Follow the step of a meteorologist

STEM club
Model High School Evangeliki of Smyrna
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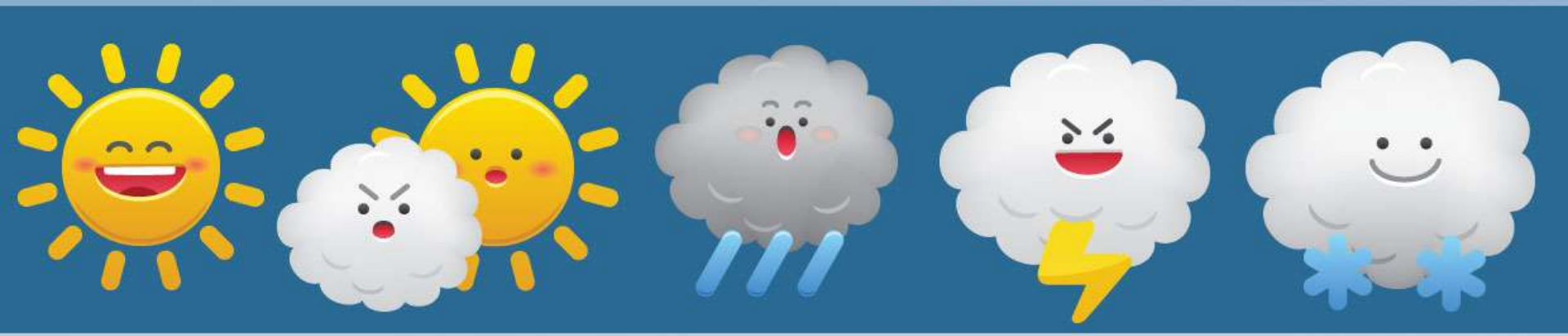


Introduction

Discussion with students.

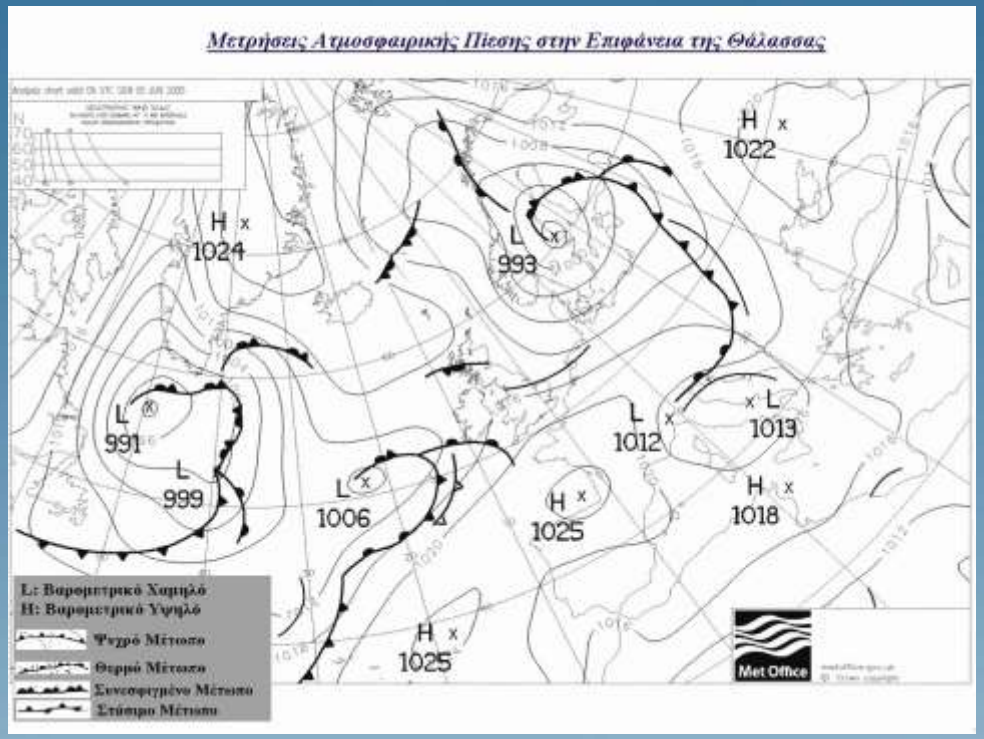
- **Why is daily weather forecast?**
- **We are interested in the climate of the environment in which we live?**
- **Physical phenomena generated in the atmosphere (rain, snow, humidity) and the temperature of a region forming a weather region.**
- **The weather conditions for a short time fix time.**
- **The set of meteorological phenomena that take place in an area for a long time and which are repeated periodically determine the climate.**

Theoretical framework

Factors that shape the weather in an area and form data that records a weather station.

- ✓ *Temperature is a key parameter in determining the weather in one place. Put simply expresses how hot or how cold it makes, based on the physical meaning of the term temperature expresses how quickly the air molecules move.*
- ✓ *The solar radiation resulting from the nuclear fusion of hydrogen nuclei to form helium nuclei. With the help of thermal radiation the sun emits and spreads energy that reaches the earth's surface and affects the soil temperature*.
- ✓ The atmospheric pressure is also called barometric changes over time, depending on the temperature and amount of atmospheric water vapor, depending on the altitude of each site (vertical height from the sea level)

Hypotheses



Statistical analysis of meteorological data.

For meteorological parameters: temperature-pressure-intensity solar radiation

Identify

- **When received, the highest and lowest price and what it is.**
- width
- Prevailing price
- Average temperature value.
- **Dispersion and standard deviation of the temperatures.**
- **Rate volatility. Is your sample homogeneous?**
- **(Coefficient of variation = standard deviation / mean)**

- Choose to download meteorological data from the summer and winter months of the last year.
- Calculate the average of the temperatures, pressures and the intensity of solar radiation.
- Repeat the calculations for each of the last 5 years.
- Compare and comment on the results of each year the winter season and the summer season.

Record your comments

- **Chart dispersion meteorological parameters**
- **The dispersion of our diagram shows the distribution of values from two data sets and is a first empirical assessment for the adjustment line (linear regression) to the data.**
- **To construct the scatter plots**
- **a) Temperature Pressure**
- **b) Temperature Volume solar aktinolovolias**
- **c) Pressure -Entasis sunlight**

- ✓ **Coefficient (linear) correlation**
- ✓ **The correlation coefficient p examine the extent, but also how the two parameters are related.**
- ✓ **Not depends on the unit of measurement of parameters of data and takes values in [-1,1]**
- ✓ **-If P = 1: perfect positive linear syschetisii**
- ✓ **-If P = -1: perfect negative correlation**
- ✓ **-If P = 0: there is no linear correlation.**
- ✓ **Based on your reviews from the scatter diagrams that you construct to associate the parameters of meteorological data.**

CONCLUSION

Discuss with your classmates conclusions and record your analytical arguments based on qualitative and quantitative parameter processing of meteorological data.