

An exceptional natural pattern

The geologic pattern

Geological sites represent about 240 hectares in the French department of *Essonne*. Many former or contemporary quarries have been worked on hills and valley bottoms. These exploitations reveal the great geodiversity of bedrock of the department of *Essonne* (sand, sandstone, clay, limestone and siliceous limestone).



The *Essonne* department is one of the historical cradles of geology as science: in the 17th century, Guettard and Lavoisier draw the first's mineralogical maps. Then, in the 18th century, Alcide d'Orbigny describes the layers of the area of Etampes.



The *Essonne* department also accommodates the first national natural reserve of France to be geology-oriented. Created in 1989, it helps preserving geological reference layers of 30 million years.

These deposits, from the Stampian, are principally made up of sand laid down by the sea, from the last time it went into the Paris Basin. This sand is either pure or fossiliferous and is named the "*Sables de Fontainebleau*". Part of this sand has been solidified by chemical process, as to make up the "*Grès de Fontainebleau*" (sandstone). They can be seen as impressive block fields in the region of the *Gâtinais* (area between the towns of *Etampes* and *Fontainebleau*).



On the other hand, curious quaternary peat deposits of 15 m of thickness are located in the *Essonne* river and *Juine* river valleys. These deposits have been worked as fuel since the Middle Ages until World War II, leaving many traces in the landscape (ponds, pits, spits, channels...).



Exceptional but fragile, this scientific, landscape and cultural pattern contributes to the identity of the department of *Essonne*. It holds an often national value and an occasionally international value.



Additionally, quarries are remarkable sites: they usually show industrial pattern illustrating the former excavating methods for local resources.

What's geodiversity ?

Geodiversity is the variety of earth minerals, forms and processes that constitute and shape the earth. It includes minerals, sediments, rocks, fossils, soils and water and all the forms related to it : sedimentation, erosion,...

Although this pattern is not alive, it is important in order to explain the landscapes, influence biodiversity and determine surface human activities.

Also :

- Carte géologique de l'Essonne (Geological map of Essonne) [pdf]
- Carte de la Réserve Naturelle Nationale des Sites géologiques de l'Essonne (Map of the National natural reserve of the geological sites of Essonne) [pdf]
- Carte des sols de l'Essonne (Map of the soils of Essonne) [pdf]
- Carte du patrimoine géologique de l'Essonne (Map of the geological pattern of Essonne) [pdf]
- Carte des carrières en Essonne (Map of the quarries inventory of Essonne) [pdf]
- Inventaire du patrimoine géologique de l'Essonne (Geological pattern inventory of Essonne) [pdf]