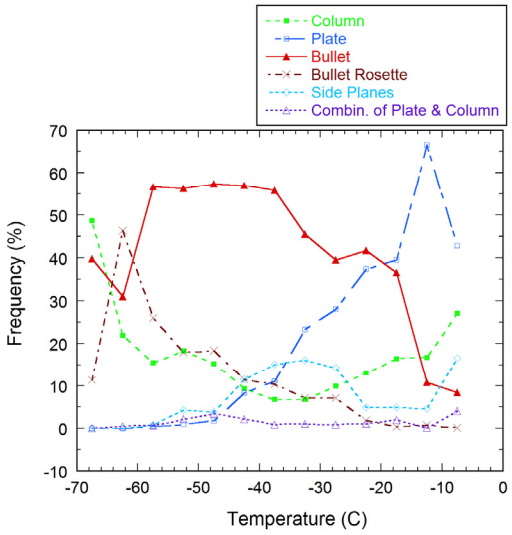
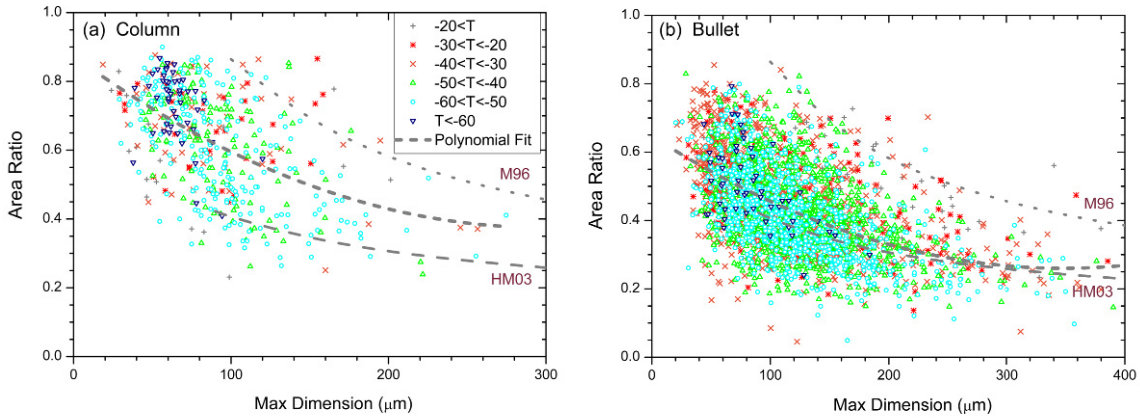
Orikasa, N., and M. Murakami, 2015: Ice crystal shapes in midlatitude cirrus clouds derived from hydrometeor videosonde (HYVIS) observations. *J. Meteor. Soc. Japan*, **93**, 143-155. https://doi.org/10.2151/jmsj.2015-004



←Figure 1. Percent frequency of occurrence of ice crystal habits as a function of ambient temperature. The frequencies are normalized within 5°C temperature intervals.



↓Figure 2. Relationship between area ratios and maximum dimensions for ice crystal habits of (a) columns and (b) bullets. Data points are colored according to the ambient temperature. The dark short-dashed curve in each panel is a second-order polynomial fit the HYVIS data. The analogous curves from M96 (dots) and HM03 (long dashes) are shown for comparison.

- The frequencies of occurrence of ice crystal habits in midlatitude cirrus clouds that were primarily associated warm or stationary fronts within synoptic-scale lows are investigated, using the balloonborne hydrometeor videosonde (HYVIS) observations.
- The predominant types were single bullets at temperatures ranging from –60° to –20°C: Plate-type crystals were dominant at temperatures warmer than –20°C, whereas column or bullet rosette crystals became dominant at temperatures colder than –60°C (Fig. 1).
- Size and temperature dependencies of shape-sensitive parameters, such as area ratio or aspect ratio are examined in each six classified crystal type. The area ratio decreased with increasing dimension was apparent for all the crystal types.
- A comparison of the area ratio of each crystal type between this study and previous studies shows the different size dependency (Fig. 2), which results in 10-80% overestimation of vertically integrated cross-sectional area through the conventional relationships reported in a previous study.