ocean

continuous body of salt water that is contained in enormous basins on the Earth's surface.

When viewed from space, the predominance of the oceans on the Earth is readily apparent. The oceans and their marginal seas cover nearly 71 percent of the Earth's surface, with an average depth of 3,795 metres (12,450 feet). The exposed land occupies the remaining 29 percent of the planetary surface and has a mean elevation of only 840 metres (2,756 feet). Actually, all the elevated land could be hidden under the oceans and the Earth reduced to a smooth sphere that would be completely covered by a continuous layer of seawater 2,686 metres deep. This is known as the sphere depth of the oceans and serves to underscore the abundance of water on the Earth's surface.

The Earth is unique in the solar system because of its distance from the Sun and its period of rotation. These combine to subject the Earth to a solar radiation level that maintains the planet at a mean surface temperature of 16° C (61° F), which varies little over annual and night-day cycles. This mean temperature allows water to exist on the Earth in all three of its phases—solid, liquid, and gaseous. No other planet in the solar system has this feature. The liquid phase predominates on the Earth. By volume, 97.957 percent of the water on the planet exists as oceanic water and associated sea ice. The gaseous phase and droplet water in the atmosphere constitute 0.001 percent. Fresh water in lakes and streams makes up 0.036 percent, while groundwater is 10 times more abundant at 0.365 percent. Glaciers and ice caps constitute 1.641 percent of the Earth's total water volume.

Each of the above is considered to be a reservoir of water. Water continuously circulates between these reservoirs in what is called the hydrologic cycle, which is driven by energy from the Sun. Evaporation, precipitation, movement of the atmosphere, and the downhill flow of river water, glaciers, and groundwater keep water in motion between the reservoirs and maintain the hydrologic cycle.

The large range of volumes in these reservoirs and the rates at which water cycles between them combine to create important conditions on the Earth. If small changes occur in the rate at which water is cycled into or out of a reservoir, the volume of a reservoir changes. These volume changes may be relatively large and rapid in a small reservoir or small and slow in a large reservoir. A small percentage change in the volume of the oceans may produce a large proportional change in the land-ice reservoir, thereby promoting glacial and interglacial stages. The rate at which water enters or leaves a reservoir divided into the reservoir volume determines the residence time of water in the reservoir. The residence time of water in a reservoir, in turn, governs many of the properties of that reservoir.

This article focuses on the oceanic reservoir of the world. It discusses in general terms the properties of this body of water and the processes that occur within it and at its boundaries with the atmosphere and the crust of the Earth. The article also delineates the major features of the ocean basins, along with those of the continental margins and shorelines. Considered, too, are the economic aspects of the oceans, including some of the environmental problems linked with the utilization of marine resources.

For specifics concerning the relationship of the oceans to the other reservoirs of the Earth's waters, see **hydrosphere**. See also **biosphere** for coverage of the life-forms that populate the marine environment. Information about the nature, scope, and methods of oceanography and marine geology are provided in **hydrologic sciences**.

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