

The aim of this research is to explore the origins of the drilled lithologies in Sion to reconstruct the infill history of this part of the Rhône valley.

The Rhône Valley is located upstream of Lake Geneva, in the canton of Valais, southwestern Switzerland. The Sierre landslide had a major impact on the hydrological and sedimentological processes in the Rhône valley. Although the age and the triggering mechanisms of this important event have been subject to some previous studies, the sedimentary signal recorded downstream the event never has. This study seeks to provide a chronological framework, to distinguish the origins and the depositional environments of the observed lithologies, and to characterize the sedimentary signal of the Sierre landslide.

To answer these problematics, radiocarbon ages, morphological measurements, geochemical and petrological analyses have been done on coarse and fine samples from the “Cour de Gare” core (CDG-14-01) (named the FCDG hereafter), drilled in Sion in February and March 2014. The FCDG is located at the front of the alluvial fan of the Sionne system, close to the alluvial plain of the Rhône river.

Samples with a Rhône origin present a petrological assemblage of pebble samples much more complex and heterogenic than the samples from the Sionne system, dominated by limestone content. X-ray diffraction shows the presence of antigorite and cordierite in Rhône samples, absent in those from the Sionne. The Sierre landslide is recorded with different signals. Dust produced by the landslide event is recorded as a massive sandy interval. After the rupture of the landslide dam, landslide related material is strongly remobilised in the system, going in pair with an increase in pebble angularity.

The Sierre landslide occurred rapidly after the onset of the Holocene period, and had an important impact on the up- and downstream hydrological and sedimentological processes of the Rhône valley.

The present study treats the signal of the Sierre landslide in the sedimentary record of the Rhône valley in Sion, canton of Valais, Switzerland.

Keywords: *Sierre landslide, sediment budget, Holocene.*