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Atmospheric Chemistry and Physics Discussions

Interactive comment on "A decadal cirrus clouds climatology from ground-based and spaceborne lidars above south of France (43.9 N–5.7 E)" *by* C. Hoareau et al.

Anonymous Referee #2

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The paper presents one of the longest available time series of cirrus clouds properties over a mid-latitude site based on ground-based lidar observations. The paper is well structured and the analysis of the data is detailed and the results are well documented and consistent with other studies. The study also highlights the potential of CALIOP data for Climatological studies of cirrus clouds. The paper is suitable for ACP and should be accepted for publication after considering few comments below:

P6384 The authors should give some more details concerning the measuring schedule followed at OHP. Do they follow a certain protocol? This is crucial to understand the representativeness of their data.

P6385. The authors should add an estimate of the uncertainty induced due to the choice of a standard lidar ratio for cirrus clouds.

Section 4.1 The authors perform a cluster analysis and conclude that there are three types of cirrus clouds observed over OHP. Is there any association with different mechanisms that lead to the formation of these different types? The authors should elaborate here more.

Section 4.2 It is hard to interpret the occurrences especially when these are examined through the seasons when the measuring schedule over the week, month, year is not clear.

Section 5.2 The authors suggest a trend in CT especially for classes 2 and 3. Do they suggest a physical mechanism that could cause such a trend?

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 6379, 2013.