

# Atlantic Ocean

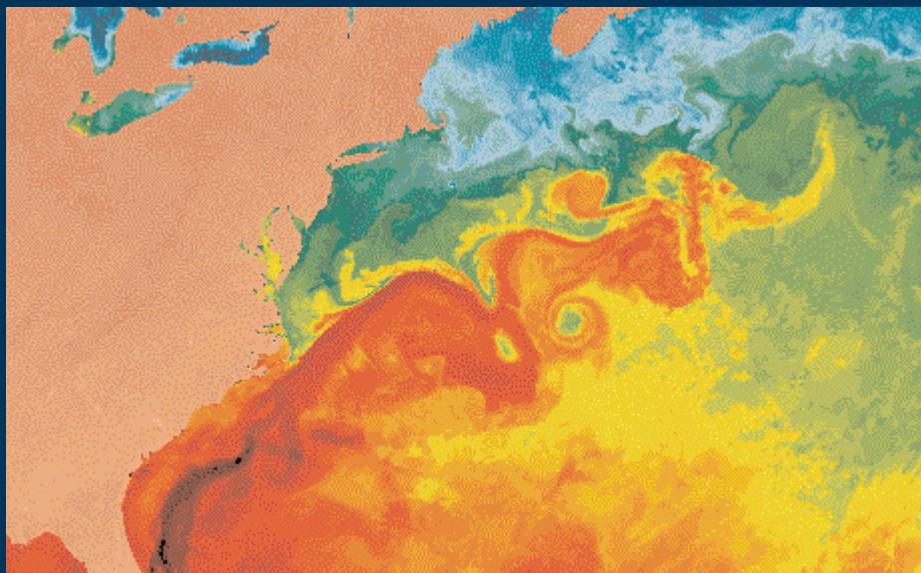
The Atlantic Ocean is named for Atlas, who according to Homeric myth held heaven up with great pillars that rose from the sea somewhere beyond the western horizon. Though not the boundary between heaven and earth, the Atlantic does separate Africa and Europe in the east from the Americas in the west. The Mid-Atlantic Ridge, which runs down the middle of this basin, marks the location of tectonic spreading, where frequent volcanic eruptions continually build up oceanic crust. This concentration of active volcanism can be seen firsthand in Iceland, where the Mid-Atlantic Ridge rises entirely out of the sea.

The tectonic motion away from the Mid-Atlantic Ridge sometimes generates offsets, which scar the floor of the ocean in long east-west-trending fractures. As with the other ocean basins, the movement of tectonic plates over deeply seated foci of intense heat, called hot spots, leaves traces of ancient volcanic activity. Some of these volcanic remnants, such as the New England Seamount Chain, appear only as subtle pinpricks in this global view (*right*); others, such as the Walvis Ridge and the Rio Grande Rise, make up prominent welts.

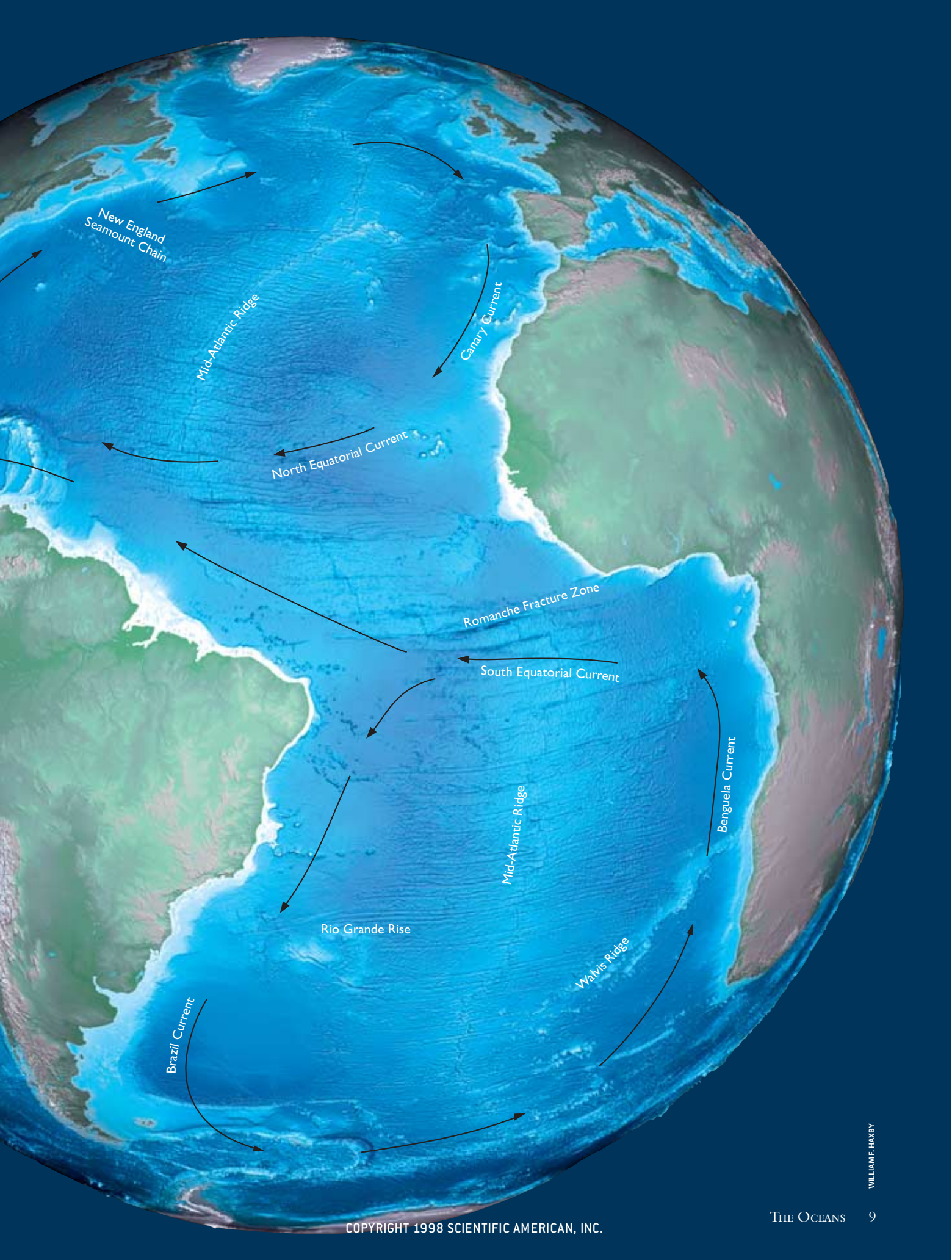
All this volcanic activity on the ocean floor hardly warms the Atlantic at all. But Atlantic waters do warm western Europe with heat that the Gulf Stream carries north from the balmy tropics. Other currents running near the surface of the North Atlantic form a huge, clockwise gyre, which circles in opposition to the pattern of the South Atlantic currents. (Arrows at the right show major surface currents.)

Area:	82,440,000 square kilometers
Average Depth:	3,330 meters
Maximum Depth:	8,380 meters

WARM- AND COLD-CORE RINGS shed from the Gulf Stream swirl about the North Atlantic in this false-color image obtained by the satellite-borne Coastal Zone Color Scanner. The Gulf Stream represents one half of a giant oceanic conveyor, which carries heat from the tropics northward on the surface and returns colder water at great depth.



NASA GODDARD SPACE FLIGHT CENTER



New England Seamount Chain

Mid-Atlantic Ridge

Canary Current

North Equatorial Current

Romanche Fracture Zone

South Equatorial Current

Mid-Atlantic Ridge

Benguela Current

Rio Grande Rise

Walvis Ridge

Brazil Current