Solid Earth
Discussions

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Interactive comment on "Polycyclic aromatic hydrocarbons in post-pyrogenic soils of drained peatlands in West Meshchera (Moscow Region, Russia)" by A. S. Tsibart et al.

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We acknowledge the anonymous referee for his valuable comments on the manuscript! We have taken into account his observations and incorporated these modifications into the text.

-The paper was checked by native speaker.

-The samples collected from pits 1 and 4 were used for other purposes and were not used in this research, so for this paper the numeration of pits was changed and now there are no missing numbers. Sampling was done according to the objectives of the study. For comparison of PAHs distribution and levels of accumulation in different types

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of post-fire soils (objective 1) samples were collected from the sites of post-fire and background histosols and histic podzols. For identification of the parts of post-fire soil profiles with maximal PAHs accumulation sampling from genetic horizons, including post-fire horizons (objective 2), was conducted. For the detection of the trends of different PAH groups accumulation (objective 3) different compounds from 2-nuclear to 7-nuclear compounds were measured in the soil samples. For the comparison PAHs accumulation in soils after fires of different time (objective 4) the plots affected by the fires of 2002, 2010, 2012 were considered.

- The numeration of soil pits was changed for the better understanding of results, so there are no missing results now.

- The examples of PAH distribution were shown in a figure for more clear illustration. According to the recommendations of other referee the quality of these figures were improved. All pits were not shown in figures because of the limited space of the paper.

-Figures mentioned by the referee show categorized box and whisker plot, the names of figures were changed. The information on F and p-values of ANOVA analyses were given in the text, describing these figures.

-The numbers of pits from which means, SE and SD are calculated were added to the corresponding figure captions. The numbers of sample replicates in each group were added to the figures.

- In the tables 2, 3, 4 < LOD were added instead of 0. The limit of detection (LOD) and limit of quantification (LOQ) were added in material and method section.

-The details about method were added in method section. The table with optimum wavelength for each component (table 1) and example of luminescence spectra (fig. 5) were added. The PAH concentration was calculated with PAH standard NIST 2260a. The analysis was done in one replicate.

- Shpol'sky spectroscopy was developed by Russian scientists in 1960-1980s as a

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selective method to determine individual polynuclear aromatic hydrocarbons and other organic compounds from complex organic mixtures (Personov, 1981, Gooijer et al., 2000, Rovinskii et al., 1988, Alekseeva and Teplitskaya, 1981, Gennadiev et al., 1996). High selectivity of the method is obtained by using a spectra selection of the PAH in multicomponent solutions by scanning the narrow excitation wave band (Alekseeva and Teplitskaya, 1981). In particular, the unsubstituted PAHs are separated by clear narrow analytical lines together with their substituted homologues which have wider lines in a given wave band. With small amounts of organic compounds in the samples, possible interferences are practically absent. We did not validate the analytical method using a (CRM).

Specific comments

Fig.3. investigated soils" corrected.

Table 2 Histic podzols were deleted from the table name.

The usage of PAH and PAHs was checked.

Orthographic mistakes, phrases and tenses were corrected by native speaker.

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/6/C931/2014/sed-6-C931-2014-supplement.pdf

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Interactive comment on Solid Earth Discuss., 6, 1265, 2014.