Intercomparison of icing measurements at Zinnwald test site

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An intercomparison of icing measurements has been carried out at weather station Zinnwald during winter seasons 2007/2008 and 2008/2009. The presentation describes briefly the location of the test site, the surrounding area and the local infrastructure (platform for icing measurements) as well as the devices and methods that have been used for icing measurements. Results of icing measurements are presented for both winter seasons. Several icing events (rime, glace) were observed in both test periods. The measurement principles - to measure the ice mass by an electromechanical scale or by load cells - seem to provide good results in general. Results for all instruments in operation - manually operated icing poles, Icemeter EAG 200 (Germany) and IceMonitor (Combitech/Saab, Sweden) are comparable for certain time periods. They differ remarkable from each other during other time intervals. Reasons are different measurement principles (fixed icing pole for EAG 200, rotating icing pole for Combitech/Saab) and measurement errors (mainly due to force shunt, problems with sensor heating). In many cases fixed and rotating poles lead to different results as well during the process of rime ice accretion as during the process of ice drop off. On the other hand, results for fixed/rotating poles are comparable in some cases. Preliminary analyses show that those results depend on the meteorological conditions during the process of ice accretion (wind direction and its change, wet in-cloud icing, freezing rain or freezing drizzle).

The intercomparison of icing measurements arrives finally at the conclusion that the reliability of icing measurement devices will need a considerable improvement in order to implement it in routine observational networks in future.