

## ***Interactive comment on “Measurements of CO<sub>2</sub>, its stable isotopes, O<sub>2</sub>/N<sub>2</sub>, and <sup>222</sup>Rn at Bern, Switzerland” by P. Sturm et al.***

**P. Sturm et al.**

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As pointed out by the referee the large gaps in the data series of most tracers, especially if compared to CO<sub>2</sub>, make conclusive discussions of some aspects difficult at the present state of research. However, we don't think that this limits the confidence in our results, because these limitations are clearly stated and uncertainties are indicated where applicable. The main reason for the data gaps is that we could only run these measurements at times when the dedicated instruments were not used for the usual analysis of samples. Fig. 6 and 11 are not redundant. On the one hand they give an overview and show the temporal data coverage of all measured and discussed species and therefore help to clarify the issue about gaps, which is criticised here. On the other hand they show the variations - or in case of the air isotopes the stability - of these

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tracers when measured at an urban site. We have now better explained the reason for the data gaps and its implications on the data analysis and think that both Fig. 6 and 11 should remain in the manuscript. We don't question in no way that  $^{222}\text{Rn}$  is very effective in supporting atmospheric studies. On the contrary, our results show that even with this basic approach used here, we can estimate a  $\text{CO}_2$  flux based on  $^{222}\text{Rn}$  measurements, although the uncertainty is quite large. As a good overview of atmospheric radionuclides in climate and air quality studies we have included the GAW report no. 155 as a reference in the introduction.

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Interactive comment on Atmos. Chem. Phys. Discuss., 5, 8473, 2005.

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