

Physical Processes on Earth

(These help Geographers define different regions and the people who live within these areas)

Name:

Period:

Date:

What determines where people live? (pg 24-pg 25)

1. Climate

- a. Define climate
- b. Vladimir Koppens' theory:
- c. On the world map: add all 5 climate regions. Use a different color for each, shade lightly
- d. Humans have limited tolerance for extreme temperatures and precipitation levels. Name the 4 places humans rarely live.
- e. On the world map: Circle (roughly) in red the regions people rarely live.
- f. Case Study: Climate Influences human activities like food production. Read the article and explain in detail how climate plays such a vital role in this specific region of India.

2. Vegetation:

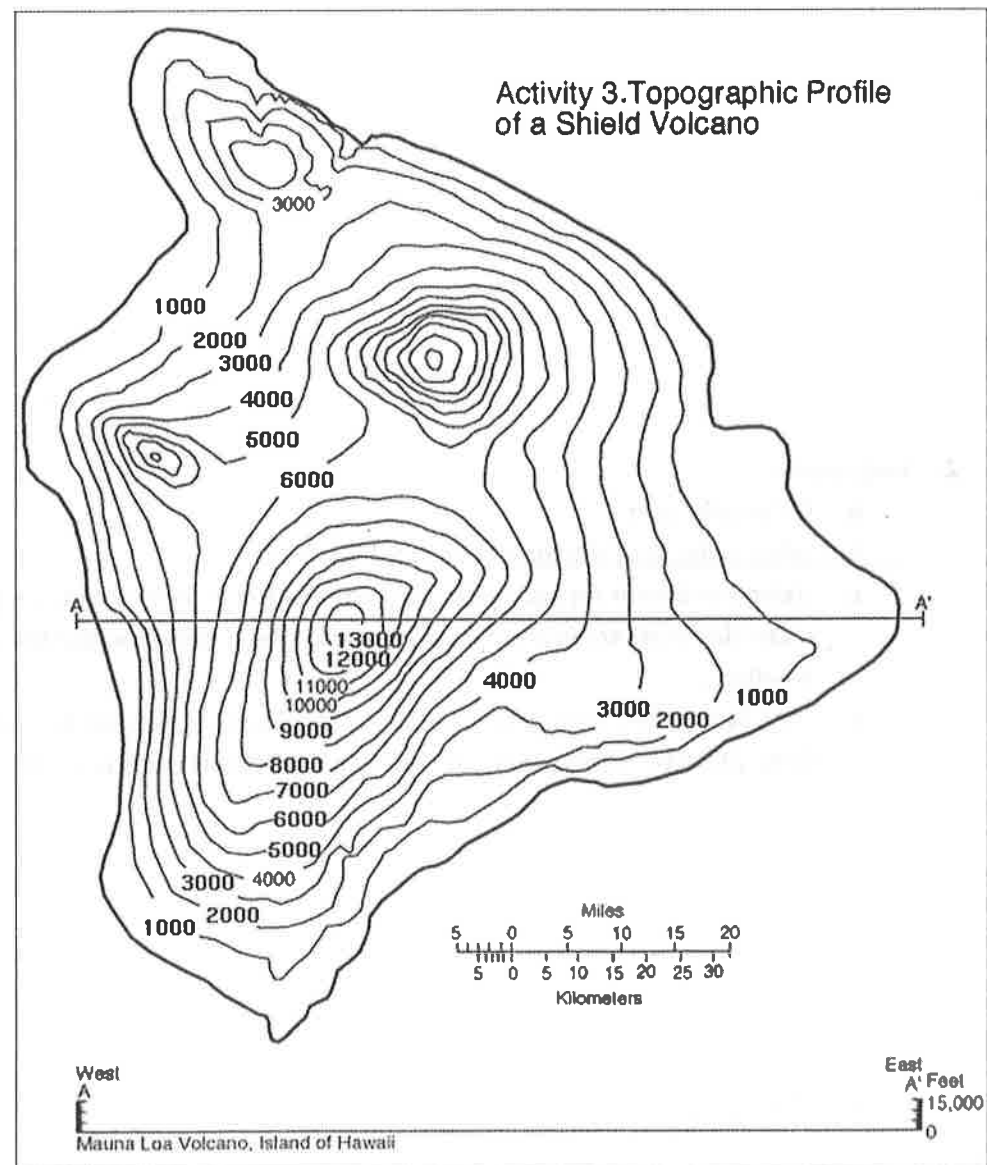
- a. Define biomes:
- b. What influences the location of each biome?
- c. Using the details on pg. 25-26 draw each of the 4 biomes on their given location. Biomes are found in many different areas on the map so draw the image once and then use arrows to show the other locations.
- d. Case Study: Geographers worry about shifting biomes brought on by human activity and weather. Read the article and explain in detail the shifting biomes and what dangers this could pose.

3. Soil

- a. Define soil:
- b. What problems contribute to the destruction of soil?
- c. Watch "The Man Who Stopped the Desert" on YouTube (5 min) Explain in detail the problem his people were faced with and what is he doing to change lives for millions.

4. Landforms:

- a. What is geomorphology?
- b. What is a topographic map and what is its purpose?
- c. Reading a Topo below: Put an X on the steepest Mountain top
 1. If you were to build a house on this site where would be the best location? Draw a house on the map.... Explain why below.



In India's grain bowl, recent rains ease weak monsoon worries

NEW DELHI | BY RATNAJYOTI DUTTA



A farmer plants rice saplings in a paddy field against the backdrop of pre-monsoon clouds in Amritsar June 13, 2013. Reuters/Munish Sharma/Files

(Reuters) - Recent unseasonal rainfall in India has come as a blessing for some farmers as it has replenished reservoirs in parts of the country, allaying concerns stemming from forecasts for a weak summer monsoon this year.

High water levels should also help ease the pain for Prime Minister Narendra Modi's government which is struggling to address rural distress after the unseasonal rains damaged winter crops like wheat, rapeseed and potato.

But these rains have driven up reservoir levels in paddy-growing states of Punjab and Himachal Pradesh, the country's grain bowl in the north, to higher than both a year ago and the average of the past decade, government data showed on Friday.

"This is a case of cold comfort, but the excessive rainfall that we have witnessed in the past six weeks have replenished reservoirs which would help mitigate the impact of deficient monsoon rains," said Aditi Nayar, senior economist at ICRA, the Indian arm of ratings agency Moody's.

India is expected to see below-average rains this year as the emergence of an El Nino weather pattern will likely cause dry spells across South Asia.

The monsoons are vital for India as its farm sector accounts for 14 percent of its economy, and half of its farm land lacks irrigation. Weak rains have cut farm output in the past, stoking food price inflation in the country.

But this year, there is unlikely to be a big shortage even if monsoons turn out to be weak as the government storehouses are brimming with rice and wheat.

However, for millions of farmers, the fate of a single crop can be the difference between life and death.

Dozens of farmers have committed suicide after the damage from unseasonal rains, denting Modi's popularity in the countryside and presenting an opportunity to the opposition Congress party to tap into farmers' anger ahead of elections in the agrarian state of Bihar later this year.

Another area of concern for the government is the likely deficit of edible oils derived from soybean, which is grown mainly in the central state of Madhya Pradesh where reservoir levels have fallen below last year's levels.

India imports about 60 percent of its edible oil needs at an annual cost of up to \$10 billion - its third-biggest import item after crude oil and gold.

"India is all set to import more edible oil and pulses, though a clear picture will emerge once monsoon covers the entire country," said P. Chengal Reddy, secretary general of the Consortium of Indian Farmers Associations.

(Writing by Krishna N. Das; Editing by Himani Sarkar)

Shifting Biomes in Alaska

February 23rd, 2011 by [Joshua S Hill](#)



Scientists have hypothesized that evergreen forests will increase their growth at the margin of present tundra areas, while simultaneously declining at the margins of temperate forests to the south. New research highlights this shift in biomes caused by a warming climate by combining data gathered from satellite imagery and tree rings.

The study, which will be published in the journal *Ecology Letters*, provides a regional picture of forest productivity in Alaska which previously did not exist.

“The results provide evidence for the initiation of a biome shift in response to climate change, and indicate that some ecosystem models may be missing fundamental changes taking place in the circumpolar region,” said lead author Pieter Beck, a post-doctoral fellow at WHRC. He adds that “while the findings contrast with some recent model predictions of increased high latitude vegetation productivity, they are consistent with longer-term projections of global vegetation models.”

The team behind the research studied changes in forest productivity since 1982 across boreal Alaska by combining satellite estimates of primary productivity with a large tree-ring data set.

They found that both records showed a consistent growth increase at the boreal-tundra borders, while simultaneously seeing a drought-induced productivity declines throughout the interior of Alaska, supporting the underlying hypothesis of a biome shift.

“Most people don’t think of high latitudes forests as being drought stressed – and they are not in the traditional sense of having soils dry up and blow away – but their growth is negatively impacted by hot dry air masses and those have increased in recent years,” said Scott Goetz, a senior scientist at WHRC who proposed the study and co-authored the manuscript. “This paper shows those drought impacts are captured in both the satellite and the tree ring record. Of course the tree rings go back in time much further than the satellite observations, which only extend about 30 years, but the changes that we observe from satellites are clearly supported not only by the tree rings but also by carbon isotope analysis of the wood.”

