



Atmospheric ice crystals over complex terrain: Pure ice cloud conditions observed in CLACE2013 at Jungfraujoch, Switzerland

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The CLACE2013 field campaign took place in January and February 2013 at the High Alpine Research Station, Jungfraujoch, in Switzerland. During this field campaign some events of atmospheric ice crystals in the absence of supercooled water droplets were observed. These included precipitation events from a cloud above and also ice crystals which likely formed in-situ under ice supersaturated conditions similar to "diamond-dust" events. From each event, approx. 1 hour of holographic measurements has been analysed (~1800 images with a 36x24x350 mm³ or ~0.3 L sample volume each). Ice crystals are detected and classified according to their shape to distinguish between different particle habit classes (e.g. columns and needles, plates, irregular crystals) and with this method, drifting snow and ice particles formed in-situ can be distinguished to a certain degree. The major axis length of detected ice particles varied between some tens of microns up to a few millimetres. Size distributions will be shown partitioned by crystal habit. Preliminary results show these ice particles appear similar to diamond dust events observed in Antarctica. For clarification of the meteorological conditions, we use the meteorological parameters from several instruments measured at the site as well as data from additional cloud hydrometeor probes and a ceilometer.