

CGEO110: The Physical Environment Fall 2022

Term Assignment: ClimaGraphs

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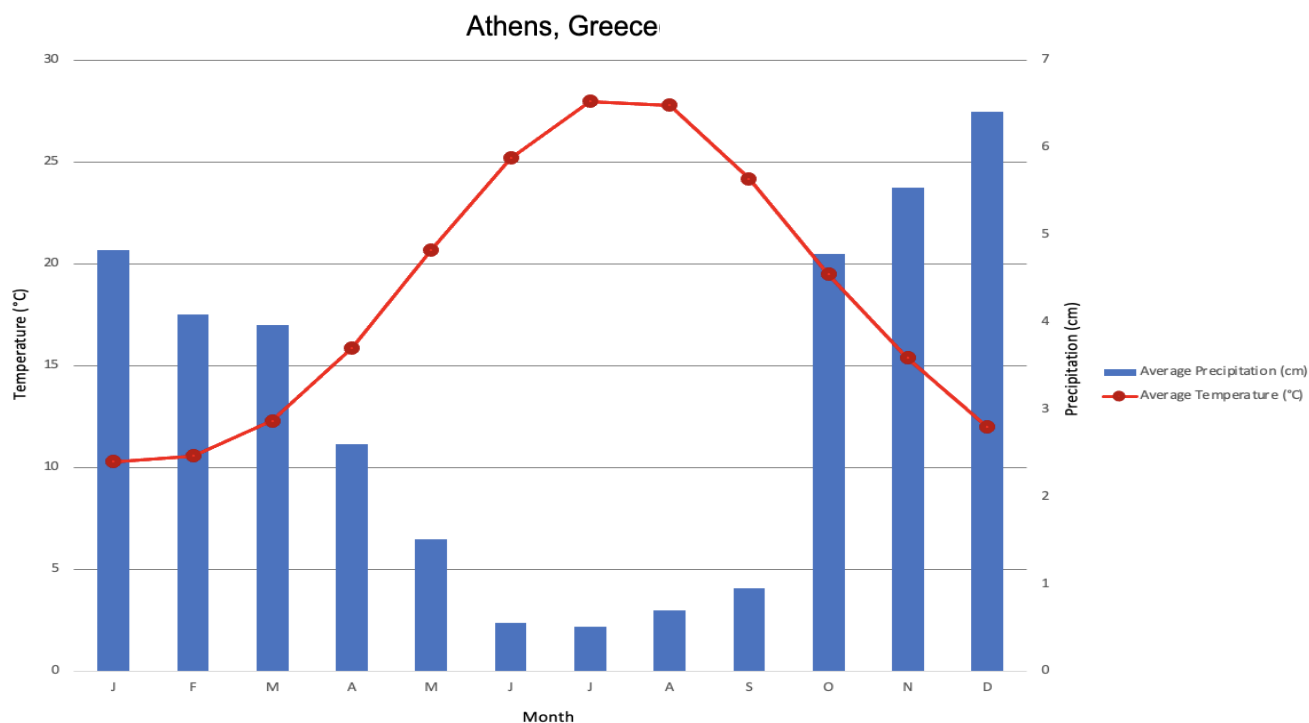
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## Athens, Greece(Europe) Climate Graph



**Data Table for Athens, Greece**

Month	Average Temperature (°C)	Average Precipitation (cm)
January	10.3	4.83
February	10.6	4.09
March	12.3	3.97
April	15.9	2.60
May	20.7	1.52
June	25.2	0.56
July	28.0	0.52
August	27.8	0.70
September	24.2	0.96
October	19.5	4.78
November	15.4	5.54
December	12.0	6.41

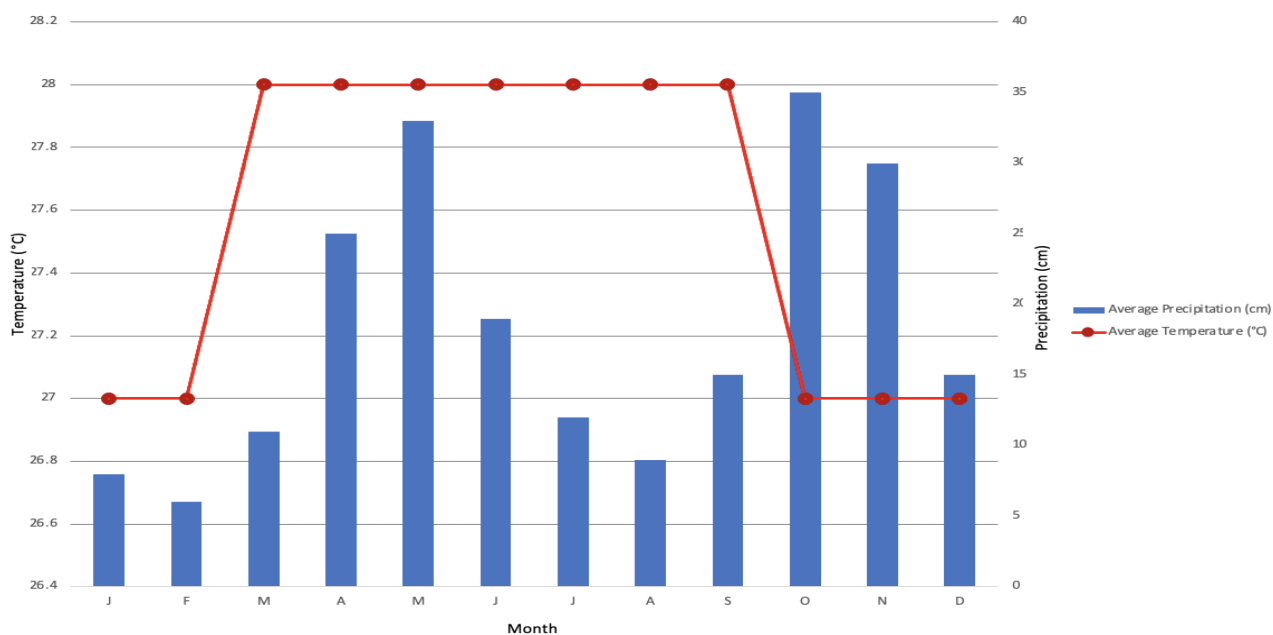
## Reflection of Athens, Greece:

The Athenian capital Athens is the largest and most cosmopolitan city in the heart of ancient Greece. It is located in the southern region of Greece and the southeastern part of the European continent. Throughout the geography of Athens, mountains give it the ability to protect itself from the weather on all sides of the horizon as it extends across a large peninsula "located between the Aegean Sea, the Gulf of Evoikos, Gulf of Corinth, and the Saronic Gulf" (Geography of Athens, Greece - Greeka.com, 2019). A latitude of  $37^{\circ}54'N$  and a longitude of  $023^{\circ}44'E$  put this city in the northern and eastern hemispheres (Athens, Greece Travel Weather Averages (Weatherbase), n.d.). A mild Mediterranean climate characterizes Athens, with mild winters and hot, dry summers (Locsin, 2018). According to the climograph, Athens has the highest temperatures in Europe from June to August, where temperatures range from  $25^{\circ}C$  to  $28^{\circ}C$ . Athens also experiences limited rainfall during the hot and dry summers, varying from a precipitation level of 0.52 cm to 0.7 cm (Athens, Greece Travel Weather Averages (Weatherbase), n.d.). The phenomenon occurs because of the Etesian northern wind that blows from the north Aegean Sea between mid-May and mid-September (Willemsen), also called the Meltemi winds of Greece, and that moves steadily southward. In general, the flow of high-pressure air from the Balkans/Hungary approaches the low-pressure area over Turkey, causing the Aegean to become monopolized and other seas to subordinate. Meltemi winds peak in intensity during the afternoon and end at night during the summer. Due to the mountains surrounding the eastern mainland of Greece, Athens receives much less rain than other parts of Greece as being situated at a relatively low elevation. However, the maximum amount of precipitation occurs during the winter when the average rainfall ranges from 4.1 cm to 6.41 cm (Athens, Greece Travel Weather Averages (Weatherbase), n.d.). The precipitation rate in the

dry summer climate of the Mediterranean region reaches over 70% in the winter when temperatures are shallow (Christopherson et al., 2016).

## Colombo, Sri Lanka(Asia) Climate Graph

### Colombo, Sri Lanka



### Data Table for Colombo, Sri Lanka

Month	Average Temperature (°C)	Average Precipitation (cm)
January	27.0	8.00
February	27.0	6.00
March	28.0	11.0
April	28.0	25.0
May	28.0	33.0
June	28.0	19.0
July	28.0	12.0
August	28.0	9.00
September	28.0	15.0
October	27.0	35.0
November	27.0	30.0
December	27.0	15.0

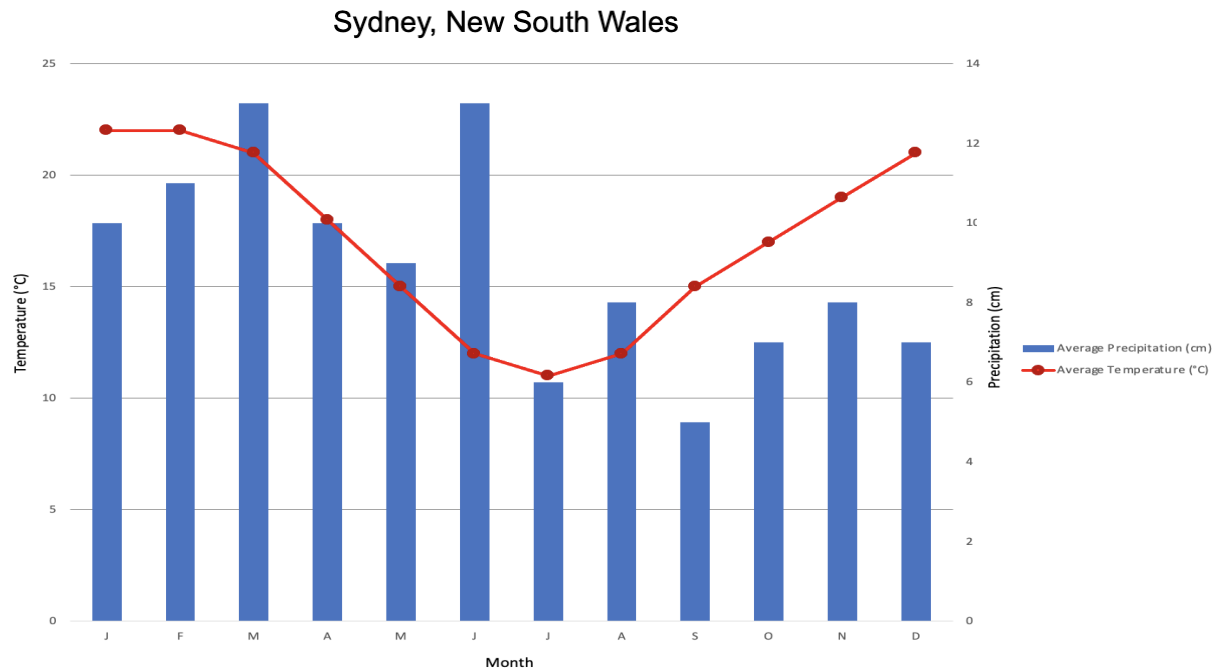
## **Reflection of Colombo, Sri Lanka:**

A picturesque city known for its tropical weather, white sand beaches, and impressive harbourfront, Colombo is Sri Lanka's most prominent city and commercial capital (Encyclopedia Britannica, 2022). A distinctive feature of the country of Sri Lanka is its unique location within the equatorial belt in the northern Indian Ocean (De Vos, Pattiaratchi, Wijeratne, 2013). It is situated on an island near the southern tip of India between the vast western coast of the Arabian Sea and the Bay's eastern coast of Bengal (De Vos et al., 2013). As a result of variations in the cooling and heating of the landmasses and changes in the temperature of ocean bodies surrounding Sri Lanka, the monsoon winds change direction on a biannual basis with the reversal of rainfall across the region (De Vos et al., 2013). Colombo is on the island's west coast, just south of the Kelani River (Encyclopedia Britannica, 2022). Located in the northern and eastern hemispheres, Colombo has a latitude of 06°49'N and a longitude of 079°53'E (Colombo, Sri Lanka Travel Weather Averages (Weatherbase), n.d.). Colombo experiences two types of seasons, the dry and monsoon seasons. The dry season runs from December to March with scorching and humid weather, while the monsoon season runs from April to November with winds, heavy rain, and flooding (Selective Asia, n.d.). According to the climograph, Colombo receives the least precipitation between December and March, with an average rainfall of 6 cm to 15 cm and temperatures averaging 27°C to 28°C (Colombo, Sri Lanka Travel Weather Averages (Weatherbase), n.d.). Colombo also receives the most precipitation between April and November, with an average rainfall of 9 cm to 35 cm and temperatures averaging 27°C to 28°C (Colombo, Sri Lanka Travel Weather Averages (Weatherbase), n.d.). Three categories of monsoon seasons occur in Colombo, and they are all influenced by wind systems that affect large climate regions (Department of Meteorology Sri Lanka, 2019). There is a period of hot, humid weather and

winds during the First Inter-Monsoon season from March to April, followed by heavy rains during the Southwestern Monsoon season from May to September (Trip Crafters, n.d.). Lastly, the second Second Inter-Monsoon occurs between October and November with unpredictable torrential rain, flooding and gradual cooler weather (Trip Crafters, n.d.)



Sydney, New South Wales(Australia) Climate Graph



Data Table for Sydney, New South Wales

Month	Average Temperature (°C)	Average Precipitation (cm)
January	22.0	10.0
February	22.0	11.0
March	21.0	13.0
April	18.0	10.0
May	15.0	9.00
June	12.0	13.0
July	11.0	6.00
August	12.0	8.00
September	15.0	5.00
October	17.0	7.00
November	19.0	8.00
December	21.0	7.00

## **Reflection of Sydney, New South Wales:**

A city of national significance, Sydney is the capital of New South Wales, in the country and continent of Australia. It is known for its magnificent harbour and excellent strategic surroundings among the world's most prominent ports while also being home to the country's largest metropolis (John Douglas Pringle, 2019). Located in both the southern and eastern hemispheres, Sydney has a latitude of 33°56S and a longitude of 151°10E (Sydney, New South Wales Travel Weather Averages (Weatherbase), n.d). In Australia, the seasons occur opposite to those in the Northern Hemisphere, which is why summers in Sydney begin in December, autumn begins in March, winter begins in June, and spring begins in September (Australia, 2022). The climates in Sydney generally fall into two distinct types, the humid subtropical and temperate climate zones. Sydney has hot and humid summers, with temperatures of 19°C to 22°C with precipitation anywhere from 7 cm to 13 cm (Sydney, New South Wales Travel Weather Averages (Weatherbase), n.d). The climate is generally more relaxed as Sydney lies on the coast of the South Pacific Ocean with a smaller landmass and broader ocean coverage. The water in the vicinity of the ocean tends to cool down faster when it heats up (US EPA, 2015). A high rate of oceanic heat transfer occurs in Sydney during the summer months. When it rains, the water bodies absorb the sun's rays and release the heat into the atmosphere. Temperatures remain relatively mild in winter, usually between 11°C and 12°C, with a precipitation level between 6cm and 13cm at its peak (Sydney, New South Wales Travel Weather Averages (Weatherbase), n.d). Another factor that impacts Sydney's climate significantly during the summer and winter months is the Urban Heat Island effect. Urbanized cities like Sydney are significantly warmer than their surrounding areas due to infrastructure absorbing heat. Hence summers are a lot hotter, and winters are also warm (US EPA, 2015).

## **Comparisons of All Three Cities:**

There are many similarities and differences among the factors affecting the climates of these three unique cities. Athens, Colombo, and Sydney all have similar temperatures, with hot summers and mild winters. They are all surrounded by bodies of water with impressive harbour fronts. Athens and Colombo are both in the northern and eastern hemispheres, while Sydney is in the southern and eastern hemispheres (Weatherbase, n.d.). Sydney experiences summers from December to February (Australia, 2022), while Athens and Colombo experience summers from June to August (Stanley, n.d.). The climate in Athens is characterized by a Mediterranean climate, while Colombo experiences a tropical monsoon climate, and Sydney experiences a subtropical climate. The city of Athens does not receive much Precipitation as being situated at a relatively low elevation with mountains surrounding the eastern mainland (Athens, Greece Travel Weather Averages (Weatherbase), n.d.). In contrast, Colombo receives loads of rainfall across the region due to variations in the cooling and heating of the landmasses from the Arabian Sea and the Bay of Bengal with the monsoon winds (De Vos et al., 2013). On the other hand, Sydney has a balanced annual rainfall As the climate is generally more relaxed with a smaller landmass and broader ocean coverage (US EPA, 2015). The water in the vicinity of the ocean tends to cool down faster when it heats up (US EPA, 2015). Even though many similarities and differences stand, all these cities are unique in their our way.

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