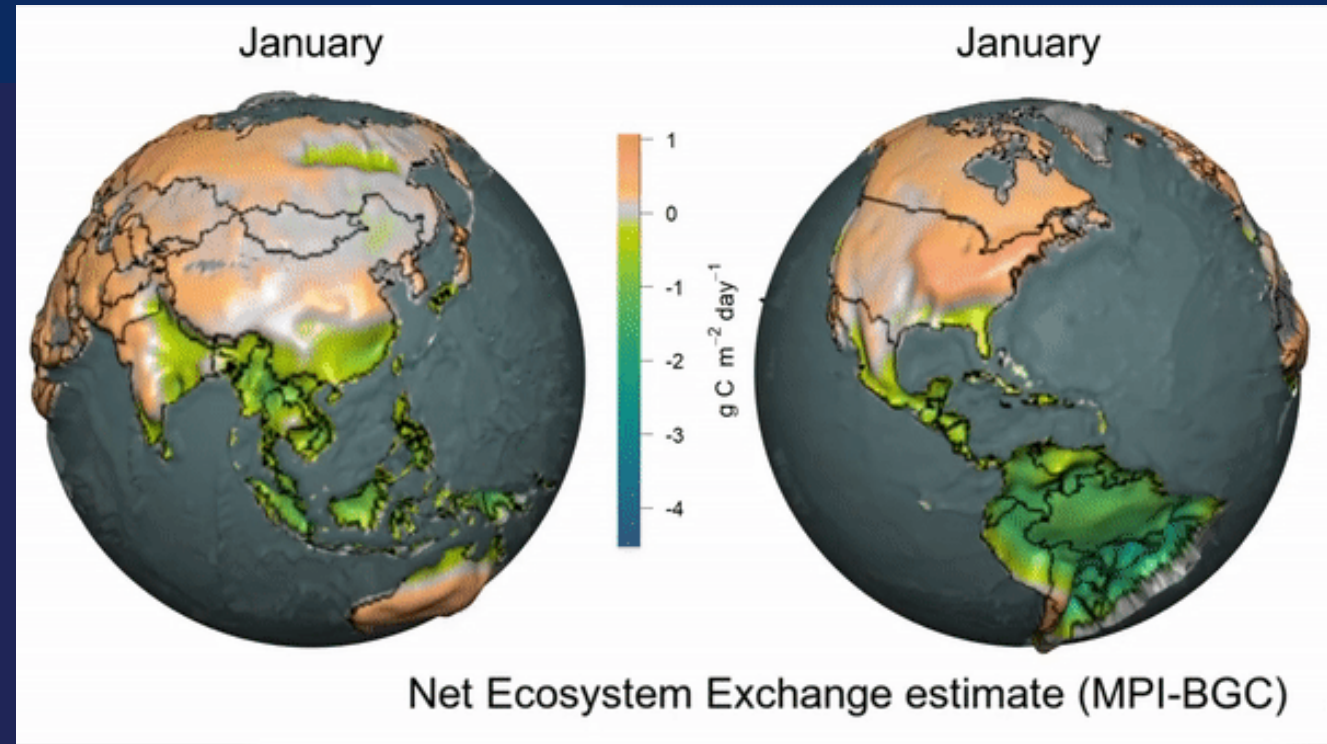


11 ти GLOBE СЕМИНАР
20 - 22.05. 2024, Скопје

АТМОСФЕРСКИ МЕРЕЊА



manolest@gmail.com

м-р Стојан Манолев

Проф.по физика во СОУ „Гоце Делчев“ - Валандово

1. ШТО ТРЕБА ДА ЗНАЕМЕ И
МЕРИМЕ?

2. СО ШТО ТРЕБА ДА МЕРИМЕ?

3. КАКО И КОГА ТРЕБА ДА
МЕРИМЕ?

4. КАДЕ И КАКО ДА ГИ ВНЕСИМЕ
ПОДАТОЦИТЕ ОД МЕРЕЊАТА?



ШТО ТРЕБА ДА ЗНАЕМЕ И ШТО ТРЕБА ДА МЕРИМЕ?

Основни податоци за атмосферата

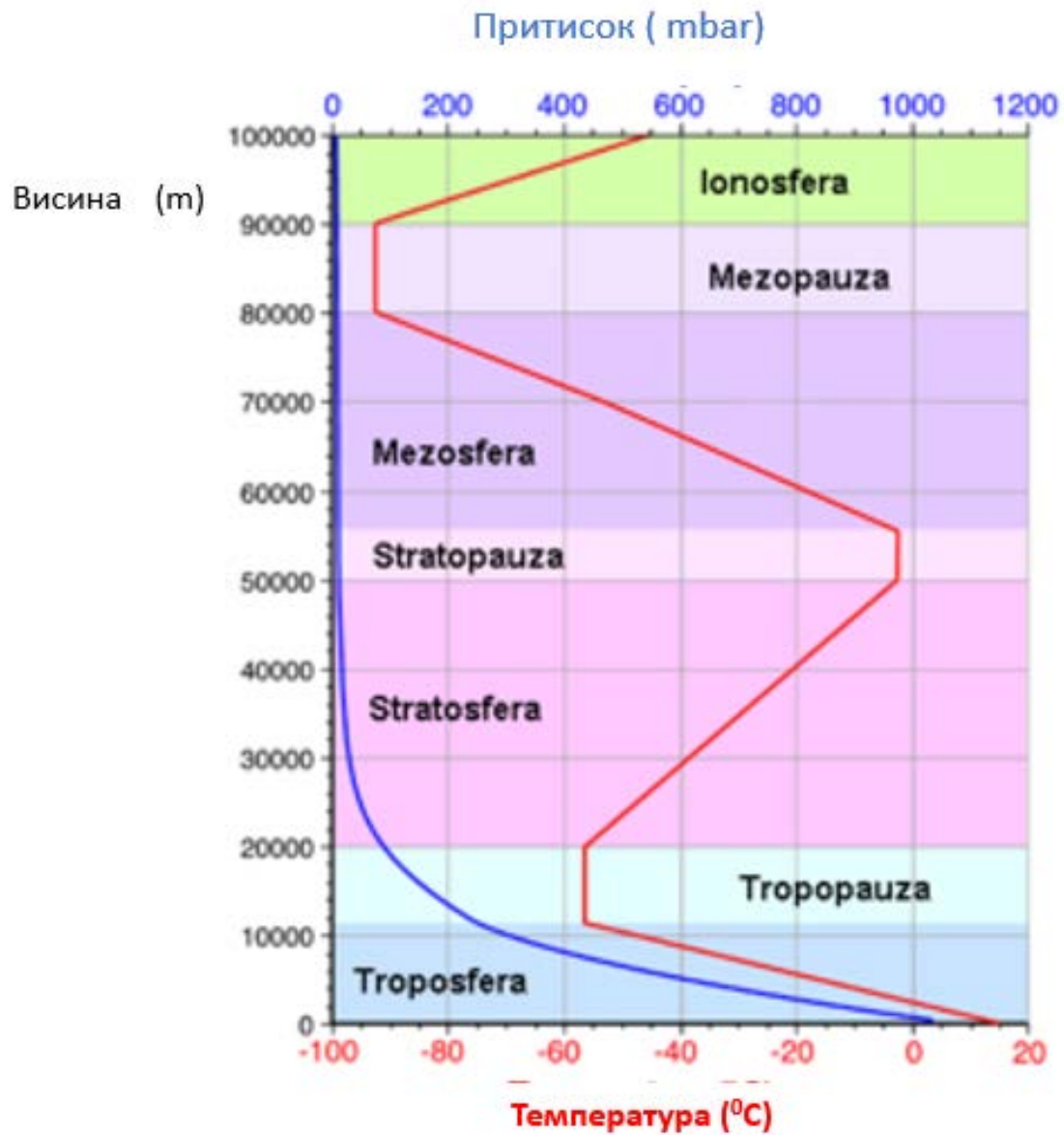
- Атмосферата е смеса од гасови која го обиколува било кое небесно тело кое има гравитационо поле.
- И планетата Земја има атмосфера, а нејзината гравитација не дозволува гасовитата обвивка „да избега“ во вселената. Смесата од гасови кои ја чинат земјината атмосфера е составена од:
 - азот (N) - 78%
 - кислород (O) - 21%
 - и присуство од 1% наследните гасови: аргон (Ar), јаглероден диоксид (CO₂), водород (H), водена пара, озон (O₃), метан (CH₄), јаглерод моноксид (CO), хелиум (He), неон (Ne), криптон (Kr) и ксенон (Xe)



Image: NASA



International Space Station



ТЕМПЕРАТУРА НА ВОЗДУХ - AIR TEMPERATURE

■ МОМЕНТАЛНА _____ °C

■ МАКСИМАЛНА, _____ °C

- ВО ПОСЛЕДНИТЕ 24 ЧАСА

■ МИНИМАЛНА, _____ °C

- ВО ПОСЛЕДНИТЕ 24 ЧАСА

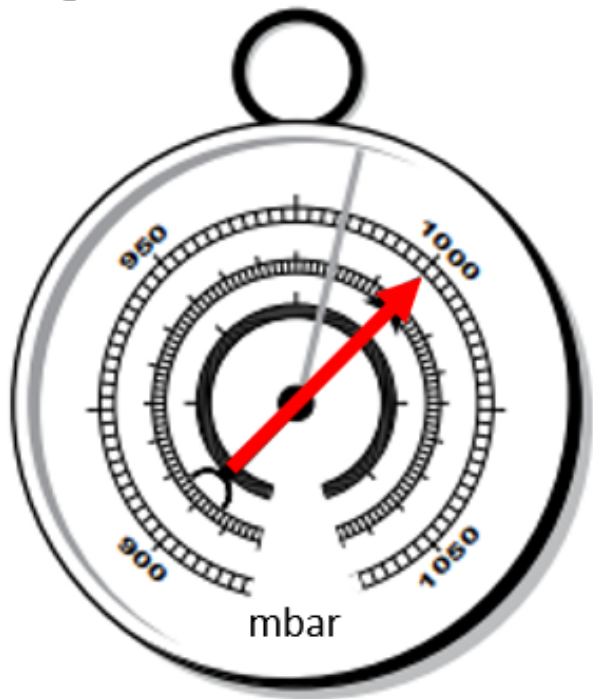


Метео куќичка



АТМОСФЕРСКИ ПРИТИСОК – BAROMETRIC PRESSURE

760 mmHg=101325 Pa \approx 100 000 Pa=1 bar



Barometric Pressure = 1000 mbar

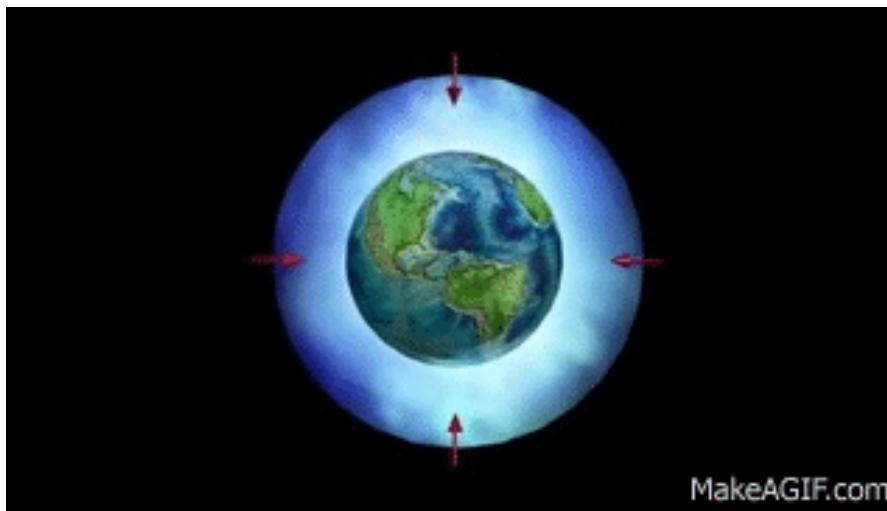
Стандарден притисок на нивото на морето е 101,325 Паскали (Pa), или 1013 хектопаскали (hPa) (1hPa = 100 Pa).

1hPa \approx 1mbar

На секои 100 метри повисоко одење во атмосферата, притисокот ќе се намалува за околу 10 mbar.

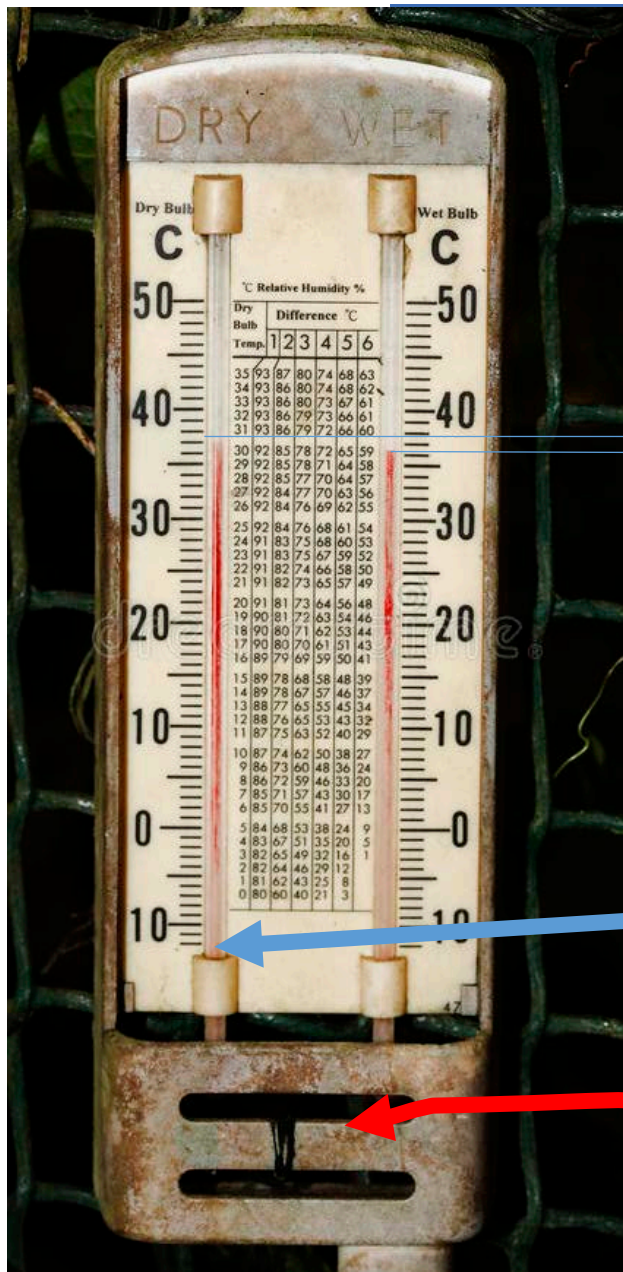
Ова функционира добро до околу 3.000 метри надморска височина.

Така, на надморска височина 1.000 метри, нормален опсег на притисок би бил приближно од 860 до 950 mbar.



MakeAGIF.com

ВЛАЖНОСТ НА ВОЗДУХОТ – RELATIVE HUMIDITY



Δt



wet dry bulb thermometer
психрометар

Δt 1 2 3 4 5 6 7 8 9

Суv

....

35

34

32

33

31

30

31

..

3

2

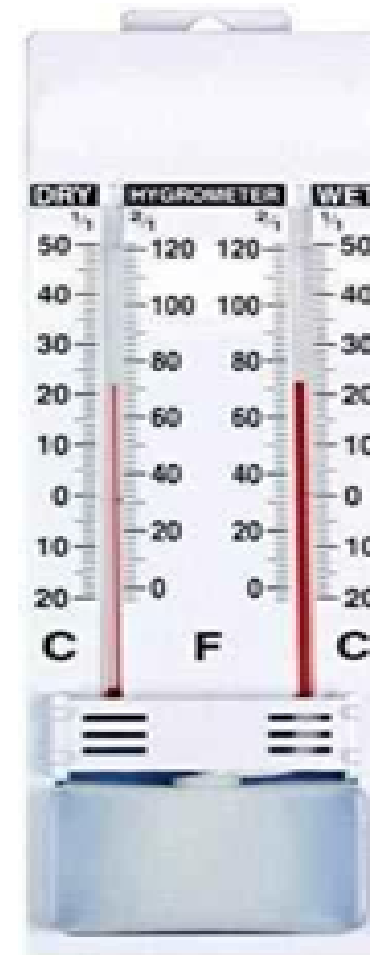
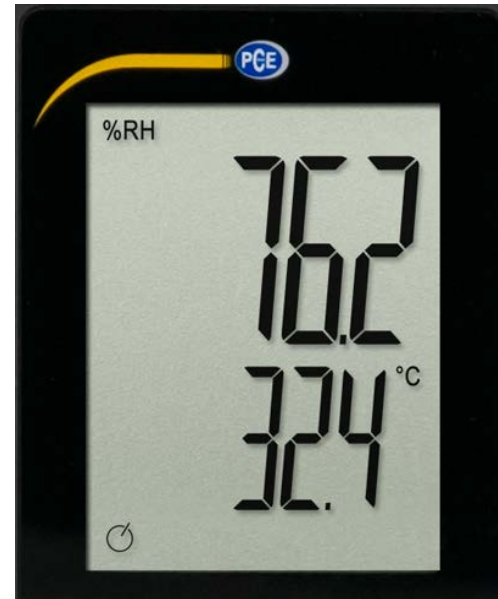
1

0

72%



ДРУГИ ВИДОВИ ХИГРОМЕТРИ/ВЛАГОМЕТРИ

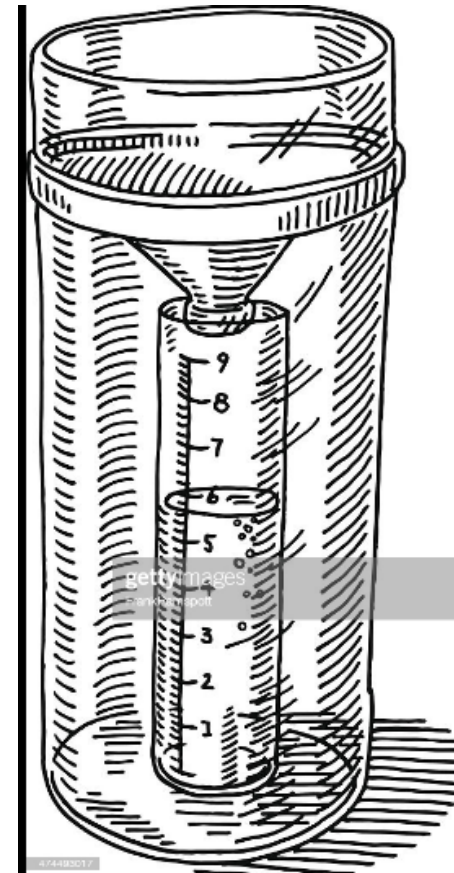


ВРНЕЖИ

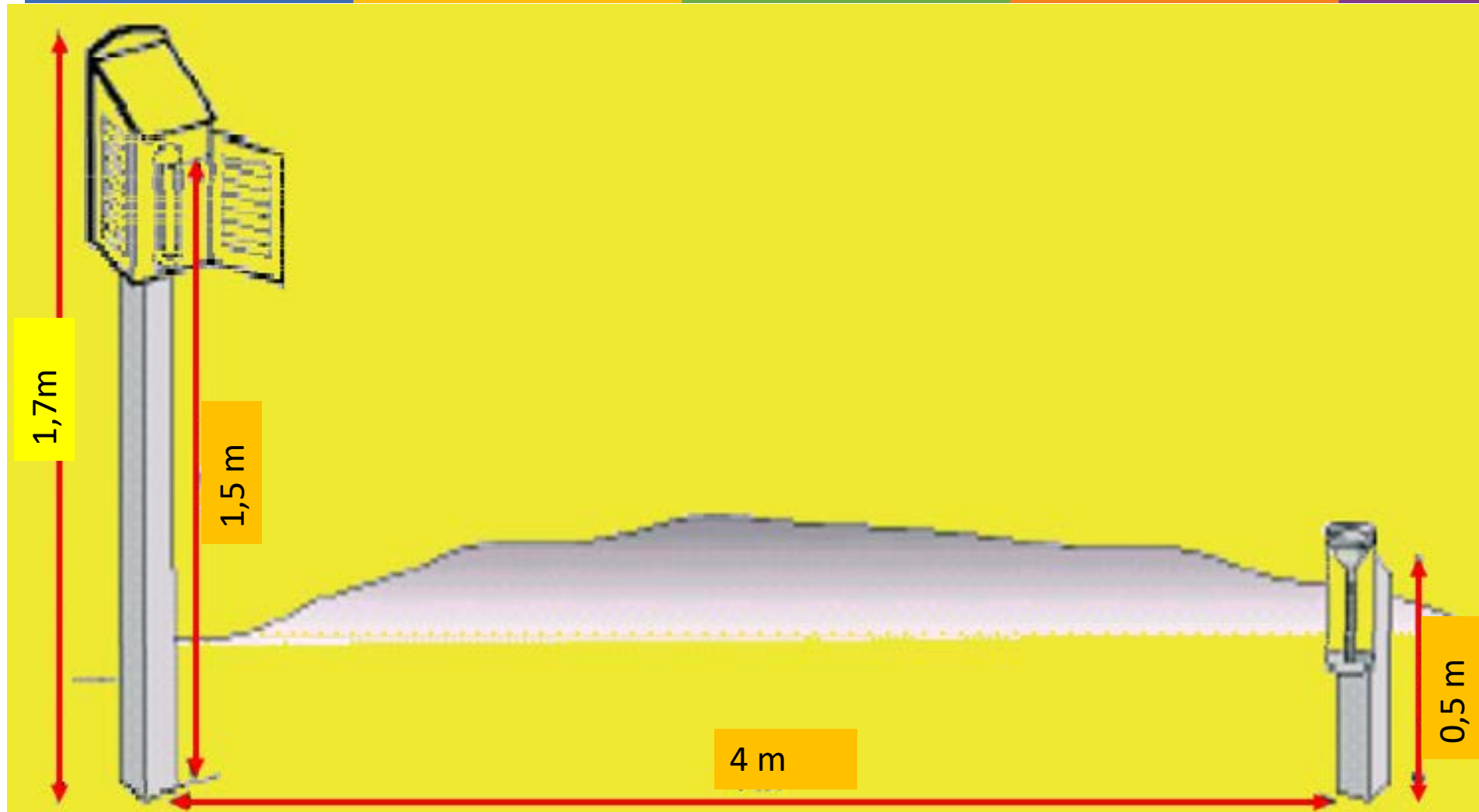


ВРНЕЖИ /ОД ДОЖД/ОД СНЕГ – PRECIPITATION (SNOW)

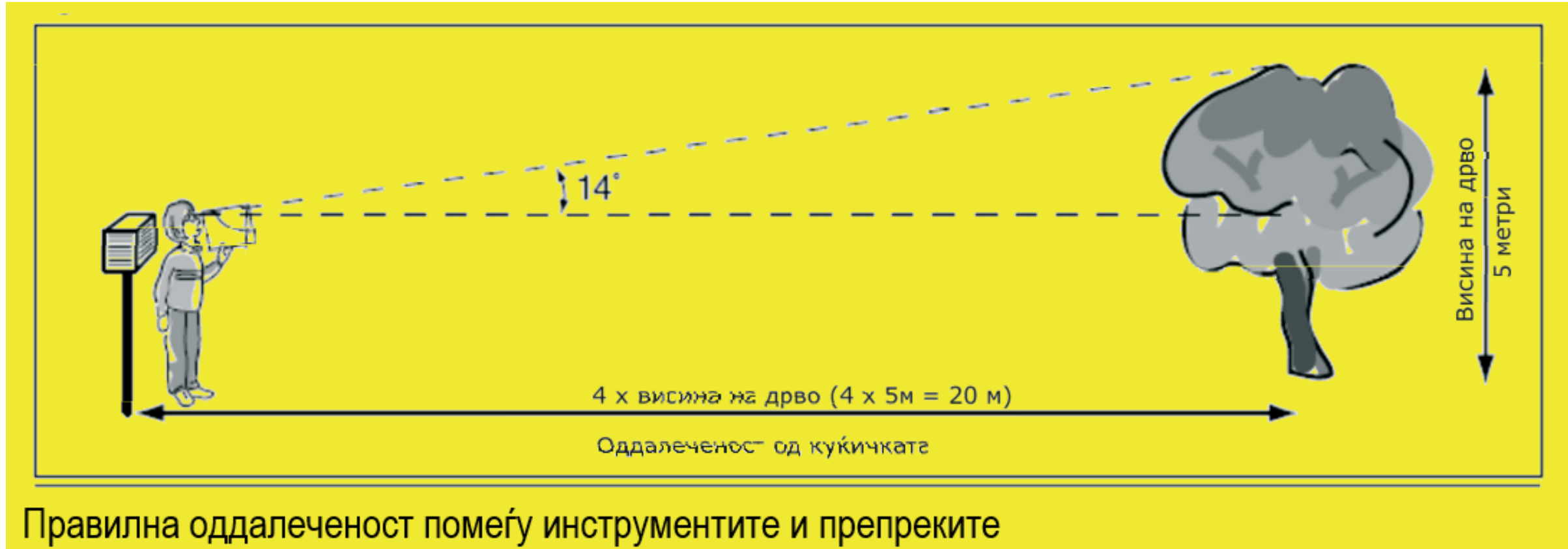
1mm = 1l/m²



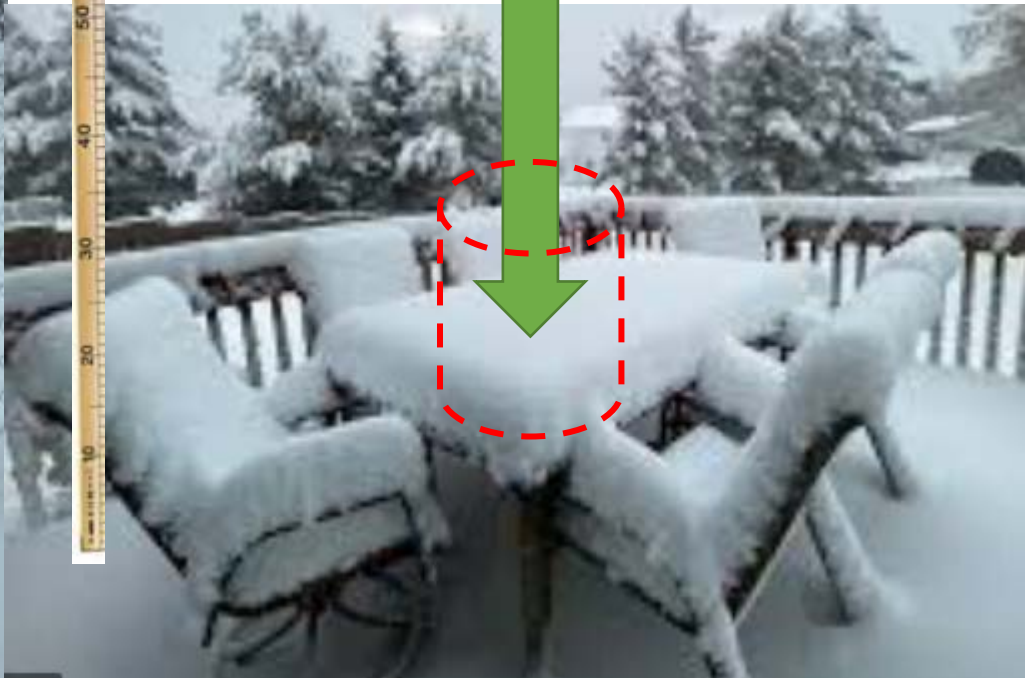
Правилна оддалеченост на метео куќичка од дождомер



Правилна оддалеченост помеѓу инструментите и препреките



ДОЖД-ОВ ЕКВИВАЛЕНТ



Мерење на Ph на дождовна вода или на вода од снег

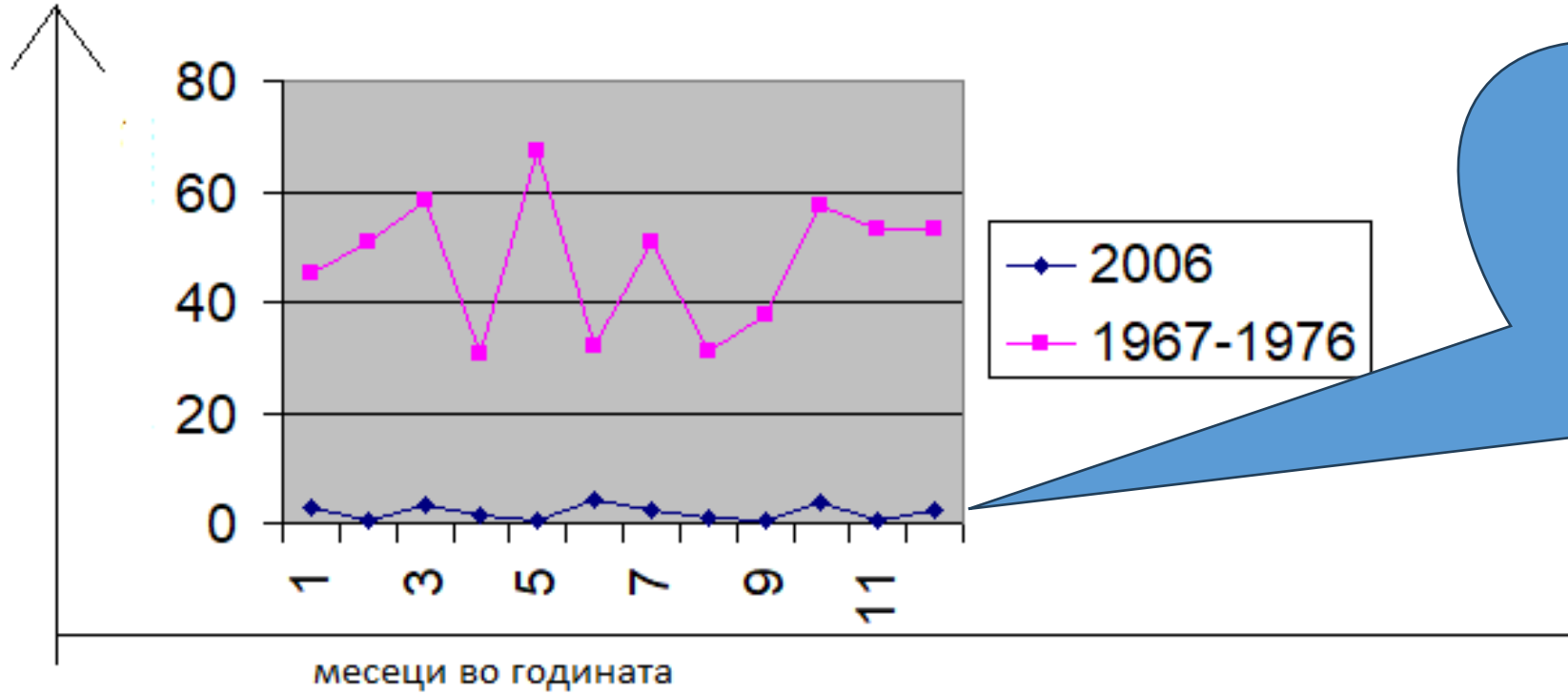


или со
инструмент Ph-
meter





precipitation liters per square meter
врнежи литри на метар квадратен



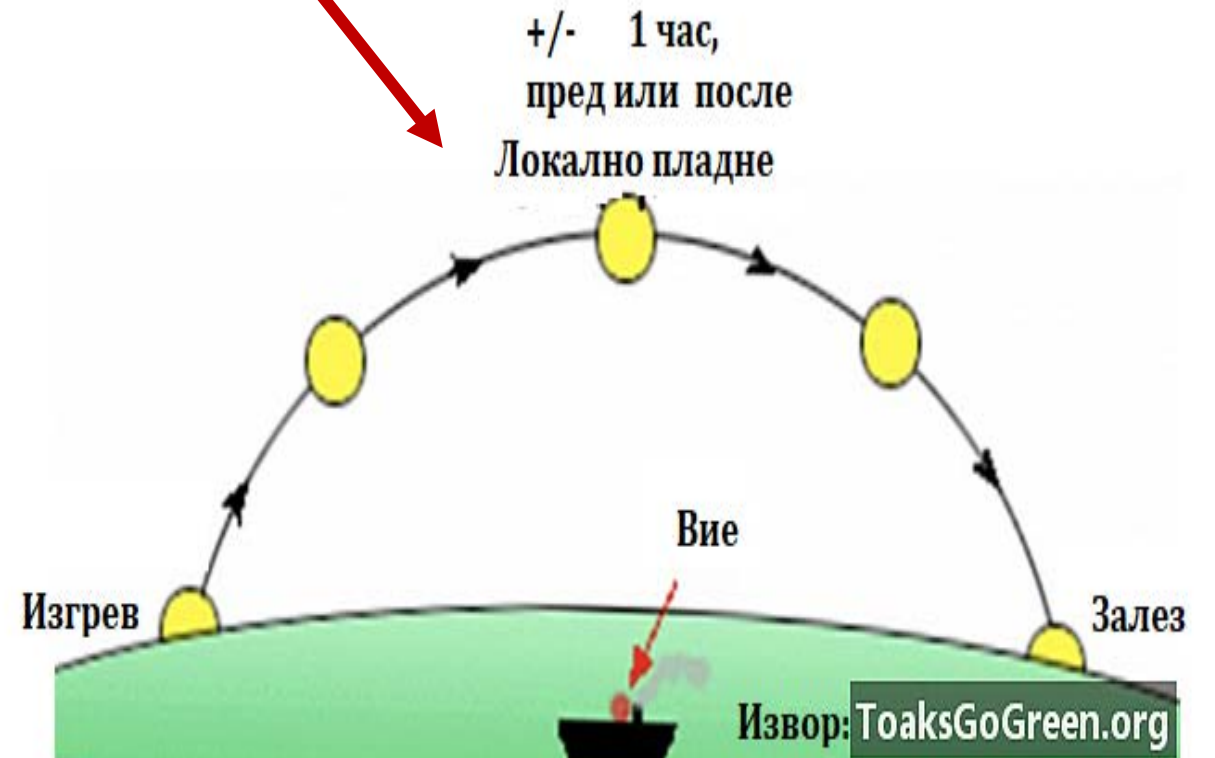
Мерења направени од учениците преку ГЛОБЕ атмосферски мерења

Споредбен график на врнежи за периодот 2006 г со периодот 1967 -1976

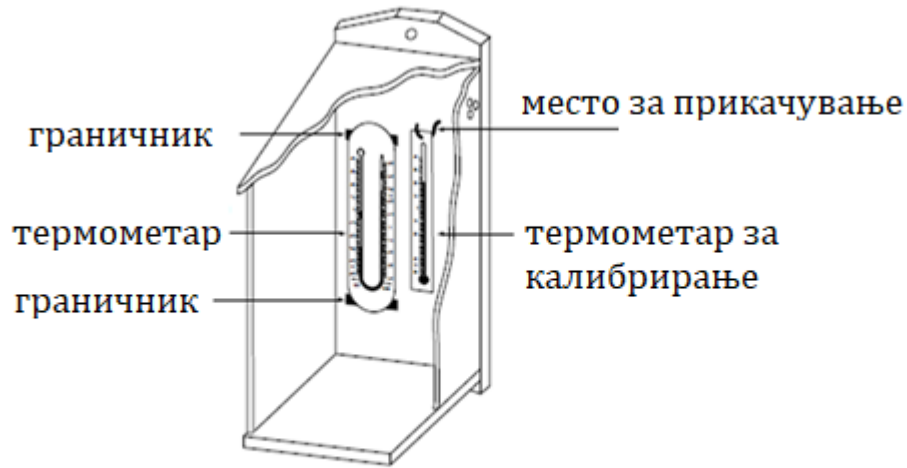
Comparative graph of precipitation for the period 2006 with the period 1967 -1976

КОГА МЕРИМЕ?

Секој ден!

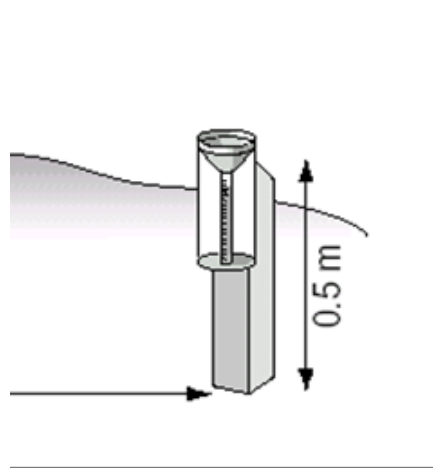


Грешки при мерењата - сведување на минимум



Min/max термометарот треба да биде одделен од ѕидот на метео куќичката

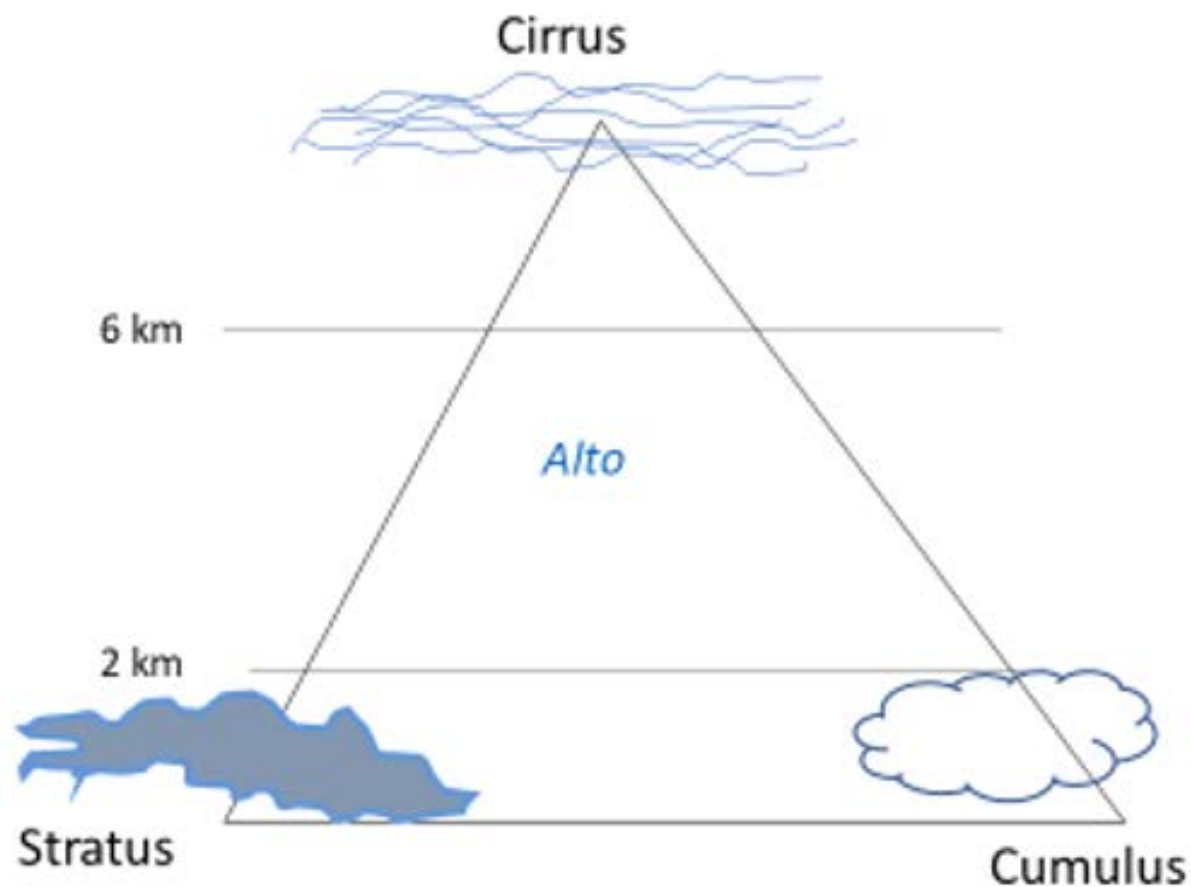
**Систематски грешки,
груби грешки,
случајни грешки!**



ОБЛАЦИ

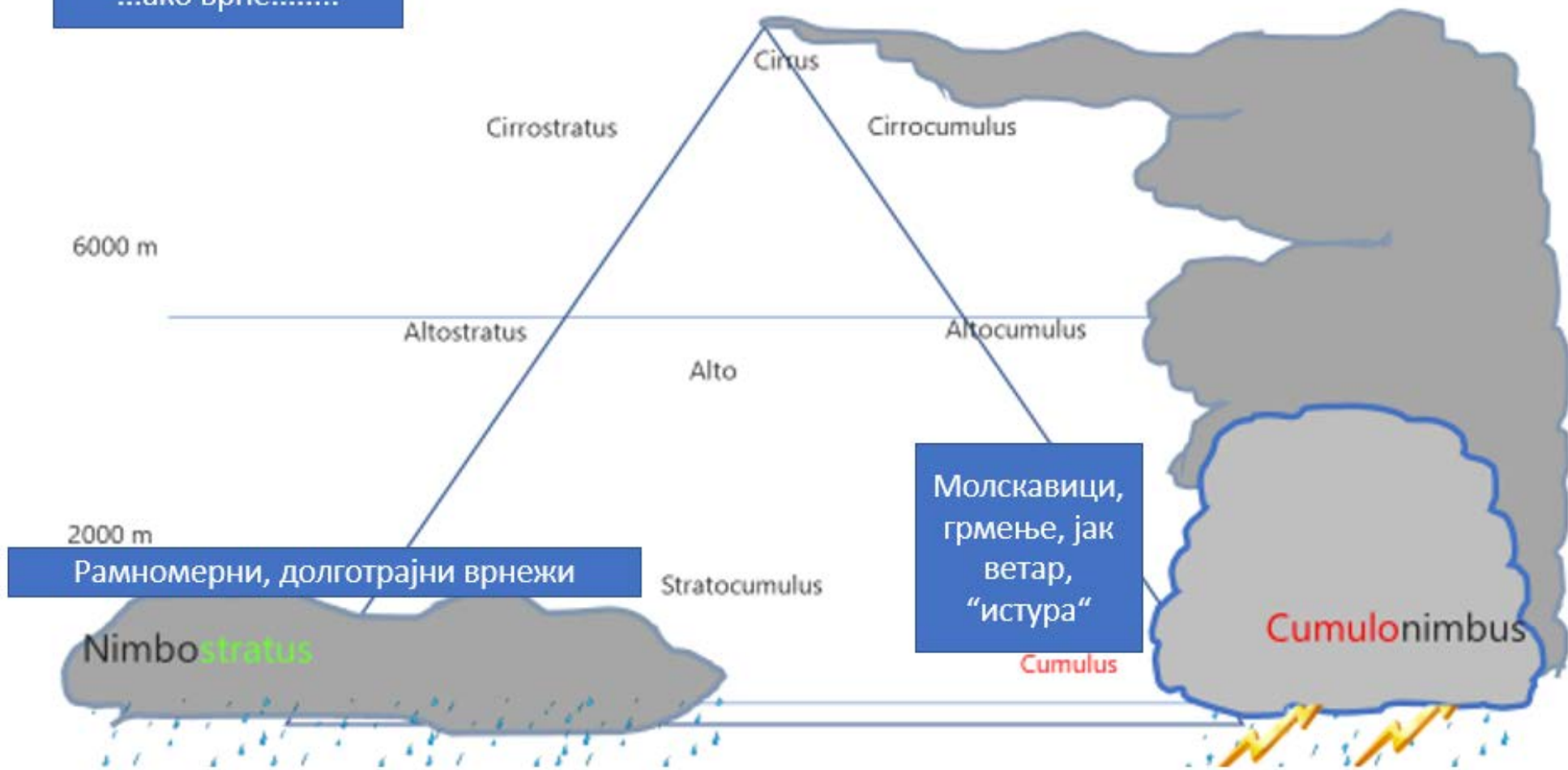
ОБЛАЦИ

Cirrus	· Високи, тенки, прозирни, vlakнecти
Stratus	· cлoевити
Cumulus	· Toпчecти, гpyткacти
Alto	· Cpеднa висинa
Nimbus	· дoждoвни



ОБЛАЦИ

...ако врне.....

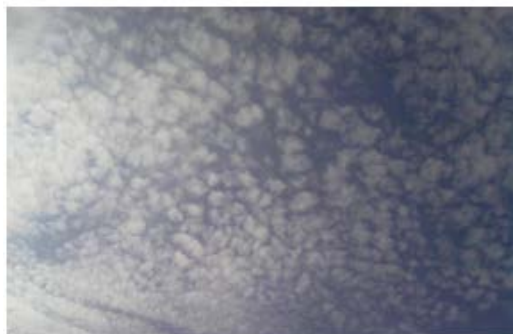


ОБЛАЦИ

Cirrus Високи облаци



Cirrocumulus



Cirrostratus



Средни (средно висински)
облаци

Altostratus



Alto cumulus

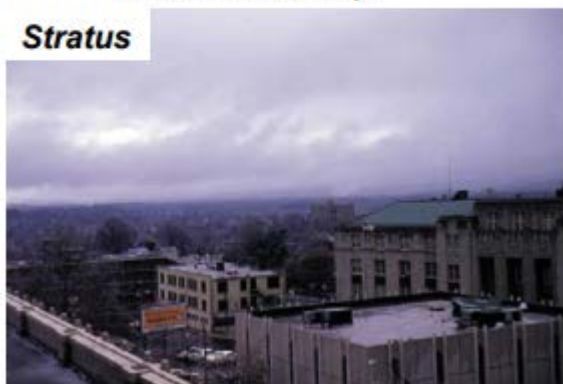


Cumulus



Ниски облаци

Stratus



Stratocumulus



Nimbostratus



Cumulonimbus



ТРАГИ НА КОНДЕНЗАЦИЈА



Contrails Краткотрајни траги
Short-lived Contrail



Persistent Contrails, Трајни



Раширени
Persistent, Spreading Contrails



Како се внесуваат податоците? - Основни чекори



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International Virtual Science Symposium (IVSS)

This year, the theme is "Climate Investigations: Understanding Earth as a System."



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manolest@yahoo.com

Password

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Remember Me

Sign In



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GLOBE Data

[Data Entry](#)

[GLOBE Data User Guide](#)

[Visualization System](#)

[Retrieve Data \(ADAT\)](#)

[GLOBE API](#)

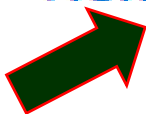
[Science Honor Roll](#)

GLOBE Data



Data Entry

Data Entry - New Desktop
Forms



Data Entry - Old Desktop
forms



Data Entry - Mobile App

The GLOBE Program's
app, GLOBE Observer

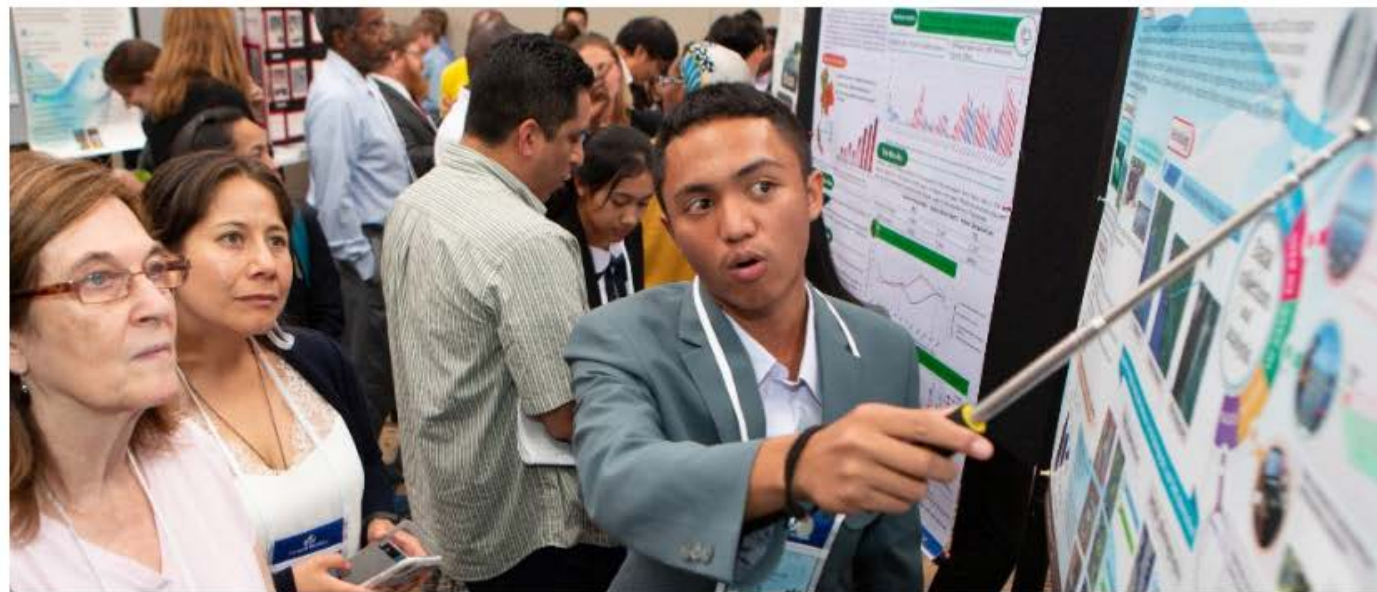
Email Data Entry (EMDE)

GLOBE DataTool

Data Entry Training

ВНЕС НА ПОДАТОЦИ

Data Entry



Whether on the web, through a mobile app or by email, there are numerous ways to measurements into GLOBE's databases. Users can find an entry method that works best for them or their students and start contributing to a worldwide effort of scientific discovery.


Learn more about how to enter data with GLOBE.

Data Entry

Data Entry - New Desktop Forms

Atmosphere • Hydrosphere • Biosphere

Data Entry



Welcome,
manolest@yahoo.com

Not manolest@yahoo.com?
[Click here to sign in.](#)

New Observation(s)

Edit/Delete
Measurements

Create/Edit My Sites



Try GLOBE's new Data Entry system for Atmosphere and Hydrosphere protocols!



Use New Data Entry

[Short tutorial \(pdf\). More information is available->](#)

My Bookmarks



You have not bookmarked any investigations yet. Expand the organizations and click the stars next to the investigations to create a bookmark.

My Organizations and Sites



+ [SOU "Goce Delchev"](#) ORG_ID: 80168

Add site

Integrated Atmosphere (1-Day) *Creating*



Enter The Date And Time Of The Observation (24hr)

2023-12-01



10:00



- UTC
 Local

[Get Current UTC Time](#)

Your UTC time converted to Local (CEST) time is 2023-12-01 11:00

Solar Noon:10:19 UTC

Cannot select a future time.

Surface Temperature

Surface Temperature ★

New observation

Past observations

Integrated Atmosphere (1-Day) *Creating*



Enter The Date And Time Of The Observation (24hr)

2023-11-30



10:00

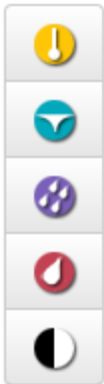


- UTC
 Local

[Get Current UTC Time](#)

Your UTC time converted to Local (CEST) time is 2023-11-30 11:00

Solar Noon:10:18 UTC



- Use the buttons on the left to select what measurements you want to include in the GLOBE Science Database.

Icon Key

Air Temperature Barometric Pressure Relative Humidity Precipitation Clouds

- Click the *Send Data* button when you are finished.
- If you need to reset the form to its original state, click the *Reset* button.

Send Data

Cancel

Reset

Barometric Pressure

[Expand/Collapse](#) | [Remove](#)



Select one of the following: *

- Sea Level Station Pressure

mb

Comments

Relative Humidity

[Expand/Collapse](#) | [Remove](#)

Select one of the following: *

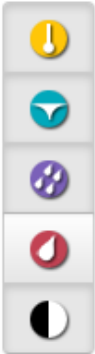
- Sling Psychrometer Digital Hygrometer

Comments

Send Data

Cancel

Reset



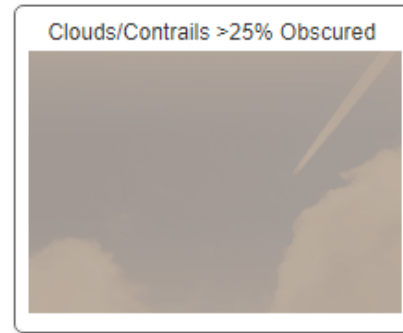
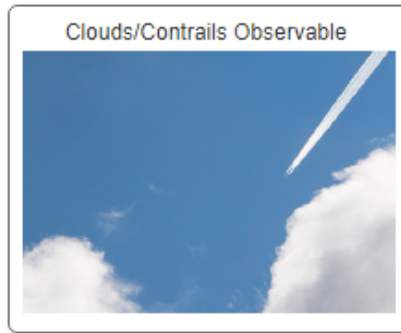
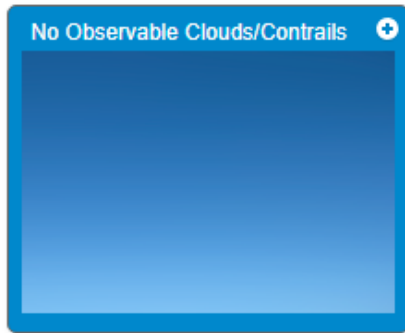
☾ Clouds

— Expand/Collapse | ✕ Remove

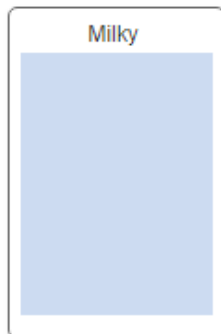
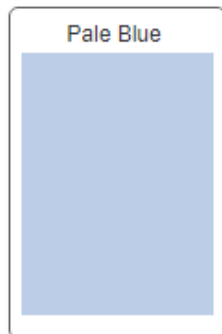
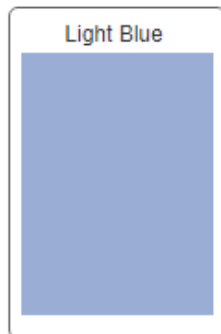
You can upload a photo after you successfully submit a cloud observation.

What Does Your Sky Look Like? *

Observability



Sky Color





Sky Visibility

Unusually Clear



Clear



Somewhat Hazy



Very Hazy



Extremely Hazy





High In The Sky

Cirrus



Cirrocumulus



Cirrostratus



Contrails

Short Lived



Observed

Persistent Non Spreading



Observed

Persistent Spreading



Observed

Clouds/Contrails >25% Obscured



Blowing Snow



Heavy Snow



Heavy Rain



Fog/Stratus



Sand



Spray



Volcanic Ash



Smoke



Dust



Surface Condition

Select Yes/No for each of the following Surface Conditions * All Surface Conditions must be selected

Snow/Ice



Yes

No

Standing Water



Yes

No

Muddy



Yes

No

Dry Ground



Yes

No

Leaves on Trees



Yes

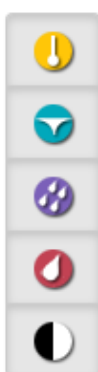
No

Raining/Snowing



Yes

No



Precipitation

[- Expand/Collapse](#) | [✕ Remove](#)

Days of accumulation *

Types of precipitation measured

Rainfall

New Snowfall

Total Snowpack

Rainfall

Accumulation mm

Note: pH measurements are only allowed when you have 3.5 mm or more of liquid

Comments

Snowpack



Observation created successfully.



Observation created successfully. [Print this submission](#), [view observations](#) or [create a new one](#).

Air Temperature 1-Day *Editing*

Enter The Date And Time Of The Observation (24hr)

2023-12-01



11:00



UTC

Local

[Get Current UTC Time](#)

Your UTC time converted to Local (CEST) time is 2021-06-26 13:00

Solar Noon: 10:32 UTC

Air Temperature

You cannot enter a maximum or minimum temperature because no current temperature was recorded within one hour of sol

Current Temperature

15 °C

Благодарам
GRACIAS
ARIGATO
SHUKURIA
JUSPAXAR
DANKSCHEEN
TASHAKKUR ATU
SUKSAMA
EKKHMET
GRAZIE
MEHRBANI
PALDIES
BOLZIN
MERCY
THANK
YOU
BIYAN
SHUKRIA
TINGKI
YAQHANYELAY
TASHAKKUR ATU
SUKSAMA
EKKHMET
GRAZIE
MEHRBANI
PALDIES
BOLZIN
MERCY

