GLOBAL TEMPERATURE PATTERNS

1. Introduction
2. Diurnal temperature cycle
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Diurnal temperature patterns and net radiation.
Diurnal radiation patterns influence diurnal temperature patterns. 
Source: Christopherson, 2009, p. 102.
PRINCIPAL CONTROLS OF TEMPERATURE

1. Latitude
2. Altitude
3. Cloud cover
4. Continentality
Effects of latitude on temperature.
Source: Christopherson, 2009, p. 118.

Fig 3.9 Daily maximum and minimum air temperatures for mountain stations in Peru, lat. 15° S. All data cover the same 15-day observation period in July. As elevation increases, the mean daily temperature decreases and the temperature range increases. (Data from Mark Jefferson.)
Cloud effects on energy balance and temperature.
Source: Christopherson, 2009, p. 95.

(a) Shortwave radiation

(b) Longwave radiation
Cloud effects on energy balance, and hence on temperature.

Source: Christopherson, 2009, p. 98.
Effects of continentality (distance from ocean) on temperature patterns- annual cycle. Source: Strahler and Strahler, 1997.
Land-water heating differences.
Source: Christopherson, 2009, p. 120.
More examples of continental vs. marine climates.
More examples of continental vs. marine climates.
The Gulf Stream.

Global mean temperatures: January.
Source: Christopherson, 2003, p. 131. (See Christopherson, 2009, p. 126.)
Global mean temperatures: July.
Source: Christopherson, 2003, p. 133. (See Christopherson, 2009, p. 129.)
Global mean temperature differences.
Source: Christopherson, 2009, p. 131.
London’s urban heat island.
Typical urban heat island temperature profile.
Source: Christopherson, 2009, p. 110.
London’s urban heat island.

U.S. paved area approaches that of Ohio.