



Recent and historic changes of flood frequency in Switzerland

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In several Swiss catchments the August 2005 flood has been the third large flood event since 1999. Is this a random accumulation of floods? Or does it rather point to a significant increase in flood frequency in the last decades?

To test how extraordinary the accumulation of floods in the last decades has been, we analyzed the annual flood series of over 80 stations throughout Switzerland. In northern Switzerland, some regions show an increase in flood frequency in the last three decades, others only in the last 15 years while in southern Switzerland and Grisons no increased flood frequency could be observed.

An analysis of catastrophic flood events in Switzerland since 1850 showed that in the second half of the 19th century many catastrophic floods did occur throughout Switzerland, followed by a period with only few events between 1910 and 1975. Since 1975 several catastrophic floods have occurred in Switzerland, dominantly in northern Switzerland but to a lesser extent also in southern Switzerland.

Additionally, for 14 Swiss catchments the historical floods were collected back to 1500 AC. All catchments show marked fluctuations in flood frequency. Periods with many floods were between 1560 - 1630, 1760 - 1790, 1830 - 1910 and since 1975, periods with few floods between 1640 - 1720, 1790 - 1810 and 1910 - 1975. We compared the Swiss flood data to other European flood data and to parameters like solar radiation, reconstructed temperatures and glacier movement. The historical data suggest that we are currently in a period of increased flood frequency. However, the observed frequencies do not exceed those observed in past periods of high flood frequency.