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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Bannerclouds observed at Mount Zugspitze" *by* V. Wirth et al.

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We are grateful for the reviewer's useful comments, which helped us to clarify a number of issues.

* We agree with the reviewer: the Bernoulli hypothesis is very unlikely for several reasons. Above all, there is strong upwelling in the lee of the mountain. It is much more likely that adiabatic cooling in the rising branch is the basic mechanism for cloud formation rather than adiabatic cooling in a quasi-horizontal trajectory due to the Bernoulli effect. We added a short section in our conclusions section which makes this point clear. Nevertheless, we find it interesting that banner cloud occurrence is essentially independent of the strength of the wind, and this provides another, quite independent line of argument to disprove the Bernoulli hypothesis. After all, it has seriously been invoked as an explanation in the early literature.

* We revised the wording in many places in order to improve the use of the English language and to avoid unnecessary colloquial expressions. This includes (but is not limited to) all items listed by the reviewer.

* Originally we thought, like the reviewer, that this should be the first part of a two-part series, with the second part describing our numerical results. In the meantime, however, we decided to first do experiments with idealized orography (which are currently been carried through) and only later do simulations with realistic orography. The latter simulations would be relevant for a hypothetical part II paper; however, these simulations have not even been started yet. We therefore decided to make this an independent paper.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 29407, 2011.