Review of revised version of
Ice particle properties of Arctic cirrus
by Veronika Wolf et al.

General comment:
The authors have mostly addressed my concerns adequately; the manuscript has improved a lot, constituting a good contribution to ACP. However, there are some minor issues which should be clarified before the manuscript can be accepted for publication. Therefore I recommend minor revisions for the manuscript.

In the following I will explain my concerns in detail.

Minor points:

- page 3, line 28 (and in the whole text):
  Why do you distinguish between "orographically induced gravity waves" and "mountain lee waves"? To my opinion, both denote the same phenomenon, i.e. gravity waves induced by stratified flow over (steep) topography (i.e. mountains). Maybe you can explain the term in the beginning and later just name them "gravity waves"?

- page 6, line 18/19:
  How was the LIDAR used? In any case, if available or for a spatial distance/temporal displacement between balloon and LIDAR below a certain threshold? Please explain this in more details.

- page 9, line 14:
  The defition of liquid origin vs. in situ ice clouds is still not complete (or even correct), especially the thermodynamic aspect (at approx. water saturation vs. below water saturation) is not mentioned. My suggestion would be:

  1. in situ: homogeneous freezing of solution droplets or heterogeneous nucleation (deposition nucleation) for $RH < 1$ and $T < 235\,\mathrm{K}$
  2. liquid origin: homogeneous/heterogeneous freezing of pre-existing cloud droplets for $RH \sim 1$ and $T > 235\,\mathrm{K}$.

  Please expand the text in this respect.

- Figures 5,7,8:
  For a better representation, you could use 2 blocks of 2×2 images for each ice cloud category.

- page 15, line 33 and following text:
  I don't think this explanation is completely correct. Even for very low temperatures ice crystals can grow to larger sizes and complex shapes (see e.g. fig. 5, lower panel, in Bailey and Hallett, 2009), if they get enough water vapour. The main issue here is the competition for water vapour, i.e. if many ice crystals compete for the available water vapour, they cannot grow to large/complex sizes. This is probably the case for 2013-02-20, since the number concentration of ice crystals is huge. Please change the text accordingly.

Technical comments
Figure 9, left panel: wrong key, it should read "2016-02-12".