anastasia_lalioti01 • 1m

# Hydrology & Climate Change

How does hydrology help us understand climate change?

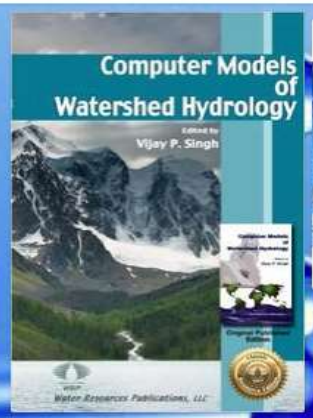
## What is my job?

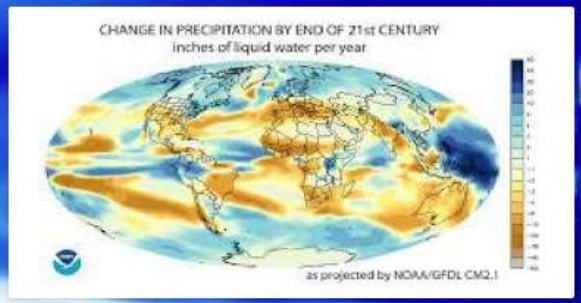
Hydrology is the scientific study of the movement, distribution, and quality of water on Earth and other planets, including the water cycle, water resources and environmental **watershed sustainability**.

- An hydrologist gather and evaluate meteorological data to predict a drought.
- Help create environmentally responsible water usage regulations for communities along a major river.
- Collect and analyze water and mud samples to determine levels of pollutants in a water system.
- Predict whether snow pack levels on a mountain range will cause flooding in the spring.

## What hydrologists do:

An hydrologist apply scientific knowledge and mathematical principles to solve water-related problems in society: problems of **quantity, quality and availability**. They may be concerned with finding water supplies irrigated farms, or controlling river flooding or soil erosion.




## Hydrology and Climate Change

Hydrological systems are potentially very sensitive to changes in climate.Growing atmospheric concentrations of carbon dioxide and other trace gases are leading to climatic changes with important implications for the hydrologic balance and water resources.
Recent hydrological research strongly suggests that this so-called "Climate Change" will alter the timing and magnitude of runoff and soil moisture, change lake levels, and affect water quality. Such changes raise the possibility of environmental and socioeconomic dislocations.
Hydrological research can help to find out how Climate Change and its impacts affects the water! Statistics and sciences can provide to me a special data which can help other sciences which work on this phenomenon to find direct solutions and ways to decrease harmful impacts of Climate Change.

## Qualifications for the job!

1. Most hydrologists need a master's degree.
2. Students who plan to become hydrologists need a strong emphasis in the ***physical sciences, geophysics, chemistry, engineering science, soil science, mathematics, aquatic biology, atmospheric science, geology, oceanography, hydrogeology.***
3. Computer skills are essential for prospective hydrologists.
4. Strong oral and written communication skills also are essential because writing technical reports and research proposals.
5. Hydrologists should be able to work well with people, not only as part of a team with other scientists and engineers, but also in public relations.

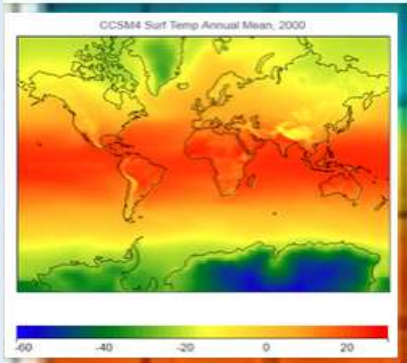
Chrysoula Panigyraki + 1 • 1h

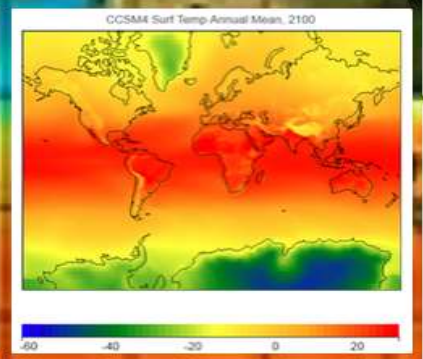
# Geography & Climate Change

How does geography help us understand climate change?

## How can I help?

With my knowledge and the required data I can make maps, showing changes in temperature, sea levels, snow coverage, humidity etc... Therefore, I can find how they differ from decade to decade and make predictions about the future.




## What is my job?

As a geographist, I study the morphology, topology and climate of a place. I collect data or gather, compile and analyze existing geographical data. I use my findings to provide geographical information systems support and draw conclusions



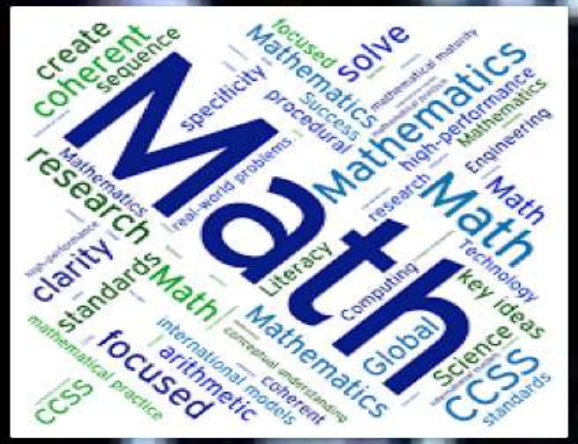

## Geography at high school

Chemistry, physics and algebra are very important to analyze data. In the book of Management of natural resources there also interesting and helpful information.

Petros Panigyrakis · 2m

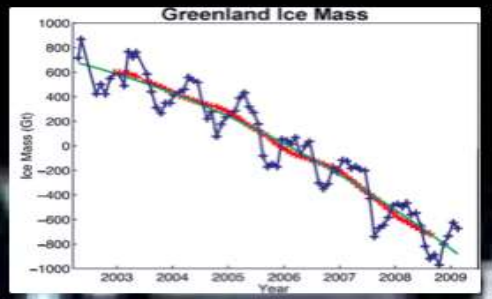
# The Job Of A Mathematician

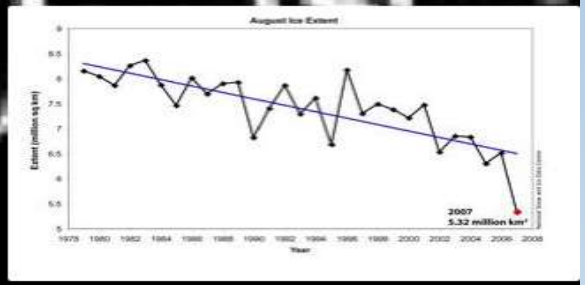
Petros Panigyrakis




## The job of a Mathematician

My job as a Mathematician is highly crucial for the majority of the sience fields nowadays. A Mathematician can be very useful in data analysis and statistical analysis, make estimations and predictions as well as a technical supporter in a laboratory



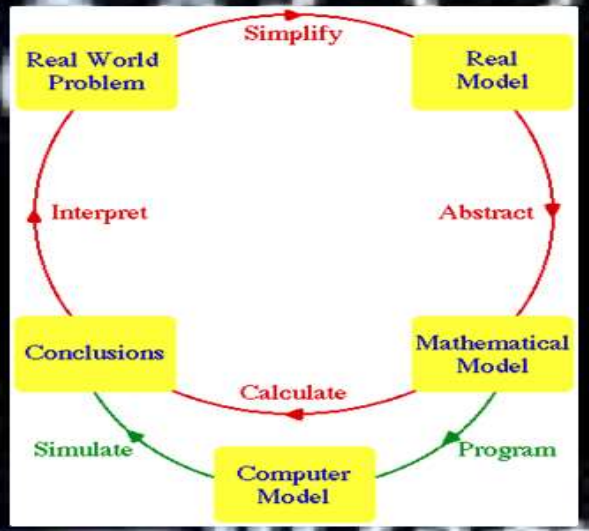




## Mathematics in high school

If you wanna pursue a carrer in Mathemaics, you have to study calculus, algebra and geometry Specificaly, linear and abstract algebra, differential equations, mathematical analysis and statistics are some things that a mathematician must know. Additionally, studying computer science is important as for every occuption in the future.

## Mathematicians help with climate change

Mathematicians excel at analysing data, finding patterns and creating models. Then scientists from other fields can help deduce conclusions. This can help predict-and possibly deter- the effects of climate change on our planet, if we take action.

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# Bioethanol

alternative energy sources

## What does bioethanol is?

The principle fuel used as a petroleum substitute.



## How is bioethanol produced?

Bioethanol is mainly produced by the sugar fermentation process, although it can also be produced by the chemical process of reacting ethylene with steam.

## Some of the advantages of bioethanol

1. Ethanol-blended fuel as E10 (10% ethanol and 90% gasoline) reduces greenhouse gases by up to 3.9%.
2. The net effect of ethanol use results in an overall decrease in ozone formation, an important environmental issue.
3. The fuel spills are more easily biodegraded or diluted to non toxic concentrations.
4. It reduces the amount of high-octane additives.


## How it is used?

It is usually used to power cars, although it is also used to power other vehicles, such as tractors, airplanes and boats.

## What about the concequences for th environment?

Bioethanol produces only carbon dioxide a water as the waster products on burning, a the carbon dioxide released during fermer and combustion equals the amount remov from the atmosphere while the crop is gro

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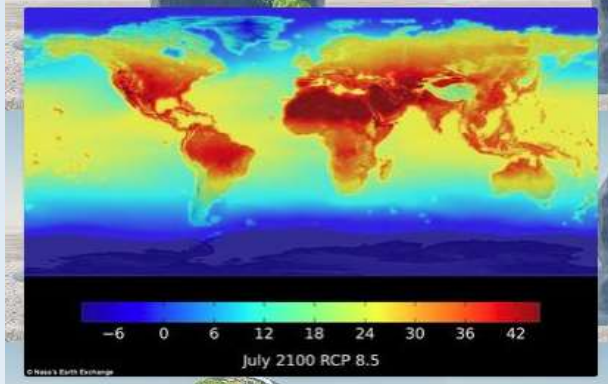
# Analyzing Climate Change

Can we foresee the impact that climate change will have in the future?

## How can I help?

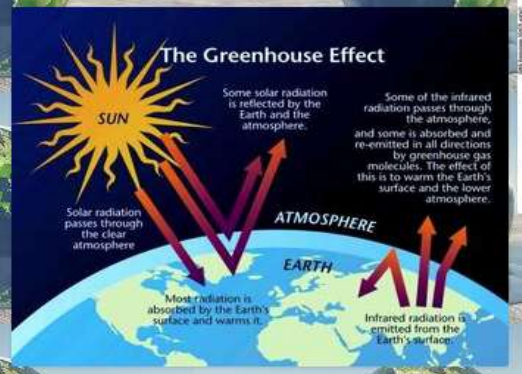
By using existing climate data I can create mathematical models and predict what will happen to ocean and land temperatures in the next 50 years.

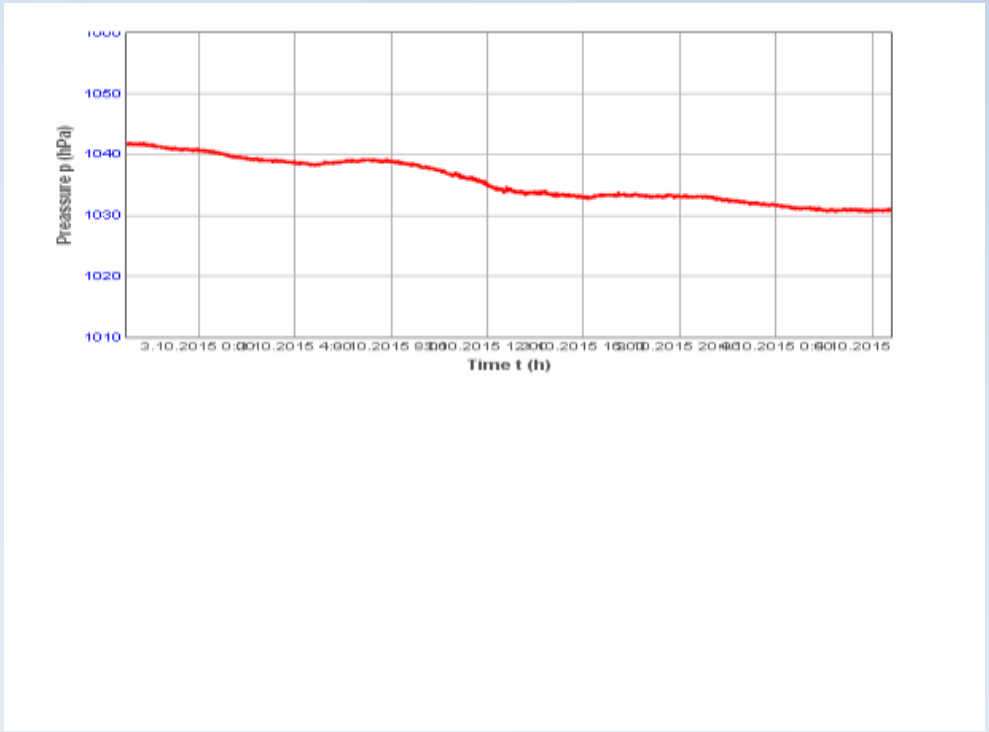


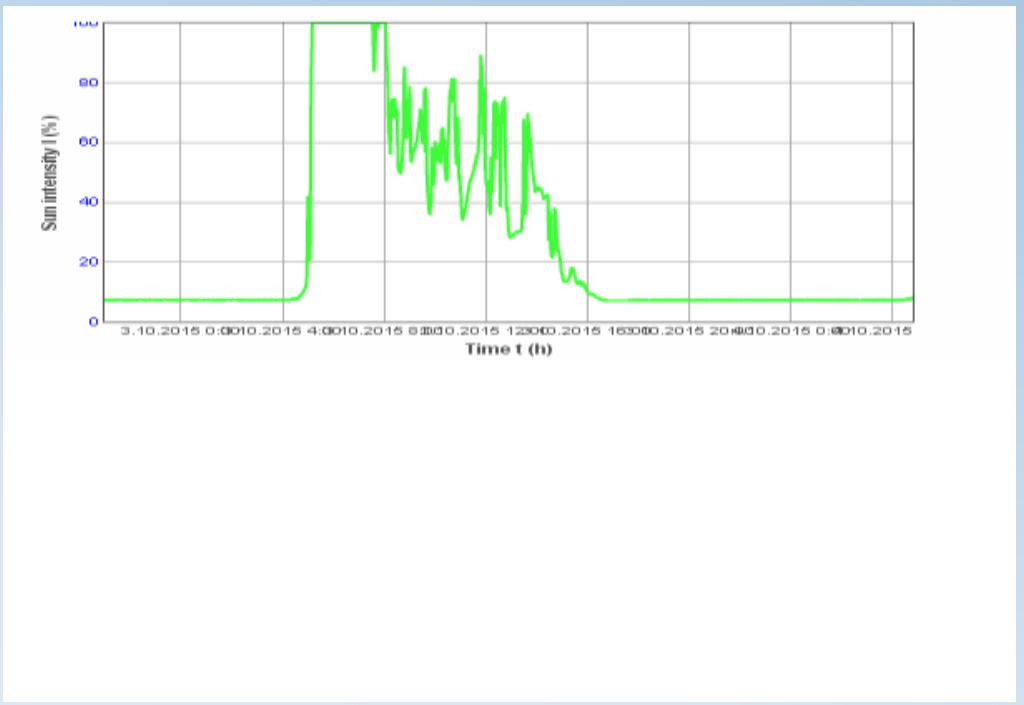


## What is my job

As a climate change analyst, I have to collect climate data,analyze it and then I provide important imformation for the impact of climate change in the future. At the end I draw conclusions and I try to find solutions that can prevent this phenomenon from hapening.





# Follow the steps of a meteorologist