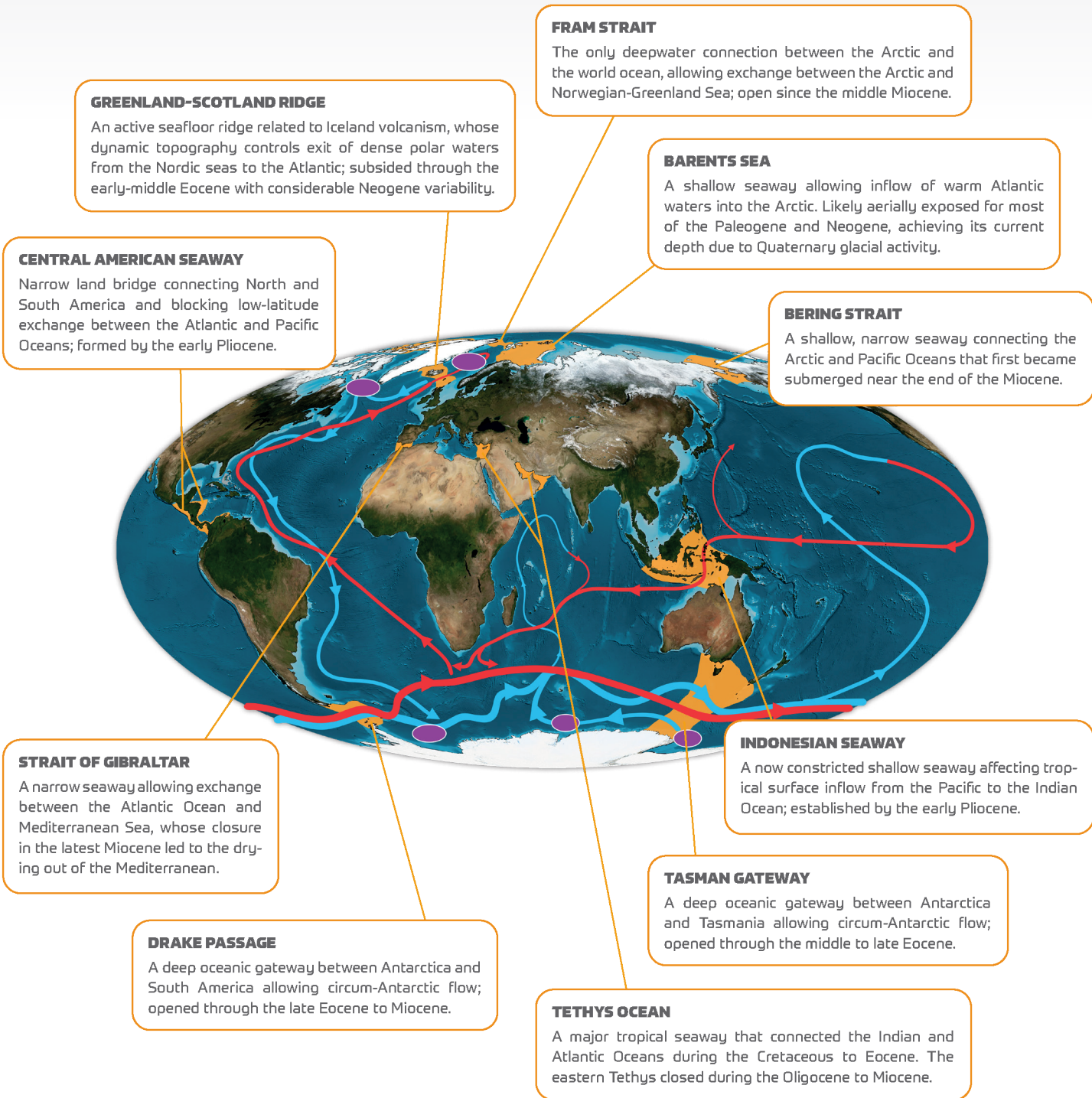


Critical Oceanic Gateways and Global Thermohaline Circulation



Changes in the shape and configuration of ocean basins are primary controls on ocean circulation patterns. Scientific ocean drilling provides the data needed to make robust tectonic reconstructions of ocean basins, permitting a better understanding of the mechanisms driving long-term changes in ocean circulation and the related climatic and environmental consequences. This figure is a simplified representation of the global ocean conveyor (blue and red arrows) and critical gateways (orange) that have influenced ocean circulation during the past 100 million years to various extents. Purple ovals are sites of deepwater formation. Red arrows = Surface currents. Blue arrows = Deep currents. Arrow width indicates relative current strength. Illustration by Matt O'Regan. Sources: Ocean bathymetry from GEBCO, <https://www.gebco.net/>; Land mask from NASA Blue Marble; thermohaline circulation modified from NASA Scientific Visualization Studio, <https://svs.gsfc.nasa.gov/3881>.