

# WATER TABLE

## KARST

One might think that all of the water that falls in the Susaife Valley eventually flows out through the Encel Gorge, the steep river gorge at the bottom of the valley. The area's unique geology, however, allows a large percentage of the surface waters to seep rapidly into the ground via faults and cracks. In passing, the dissolving action of these waters on the carbonate bedrock creates cavities; these eventually merge to form networks of caves and galleries through which the waters gather and flow (Karst). The real watershed, the groundwater basin, is therefore significantly different from the topographic watershed.

## HYDROGEOLOGY

There are two distinct hydrogeological watersheds in the Susaife Valley. These watersheds, identified by tracer tests, separate at the bottom of the valley, with the southern waters (4) draining towards the Fond de la Combe in France and the northern waters pouring out of the springs at the bottom of the Encel Gorge.

## TRACER TESTS (6)

The Susaife Valley tracer tests were carried out between 1996 and 1998. Fluorescent dye was injected into a sinkhole near the intake of the western Sauflaz and into a fissure found along the trail to the Susaife Hut. Both times the dye reappeared in the Green Spring (4). Additional tracer tests were carried out in 2013 in the Susaife chasm. The dye reappeared in nine different springs within the Bonavau-Encel zone.

These tests also determined flow speeds: 120 to 150 metres per hour for the southern slope waters, as compared to 15-30 m/h for the northern waters, which pass through less permeable rocks.

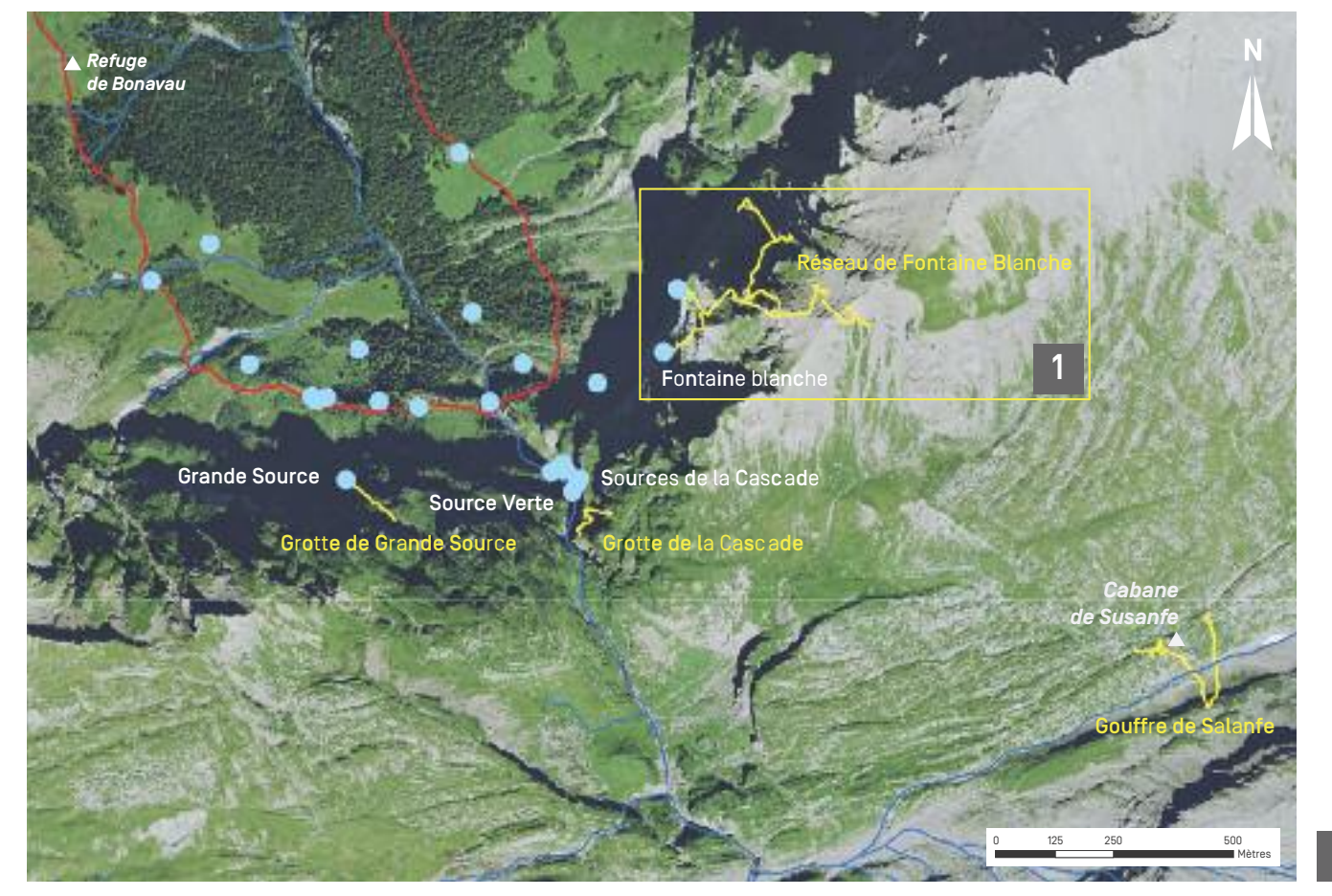
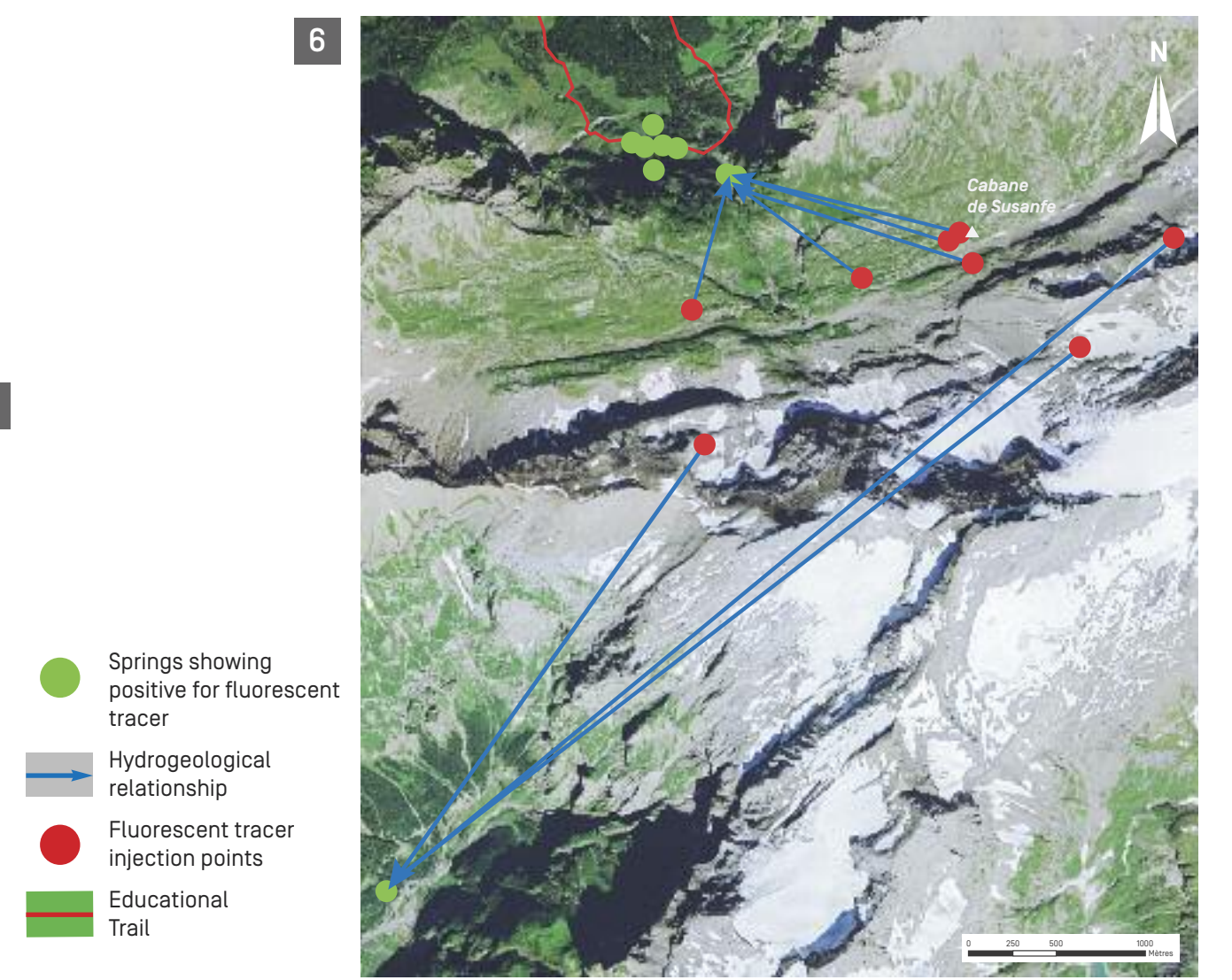
\*Bonavau : from «bounavou» in local dialect, meaning «beautiful valley»



## SPRINGS

The Bonavau Cirque contains some twenty springs (7). Their output is variable and highly dependent on rainfall and snow-melt. Some of the springs, such as Fontaine Blanche or the Grande Source are dry for most of the year, which allows for their extensive exploration by speleologists (1, 2, 3 et 7). When it is flowing, however, the impressive Fontaine Blanche (5) waterfall can spill up to 750 litres per second.

The main springs in the Encel zone have an annual average output of 300 litres per second. Most of the springs are fed by localized runoff, with the notable exception of the Fontaine Blanche and Petite Fontaine springs. Water from these two springs does not come exclusively from their immediate zone; they are likely fed by secondary runoff water from the Salanfe area, or a perhaps by mixture of the two.



- 1 Cartographical representation of the Fontaine Blanche underground network.
- 2 + 3 Photos of the Fontaine Blanche underground network.
- 4 Left, the Waterfall Spring; middle, the Sauflaz River; right, the Green Spring.
- 5 Right, the Sauflaz Waterfall; middle, the Fontaine Blanche overflow.

- 6 Tracer Tests carried out between 1996 and 1998 [J. Sesiano, 2004] and in 2013 [D. Cardis, 2014].
- 7 Speleologists have identified 49 cavities in the Susaife Valley for a cumulative network of over 6 km [SSS, 2013]. Main cavities are shown in this figure, which also includes the springs in the Bonavau Cirque.

*The goal of a hike is not to save time, but to kill time gracefully.*

David Le Breton

- Main Spring
- Primary underground networks
- The Sauflaz River
- Educational Trail



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