

Data Literacy Learning Activity – Hydrosphere



Water temperature trend

Water Temperature Trend

Topic: Comparison of water temperature at three locations near each other - in the river, at the mouth of the river and in the bay.

Age of students: 10 - 15

Skills developed: reading and comparing graphs; comparing water temperatures measured at different study sites; calculation of the difference between the highest and lowest measured water temperature; trend differences of water temperature during the year

Prerequisites: basic knowledge of the water temperature measurements

Big idea: Water temperature is influenced by a number of factors - atmospheric conditions, the topography of the land (altitude, vegetation...) and the structure of the river channel. Temperature varies along the river and affects its ecosystem.

Content of the activity

Slide 4: Introduction

Slide 5: Questions for students

Slide 7-10: Data to be used for the activity

Slide 12: Answers to the questions for students

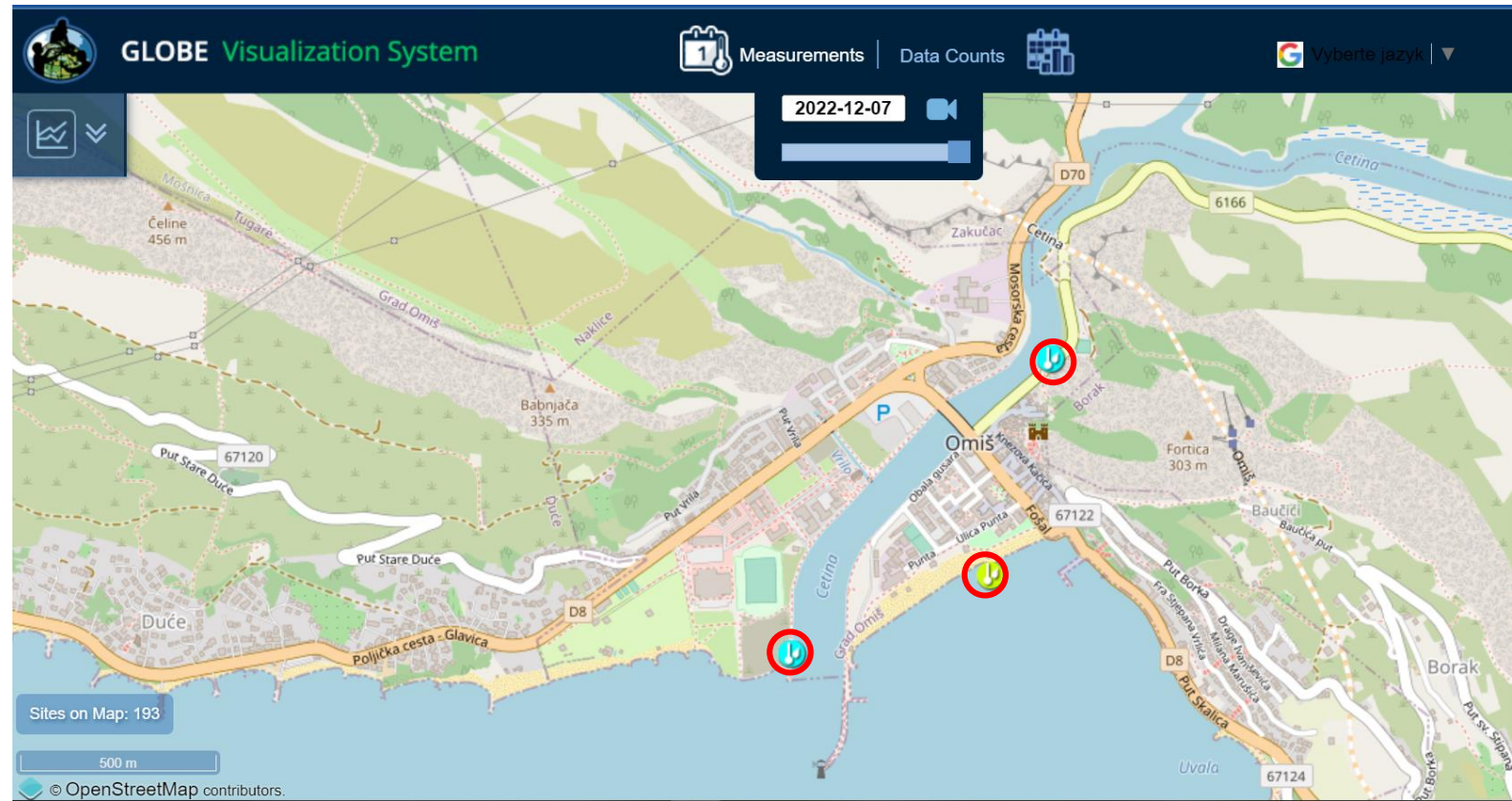
Introduction

- The data were collected by students of Primary school Joseph Pupacic Omis, Croatia.
- They measured water temperature during the whole year at 3 study sites:
 - at the river Cetina (study site Cetina – Planovo)
 - at the mouth of the river Cetina to the sea (study site Cetina – usce)
 - in a sea bay (study site More – Velika Plaža)

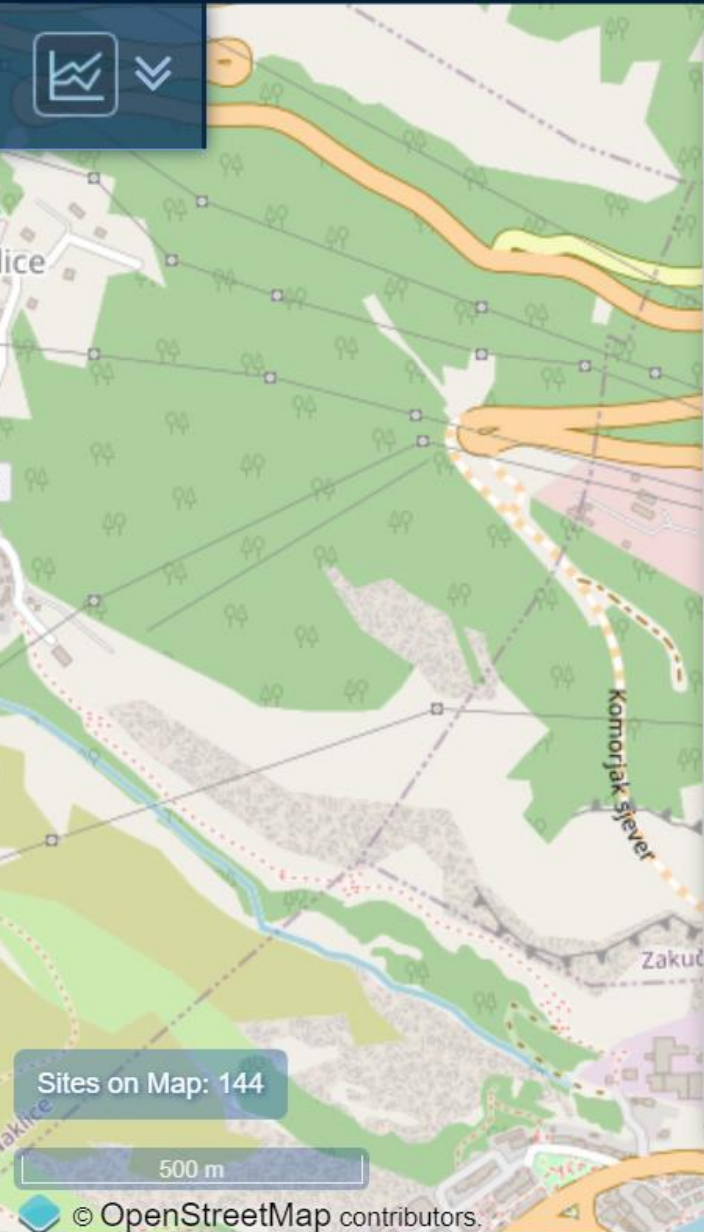


Looking at the study sites, make your guesses

1. At which study site was the coldest water measured during the year?
2. In what month was that?
3. At which study site was the warmest water measured during the year?
4. In what month was that?
5. What is the difference between the highest and lowest temperature at each of the site? Is it the same or different?
6. Does the fluctuation of water temperature differ in any way at individual sites?



Check your guesses looking at the data



Sites on Map: 144

500 m

School: OS Josip Pupacic

Site: Cetina (Planovo)



Measurements

Data Counts

School Info

Site Info

Photos

Hydrosphere

Water Temperature

Water Temperature

Data Date Range: 2014-10-25 to 2023-01-20

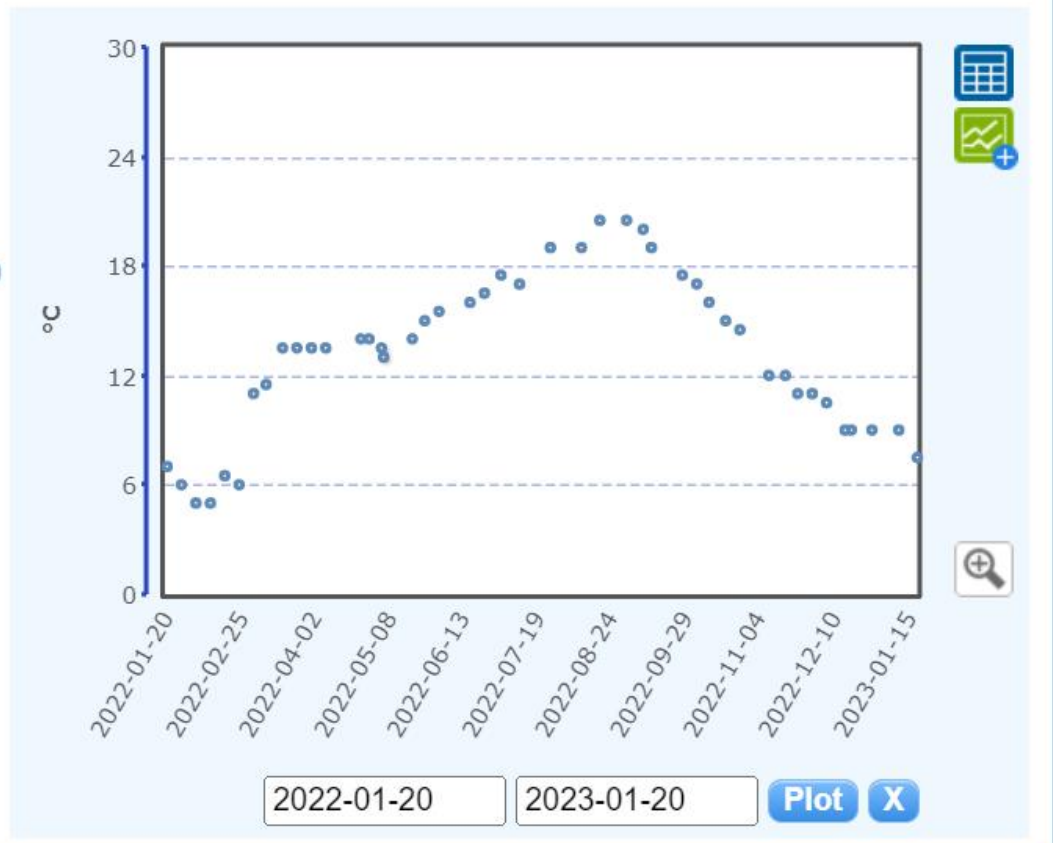
Measured At: 2023-01-11 09:00:00

Water Body State: normal

Water Temperature: 9.0 °C

Temperature Method: alcohol-filled thermometer

Elevation: 0.00 m



2022-01-20

2023-01-20

Plot X



School: OS Josip Pupacic

Site: Cetina (usce)



Measurements

Data Counts

School Info

Site Info

Photos

Hydrosphere

Water Temperature

Water Temperature

Data Date Range: 2014-10-25 to 2023-01-20

Measured At: 2023-01-11 08:00:00

Water Body State: normal

Water Temperature: 10.0 °C

Temperature Method: alcohol-filled thermometer

Elevation: 0.00 m



2022-01-20

2023-01-20

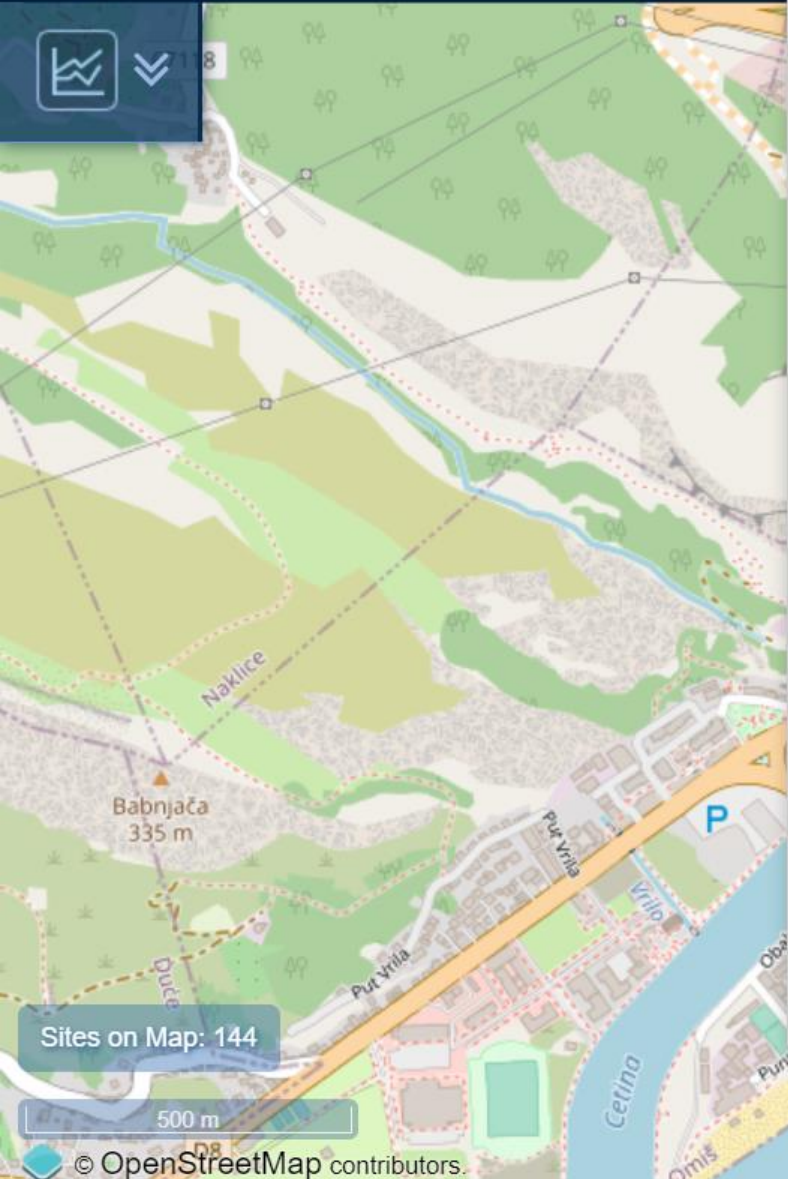
Plot

X



Sites on Map: 144

500 m



School: OS Josip Pupacic

Site: More - Velika plaža



Measurements

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Site Info

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Hydrosphere

Water Temperature

Water Temperature

Data Date Range: 2021-09-10 to 2023-01-20

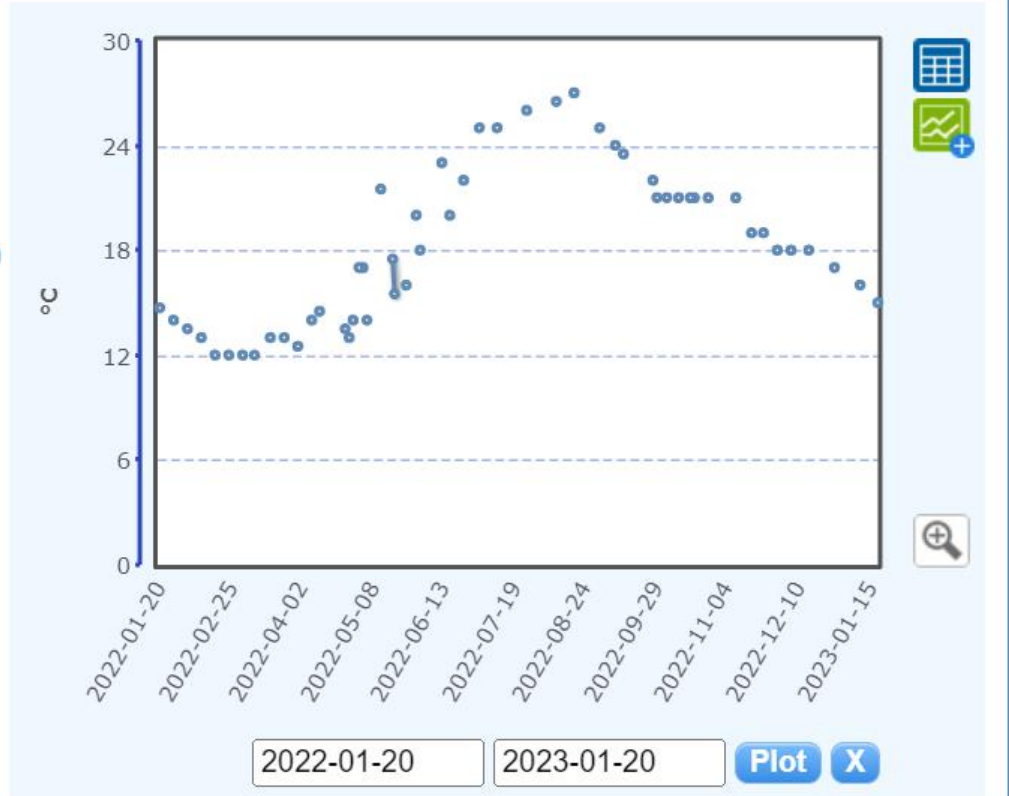
Measured At: 2023-01-11 08:00:00

Water Body State: normal

Water Temperature: 16.0 °C

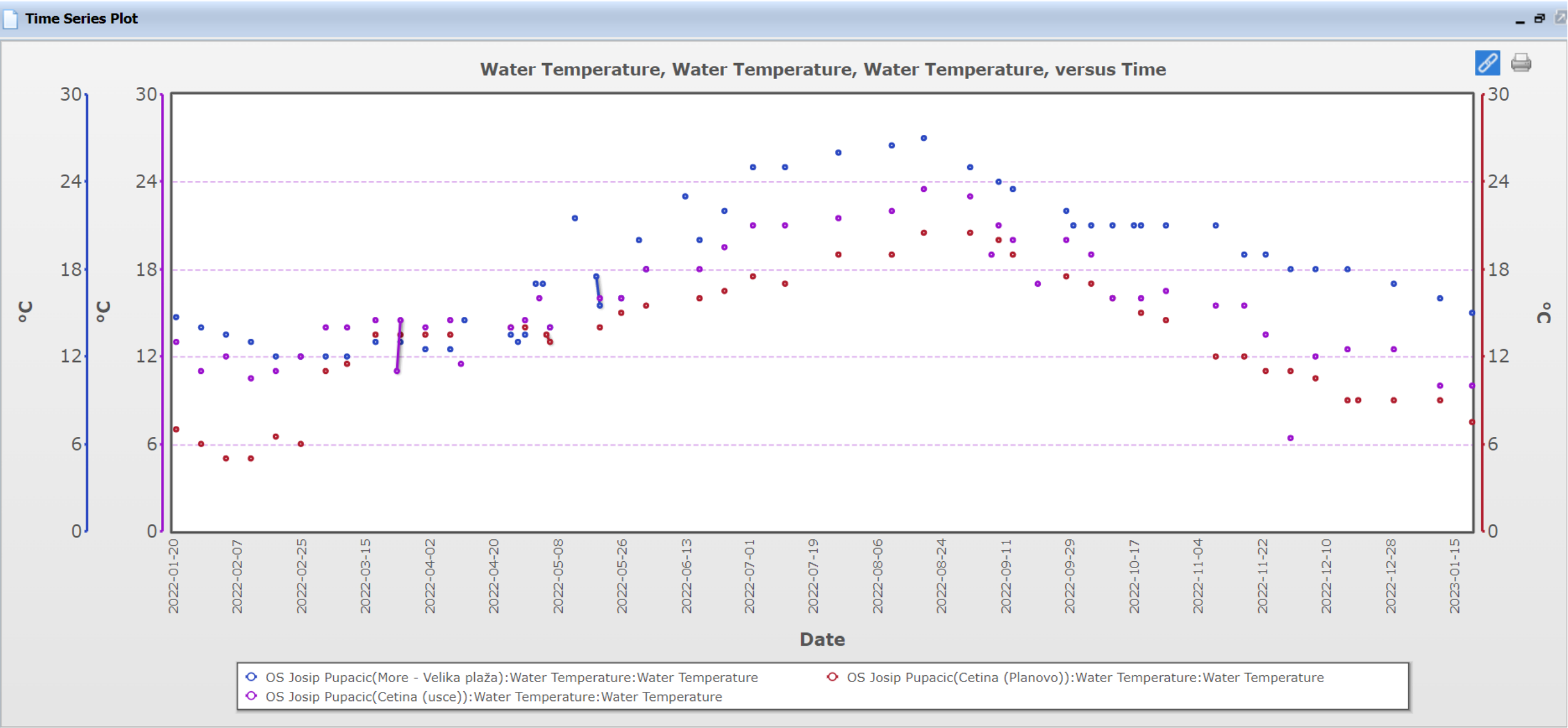
Temperature Method: alcohol-filled thermometer

Elevation: 0.00 m



Sites on Map: 144

500 m



https://vis.globe.gov/GLOBE/timeseries.jsp?mode=multisiteplot&multiSiteList=253679:dv_water_temperatures:water_temp_c:0:50,33419:dv_water_temperatures:water_temp_c:0:50,33418:dv_water_temperatures:water_temp_c:0:50&start_datepicker=01-20-2022&end_datepicker=01-20-2023&result_type=true&chartmodule=PowerCharts

For answers to the questions go to the next slide 😊

Correct answers

1. At which study site was the coldest water measured during the year?
At the river Cetina (study site Cetina – Planovo)
2. In what month was that?
February
3. At which study site was the warmest water measured during the year?
In a sea bay (study site More – Velika Plaža)
4. In what month was that?
August
5. What is the difference between the highest and lowest temperature at each of the site? Is it the same or different?
River Cetina ($20-5=15^{\circ}\text{C}$) /mouth of the river Cetina to the sea ($23,5-10=13,5^{\circ}\text{C}$) / in a sea bay ($27-12=15^{\circ}\text{C}$)
6. Does the fluctuation of the water temperature differ in any way at individual sites during the year?
Cetina river and Sea bay have similar fluctuation of the water temperature; Mouth of the river has minor fluctuations



The data literacy learning activity was prepared by GLOBE Program Europe and Eurasia Region Coordination Office, inspired by a real classroom activity coming from a GLOBE school.

Thanks to the teachers and students of Primary school Joseph Pupacic Omis, Croatia for the inspiring idea, photos and materials.



Implemented by: The UCAR logo, featuring a blue starburst symbol followed by the letters "UCAR" in a bold, sans-serif font.