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Meteorological analysis of a thunderstorm on 19 July 2007 during the HOOVER/COPS/TRACKS campaign

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We present a detailed meteorological analysis of the development of a heavy thunderstorm affecting the South-East of Germany on 19 July 2007 by using the WRF model in a cloud system resolving configuration.
A mesoscale convective system which originated over France in the night between 18 July and 19 July, crossed Germany from West to East in the morning on 19 July. In the early afternoon hours three strong cells developed at the Southern edge of the system in the area of Nuernberg leading to heavy precipitation and causing severe damage and even death. We investigated the importance of several meteorological parameters such as the extraordinarily high CAPE for the initiation of convection at the location of maximum cell development. Furthermore, we tested the sensitivity of the storm development in the model simulations to different meteorological initial conditions.
As part of the HOOVER/COPS/TRACKS campaign aircraft measurements of trace gases were taken in the outflow region of these convective cells. The convective event which occurred on 19 July 2007 shall be used as a case study to investigate convective transport of trace gases as well as the importance of ice formation for the partitioning and distribution of trace gases within a thunderstorm and the distribution of trace gases downwind of the storm.