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An Intensive Post Event Campaign (IPEC) on the extreme flash flood which affected the Starzel river (Germany) on the 2nd of June 2008

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On the 2nd of June 2008 in the evening, the Zollernabkreis region, located 50 kilometers South from Stuttgart (Germany), was affected by extreme thunderstorms which induced large flash floods. The most severely affected area appeared to be the upper Starzel river catchment (130 km2) where the extraordinary flood caused large damages in two towns (Hechingen and Jungingen) and killed 3 people. The data collected immediately after the flood event are impressive: 75 mm of rainfall accumulated within 1 hour near Hechingen and up to 240 mm within 55 minutes measured on a private gauge in the town of Jungingen.
These first elements led to the organization of an intensive post event campaign (IPEC) with two objectives: 1) to validate and complement the existing data on rainfall and runoff, 2) to analyze the dominant rainfall-runoff processes during such an extreme event. The field campaign took place in November 2008 and involved 11 scientists from various European research institutions contributing to the European research project Hydrate as well as hydrologists from the regional administration. 36 river cross-sections were surveyed in the affected watershed to map the discharges; detailed accounts of the flood in Jungingen as well as films and pictures were collected to establish the timing of the flood; and the available radar, rainfall and stream gauge measurements were verified.
The main outcomes of this IPEC are the following:
• The discharge mapping revealed very high spatial heterogeneities. The flood volumes were essentially produced on a very limited part of the catchment area: a 5 km2 area upstream Jungingen and about 10 km2 area for the whole Starzel watershed.
• In this area, very high unit discharges were estimated – between 12 and 15 m3/s/km2. These values imply surprisingly low runoff rates (about 20%) according to the estimated rainfall intensities – which were validated during the field survey.
• Such localized intense events do not appear to be rare at a regional scale. A small tributary appeared to have been affected by a similar event in the year 2007.
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