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**Atmospheric Measurement Techniques Discussions**

# *Interactive comment on* "Ground-based observations for the validation of contrails and cirrus detection in satellite imagery" *by* H. Mannstein et al.

**Anonymous Referee #2**

Received and published: 3 March 2010

General comments: The paper addresses an important topic: The observation and analysis of contrails and cirrus using ground-based and satellite-based sensors. Based on a six months time period the authors analyze the temporal occurrence of cirrus clouds and contrails near Munich airport detected by a ground-based all-sky camera. Furthermore, they propose a method for validating the satellite-based detection efficiency of contrails and cirrus. The presented techniques and results concerning the temporal occurrence of contrails and cirrus are of valuable benefit to estimate the climate impact of these clouds. The subject is appropriate to Atmospheric Measurement Techniques. The paper contains significant original material. The methodology



is sound. The data are sufficient and of high enough quality to support the interpretations and conclusions. Earlier work is adequately recognized and credited. The paper is well organized. The principal results of the manuscript are presented and clearly summarized in the abstract.

The paper and the topic are certainly useful and I do recommend publication, however, the comments listed below should be addressed before the manuscript can be considered for publication.

Specific comments: The central theme of the manuscript should be formulated more clearly in the introduction. The overall objective of the study should be stated more precisely. In this context, it should be clarified how the respective methods and data are linked to the objective. The relevance of the study and the implications of the results, especially in respect of the formulated problem, should be stated more clearly in the conclusion.

I'm a non-native speaker but in my opinion there are typographical and grammatical errors that should be corrected on an editorial level.

Page 3188 line 8: Please describe briefly how the Wolkam images are deskewed.

Page 3191 line 27: Please describe shortly the main principles and the operation mode of the CDA.

Page 3192 line 19: Please describe briefly how the AVHRR data are deskewed.

Page 3192 line 27 to page 3193 line 13: I suggest to include this paragraph in a new section 3.3 named "contrail width". Also include the first paragraph of section 4.3 in this new section.

Section 3.3 SEVIRI vs. Wolkam Please explain why the CDA, adapted to MSG SEVIRI, is only applied for May 2007 whereas MeCiDA is applied for the whole six month period.

Page 3193 line 21: Why is the brightness temperature difference between channel 7

(8.7 $\mu$m) and channel 10 (12 $\mu$m) calculated? I suppose it should be the difference between channel 9 (10.8 $\mu$m) and channel 10. Please clarify. There are four channels mentioned for false color composite. Which of them are finally used for the RGB?

Page 3194 line 3: Please describe shortly the main principles and the operation mode of the MeCiDA.

A table showing the numbers of the respective data sets for each sensor and algorithm used in the study would be helpful.

Page 3195 line 8: Please specify the peculiar weather situation.

Page 3201 line 18 to 23: It is not clear to me how the cited work of Balkan et al. (1994) is incorporated in the presented study. Is the method of Balkan et al. (1994) applied to the current data set? Please clarify.

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Interactive comment on Atmos. Meas. Tech. Discuss., 2, 3183, 2009.