

7 Geobalades in Ardèche

"A land where, just a few kilometres apart, you can touch the roots of an ancient mountain, the bed of a tropical sea, and the traces of a still-young volcano."

1 The roots of a vanished mountain

Period: -500 to -300 million years (the Variscan chain)

An ancient mountain range, as tall as the Alps, was worn down by erosion. Only its deep roots remain: granite, gneiss, schist.

Location: Montselgues and Thines. The "horse-tooth" granite of Thines, recognisable by its large white feldspar crystals, was used to build the village church; the path leading there then crosses schist. At Montselgues, granite boulders exposed by erosion can be climbed and explored.

| *"A mountain can disappear, but its roots stay engraved in the rock."*

2 The hidden coal of the Cévennes

Period: around -300 million years (Carboniferous-Stephanian)

In hollows of the warm, humid landscape grew immense forests of tree ferns, giant club-mosses and horsetails — some over 30 to 40 metres tall. Once buried, this vegetation turned into seams of coal, sometimes several metres thick.

This coal was mined for seven centuries in the Cévennes, until the 20th century, in the Alès, Grand-Combe and Bessèges coalfields — and at Banne.

Location: Banne. The village still has a mining trail (Doulovy viaduct) where you can trace this mining history, an extension of the great Alès coal basin.

| *"Beneath our feet lie ancient tropical forests — coal is their memory."*

3 The great fault where two worlds meet

Period: from -300 million years to today, visible in a single spot

Some faults bring rocks of very different ages abruptly side by side. The Orcières fault (or Brahic fault), about 6 km long, puts the ancient crystalline basement of the Cévennes directly in contact with the much younger sedimentary rocks of the Bas-Vivarais.

Location: the Naves amphitheatre (cirque de Naves). The village is built on a Jurassic marl-and-limestone plateau, while the Serre de Barre right next to it is made of Cévennes schist and gneiss. At the hamlet of Les Alauzas, the two rock families can be seen touching directly — and a little further on, limestone layers stand vertically, deformed by the fault. Two streams, the Bourdaric and the Malarce, have carved these fragile marls, creating the narrow gorges the trail follows.

| *"Here, a single line in the landscape separates two stories hundreds of millions of years apart."*

4 The tropical sea and its reefs

Period: -200 to -66 million years (Jurassic-Cretaceous)

A warm, shallow sea covered the region: limestone, marl and fossils built up over time. It was in the village of Berrias that the very start of the Cretaceous period was formally defined worldwide — the "Berriasian" stage.

Location: the Païolive Wood and the Ardèche Gorges. Once formed, the limestone was carved by erosion into eerie ruin-like blocks and lapiaz at the Païolive Wood, and cut through by the Ardèche River to create its famous gorges, carved into a limestone massif 300 m thick.

| *"An Ardèche cliff is a former tropical beach turned into a mountain."*

5 The world swallowed beneath the limestone

Period: ongoing formation from the Jurassic to today

Rainwater, charged with carbon dioxide, slowly dissolves limestone and hollows out an entire underground world: galleries, sinkholes, hidden rivers.

Locations: the Orgnac Chasm (Aven d'Orgnac) and the Granzon Gorges (near Banne). Underground, stalactites and stalagmites form drop by drop. On the surface, the same process creates strange landforms: where the limestone is very resistant, its hardest parts survive erosion while channels are carved all around, producing "ruin-like" landscapes of natural walls and pinnacles.

"It never rains twice on the same drop of limestone — every chasm is a work of patience."

6 The collision that lifts, the collapse that hollows

Period: from -80 million years, effects lasting into the Oligocene

The formation of the Alps, far to the east, was felt as far as the Ardèche: on one side, the eastern edge of the Massif Central rose in stages, creating a near-1,000 m "staircase" in the landscape; on the other, along the Cévennes fault, a whole section collapsed instead, forming the Alès trough, which filled with lake and marsh sediments hundreds of metres thick.

Location: the Cévennes border, around Alès-Saint-Ambroix. Over just a few kilometres, you can see both opposing movements — uplift and collapse — recorded in the very same landscape.

"The Alps were born far from here, but their movements shook the Ardèche awake — sometimes lifting it, sometimes making it collapse."

7 The fire returns

Period: -12 million years to -20,000 years (Neogene-Quaternary)

Long after the dinosaurs disappeared, the ground began to shake again: the volcanoes of the Mézenc-Gerbier massif, the Coiron, the Devès, and finally the "Young Volcanoes" of Ardèche, among the most recent in France.

Locations: the Aizac crater, Antraigues, and the Ray-Pic waterfall. Volcanic bombs, scoria and basalt columns are still visible here, especially from the waterfall. These volcanoes are so recent that the region's earliest inhabitants likely witnessed them erupting.

"Ardèche is a land where the Earth has kept some of its chimneys open."

Summary table

Geobalade	Age	Main location	Theme
1	-500 to -300 Ma	Montselgues, Thines	Basement and mountain roots
2	-300 Ma	Banne	Fossil forests and coal
3	-300 Ma to today	Naves	Orcières fault, basement/cover contact
4	-200 to -66 Ma	Païolive Wood, Ardèche Gorges	Tropical sea, limestone
5	Jurassic to today	Orgnac Chasm, Granzon	Karst, underground world
6	-80 to -25 Ma	Alès trough	Alpine collision, collapse
7	-12 Ma to -20,000 years	Aizac, Antraigues, Ray-Pic	Recent volcanism