The village of Ceillac stretching along the banks of the Cristillan, with the Ochette neighbourhood in the fore-ground and Mélézet Valley behind.
Photo: Michel Chavrot

Ceillac 1957

Past floods and today's regions in the Mediterranean Arc

Ceillac and the Cristillan River

Location: **Ceillac** is a small village (pop. 287, 2018) in the **Queyras Regional Nature Park,** in the Hautes Alpes. It lies 1,633 m above sea-level and is built on an **alluvial cone** from a mountain river called **the Cristillan**. The river rises in peaks of the Cristillan Mountain (3,070 m) which separate it from the Ubaye river valley on the other side.
Just south of Ceillac the Cristillan is joined by the **Mélézet** before flowing into the Guil 8 km downstream at "La Maison du Roy". The Guil, then joins the **Durance River at Guillestre**, below Mont Dauphin fortress.
Back upstream above Ceillac, the Cristillan flows down a valley mainly covered in glacial **moraine deposits** (clay, silt and blocks of stone, etc.) sitting on an impermeable schist substrate, before cutting south through Ceillac.
By contrast, La Clapière, the other historic hamlet in the municipality, sits back from the river.
Finally, an **old irrigation channel** branches off from the Cristillan just before the river reaches Ceillac. It bypasses the confluence with the Mélézet and rejoins the Cristillan much further downstream, just before the Viste business park.

The Péouvou (3,232 m) towering over the upper Cristillan valley
Photo: Michel Chavrot

The weather in Ceillac is typical of a **temperate mountain climate**, with abundant snowfall in winter. It is, nevertheless, **prone to Mediterranean weather systems**, such as **"Retours d'est".** These are easterly rain or snow-laden weather fronts that spill over the peaks from the Italian side, blown by foehn winds. They are most common in spring and autumn, dumping rain or snow according to the season and altitude.
The local economy was traditionally based on small-scale family farming but is now mostly dependent on winter and summer tourism, with downhill, cross-country and Nordic skiing, snowshoe trails or ice climbing, together with hiking and paragliding in the summer.
Ceillac is part of the Queyras Regional Nature Park (PNRQ) and the Communauté de communes du Guillestrois et du Queyras intermunicipal council (CCGQ).

June 1957, flooding in the Alps

Several areas of the **French Alps** were ravaged **by devastating flooding in June**. This included the **Queyras,** the **Ubaye Valley**, the northern part of the **Alpes Maritimes** (Isola), the **Maurienne Valley** in Savoie and the **Tarentaise Valley** in Isère. However, the **Queyras** bore the brunt of the rainfall and ensuing damage.

The rain lashed the mountain sides that were still covered in a thick blanket of snow after a long winter. The **melting snow** combined with the **rain, which totalled 319 mm in Abriès from 7 to 15 June and 237 mm at Saint Véran**. Following a brief flood of the Cristillan on 9 June, the rainfall reached a peak on **13 June, with 202 mm recorded at Abriès and 159 mm at Saint Véran.** Cumulative rainfall at **Ceillac** from **8 to 13 June was 75 mm** although no data exists from 14 June as the **village was evacuated** on the night of the 13th.

The entire Guil river catchment subsequently experienced widespread damage, especially at Ristolas, Château Ville Vieille and Ceillac.

The devastation continued in the Gorges du Guil and the Gorges du Cristillan where the only roads linking the Queyras to the **Durance** Valley were **washed away.** As a result, the Queyras was cut off. Flooding on the Guil River also reached the Durance at Guillestre where some bridges were swept away. There hadn't been floods on this scale in the local area since **May 1948**.

At Ceillac, it wasn't so much the floodwaters that laid waste to the village but rather **tonnes of solid waste dragged along by the Cristillan (at least 50,000 m³)**. This material was a mix of sticky, malleable clay and blocks of stone that **enveloped the village**, sometimes up to **3 metres deep.** This liquified amalgam quickly solidified, leaving most of the village 'stuck in the mud' while just part of Ceillac had been directly hit by the floodwaters where the Cristillan's riverbed narrowed. The floodwater stayed in the village for **13 days**.

An aerial view of Ceillac enveloped in river debris.
Photo: AD 05 14FI_00376_0056.

Eye-witness accounts

In an interview with the Association Française pour la Prévention des Catastrophes Naturelles et Technologiques (AFPCNT) and the Centre de l'Image de Montagne, **Georges Favier** shared his memories of the floods 50 years later:

" Actually, there was no sudden wave of floodwater. We watched it gradually rise. It flowed left and then right leaving sediment on the ground. We just had enough time to stop the sand and gravel getting into the houses by nailing planks of wood over the doors and windows.

I think we (the volunteers) were a little bit worried when it began. We thought that it would be difficult for the villagers to use shovels, picks and wheelbarrows to clear away the debris but, in fact, we were quite mistaken as it was thanks to them that the village was cleared so quickly."

A show of solidarity!

Given the scale of the damage, **Service Civil International** stepped in to organise a huge effort to **help the local community**. About 10 days after the floods, **150 people** aged 18-32 from 24 countries spent two months **clearing away the debris and restoring the village**. This show of solidarity gave the people of Ceillac strength, which they are still very grateful for, even now.

Additional help, particularly heavy machinery, further boosted emergency aid efforts. In return, two years later, after the earthquake that hit the neighbouring Ubaye Valley, men from Ceillac immediately joined residents in the Ubaye to repair the damage, particularly, broken chimneys.

Local residents and volunteers clearing the debris.
Photo: AD 05 14FI_00376_0085

Historic flood events

According to the records, the Cristillan has flooded many times, mostly causing damage to floodbanks, roads and farmland, such as in 1714, 1739, 1741, 1797 (when the village was flooded), 1860, 1863, 1879, 1948, 1954 and 1955, etc.

These events were nevertheless topped by the big flood of **May 1856**, the year when the Loire and Rhône river basins were hit by major flooding. That year, Ceillac was **devastated**, similar in many ways to June 1957.

"Part of the plateau forming the municipality boundary next to Ceillac has been lost to a layer of rock debris. Ceillac, just like Sainte Marie, is completely enveloped in gravel. Out of 150 houses in the village, **50 have 2 to 3 metres of debris, reaching almost up to the first floor (...). Just three houses were totally destroyed,** but ten are in a very sorry state and will probably have to be entirely rebuilt. **200 cattle also died.**"

A letter sent by the Sub-Prefect to the Prefect on 9 June 1856 – source: Hautes Alpes depart-mental archives.

Stakeholders and post-flooding management measures:

In 1958, as was the case for the 1856 flood, one of the first things the **municipality** did was to modify and relocate a curved section of the Cristillan's riverbed in the village.

The Queyras Regional Nature Park (PNRQ) administered a scoping **PAPI** (Flood Action Prevention Programme) **from 2014-2016**, which has now been extended to a **full PAPI (2019-2025)** for the entire Guil river catchment.
The Park also runs several public information and awareness activities in the PAPI. These focus on natural hazards, including **a play about the 1957 flood at Ceillac called,** "le Torrent est partout" **(The river is everywhere)** which was staged twice in 2017. There are also **six information panels** on the 1957 Cristillan flood and **flood level markers** (four markers in the pedestrianised streets of Ceillac).

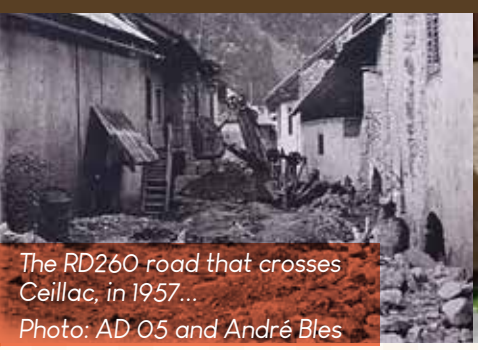
A resident of Ceillac (Joseph-Antoine Fournier) in front of his house and a young girl (Elisabeth Reynaud aged 5) standing in front of the Chapel of the Immaculate Conception, in 1957...
Photo : François Courtois collection / AD 05

...and the same scenes today
Photo: André Bles and PNRQ.

BILAN

Thankfully there were **no deaths, but the record of damage** stated that:

- **The entire village was buried** in 0.5-3 m of debris
- Some houses were **filled with sand and gravel up to their** ground floor ceilings
- **50 ha of farmland** covered in debris or washed away
- **600 m of the road** to Maison du Roy swept away
- **5 km of the Chemin** de la Vallée du Cristillan, local access road washed away
- A stone bridge abutment **washed out**
- **3 footbridges** swept away.



The RD260 road that crosses Ceillac, in 1957...
Photo: AD 05 and André Bles

...and the same scene today.

Water is like a magician. With a wave of its wand, it sculpts the landscape just as it likes. It fascinates and attracts people who settle on its riverbanks but in June 1957, it transformed into an unchained, indiscriminate and devastating force.
We must live with the river and learn to understand it. The Cristillan is the backbone of the village and we are getting to know its past and the way it moves to better predict its behaviour and safeguard the community. Elder residents have told us about past floods and we should share these memories with children and also holidaymakers. Water is vital, for life and for biodiversity. We've collected it at fountains for centuries and used it to irrigate land so that we can farm.
It transforms into white gold in winter and shares its power with us to generate energy. Ceillac now has to live with the knowledge that risks exist, by including water in its local plan and in its growth as a mountain village.

Emile Chabrand,
Mayor of Ceillac

The riverbed of the Cristillan before 1957...
AD 05 et André Bles.

...and now, modifled and relocated.

The **municipal council** now has its own local emergency action plan (**PCS**) and a municipal information document on major risks (**DICRIM**) which was updated in 2021. As part of plans **to commemorate** the 60th anniversary of the disaster, back in 2017, the council, together with the "**les Amis de Ceillac**" association, produced a highly creative and original exhibition on the village's history. **Panels featuring 6 photos from 1957** were also installed in Ceillac.
The municipal council is also responsible for administering **two activities** in the Guil PAPI flood prevention action programme. These are the **relocation of three buildings** (two warehouses and a shelter) built on the Cristillan riverbed and the introduction of a **local flood warning system** as the area is not covered by the national "Vigicrues" network.
The Communauté de Communes du Guillestrois et du Queyras Intermunicipal Council (CCGQ), also has the remit to manage the GEMAPI, and has recently commissioned **RTM** (Restauration des Terrains de Montagnes) to conduct research on how to **protect the village** from floods by the Cristillan River. The CCGQ has also commissioned studies by SOGREAH in 2000 and by RTM in 2006. While the various development proposals are too costly to protect Ceillac from one-hundred year flood events, the CCGQ works programme in the PAPI does contain plans to renovate **the flood dyke system** protecting Ceillac from **smaller-scale flood events by relocating part of the dyke system and removing a footbridge and road bridge** to improve the flow of water in the riverbed.
The French government has also developed a **PPRN** (natural hazard prevention plan) which was approved in **2005**. The 1957 flood is the benchmark or reference **one hundred year flood event** for the Cristillan, with an estimated flow rate of 100 $m^3/_s$ upstream of Ceillac.
Finally, Ceillac is also part of the **European "CORESTART"** research programme jointly managed by the universities of Lyon 3, Grenoble and Avignon on climate resilience in Alpine areas.
www.corestart.org/projet

One of the interpretation panels and a flood level markers
Source: PNRQ.

Published: September 2022

This publication has been produced by the Inter-regional Mediterranean Arc Flood Unit (MIIAM) and SUDALEA Consultants.
Design: Éric Mégou, Translation: Alexander Colvine. *Acknowledgements: Ceillac Municipal Council, Queyras Regional Nature Park, the Prefecture and Departmental Directorate for the Hautes Alpes (DDT 05), ONF/RTM 05, Hautes Alpes Departmental Archives, "Les Amis de Ceillac" Association, Didier Bertrand, André Bles and Michel Chavrot.*