Welcome to the Site of Isturitz and Oxocelhaya Caves

Your tour:

You will enter Isturitz Cave and then descend 90 steps before passing into the second network, Oxocelhaya, from which you will eventually exit again. You will embark on this walking tour as part of a group led by one of our guides.

Our shared responsibility as visitors to historic sites: CONSERVATION

You will be venturing into a very vulnerable environment requiring responsible behaviour in order to maximise preservation of the natural site and its archaeological treasures.

We ask that you **remain with your group** and remember that the archaeological and geological features you will see are protected. A single inadvertent action or misstep could forever damage the prehistoric traces around you or disrupt life in the cave (insects, water flows, etc.).

For the sake of conserving these riches, please **do not touch anything**. The acids on our skin attack and dissolve limestone. Over time, this corrosion can damage and destroy limestone and calcite, leaving dark patches on the rock and eroding its surface.

We also ask that you **do not smoke or drink or eat anything** whilst in the cave. Any item or substance falling onto the cave floor can trigger bacterial attacks that are harmful to the cave.

For similar reasons, **animals are prohibited** as they carry various pollens and other substances that can compromise cave environments.

Lastly, **flash, digital or conventional photography and video recording are prohibited** inside the caves, the image rights to which are reserved by the owners of the cave property.

Thank you for your co-operation and assistance in conserving these priceless prehistoric sites.
We hope you have a rewarding time here and enjoy your underground adventure!

I. Cave entrance

Classified as a **Historical Monument since 1953**, the two caves we are about to visit boast an incredibly rich heritage:

- **Isturitz Cave**, the existence of which has been known since time immemorial, contains the vestiges of more than **80,000 years of human presence** including more than one million archaeological elements (animal bone remains, tools, art works, etc.). Archaeologists have identified:
    - **Two Neanderthal occupations** between 80,000 and 50,000 years ago subject to only limited archaeological research to date
    - **Four prehistoric *Homo sapiens* eras or cultures** between 40,000 and 10,000 years ago. During your tour, we will focus mainly on the occupations by the Aurignacians (40,000 years ago) and Magdalenians (15,000 years ago).

- **Oxocelhaya Cave**, the second level discovered in 1929, is a **geological jewel.** Through observation of the landscape, we will explore the formation of the features around us.

II. Archaeological field in the Saint-Martin Chamber

The Saint-Martin Chamber has been the subject of highly extensive archaeological research beginning in 1913. However, it was not until 1999, following three years of trial excavations, that the site's scientific director, Christian Normand, recognised the scientific interest of the **Aurignacian layer at Isturitz dating back to 40,000 to 30,000 years ago**. This archaeological layer corresponds to the **arrival of the earliest *Homo sapiens* in Western Europe** and, consequently, their first settlement in the Pyrenees.

From 2000 through 2010, archaeologists from around the world laboured to gain a better understanding of the human habitation site in the Saint-Martin Chamber:

- The Saint-Martin Chamber boasted a huge opening spanning nearly 40 metres on its south face. Daylight reached all the way to the rear of this chamber, making the entire space appealing for human habitation.

- **<u>Aurignacian man then organised his habitat based on his activities. Three different work spaces have been identified:</u>**

  - A **butchery area** where a large number of horse and bison bone remains have been discovered. The animals were slaughtered out in the open, and people then brought inside only the parts of carcasses that could be used for food or the bones they could make into tools.

  - A **hide-working area**. The numerous awls and smoothers found here attest to the preparation of animal skins for use as clothing and for other purposes.

  - An **adornment-making area**. These adornments were abundant and varied, being made of bone, ivory, shells from the Atlantic and mineral substances of a range of colours, including talc, lignite, amber and hematite amongst others. Some beads were fashioned on-site, whilst others (such as ivory pearls) were imported.

- **<u>Studies carried out on these various activities have highlighted three major concepts:</u>**

  - Aurignacian man had developed an **economy running the entire length of the Pyrenean chain**, a distance of close to 800 kilometres from north to south. People imported and exported a very wide variety of materials and manufactured objects.

  - Aurignacian men and women must have sought a certain level of refinement in their dress taking into consideration the quantity of beads and pendants unearthed at Aurignacian sites. The presence of beads also testifies to the **social use of adornments** to mark the identities of groups of humans.

  - The Aurignacians built a highly organised societal model in which the economy played a role, people specialised in certain activities and human groups claimed their own identities in relation to other people living on the same land. **In so doing, they were laying the foundations 40,000 years ago of contemporary civilisation, including social, economic and even political aspects!**

III. Sculpted pillar in the Main Chamber of Isturitz

Some 30,000 years following the presence of the Aurignacians, Magdalenian *Homo sapiens* came along to occupy the entire cave at Isturitz including, in particular, this main chamber.

This immense space enjoyed natural light 17,000 years ago flowing in through the northern opening, which is today walled over. Illuminated by this natural light, **the chamber's small pillar was used by the Magdalenians to sculpt a wide variety of animals.** For the first time since these sculptures were discovered 100 years ago, the pillar was made the focus of an archaeological research program launched in 2011 and led by Diego Garate.

These new studies of the pillar have revealed the presence of some 15 or more art works over the pillar's surface. A very broad range of animals is depicted, including deer, reindeer, horses, wolverines and fish; **it is rare to find such a diversity of fauna on a single structure.**

The pillar has an uneven appearance:
All of the animal depictions on the right side are incomplete, with only their outlines traced out. On the left, under the protective shield, the animals are more complete in both artistic and anatomical terms.

Four animals are represented here:
- To the left, the **body of a deer** without the head.
- To the right, the **body of a deer** with a prominently outlined leg and abnormally long rear foot, clearly visible chest and beginning of a head.
- Above it, a large-scale depiction of a **highly detailed reindeer** (joints, tendons, shanks, antlers, etc.) is complete.
- Looking up again we see depicted a **salmonid** (salmon). This work was authenticated in November 2012.

Research remains ongoing.
The objective is to better understand the reality of this pillar in relation to the intensive occupation of these chambers by the Magdalenians.

The Main Chamber of Isturitz was a central study focus for researchers between 1913 and 1958. Over a period of nearly 50 years, the tens of thousands of objects (mainly bone or flint tools), hundreds of thousands of animal bone remains and thousands of art works unearthed have been helping experts to better understand the archaeological

significance of the site at Isturitz. All of these objects are currently conserved at the National Archaeology Museum in Saint-Germain-en-Laye near Paris.

The quantity and, above all, continuous study of these collections have revealed a proliferation of activity at Isturitz during the Magdalenian (17,000 – 15,000 years ago):

- **Busy daily lives**: work areas have been discovered resembling shops for series production of certain objects (perforated needles, sandstone animal sculptures, etc.) associated with numerous fire pits around which men worked.

- **Burgeoning economic activity**: The Magdalenians were designing and exporting art objects, making the Isturitz site a centre for artistic creation.

- **Organised social life**: the vast chambers and easy access to the cave supported the intermingling of countless prehistoric populations, thereby promoting bartering and the conveyance of influences from one territory to another.

The Isturitz site became particularly prominent geographically during the Upper Palaeolithic period.

Most studies of the collections from Isturitz have confirmed the leading role played by the Isturitz site all the way from the Aurignacian (40,000 years ago) through the Magdalenian (15,000 years ago). This site was a focal point for:

- **Mobile art:** The on-site museum holds a series of emblematic art objects (flutes of vulture bone, sandstone sculptures of bison and horses, spiral etchings on reindeer antlers, depictions of humans and much more).

- **Parietal art**: the sculpted pillar with its variety of animal representations is the only one of its kind in the world. Oxocelhaya Cave is also home to two art galleries featuring etched horses (Galerie Laplace being open to the public just once a week by special arrangement on Sundays at 11:00 a.m.).

- **Continuous habitation:** Every prehistoric culture is represented from 40,000 to 10,000 years ago. Depending on the period, the habitation site was a place of:
    - artistic creation and dissemination
    - mutual exchange and influence between Lascaux and Altamira
    - assembly of populations from throughout the area seeking to take part in a societal economy.

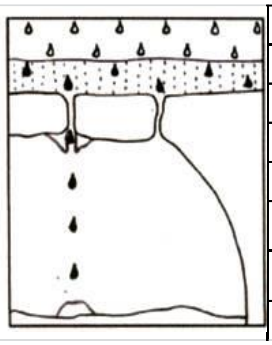
Very few European sites today offer such a wealth of archaeological and study data which continues to grow.
The sheer volume of information (archaeological facts and scientific concepts) makes Isturitz one of Europe's leading sites for information on the Upper Palaeolithic.

IV. Lithophone Chamber in Oxocelhaya Cave

In Oxocelhaya Cave, we are surrounded by signs of ages past. Everything around us bears traces of ancient generations of humans...

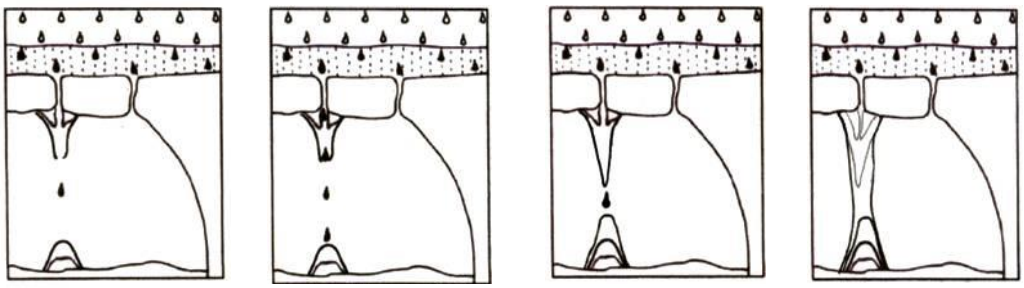
Oxocelhaya Cave is a sanctuary inviting each of us to contemplate its infinite beauty in a spirit of awe and respect.

<u>Formation of stalactites and stalagmites:</u>



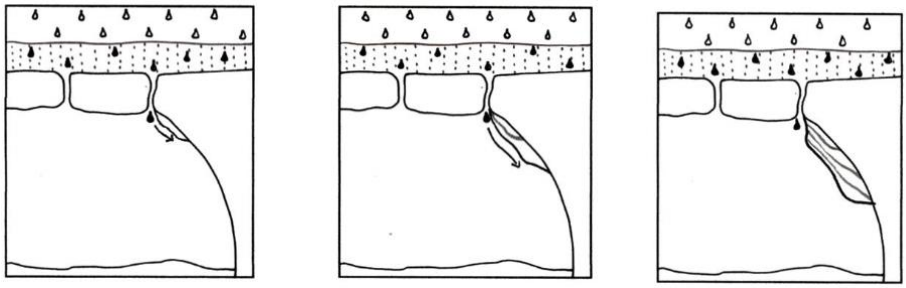
Precipitation
Acidification of humus in soil
Dissolution of limestone
Crystallisation of limestone, formation of calcite
Gradual build-up of calcite to form **stalactites**
Crystallisation of limestone, formation of calcite
Gradual build-up of calcite to form **stalagmites**

Series of images showing the formation of stalactites and stalagmites into columns:



Formation of 'draperies':

The water flows down a wall:



The draperies at this site have a unique feature: when gently tapped, they vibrate and emit a very pleasant and melodious sound.

Pierre Estève, musicologist and researcher specialising in melodic nature sounds, has worked in this cave. Using a percussion mallet specially designed for the cave, he recorded all the sounds coming from the various vibrating draperies. He then created compositions showcasing the sound quality of these natural instruments, known as **lithophones**!

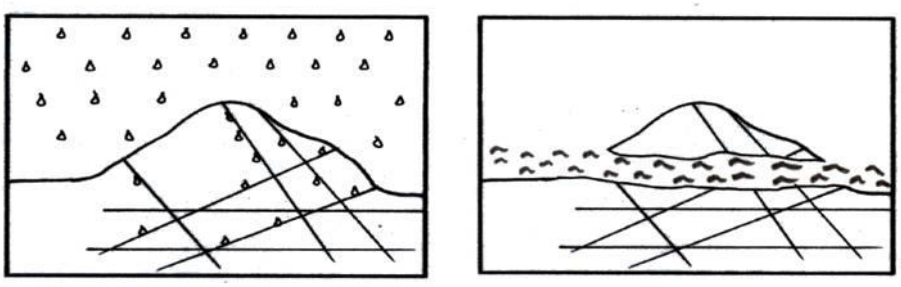
V. Père Noël Chamber

Père Noël Chamber is the ideal classroom for understanding how the caves of Gaztelu Hill came to be.

All around us lie three main types of landscapes corresponding to the three main phases in the formation of these caves:

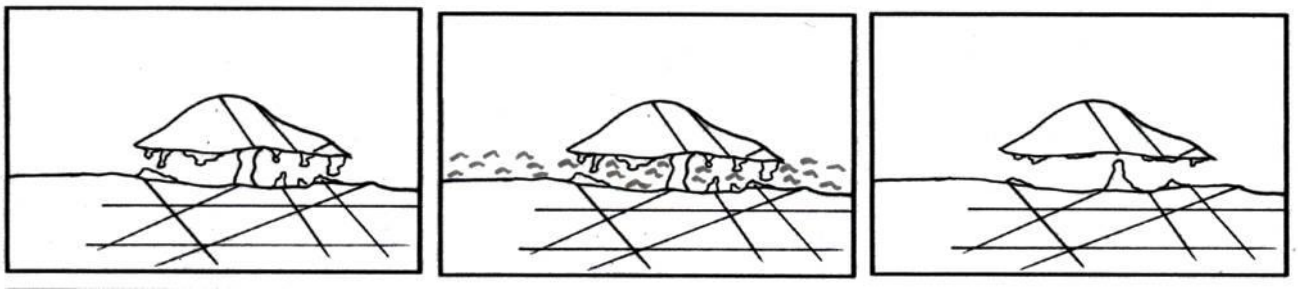
- **Phase 1: A river carves out the cave**

Rain water infiltrates cracks in the limestone.
As the limestone continues to dissolve, these fractures widen until a river is flowing through an open space.

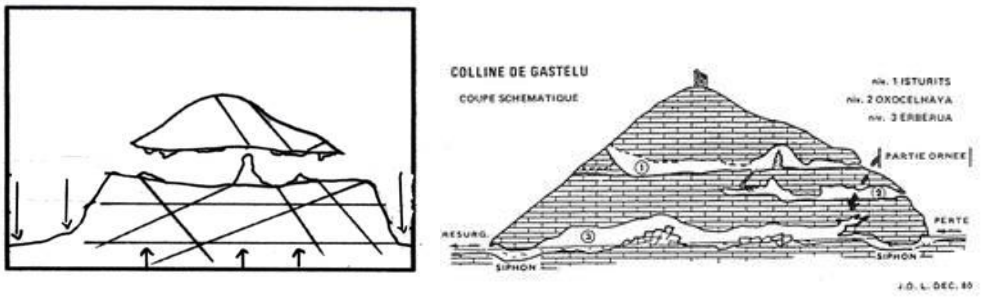


- **Phase 2: Start of concretion and reflooding of the cave**

As the river retreats, the first stalactites, stalagmites and columns begin to develop. These concretions are exposed to erosion due to reflooding of the cavity.



- **Phase 3: The action of cave formation takes place at least three times in total, resulting in the creation of three caves atop one another.**



VI. Chinese Pagoda

This chamber represents a perfect synthesis of the life cycle of a cave:

- **Brilliant cascade:** The cascade is exposed regularly to rain water. Calcite forms on a continuous basis; the limestone crystals are hydrated. Light is consequently reflected off of the crystalline facets, making the rock shine. This zone is especially active.

- **Dry concretions:** Inversely, this zone is no longer exposed to rain water. The concretions are referred to as ‘dead’ or fossilised and decompose through either erosion or natural corrosion or the effect of naturally occurring bacteria in the cave.

- **Eroded column:** This column is especially ancient. It has undergone significant erosion or corrosion after its formation. Water is currently trickling in once again through the top of the

column, and new calcification is taking place. **This column is being regenerated.**

The beautiful landscapes around us are constantly evolving. Caves consequently provide perpetual evidence of the composition, disintegration and rebuilding of landscapes and spaces, including in the caves. **Caves are constantly evolving environments**.

In 2011, **an ambitious research program in geology was launched**. The objectives of this project are to:

- Better understand the formation of the three superimposed levels of caves in Gaztelu Hill by exploring the development of the valley's morphology.
- Identify more clearly the various phases of the formation of each cave.
- Locate the original openings of the cavities in order to link them to the prehistoric occupations.

VII. End of tour

We have been pleased to guide you on this tour of the site of Isturitz and Oxocelhaya Caves. Through your underground adventure, we hope that you have successfully experienced the wealth and beauty of this hub of prehistoric society with its unlimited scientific and research potential. **Every year, we add to our knowledge about the hill as a whole, whether in terms of prehistory or geology.**

Today, we continue our mission not only of preservation and conservation but also of scientific dissemination and research support to ensure that this living site can be appreciated indefinitely.

If you find yourself enthusiastic about this site for all that it represents in terms of the world's prehistory, **we encourage you to consider supporting future initiatives here by becoming a member of the 'Friends of Isturitz and Oxocelhaya'**. Information is available in the reception area about our Endowment Fund.

We also invite you to visit our website:
www.grottes-isturitz.com