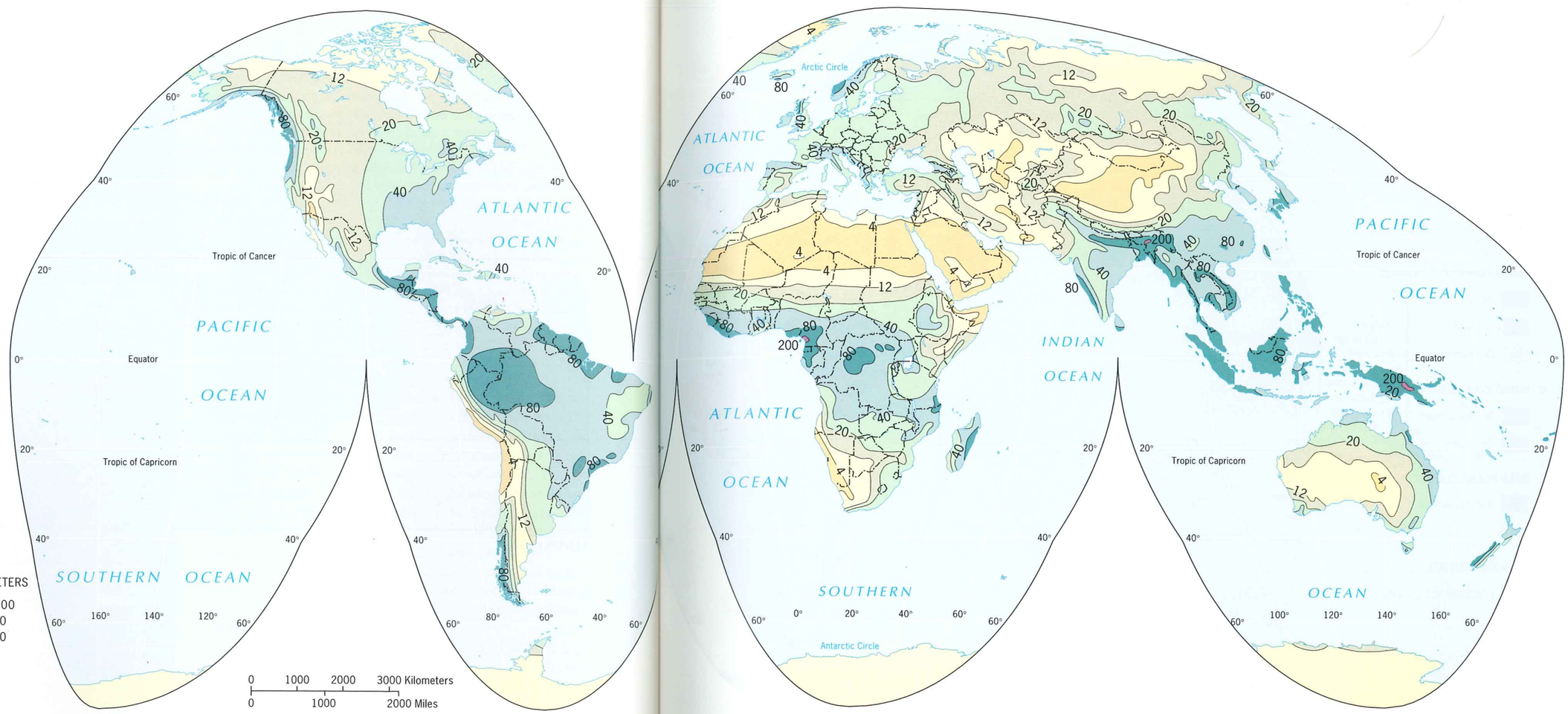

FIGURE I-6

processes) condensation occurs and fresh-water precipitation falls. This precipitation replenishes underground reservoirs, moistens soils, sustains plants and animals, and fills streams. Much of it returns to the oceans as runoff via rivers, and the endless cycle repeats itself.

Precipitation Distribution

The hydrologic cycle is neither constant nor infallible. It can and does fail, imperiling life where and when this happens. It also can be enhanced under certain unusual circumstances—for example, during 1992, when a perturbation known as the El Niño-Southern Oscillation (ENSO), a tropical Pacific climate anomaly, sent a series of moisture-laden air masses toward California and Texas. In Southern California, then in the grip of a five-year drought, torrential rains brought mudslides as well as relief. In Texas, where the rains lasted longer, they caused devastating floods that drowned thousands of livestock.

Remember this when you examine the global precipitation map (Fig. I-6): it shows the *average* amount of precipitation received by all areas of the world during the comparatively brief time period in which measurements have been taken. Compare it to Figure I-1, and you will gain an impression of the overall water availability in each of the world's major geographic realms.

Figure I-6 reveals an equatorial zone of heavy rainfall, where annual totals often exceed 80 inches (200 centimeters [cm]), extending from mainland Middle America through the Amazon Basin, across smaller areas of West and Equatorial Africa, and into South and Southeast Asia. This low-latitude zone of high precipitation gives way to dry conditions in both poleward directions. In equator-straddling Africa, for example, the arid Sahara lies to the north of the tropical humid zone and the Kalahari Desert lies to the south. Interior Asia and central Australia also are very dry, as is southwestern North America.

The general pattern of equatorial wetness and adjacent dryness is broken along the coasts of all the continents, and it is possible to discern a certain consistency in this spatial distribution of precipitation. Eastern coasts of continents and islands in tropical as well as mid-latitude locations receive comparatively heavy rainfall, as in the southeastern United States, eastern Brazil, eastern Australia, and southeastern China. Furthermore, a narrow zone of higher precipitation exists at higher latitudes on the western margins of the continents, including the Pacific Northwest coast of the United States and Canada, the southern coast of Chile, the southern tip of Africa, the southwestern corner of Australia, and most important, the western exposure of the great Eurasian landmass—Europe.

The distribution of world precipitation, as reflected in Figure I-6, results from an intricate interaction of global systems of atmospheric and oceanic circulation as well as heat and moisture transfer. Although the analysis of these systems is a part of the subject of physical geography, we should remind ourselves that even a slight change in one of them can have a major effect on a region's habitability. Again, it is important to remember that Figure I-6 displays the average annual precipitation on the continents, but no