



Students report about CO₂ monitoring Ученически доклад за дейността по измерване на CO₂

Дата/ Date: 12.03.2024

1. Въведение (Introduction):

Monitoring the concentration of CO₂ in a closed environment. The time period is 15 days /05.03 – 19.03.2024/. The goal is to examine the levels of CO₂ whether there are dust particles, change of temperature, number of people inside the room or ventilation.

Project number 2022-1-IT01-KA220-VET-000087732 –
"CHANGE - Co2 monitoring in scHools for digitAl aNd Green compEtences"
CUP G31B22002160006

Event log to be used in CO₂ monitoring experiments Доклад за дейността при мониторинг на CO₂

Type of activity (вид дейност): Monitoring CO₂

Info about workspace (информация за работната среда) - School environment

School and Class (училище и клас) – PGE „John Atanasov“ – Stara Zagora, 10b

Room destination (номер на стаята) - 418

Room surface (площ на стаята) - 30 m²

Room volume (обем на стаята) - 90 m³

Number of windows (брой прозорци) - 2

Window opening surface (площ отваряеми прозорци) – (0,8 x 2) m²

Position of monitoring stations (разположение на устройството) – **in the middle of the east wall**

Position of HVAC (Отоплителни , вентилационни системи) - Radiator 3m² away

Average number of occupants (среден брой на хората) - 7

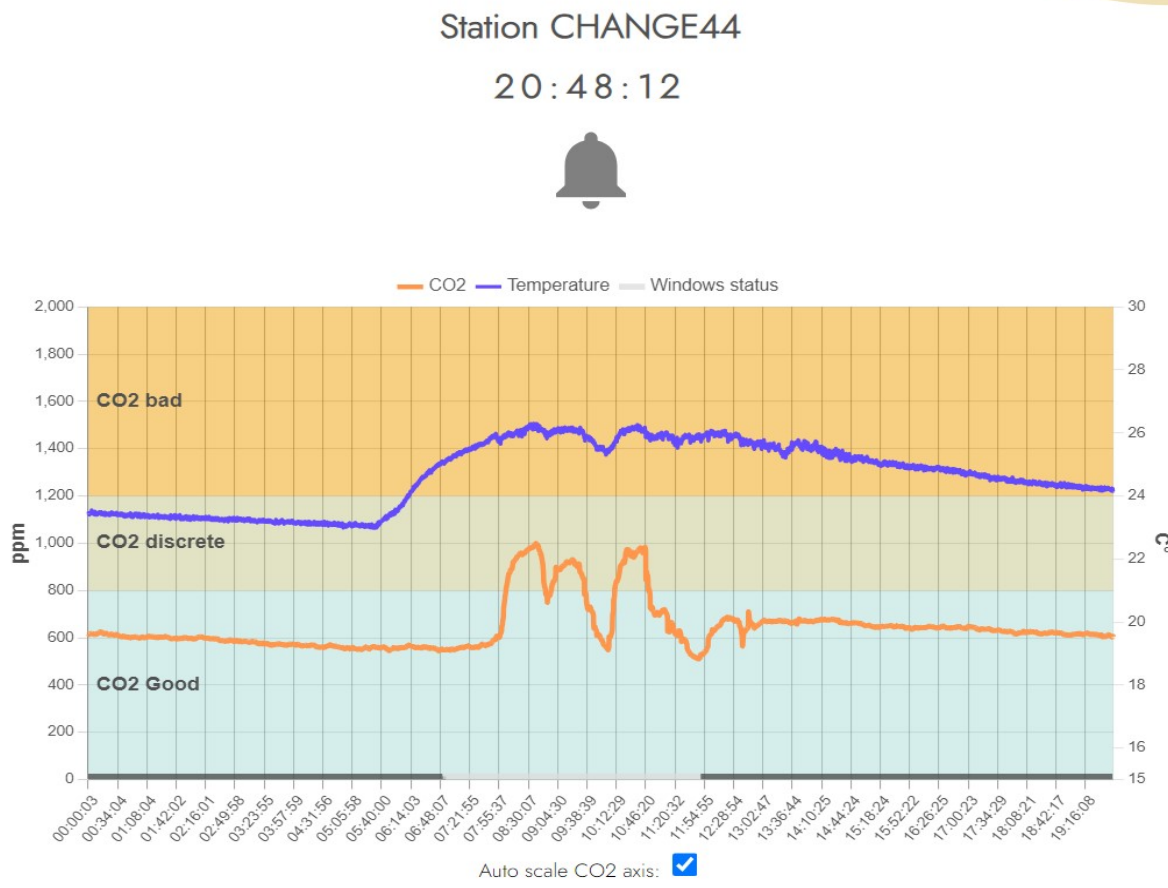
Average occupation time (school hours?)(учебни часове: начален час-краен час) 00:00 – 00:00



Разположение на стаята и устройството

Event Log

2. Информация (Information):



12.03.2024 - Влажно, рѣнровно време
 в 11:00 часа на нѣсе, без влажни

В 08:20 преди вилосване на парто, мѣса на хора,
 затворети прозореци CO_2 - 555 ppm, $23^\circ C$, 38%.

В 8:20 з. - вилосено парто CO_2 \uparrow - 562 ppm, $25^\circ C$,
 36%, при стѣпниѣ условия. В 8:50 з. непосредствено
 преди отворяне на прозорец CO_2 594 ppm, t - 26° , 37%.

Ой 08:55 - група ученици - 11, прозореца е отворен,
 радиатори работят, в началото на часа CO_2 е 622 ppm,
 t - 26° , 38%. В 09:40 з. след часа на часа CO_2 \uparrow до
 981 ppm, $26^\circ C$, 44%. От 09:42 - 09:50 в сѣдѣща нѣма
 ученици Ой 9:50 з. следващия учебен час -

CO_2 е 806 ppm 26° . В края на часа 10:35 з
 790 ppm, t - 26° , 41%. От 10:40 до 11:00 з
 в сѣдѣща нѣма никой. В 11:00 з. - 555 ppm,
 25° , 39%. Ой 11:00 з. - Музика до 11:50 з. -

CO_2 - 887 ppm, 26° , 41%. Ой 11:50 до 12:50 нѣма
 ученици В 12:50 часа, CO_2 - 515 ppm $26^\circ C$, 36%.

Обучават се ученици група ой 2 часа CO_2 \uparrow независимо
 отворения прозорец до 633 ppm, \uparrow и влажността 37%,
 t се запазва $26^\circ C$. - показател в 13:10 з. В 13:40 прие-

мобилни занятията CO_2 ~~636~~ ppm, t - $26^\circ C$, 37%

13:50 затворен прозорец CO_2 - 657 ppm, 26° , 37%

Start time Начален час	End time Краен час	Event събитие	Notes Бележки
08:00	08:50	Closed window	
08:50	13:50	Open window	
13:50		Closed window	

3.Коментари (Comments):

At 06:20 in the morning before turning on the heating in the building, there is no one in the room, the windows are closed, the CO₂ concentration is 555 ppm, the temperature is 23 °C, the relative humidity is 38%. At 08:20, the steam is already working, but the windows in the room are still closed and there is no one in it, the concentration increases to 562 ppm, the temperature also rises to 25 °C, the relative humidity drops to 36%. From 08:45 in the room is only the teacher. At 08:50 just before opening one of the windows, the CO₂ was 594 ppm, the temperature was 26 °C, the humidity was 37%. At 08:55 a group of 11 students start studying in the office, the window is open, the radiator is working. At the beginning of the class, CO₂ is 622 ppm, temperature is 26°C, humidity is 38%. At the end of the class 09:40 CO₂ has risen to 981 ppm, temperature has remained at 26 °C, relative humidity has risen to 44%. From 09:42 to 09:50 there are no students in the room, only the teacher remains. Over the course of 10 minutes, the CO₂ concentration drops to 806 ppm. The window is wide open and therefore at the end of the class hour - 10:35 AM the CO₂ drops to 790 ppm, the temperature has maintained a value of 26°C, the relative humidity also drops to 41%. From 10:35 to 11:00 there is no one in the office /long break/. At 11:00, CO₂ is 555 ppm, temperature is 25°C, humidity 39%. 11 students enter the office again and study until 11:50 a.m., when CO₂ 887 ppm, temperature 26 °C, humidity 41% are reported. From 11:50 a.m. to 12:50 p.m. there is no one in the room. At 12:50 p.m., the graph shows a concentration of 515 ppm, a temperature of 26 °C, and a relative humidity of 36%. From 12:55 PM to 1:40 PM there are three people in the room. Regardless of the small number of people in the room and the natural ventilation from the window, the concentration rises. At 13:10, CO₂ 633 ppm, temperature 26 °C, relative humidity 37% were reported. At 13:40 CO₂ is 638 ppm, temperature 26 °C, relative humidity 37%. At 13:50 the window is closed. From the graph it can be seen that in 10 minutes /at 14:00 hours/ CO₂ rises to 657 ppm, temperature and humidity keep their values - 26 °C, 37%.

4. Заключение (Conclusions):

The CO₂ concentration is influenced by heat sources /steam/. In the absence of such, CO₂ has lower values and increases in such, with the same other parameters (closed windows, absence of people in the room).

Изготвили (Issued by) : 10б клас (class)