

Unit 10: Oceans and Climate

Lecture 3

Objectives:

E4.2e - Explain the differences between maritime and continental climates with regard to oceanic currents.

E4.r2g - Explain how El Nino affects economies (e.g., in South America)

Maritime Climates*

- Maritime climates generally are fairly humid, accompanied by considerable amounts of precipitation, since the main moisture source is not very far away.

Continental Climates*

- regions usually experience hot summers and colder winters, being far away from the moderating influence of the ocean, which keeps climates milder in winter and cooler in summer.

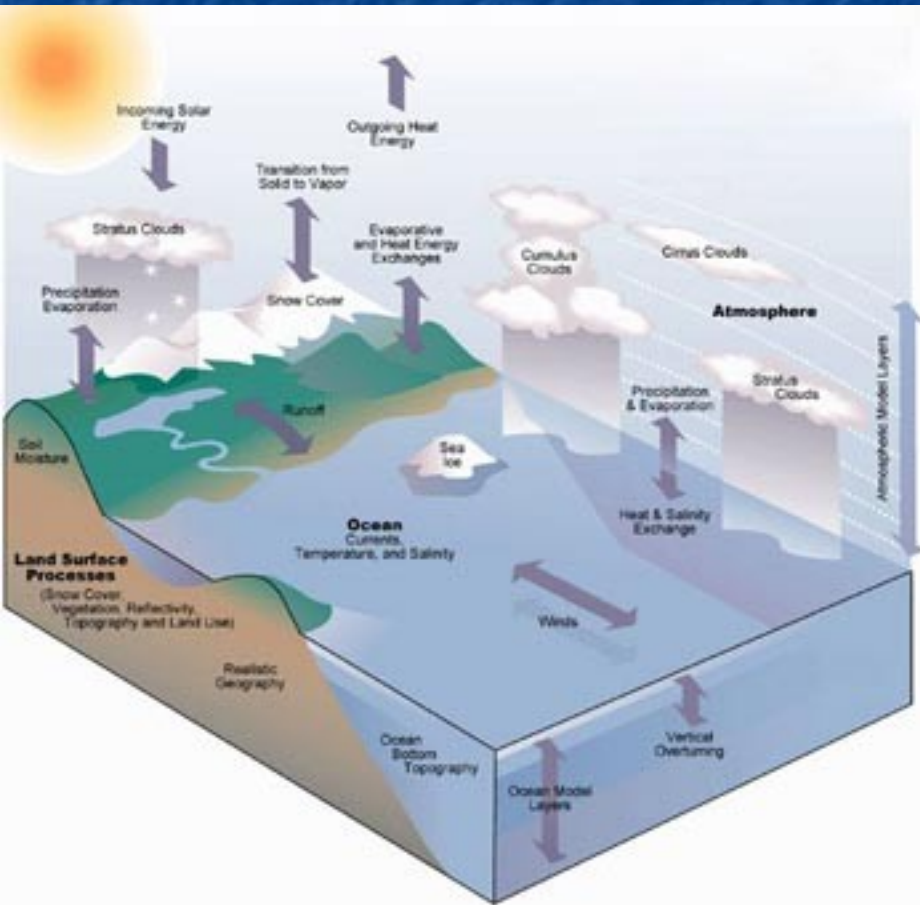
Climates and Currents

- A well known and important surface ocean current is the Gulf Stream, which originates in the Gulf of Mexico and flows northeast across the Atlantic, driven by the prevailing southwest winds. The Gulf Stream is a warm ocean current that keeps the climates of UK and Northwest Europe mild in winter.

Climates and Currents

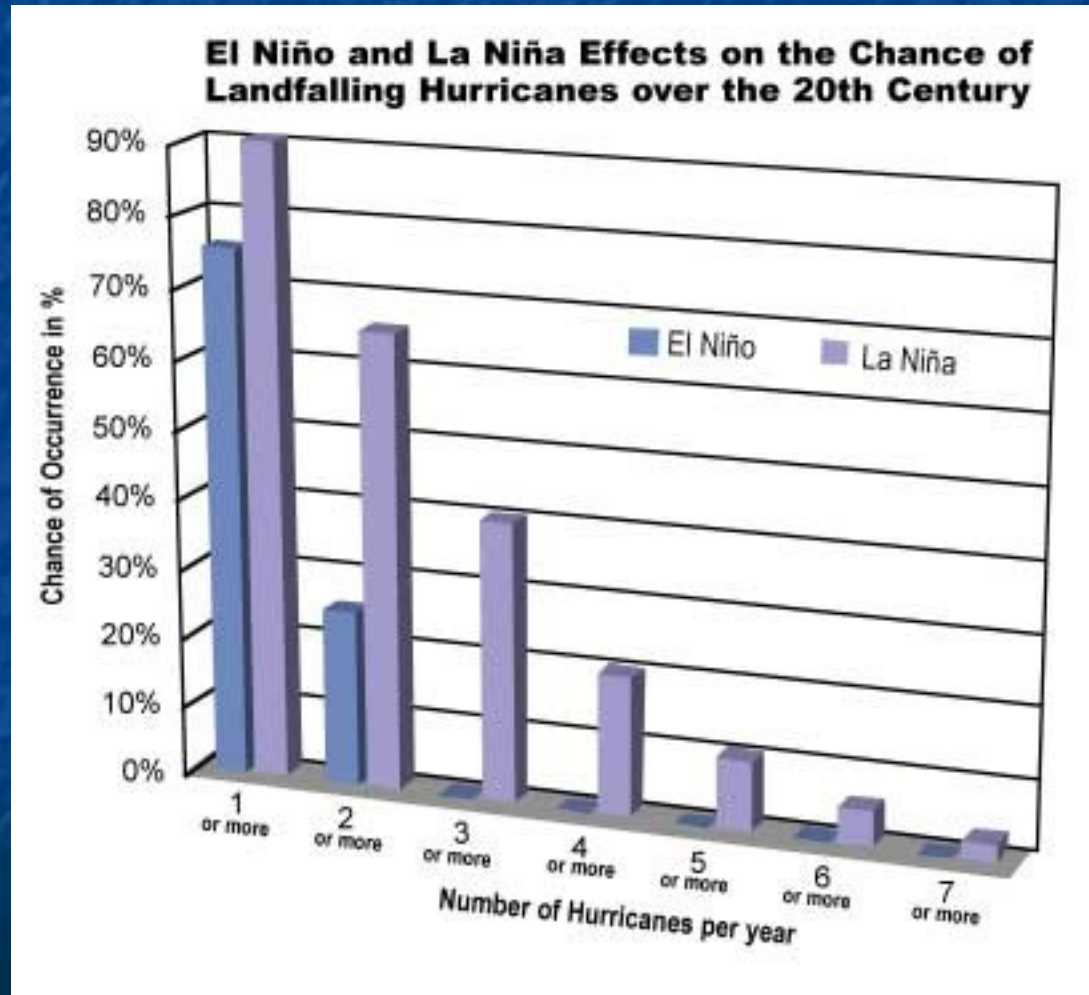


El Nino



- changes in the distribution of warm water in the ocean, such as occurs in the tropical Pacific during an El Niño event, alter evaporation and cloud formation patterns. These changes in turn affect rainfall and wind patterns. Changes in wind patterns may affect ocean surface currents and upwelling, which may impact the availability of nutrients on which marine ecosystems depend.

El Nino



El Niño

Implications of El Niño for the Nation's Economy

- Weather and climate sensitive industries directly impacted by weather (such as agriculture, construction, energy distribution, and outdoor recreation) account for nearly 10 percent of GDP. Further, weather and climate indirectly impacts an even larger portion of the nation's economy, extending to parts of finance and insurance, services, retail and wholesale trade, as well as manufacturing. Some analysts estimate that nearly 25 percent of GDP, or \$2.7 trillion, is either directly or indirectly impacted by weather and climate.
- El Niño impacts important business variables like sales, revenues, and employment in a wide range of climate-sensitive industries and sectors. Overall, total U.S. economic impacts of the 1997-1998 El Niño were estimated to be on the order of \$25 billion.

El Nino and South America

- Flooding in Peru and Ecuador, drought in the South. In the past, there have been terrible mudslides, made worse by deforestation, in Peru which have caused extensive failures in infrastructure. The falling nutrient levels of the ocean causes anchovy harvests to decrease off the coast of Peru, causing a rise in food prices. Anchovies are an important ingredient in chicken and livestock feed and guano from birds that feed on anchovies is a major source of fertilizer for U.S. farmers. The increased production costs translates to higher grocery store prices in grains, bread, milk, eggs, and meat. Overall, El Niño has a tremendous cost in South America; Peru alone anticipates more than \$1.2 billion in damages. El Niño also creates dry conditions in much of the Amazon Basin worsening annual fires set by developers and peasants.