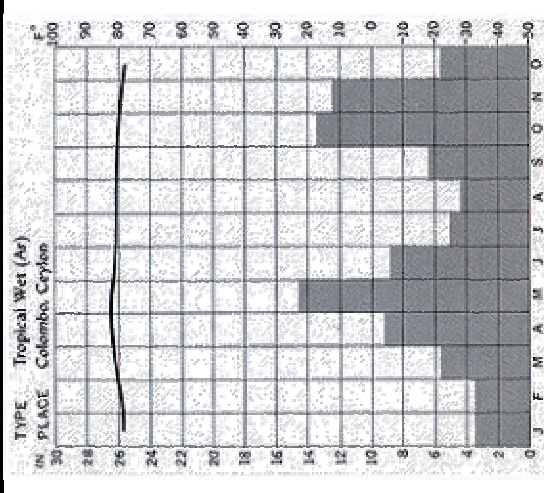


TROPICAL RAINFOREST (WET EQUATORIAL)

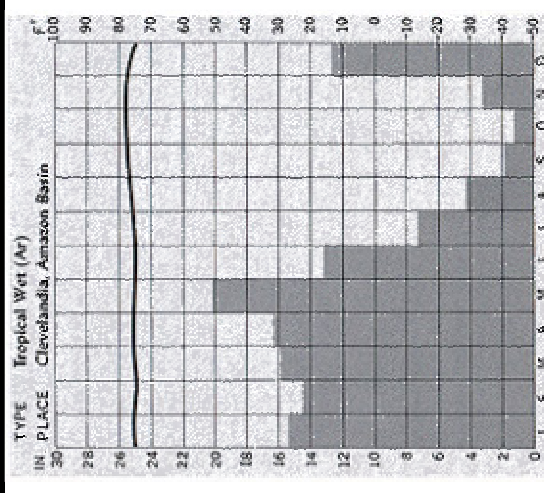
- ✓ Warm, moist maritime equatorial & maritime tropical air masses yielding heavy convectional rainfall
- ✓ High total annual rainfall & frequent afternoon showers
 - Due to convergence of trades @ ITCZ and forced rise of warm moist unstable air in strong convection currents
 - High surface heat & humidity cause cumulonimbus clouds to form early in the afternoon almost daily
- ✓ At least 6 cm of precipitation monthly, but usually seasonal rainfall patterns
 - Increased rainfall when ITCZ migrates into region
- ✓ Uniform temperatures prevail throughout the year
 - Mean monthly & annual temperature about 27°C
 - Sun always high in sky, insolation evenly distributed throughout year (12 hours)
 - Small diurnal temperature range (10°C >)
 - Presence of clouds: daytime rarely above 32°C, night-time rarely below 23°C
- ✓ Winds at ground level light & variable (doldrums) allowing land & sea breezes

LOCATION: 10°N - 10°S, e.g. Congo Basin of equatorial Africa, Amazon lowland of South America



TROPICAL MONSOON

- ✓ Abundant rainfall but strong seasonal pattern
- ✓ Marked short dry season with 1 < months of 6cm > precipitation, otherwise very wet
 - ITCZ migration: when ITCZ not overhead, dry season!
- ✓ High sun (summer): ITCZ nearer & monthly rainfall much higher
- ✓ Low sun (winter): ITCZ migrate elsewhere, subtropical high dominates
- ✓ Higher temperature in high sun season, before ITCZ arrival brings rain; lower temperature in low sun season
 - Slightly lower temperature during rainy season due to cloud cover
- ✓ Maritime / trade wind coastal locations result in monsoonal climate

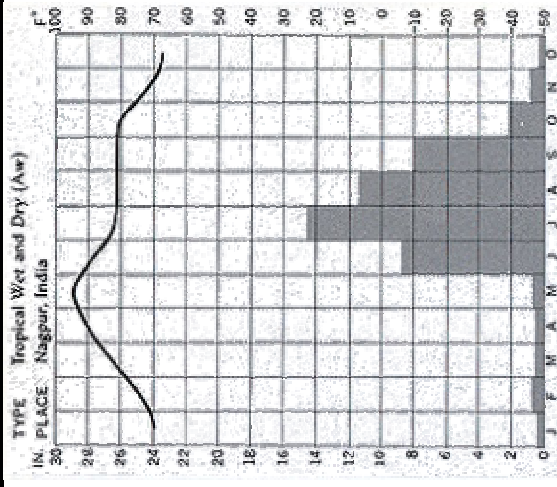


LOCATION: 5°N/S - 25°N/S along coastal areas, e.g. coast of southwest India (Kochi, Mumbai), South Asia (Sri Lanka, Bangladesh & Myanmar), northeast & southeast Brazil

TROPICAL SAVANNA (WET-DRY TROPICAL)

- ✓ Exists poleward of tropical rainforest & monsoon climates
- ✓ ITCZ reaches for 6 months > in migration with summer sun
- ✓ Starkly seasonal convective rains accompany shifting ITCZ
- ✓ Seasonal alteration occurs between moist maritime air mass along ITCZ & dry continental tropical masses of subtropical high pressure belt
 - Hence very wet season at high sun & very dry season at low sun
- ✓ Dry season cooler temperature but give way to very hot period before rain
- ✓ Greater temperature variation in tropical savanna
 - 2 temperature maxima in a year since sun is overhead twice - before & after summer solstice as sun moves between equator & tropics
- ✓ In Africa & Americas, tropical savanna occupies broad bands poleward of wet equatorial & monsoon → further from ITCZ hence lower rain & stronger subtropical high in low sun
- ✓ In Asia, tropical savanna protected by mountains from warm, moist airflows by trades & monsoons → in rain shadow area hence dryer

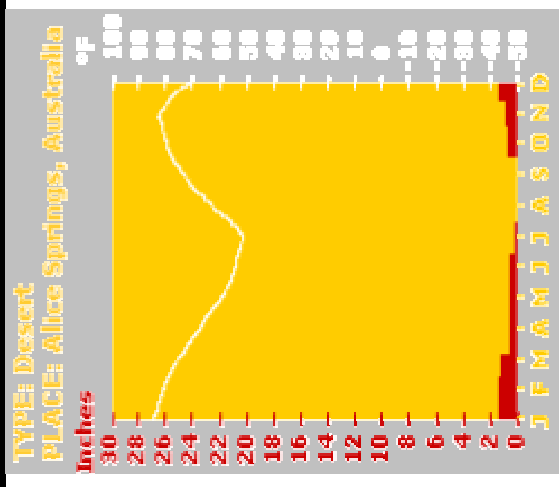
LOCATION: 5°N/S - 20°N/S (in Africa & Americas), e.g. east, south & west Africa, north & south Amazon; 10°N/S - 30°N/S (in Asia), e.g. central India, Indochina, north Australia



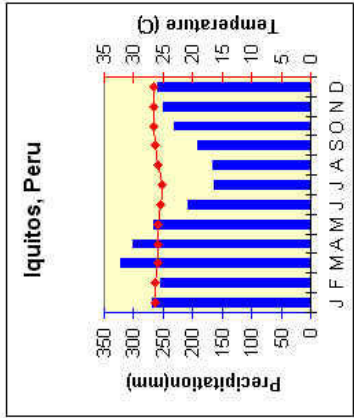
HOT LOW-LATITUDE DESERT (DRY TROPICAL)

- ✓ Found in centre & east of subtropical high over Tropics of Cancer & Capricorn
- ✓ Dominance of subtropical high pressure belt
 - Subsiding air stable & dry, highly heated at surface by intense insolation
 - Cloudless skies → large diurnal temperature range (very hot in day, very cold at night)
- ✓ Strong annual temperature cycle follows declination angle of sun
- ✓ High sun brings extreme heat, low sun much cooler
- ✓ Very irregular precipitation pattern, one year's worth of rain can fall in one downpour
 - Very low relative humidity which contributes to lower rainfall
- ✓ Continental location of many dry tropical deserts makes these places very dry

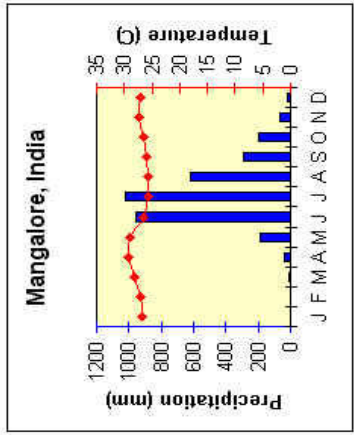
LOCATION: 5°N/S - 20°N/S (in Africa & Americas), e.g. east, south & west Africa, north & south Amazon; 10°N/S - 30°N/S (in Asia), e.g. central India, Indochina, north Australia



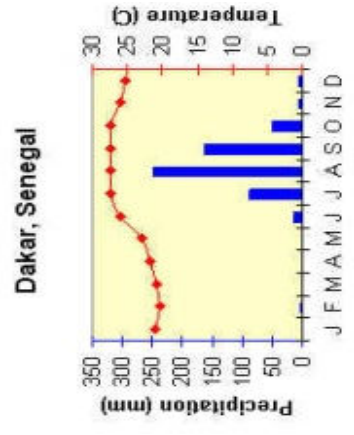
TROPICAL RAINFOREST



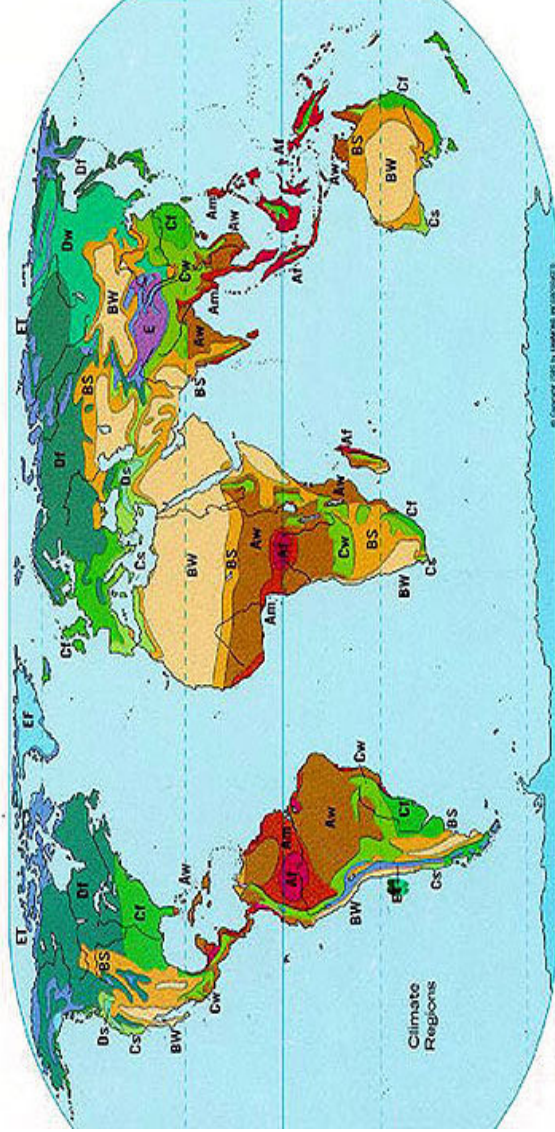
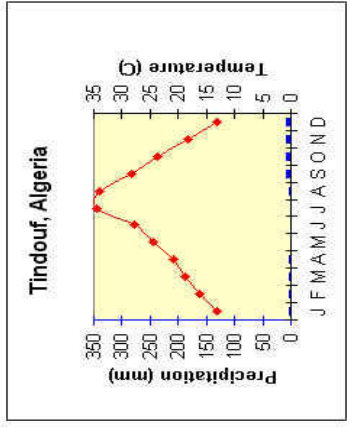
TROPICAL MONSOON



TROPICAL SAVANNA

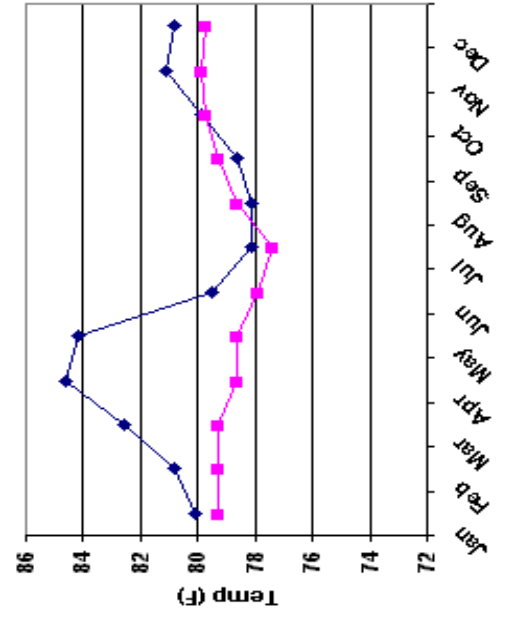


HOT LOW-LAT DESERT



- A - Humid Tropical Climate**
 - At** No Dry Season
 - Am** Short Dry Season
 - Aw** Dry Winter
- B - Dry Climate**
 - Bs** Semiarid
 - Bw** Arid
- C - Humid Warm Climate**
 - Cf** No Dry Season
 - Cw** Dry Winter
 - Cs** Dry Summer
- D - Humid Cold Climate**
 - Df** No Dry Season
 - Dw** Dry Winter
 - Ds** Dry Summer
- E - Cold Polar Climate**
 - Et** Short Cool Summer, Long Cold Winter
 - Ef** Perpetual Frost
 - EH** Cold and Unclassified Highlands

Temperature Variation in the Tropics



Diagrams from http://www.hort.purdue.edu/newcrop/tropical/lecture_04/lec_04.html & http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/climate_systems/