Geophysical Research Abstracts, Vol. 9, 10161, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-10161

Banner Clouds at Mount Zugspitze in Germany

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Banner clouds are clouds resembling a banner or flag which form on the leeward side of ridges or peaked mountains. While the windward side of the mountain remains cloud free the cloud forms only on the leeward side. In the scientific literature can be found some descriptions which try to explain this phenomenon. To our knowledge there is only one work which tries to model a banner cloud. We present here for the first time measurements during banner cloud cases.

Mount Zugspitze (2962m asl) in the german alps is served from three sides with cable cars. This and the infrastructure on the top of the montain gave us the opportunity to perform intensive measurements. To get information about the airmasses on both sides of the mountain the cable cars on the north and south side were equipped with instruments for pressure, temperature and humidity. Thus we have nearly continously measurements of the stratifiaction around the mountain. Additionally we installed two masts at the ridge close to the summit. The data from these masts give us information about the airmasses at the point of their confluence. Results of these measurements during some banner cloud cases are presented and possible sources of air and moisture are identified.