

Interactive  
Comment

## ***Interactive comment on “A meteorological overview of the ARCTAS 2008 mission” by H. E. Fuelberg et al.***

### **Anonymous Referee #2**

Received and published: 26 October 2009

#### General comments

This paper gives a detailed analysis of the meteorological conditions during the ARCTAS (and CARB) aircraft campaigns in spring and summer 2008, including a description of predicted transport toward the Arctic. The paper highlight the specificity of the spring and summer 2008 conditions relative to climatology and describes examples cases of transport toward the measurement platforms used in the campaign, using meteorological analysis, as well as regional and Lagrangian modelling. This paper makes a significant, useful contribution to upcoming contributions analysing the data collected during these campaigns and should be published after revision in ACP for this reason. By its very nature the scientific novelty of this paper is limited, but the analysis is valuable. The presentation could be improved. More detailed comments are given

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below.

### Specific comments

1) It could be useful if the analysis presented here discussed (at least shortly) atmospheric transport toward -and possible connection with- other instrumented aircraft flying during this period in the frame of POLARCAT (see Stohl, A., and K. Law, 2006, IGACTivities Newsletter, 33, 16-32, [http://www.igac.noaa.gov/newsletter/igac33/May\\_2006\\_IGAC\\_33.pdf](http://www.igac.noaa.gov/newsletter/igac33/May_2006_IGAC_33.pdf)).

2) The manuscript is very lengthy, and any effort to shorten it and improve its clarity and structure would be welcome. I find the CARB experiment not entirely relevant here, and since it adds some length to this paper it could be removed.

3) other:

Throughout the manuscript, using hyphen in compound adjectives would increase clarity (e.g. "10 day backtrajectory" -> "10-day backtrajectory")

p. 18433 L21 add comma and "et al." in ref (Stohl 2005)

p18438 L5 you don't want to refer to section 3.2 but 3.3 I guess?

p18438 L2 Paris et al. (2009, this ACPD Special issue) report on transport of Asian boreal forest fires toward the Arctic in summer 2008. Maybe this could be cited here.

p18439 L15-20. I wonder if this paragraph is necessary and could not be largely condensed.

p18439 L27 "the area of anthropogenic pollution over eastern Asia" please rephrase more clearly e.g. "the horizontal extent of the anthropogenic pollution plume over eastern Asia"

p18439 L29 "Since winds were light in the area, the area moved little": this sentence is very confusing, please improve. e.g. mention "the area covered by the pollution plume"

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..."

p18440 l1 and l16: Which animation? If you have an animation maybe there is a supplementary material online support by the journal that you could use to provide your animation files?

p18440 l18 "the pollution is lofted the additional 7 km" please rephrase more clearly

p18440 l25 "a deep trough is located" -> "a deep trough located"

p18440 after l26 a section head "4.4 origin of air..." is missing in order for the text to be symmetrical

p18443 l14 (Barrie, 1986) add comma

Table 2 second row: 400-<700hPa : the "<" symbol should be removed

Fig. 1 spring was written without capital "S" throughout the ms

the layout of the pictures should be improved and prints are very small, hard to read

Fig. 12 "while "biomass" denotes biomass emissions" : the word "burning" is missing here after the 2nd "biomass"...

Fig. 13 approximative layout of panels, please improve

Fig. 20 and equivalent: - panel b could be a color density plot to improve information content. - caption is unclear for panel a. Is it number by longitude? please explain - "(d)" is missing from the caption.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 18417, 2009.

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