



Revealing the 1806 landslide of Goldau – 200 years after the event

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September 2006 marked the 200th anniversary of one of the best-known landslides in the subalpine Molasse of the Swiss Alps, the Goldau rockslide (also referred to as the Rossberg slide or Goldauer Bergsturz). The 1806 failure claimed 457 lives when a slide involving nearly 40 million m³ of rock was triggered by a rapid snowmelt coinciding with heavy rainfall. The slide mass mostly consisted of conglomerates dipping between 15° and 30° and was reported as having failed along bedding plane contacts between the conglomerates and underlying marls.

Given the adverse nature of the geological conditions (i.e. bedding dipping parallel to topography), it isn't surprising that the Rossberg slopes have had a long recorded history of slope failures and that remnants of prehistoric slide debris cover the lower regions of the slope. Subsequent to the 1806 event, smaller slides were also reported, more notably in 1874 and 1910, the latter involving the reactivation of old slide debris.

Today, numerous signs of activity can be observed along the upper scarp of the slide, and the potential for failure along the neighbouring slopes is high given the history of previous slide events. The last recent event occurred October, 15th 2002 and involved a rock fall of some 5000 m³ from the slope's summit.

Given the potential for future landslide events, a detailed field investigation was conducted, the first objective of which involved the field reconnaissance and mapping of past phenomena to develop a hazard map for the immediate vicinity. This paper presents an overview of the findings of the field study. Given the propensity for fail-

ures in the bedded rocks of the Molasse, the study next focussed on rock slope failure mechanisms in bedded marls and conglomerates. One of the key objectives was to understand failure evolution processes leading to unstable slope conditions due to weathering of the marls. Weathering leads to increases in porosity, decalcification and strength degradation. Since the rupture surface not only intersects marls but also conglomerates, the progressive development of a brittle slide surface parallel to bedding as a function of time was addressed as well.