



Global Education – Learning Emphases

- Interdependence and globalisation
- Identity and cultural diversity
- Social justice and human rights
- Peace building and conflict resolution
- Sustainable futures

The Monsoons

A resource for Stages 3&4

by Jenny Curtis

THE SUMMER MONSOON

In spring and summer, the sun heats the large Asian continent and the Indian subcontinent. The air over the land is warmed and rises. This creates a huge area of low pressure. A stream of moist air is drawn in from the Indian and Pacific oceans towards this low-pressure area. It rushes in across the land bringing torrential rain and thunderstorms.

Summer Monsoons begin, breaking the dry spring season, and answering the prayers of millions of farmers. Summer Monsoons are associated with the rainy season in most Asian countries. They bring heavy rains to the western coasts of India, Sri Lanka, South-East Asian nations and the North-East Indian region including Bangladesh, where the winds funnel into the Bay of Bengal.

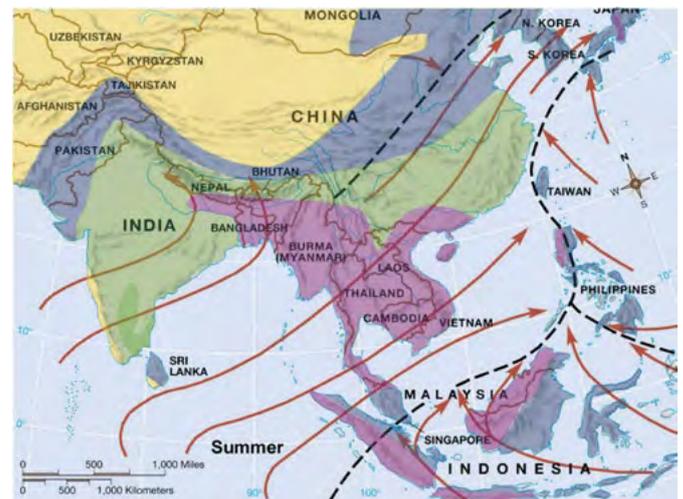
THE WINTER MONSOON

During the winter months, the opposite occurs. Being cut off from the modifying influence of the ocean, the interior of Monsoon Asia becomes extremely cold. Cold air descends. The entire area becomes a high-pressure zone, and cold dry winds blow out over the surrounding area. The wind direction is north-west and north-east, and the temperature of countries near Central Asia falls to below freezing point.

The Winter Monsoon brings rain only to places located behind areas of water, or on the coast. Such places are the western coast of Japan, the eastern coasts of Vietnam, West Malaysia, India, Sri Lanka, and the Indonesian Islands.

Source: Hashim, E. (1987) *Monsoon Asia: A New Geography*. Heinemann Publishers, Hong Kong.

Monsoon Asia: Summer winds and rain (May to Oct) & Summer Monsoon



Monsoon Asia: Winter winds and rain (Nov to April) & Winter Monsoon



Rainfall



Wind direction

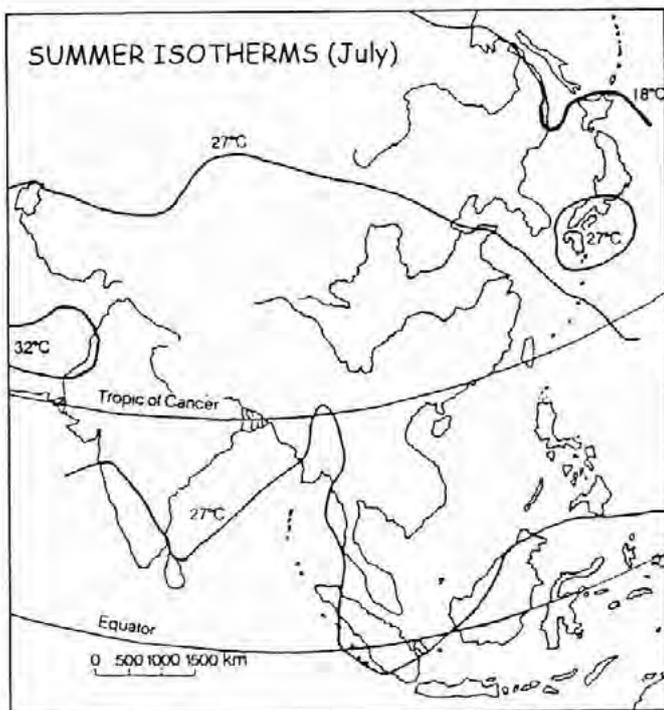


The Monsoons

'Big drops of rain fall and dry up in the dust. A fragrant smell rises from the earth. Another flash of lightning, and another crack of thunder — like the roar of a hungry tiger. It has come! Sheets of water, wave after wave. The people lift their faces to the clouds and let the abundance of water cover them. Men, women and children run, madly celebrating the miracle of the monsoon.'

The Monsoons can mean life or death for many people in Monsoon Asia. The burst of monsoonal rains is eagerly awaited by the farmers. They signify life and the start of the planting season. But at the same time, excessive rains accompanied by strong winds can cause death and disaster.

The Monsoons are vital to all farmers in the region, especially South Asia where the rains are the main source of water for farming. For example, in South India if the Summer monsoonal winds come too early, farmers may have to face floods. If they come too late then drought can result, causing the failure of crops—which affects millions of people.



Monsoon flooding, India. Source: Wikimedia Commons



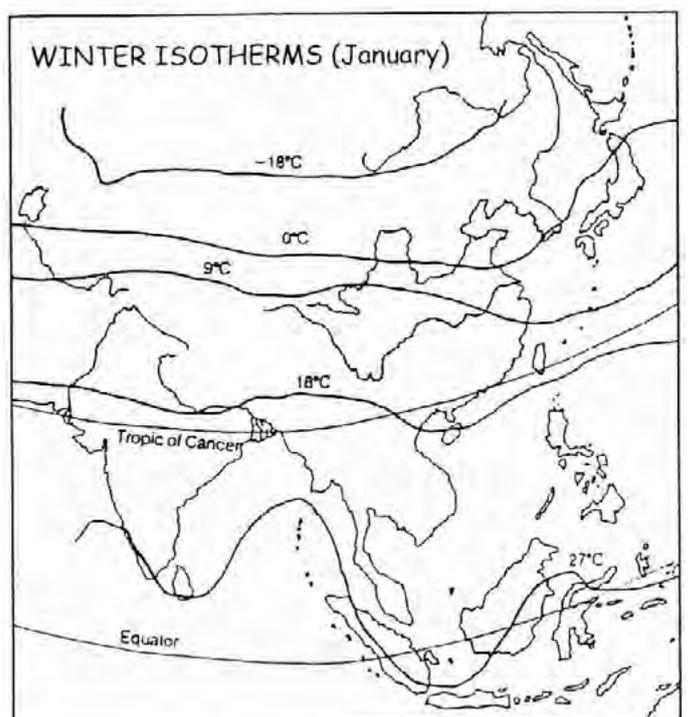
Monsoon flooding, July 2007, Cambodia. Source: Wikimedia Commons

WIND SYSTEMS

The term 'monsoon' comes from the Arabic word *mausim*, meaning a seasonal wind.

In Asia there are two seasonal wind patterns—the summer and the winter. These wind patterns affect rainfall, and temperature patterns.

In Equatorial regions there is no change in the seasons, and temperatures are high all year round. However, the rainfall is still influenced by the monsoonal winds.



The Monsoons

Worksheet one – Map of Asia

Indicate the following information on a map of Asia:

- Show by arrows the direction of the south-west and north east monsoons
- Locate the main pressure belts (high and low) during the periods of the two monsoons by using appropriate circles.
- Using the appropriate key, shade two areas in Asia with over 2000 millimetres of annual rainfall and two areas with less than 1000 millimetres of annual rainfall.
- Select one high rainfall area (i.e. 72 000mm/year) and describe the processes which have contributed to this. Include diagrams to show the relationship between the processes and the surrounding physical environment.
- Explain why the Thar Desert receives very low rainfall.



Source: http://d-maps.com/carte.php?num_car=66536&lang=en

ACTIVITY

- Explain the origin and seasonal pattern of the monsoon winds.
- Discuss the importance of the monsoons to farmers and the agriculture of Asia.
- Describe the relationship between the Summer and Winter winds and temperature patterns.

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Worksheet two – How to draw a climatic graph

	J	F	M	A	M	J	J	A	S	O	N	D	
Temperature °C	0												
Precipitation mm													
Location						Altitude							
Latitude						Longitude							
Total precipitation						Temperature range							
													40
													35
													30
													25
Precipitation mm													20
400													15
360													10
320													5
280													0
240													-5
200													-10
160													-15
120													-20
80													
40													
0													
	J	F	M	A	M	J	J	A	S	O	N	D	
Seasons													

HOW TO DRAW A CLIMATIC GRAPH

- 1. Draw temperature as a line graph in red pencil.**
 - The temperature scale is along the right-hand side in degrees Celsius (°C).
 - Temperatures are placed as a dot in the centre of each column for each month.
 - The dots are joined together.
- 2. Draw rainfall as a column graph in blue.**
 - The precipitation or rainfall scale is along the left-hand side in millimetres (mm).
 - Rainfall is marked as a line across the column for each month.
 - The columns are coloured in blue pencil.

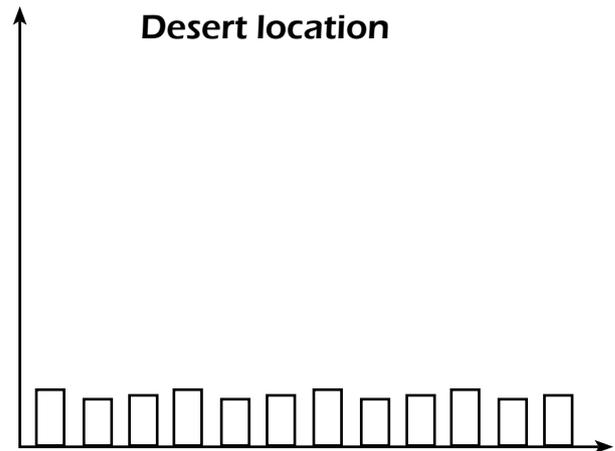
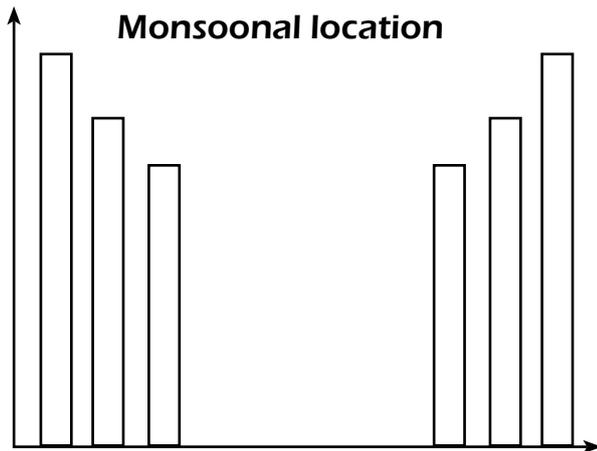
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Worksheet two – Completing a climatic graph

TOTAL PRECIPITATION

Add up the rainfall for each month. (Place this figure in a box marked 'Total Precipitation.')

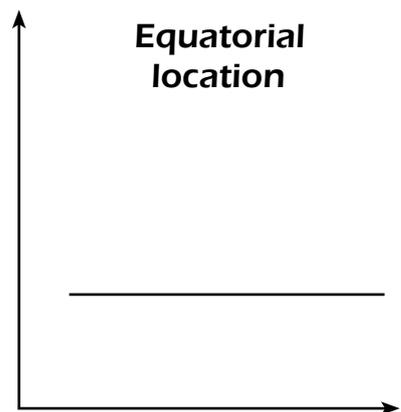
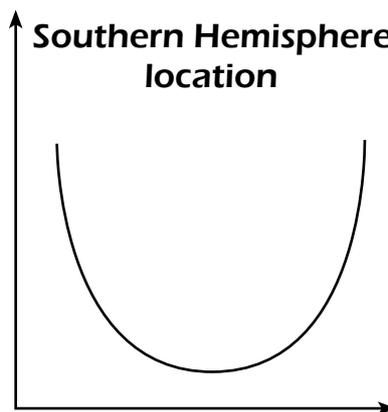
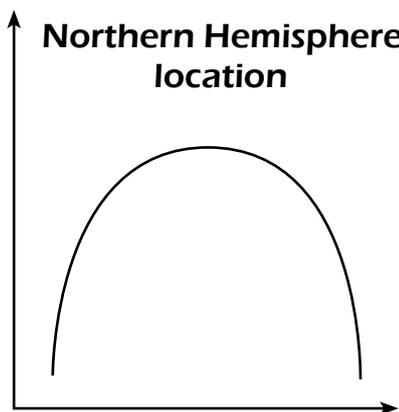
Other information: PRECIPITATION GRAPHS



AVERAGE TEMPERATURE

Average temperature can be calculated by adding up all the monthly temperatures and dividing by twelve (12). Generally this figure is highest when a location is near the Equator.

Other information: TEMPERATURE GRAPHS



TEMPERATURE RANGE

Temperature range is 'highest monthly temperature' minus (-) 'lowest monthly temperature.' (Place this figure in a box marked 'Temperature Range').

SEASONS

Seasons are written in boxes at the bottom of the graph.

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Worksheet three – How to interpret a climatic graph

DESCRIBING BALI'S CLIMATE:

Describing average monthly temperatures	
°Celcius	Description
above 30	very hot
20 to 30	hot
10 to 20	warm
0 to 10	cool
-10 to 0	cold
below -10	very cold

Describing total precipitation figures	
Annual rainfall	Description
over 1500	very high
1000 to 1500	high
500 to 1000	moderate
250 to 500	low
below 250	very low



Describing annual temperature range	
°Celcius	Description
below 5	small
5 to 15	moderate
15 to 30	large
above 30	very large

Left: Uluwatu Temple, Bali. Below: Wading in monsoonal floodwaters

USING THE INFORMATION ABOVE, FILL IN THE BLANKS:

Bali's annual temperature range can be described as
It is °Celcius.

Bali can be described as having a average monthly temperature. It is °C. This is because it is located

Bali's total precipitation is millimetres. This can be described as
It is °C.



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Worksheet four – Rivers: The lifeblood of Asia

INTRODUCTORY ACTIVITY USING ICT

Introduce the idea of life on a river by asking students to list stories that takes place on a river:

The Story of Ping (Stage 4)

Read this story which takes place on a river. Explain that Ping is a duck which lives on a riverboat, and the story is about an adventure he has. Focus on what life on a river is like in Asia. <http://www.amazon.com/gp/product/0140502416/103-6760645-0321400/n=283155>

Life along the Ganges River (Stage 6)

List the characteristics of river life. What are the advantages and disadvantages of living along a river? Record the responses for comparison at a later date.

Ganges River 'Indian Summer' in National Geographic Adventure magazine <http://www.nationalgeographic.com/adventure/0209/life.html>

Mekong River 'Laos by Riverboat' in National Geographic Adventure magazine http://www.nationalgeographic.com/adventure/0406/photo_index.html

Yangtze River Encarta Photo Gallery (click on 'multimedia') http://encarta.msn.com/encyclopedia_761573429/Yangtze.html

	How do people affect the river?	How does the river affect people?
GANGES RIVER		
MEKONG RIVER		
YANGTZE RIVER		