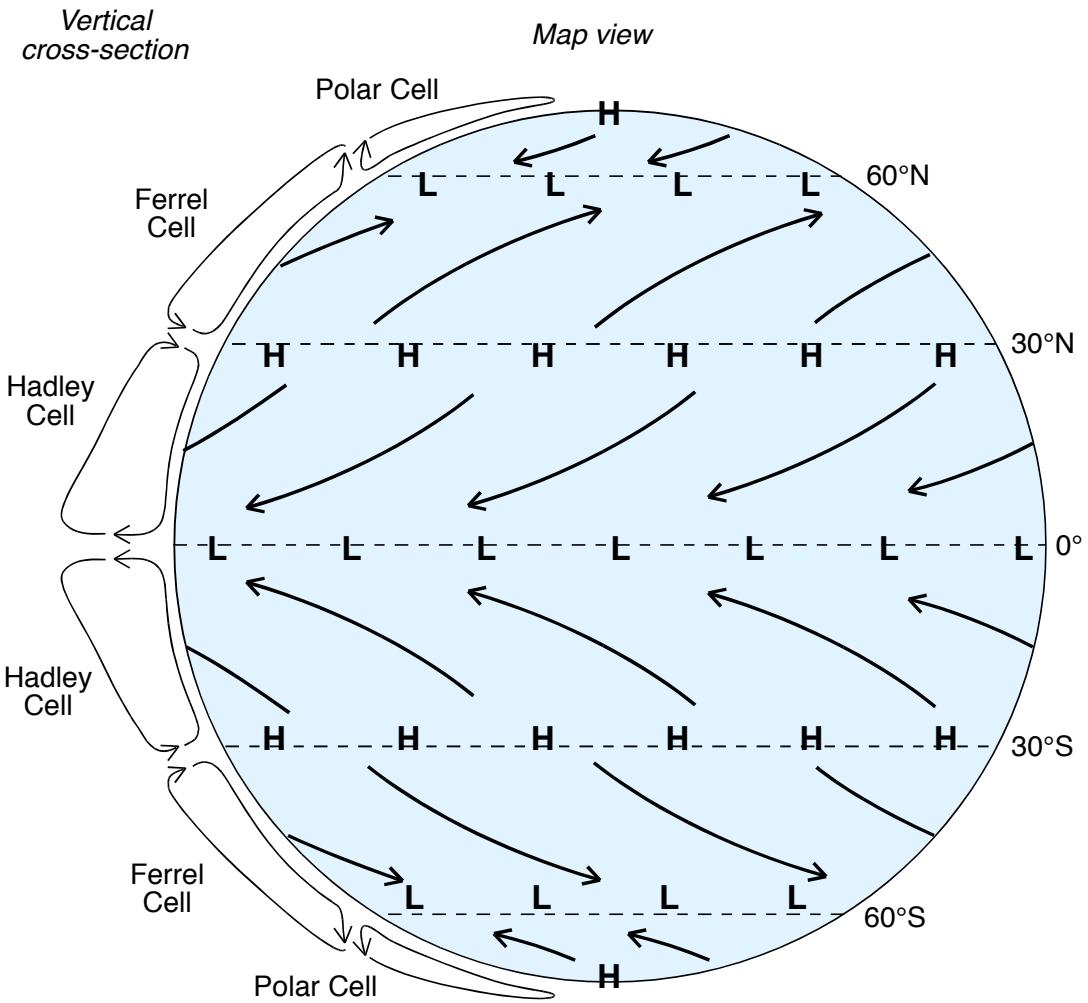
Global climate zones Ic: an idealized simple view



Climate Zones	*Wind Belts and Zones*	*Weather*
Polar High	Polar Easterlies	Dry
Subpolar Lows	Polar Front	Rainy
Temperate	Westerlies	
Subtropical Highs (anticyclones)	Horse Latitudes	Winter wet; summer dry Dry
Tropics	Easterlies (Northeasterlies) Trade Winds	Winter dry; summer wet
Intertropical Convergence Zone (ITCZ)	Doldrums	Rainy
Tropics	Easterlies (Southeasterlies) Trade Winds	Winter dry; summer wet
Subtropical Highs (anticyclones)	Horse Latitudes	Dry Winter wet; summer dry
Temperate	Westerlies	
Subpolar Lows	Polar Front	Rainy
Polar High	Polar Easterlies	Dry

The diagram above is a typical schematic representation of Earth's surface atmospheric pressure, surface winds, and tropospheric circulation. It mimics diagrams in many introductory climatology and oceanography textbooks. Parts II to V of this series expand on this theme in a little more detail.

Atmospheric circulation is driven by rising of warm air at the equator (at the latitude of maximal solar heating) and by sinking of cold air at the poles (at the latitude of minimal heating). On Earth, the air that has risen from the equator sinks at about 30° N and S, and some of that air returns across Earth's surface to the equator to close the Hadley Cells. The air that has sunk and moved out from the poles warms and rises at about 60° N and S, and the air that returns aloft to the pole closes the Polar Cells. In between, the Ferrel Cells mirror the vertical flow at 30° and 60° N and S, with each cell like a ball bearing rolled by the other two cells. Earth-surface movement of air in these three kinds of cells gives the surface winds belts shown here.

LBR 2/2013
GlobalClimateZonesIc02.odg