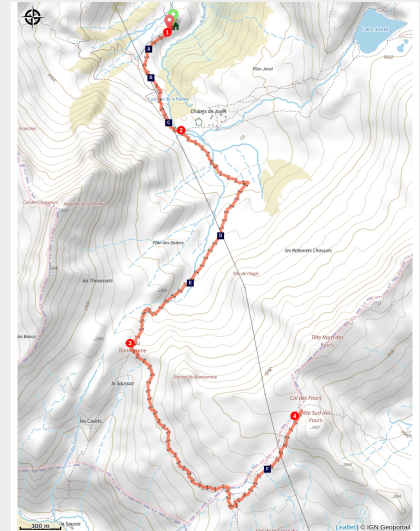


# La Balme - col des Fours : discovering alpine geology

CC Pays du Mont-Blanc - Les Contamines-Montjoie



Col des Fours (@DahUlm)



*A leg of the Mont-Blanc geological tour.  
Reach the Beaufortain by walking on the  
sedimentary rocks of the massif.*

Undoubtedly the most beautiful leg of the tour with untouched and geologically rich environments. Can you recognise a glacial rock bar or a thrust sheet in these landscapes?

## Useful information

Practice : Summer hike

Duration : 4 h

Length : 12.5 km

Trek ascent : 987 m

Difficulty : Medium

Type : Aller-retour

Themes : Géologie, Point de vue,  
Refuge

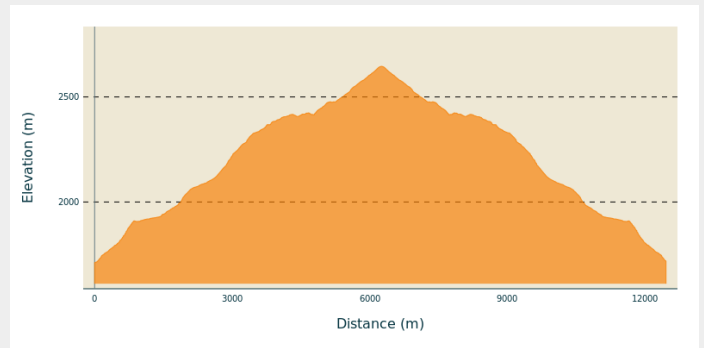
# Trek

**Departure** : Balme Refuge

**Arrival** : Col des Fours

**Cities** : 1. Les Contamines-Montjoie

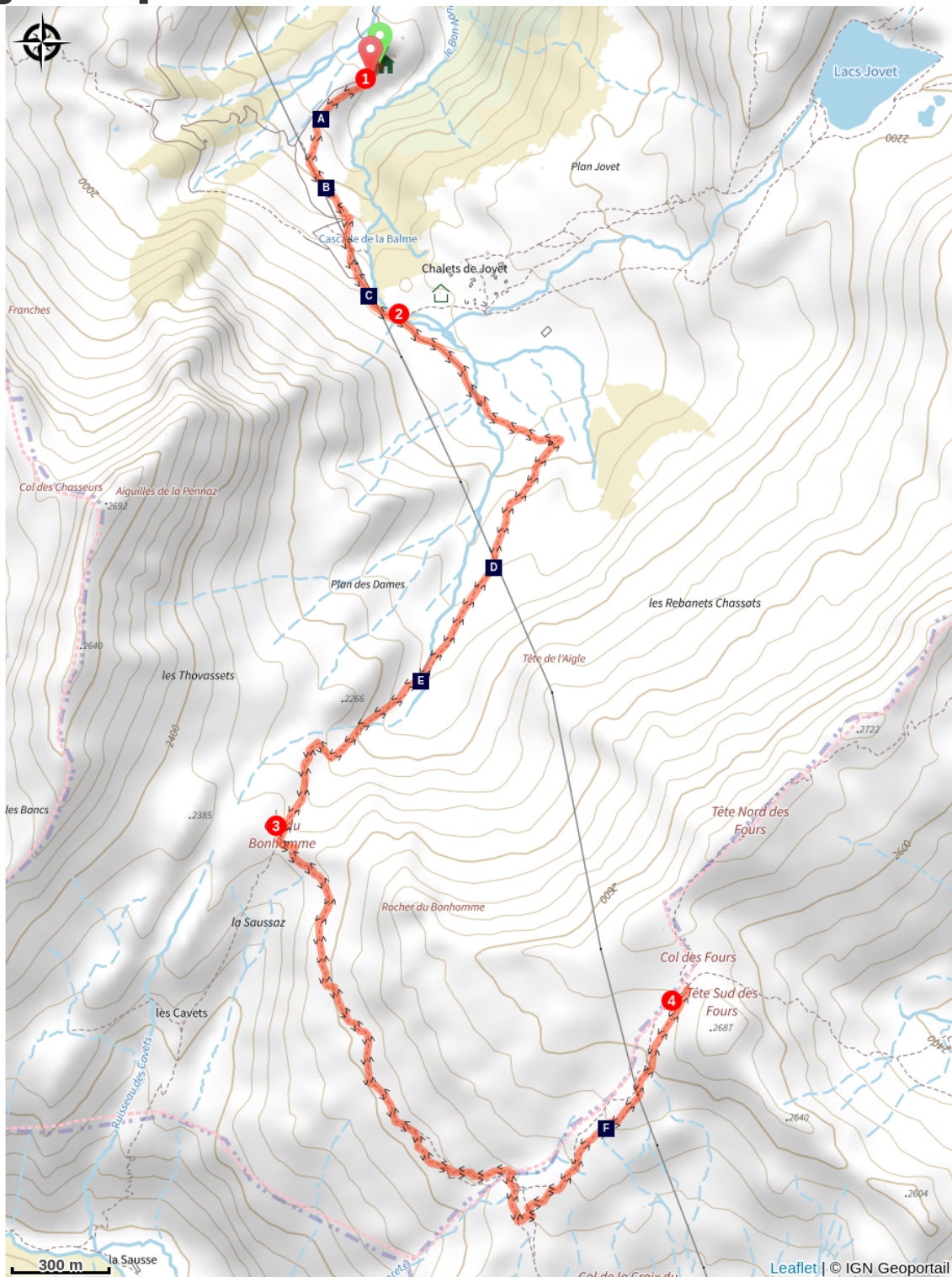
## Altimetric profile









Min elevation 1711 m Max elevation 2646 m

From the Balme refuge, follow the path up to the Col du Bonhomme. At the crossroads, turn right towards the Col du Bonhomme (the Lacs Jovet will be on your left). At the Col du Bonhomme, continue towards the Col de la Croix du Bonhomme. Turn left onto the Col des Fours alternative route. The return journey is by the same route.

# On your path...



-  The Roselette nappe (A)
-  Bivouacking and swimming prohibited (C)
-  Riegel (Glacial rock bar ) (E)

-  The Plan Jovet peat bog (B)
-  Excessive trail frequentation, the actions of Asters CEN74 (D)
-  Snow line (F)

# All useful information

## **i** Réserve naturelle des Contamines-Montjoie

La réserve naturelle est un espace exceptionnel, ouvert à tous, dont les patrimoines naturels, culturels et environnementaux sont rares. Pour profiter et admirer encore longtemps de cette nature sauvage et préservée, merci de prendre connaissance de la réglementation :



Exception pour cette réserve naturelle, les chiens sont autorisés, uniquement, tenus en laisse. Par sa présence, son odeur et ses déjections, votre chien peut perturber la biodiversité. Sa divagation dans la nature peut avoir des conséquences lourdes pour la faune sauvage et les troupeaux (transmission de germes, stress de la faune sauvage, destruction des couvées au sol).

## **!** **AdVICES**

Bivouacking at The Jovet Lacs and Plan Jovet is prohibited from 1 July to 31 August. Swimming is prohibited for hikers and pets all year round. Depending on the time of year, you may encounter numerous névé areas (partially melted compacted snow), making certain sections potentially dangerous, even in summer. Always be careful and plan ahead when hiking. Asters CEN-74 cannot be held responsible for any accident or inconvenience that may occur on this route. Check the weather conditions before setting off. Mountain Rescue contact details: call 112. Respect the work of farmers, managers and owners Close all fences Bring back all rubbish Do not take shortcuts through meadows

## **How to come ?**

Transports

# Environmental sensitive areas

Along your trek, you will go through sensitive areas related to the presence of a specific species or environment. In these areas, an appropriate behaviour allows to contribute to their preservation. For detailed information, specific forms are accessible for each area.

## **Black grouse - winter**

Sensitivity period: January, February, March, April, Decembre

Zone d'hivernage de Tétràs lyre de la Balme, matérialisée par des fanions en décembre 2020 dans le cadre du POIA bidrski.

Ne pas y pénétrer lors des pratiques hivernales (ski de randonnée, raquettes).

## **Black grouse - winter**

Sensitivity period: January, February, March, April, Decembre

Les contreforts de Jovet abritent des zones d'hivernage pour la faune : tétras-lyres, chamois, cervidés.

Les zones arborées sont à éviter pour ne pas déranger les animaux. Repérer le couloir unique de descente qui évite les zones de quiétude.

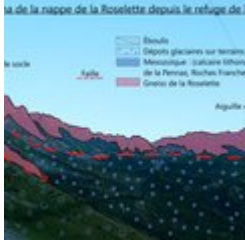
## **Réserve naturelle nationale des Contamines-Montjoie**

Sensitivity period:

Contact: Asters - Conservatoire d'espaces naturels de Haute-Savoie  
contact@cen-haute-savoie.org

# On your path...

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## The Roselette nappe (A)

Upstream of the Balme refuge, when looking to the west, you can see two different types of rock: - sedimentary rocks (Aiguille de la Pennaz and Roches Franches, light grey folded tithonic limestone) - basement rocks (gneiss, dark in colour and jagged in appearance). These two formations are part of the Roselette nappe, which was swept 8km from the south-east to the north-west some 30-15 million years ago. In geology, a nappe is a layer of land that has been displaced by tectonic forces over a considerable distance and has since overlaid another layer. By analysing the landscape, you can see the motions and forces of the tectonic plates.

Attribution : @DahUlm

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## The Plan Jovet peat bog (B)

The path crosses a wetland area, where you can recognise the small feathery flower heads of cottongrass (pictured), horsetail and lycopods (lycopodiaceae). Peat bogs reflect the natural evolution of a mountain lake: at high altitudes, organic matter decomposes very slowly and gradually fills up the lake. A hygrophilous flora which is specific to the humid environment develops here. Although peat bogs represent only 3% of the Earth's surface, they contain around 25% of the world's organic soil carbon. Thanks to ancient pollens, peat bogs also enable scientists to find information about life in the massif as it was thousands of years ago. To protect this ecosystem, stay on the marked trails!

Attribution : @DahUlm



## Bivouacking and swimming prohibited (C)

A familiar sight in the steep ravines and slopes of the mid-mountain regions of the Alps and Corsica, *Alnus alnobetula* has the unique ability to bend under snow and even rockslides without breaking. It grows rapidly, taking just a few decades to transform a meadow into a dense forest. This prevents the seeds of other trees from sprouting, thus blocking the natural evolution of the Alpine ecosystem. This plant improves soil quality: Green alder retains nitrogen in the soil and also strengthens the soil that is vulnerable to landslides thanks to its robust roots. However, Green Alder is also considered to be a threat to ecosystems: it colonises environments lacking other plant species by overgrowing fields that could be suitable for grazing and spreads nitrogen, nitrate and nitrous oxide, which in large quantities is harmful to the environment.

Attribution : @Asters-CEN74



## Excessive trail frequentation, the actions of Asters CEN74 (D)

Asters-CEN74 and its partners of the Gebiodiv project (PITEM Biodiv'alp) spent two days restoring this very popular hiking section of the GR5 on the Tour du Mont-Blanc trail.

How to restore a degraded trail?

The team collected local seeds, raked the areas to be revegetated and installed geotextile membranes (made of coconut fiber) to increase seed growth.

Help us make this work last! Going off the hiking trails destroys the surrounding flora. Like scars, the new paths will encourage soil erosion causing the disappearance of vegetation. Be carefull! Stay on the main trail!



## 🌐 Riegel (Glacial rock bar ) (E)

As you move away from the alpine pastures of La Balme towards the Col du Bonhomme, the valley narrows, but does not quite completely close in. This topographical change is called a “riegel”, or glacial rock bar: it is an area that has withstood glacial erosion more effectively. Here, the glacier's downward slide has been slowed due to obstructions. Sometimes, this process led to overdeepening of an area above the riegel. Similarly, a glacier which slides down off a side of a mountain will form a bend when it reaches the valley floor. Boulders brought in by the glacier are deposited on this bend, forming a lateral moraine that can block the flow of water. This is how many high-altitude lakes are formed!

Attribution : @ BrunoPisano



## 🌸 Snow line (F)

This alternate route via the Col du Four gives us a good opportunity to cross the snow line. On the way up to the Col du Four, you might have noticed that the vegetation is becoming increasingly patchy. The first permanent snow line is around 2700m above ground, at the Col du Four, which marks the area where snow can be seen year-round. Although the vegetation is sparser, it still can be seen: mostly moss and lichen and also other plants such as androsaces, saxifragas and glacier buttercups (visible during the climb). The flora finds shelter from the wind and cold in the crevices of the rocks; some plants grow in the form of a cushion.

Attribution : @DahUlm