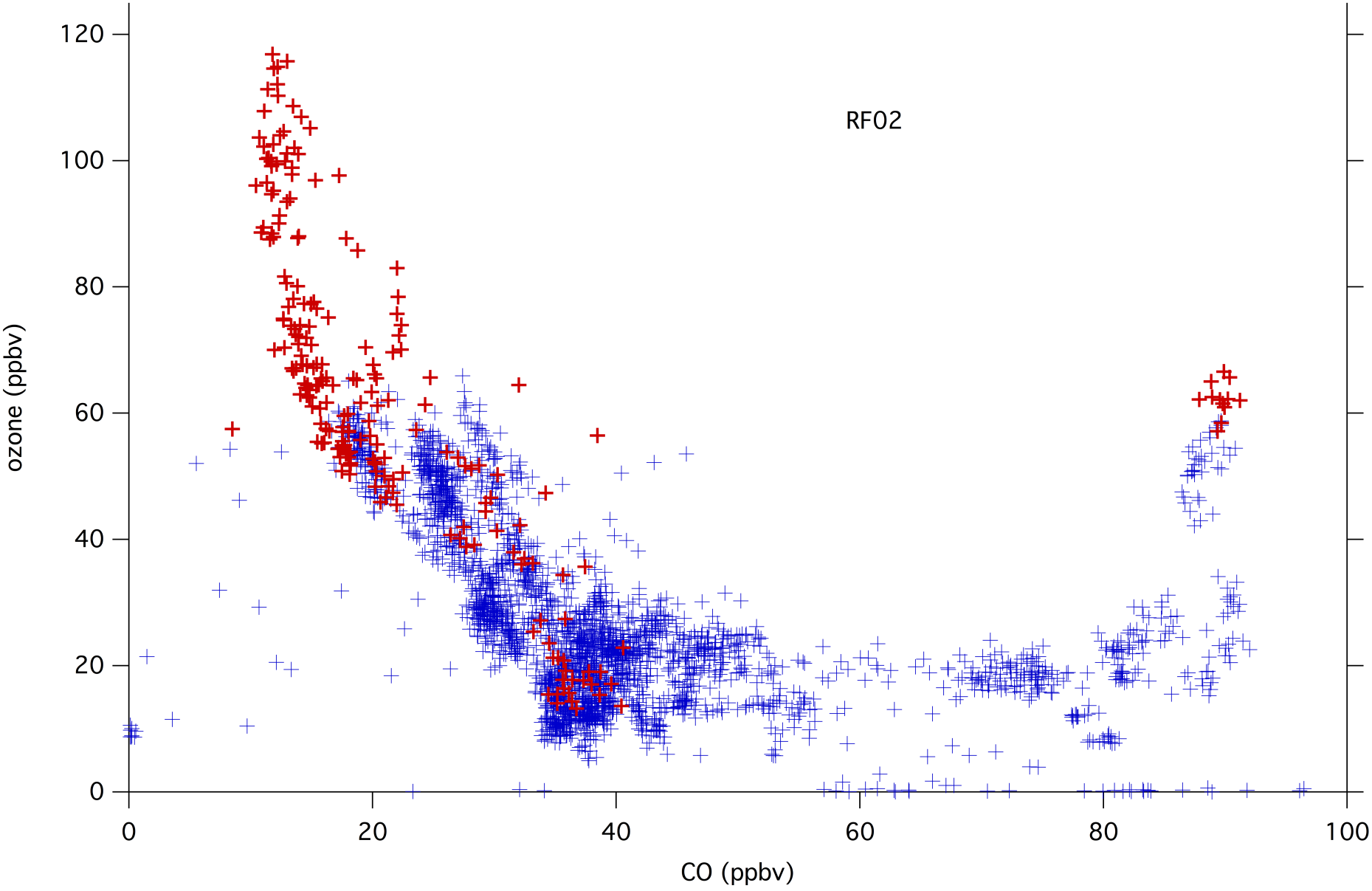


time series near intrusion



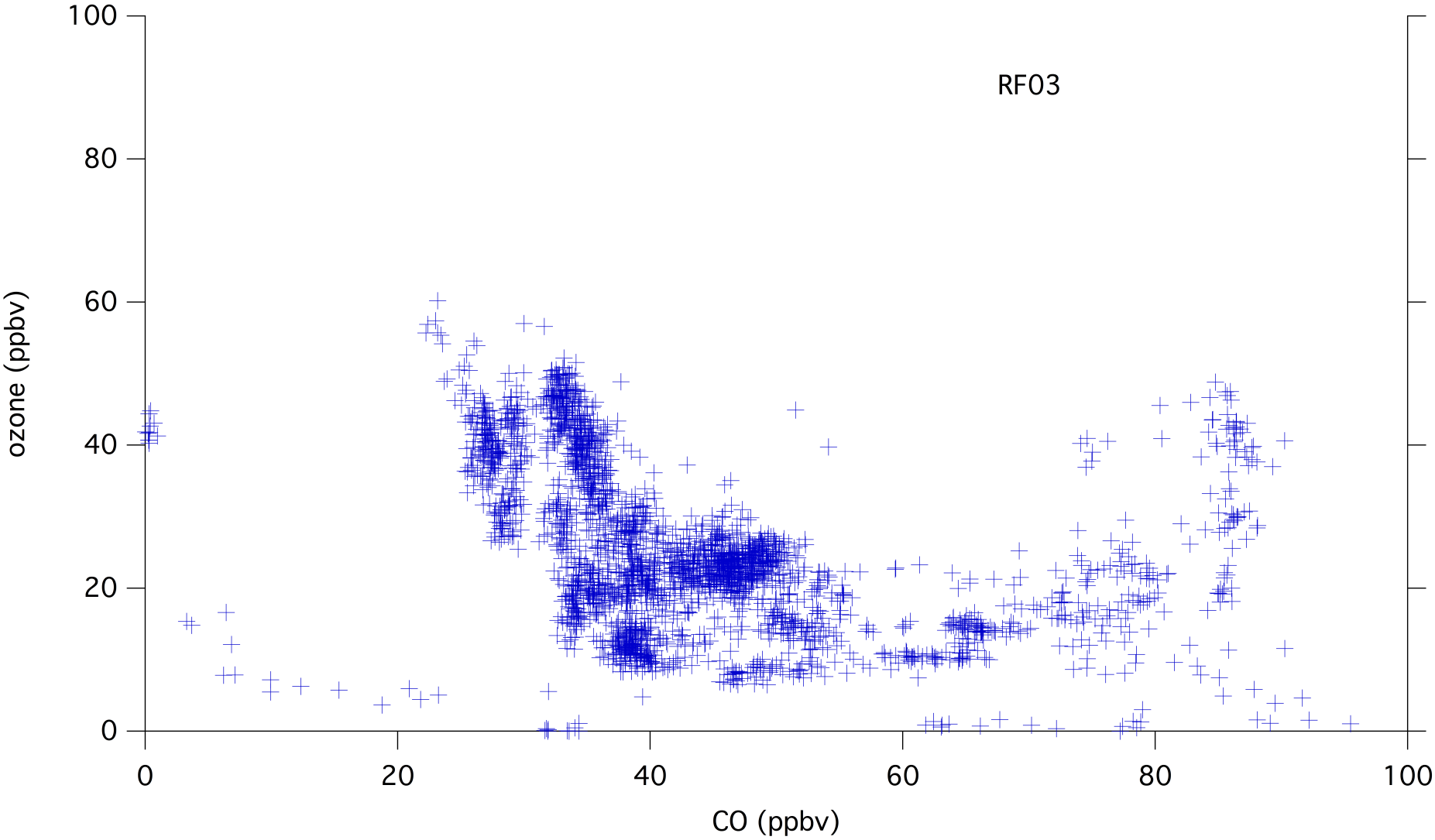
While ozone decreased, water stayed continued to decrease throughout descent

O_3 vs. CO



Clearly, strat.-trop. mixing occurring in this region

For comparison: O_3 vs. CO for RF03



Summary

- VCSEL performed well in FF01-RF03; no problems noted

- complicated strat.-trop. mixing, fine scale structure in water vapor
  (what mechanism responsible for fine-scale H_2O?)

- next steps: distribution of RH in troposphere and identifying mechanisms responsible for horizontal water vapor variability