

# Weather and climate: a brief introduction by g. tyler miller

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WEATHER AND CLIMATE In the article " Weather and Climate: A Brief Introduction" G. Tyler Miller provides a distinction between weather and climate. From the scientific perspective, the difference between weather and climate is substantial. Weather is represented through short-term changes of the troposphere, and usually manifests itself through humidity, rain, sunshine, etc. Climate, a much broader category, constitutes a long-term weather conditions. Miller indicates the main reasons and patterns of both weather and climate change. Weather changes occur due to collision of warm and cold air masses. For instance, rainy weather occurs because warm air mass replaces cold air forming clouds, which at lower altitude release their moisture. According to Miller, atmospheric pressure is another determinant of weather changes. For example, an air mass with a high pressure forms warm weather because its cold dense air becomes warmer as it descends toward's the earth surface. In addition, weather changes are represented through weather extremes, such as tornadoes, tropical cyclones and hyrricanes. All these abrupt changes in weather can be forecasted by meteorologists who use computer models and data to project weather changes for the next days or even hours.

As Miller explains, all major changes occurring in earth's climate are due to air circulation patterns. Air circulation impacts directly earth's average temperature and precipitation. Changes in air circulation patterns occur because of the following factors: (1) long-term variations in the amount of solar energy striking the earth, (2) uneven heating of the earth's surface, (3) changes of earth's axis, (4) properties of air and water, and (5) rotation of earth (Miller, 158-159). Due to its shape and axis the earth rotates differently

beneath air masses: faster at the equator and slower at the poles. This process impacts air circulation patterns tremendously because air masses form six convection cells in which air circulates upward, descending toward's earth's surface at different latitudes.

#### WORKS CITED

G. Tyler Miller, Jr. Living in the Environment, 10th ed. (Belmont, Calif.: Wadsworth, 1998), pp. 157-160.