

## ***Interactive comment on “Long-term measurements of aerosols and carbon monoxide at the ZOTTO tall tower to characterize polluted and pristine air in the Siberian Taiga” by X. Chi et al.***

### **Anonymous Referee #2**

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The ACPD paper deals with the time series of CO and aerosol data at the ZOTTO site in Central Siberia for a time interval from 2006 to 2010. It contains several new and important results and conclusions which are put into an international scientific frame. The paper is definitely worth publishing in the ACP. There are only minor issues which should be clarified or corrected for before the final publication.

#### General comments

1. Strictly speaking, expression aerosol stands for the whole colloidal system (particles

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and the air), while its plural form, aerosols is used for the types of the aerosol (e.g. urban, rural remote or biomass burning aerosols). They are not used consequently in the text. Furthermore, the authors often apply the expression aerosols incorrectly for aerosol particles. Some examples are as follows: page 18347, line 11: "biomass burning aerosols that are distributed around the globe". page 18349, lines 3-4: "the composition and the size of the aerosols." page 18349, line 23: "Atmospheric aerosols have diameters" The authors should correct these inaccuracies at many places in the MS.

2. The "fine accumulation mode (< 250 nm) and coarse accumulation mode (> 250 nm)" (page 18359, lines 10-11) are both unusual and misleading since the size distributions can include nucleation, Aitken, accumulation and coarse modes, and the accumulation mode can be sometimes split into condensation and droplet submodes. The present naming without specific references to earlier work and considerations can hardly be accepted. It is suggested that the authors rethink and modify this sentence.

#### Specific comments

There are several typing and smaller grammatical errors in the text, which should be removed by careful reading. Some examples are below.

page 18347, line 25: "... aerosol scattering and absorption shows ...should be replaced by "... aerosol scattering and absorption show ...".

page 18349, line 7: Micron is not an SI unit. Write submicrometer size range instead of submicron size range here, and at some other places in the text.

Page 18358, lines 22-23: Indicate that the diameters are electrical mobility diameters, e.g. dry particle electrical mobility diameter.

page 18361, lines 8-9: Write "with a time resolution of 3 hours" instead of "with 3 hourly time resolution".

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