

PRACTICAL TEST : ALONG THE BOUILLIDE

實作測驗: Bouillide 沿線

"La Bouillide" is a small river that crosses the plateau of Sophia Antipolis. Its journey is mysterious. Indeed, the flow of the watercourse can vary strongly over a few hundred meters to the point that it disappears at times.

La Bouillide 是一個切穿 Sophia Antipolis 高原的小河，它的河道隨時間變遷，有時長至幾百公尺、有時消失。

Keep in mind : What are the indices of ground that explain this significant variation in flow?

提醒: 地面上有哪些指標，可解釋這重大的河道變遷？

Figures 1 and 2 provide general information on the topography and geology of « La Bouillide ». The points of interest that you are working on are shown on the maps (A to D).

圖一和二提供了 La Bouillide 的地形和地質資訊。野外地點標示在圖中 A 至 D。

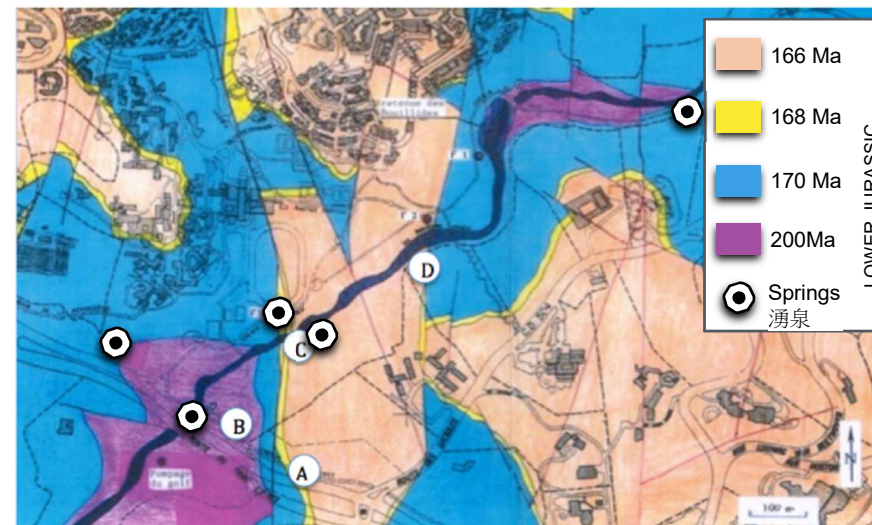
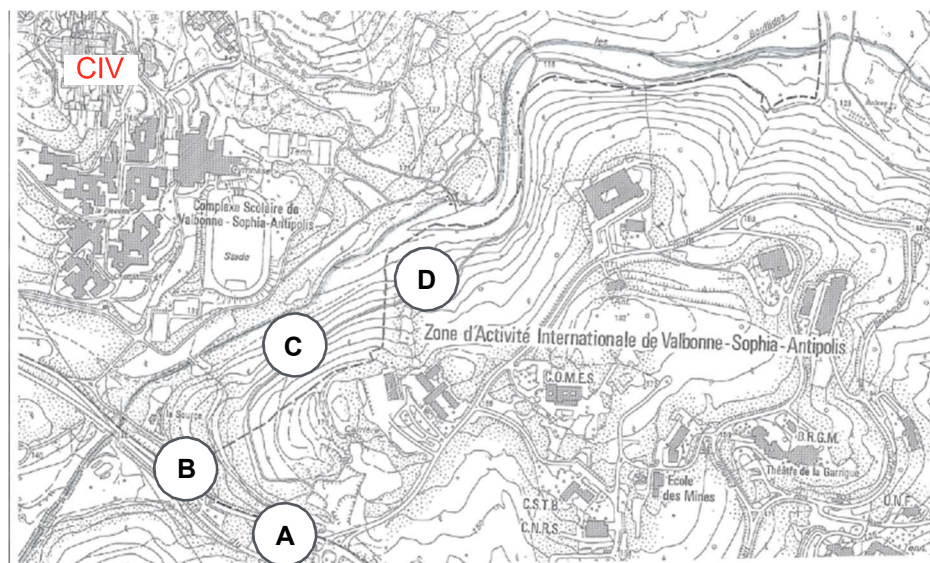


FIGURE 2 : Geological map of the area shown in Figure 1 (from the thesis « Geology and karstic hydrogeology of the basin of the Brague and its edge » by Christian Mangan, 1982).
圖2 對應到圖一的地質圖。

INSTRUCTIONS

操作說明

The observations made at the four sites (A to D) will allow you to answer the question. The question sheet will be distributed in the classroom after your fieldwork. 於野外考察地點 A 到 D 的觀察記錄，會幫助你回答問題，考卷會在考察完成後發給你們。

You have a notebook to describe your observations and measurements at each of the four sites.

Each site is supervised by referees. They will ensure smooth progress,

but will not answer any content questions.

You will be provided with a set of tools to perform your investigations.

將你在 4 個考察地點的野外觀察測量紀錄在所提供的筆記本，每個野外地點都會有裁判引導，他們會確保你儀器操作順暢，但不會回答任何知識性的問題。測量工具也會提供給你以進行野外調查。

FIGURE 1: Topographic map of 1/10000th of the Bouillide valley. 一萬分之一 Bouillide valley 地形圖



SITE A 地點 A

Equipment provided :

A compass and clinometer.

Hydrochloric acid, pipette and watch glass.

Sample of glass and steel.

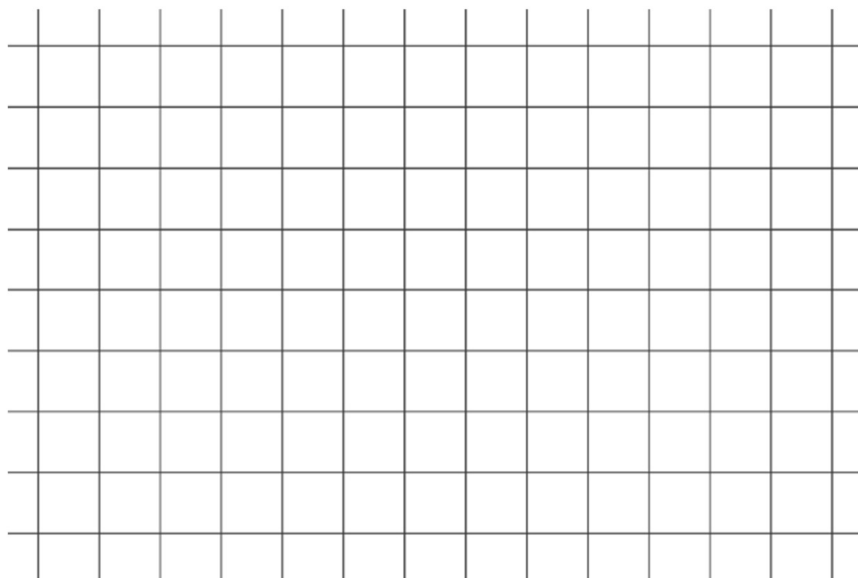
所提供的儀器:一個羅盤和傾斜儀，鹽酸、吸管、放大鏡，玻璃片和不鏽鋼片

Instructions for observation: 觀察步驟說明

- Determine the rock category (e.g. sedimentary, metamorphic, magmatic)
- Accurately identify the rock (e.g. limestone, granite, schist, etc...).
- Take notes and draw a labeled outcrop diagram.

1. 判定岩石類別(例: 沉積岩、火成岩、變質岩) 2. 精確鑑定岩石種類 (例: 石灰岩、花崗岩、片岩等) 3. 畫下露頭並作筆記

Drawing of the site 畫下露頭 :



Your notes 筆記:

SITE B 地點 B

Your notes

Equipment provided :

A board on mobile support at two axes.

A compass and clinometer.

Hydrochloric acid, pipette and watch glass. Sample of glass and steel.

提供的儀器:

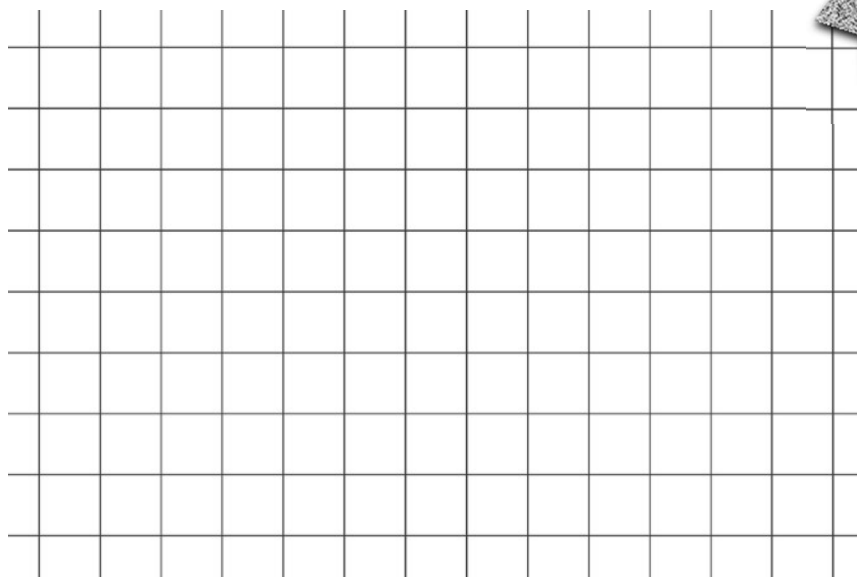
一個兩軸可移動的板子，一個羅盤和傾斜儀，鹽酸、吸管、放大鏡，玻璃片和不鏽鋼片

Instructions for observation : 觀察步

驟說明

- Determine the rock category (e.g. sedimentary, metamorphic or magmatic) 決定岩石類別 (例:沉積岩、火成岩、變質岩)
- Accurately identify the rock (e.g. limestone, granite, schist, etc...). 精確定義岩石種類 (例: 石灰岩、花崗岩、片岩等)
- Measure the outcrop geometry (follow on-site instructions). 測量露頭 (請參照此露頭點的操作指示)

Drawing of the site:



SITE C 地點 C

Equipment provided :

Thermometer and gloves.

Strips for indication of hardness, pH, nitrate concentration. Measuring tape.

提供的儀器: 溫度計和手套, 硬度試紙、PH 值和硝酸鹽、量尺

Some instructions for the observation : 操作說明

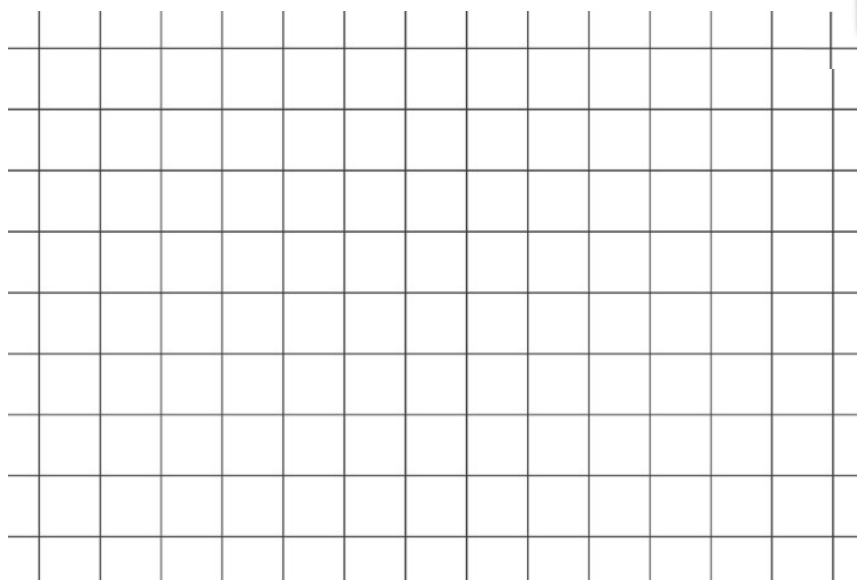
- Determine the temperature of water in the river and the spring.
- Estimate the difference in altitude between the river and the spring.
- Depending on the context, measure the water flow at several points.

測量河水和湧泉的溫度

估計河流和湧水的高度差

根據現場狀況, 測量不同點的水流

Drawing of the site :



TECHNICAL
EVALUATION 2
BY JURY

Your notes :

SITE D 地點 D

Necessary Informations :需要的資訊

The rock at this outcrop is dated to the lower Bathonian (168Ma). It has been known since antiquity and extracted for works of art.

此露頭的岩石被定年為 168 百萬年左右，是古時藝術品的材料。

Some instructions for the observation : 觀查程序說明

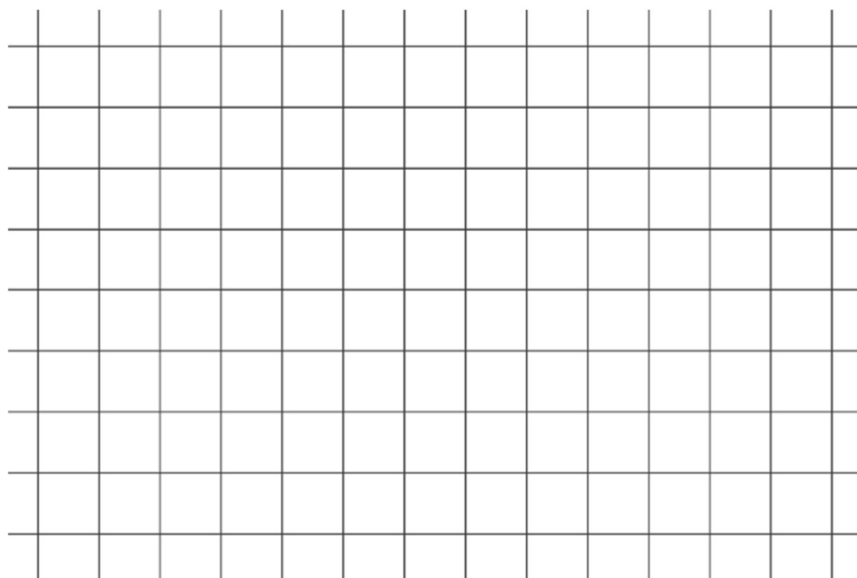
- Determine the rock category (e.g. sedimentary, metamorphic, magmatic)
- Accurately identify the rock (e.g. limestone, granite, schist, etc...).
- Take notes and draw a labeled outcrop diagram.

決定岩石類別 (例:沉積岩、火成岩、變質岩)

精準定義岩石種類 (例: 石灰岩、花崗岩、片岩等)

畫出露頭圖並作筆記

Drawing of the site :



Your notes :



*From the Museum of Ceramic of Biot.
Artwork dated to the 18th century*



What are the Cargneules ?

Cargneules 是甚麼?

Sedimentary rock carbonated with vacuolar aspect, from yellow tint to rust, due to the dissolution of dolomites or limestones under the action of copper sulphate waters. These rocks are breccias. They are formed by liquid injection under pressure that cracks the rock. This water results from gypsums dissolution of Trias and is expelled from it because of tectonic efforts.

氣孔狀碳酸沉積岩，顏色呈現黃色至鐵鏽色，因為白雲岩或石灰岩與含硫酸銅水的反應所致。此岩石為角礫岩，其形成過程為液體高壓注入，使得岩石碎裂而成。此液體來自因板塊運動作用所溶解的石膏層 (Trias)。