Response to the referee's comment

We thank the referee for the constructive comments and suggestions. We have made changes and our responses are given below. The referee's comments are shown in bold with our responses in plain text.

This manuscript presents observations of wave clouds over the UK. The observational data is well-presented and would be useful for researchers modeling wave clouds. I have only minor comments.

p. 13343, l. 6: It would be helpful if the authors explain briefly why an inversion layer and this profile of the wind are favourable for the formation of cloud bands over the UK. Given the height of the topography in this region (not stated in the manuscript), is it important that the inversion occurs at z =1.8 km?

We added the following before " These conditions favour the formation of cloud bands over the UK (Weston, 1980).": "The measurements of the wave clouds took place between the region southwest of the Grampian Mountains and the Central Lowlands. The topography in the measurement region is varied including mountains or hills, and lochs. The highest mountains was above 1000 m and these features perturbed the south-westerly flow and excited mountain waves in the stable layer."

p. 13348, l. 5: The unit should be g kg^{-1}.

This has been changed.

Please compare the droplet size, and droplet number and mass concentration with other observed wave clouds in the literature. Are the droplet properties here within the range of previously observed wave clouds?

As we discussed in the Introduction, there have been some studies on mixed-phase or ice-phase wave clouds. To our knowledge, there have been no in-situ aircraft measurements of pure warm wave clouds.

The aircraft was equipped with aerosol probe, but no aerosol measurements were discussed. The aerosol measurements may be useful in the context of droplet formation.

We have checked the aerosol concentration and size distribution measured with the PCASP. Since the concentration in the first two bins were higher than expected, the concentrations likely suffered from noise resulting in very high counts. For this reason, we did not provide the aerosol measurements.

Please provide observational data of the relative humidity if available. The relative humidity data is very useful because:
– Low relative humidity (with respect to ice) completely explains why ice nucleation was absent in these clouds.
– It can be added to Figs. 4 and 7–9 to show how relative humidity is correlated with temperature and with cloud occurrence.
– It is necessary for any future numerical study based on these observations.

We added a table of the profiles of pressure, height, temperature, dew-point temperature, and wind speeds. The profile data can be used to initiate a model. The relative humidity can be derived from the table. As we discussed in the manuscript, the temperature probes are not accurate in the cloudy air. Therefore, we did not give the humidity in the clouds.

The following is added after the temperature probe in the Instruments Section since the dew-point temperatures are shown in the table: "The dew-point temperature is measured with the General Eastern GE 1011B Chilled Mirror Hygrometer. A typical limitation of a chilled mirror instrument is that it is often difficult to distinguish the phase of the condensate layer when the temperature is below 0 ºC."