Chemical heterogeneities in the mantle are typically introduced by recycling oceanic lithosphere through subduction, which transports volatiles into the mantle. The provenance of volatiles, such as carbon, with the down-going plate is varied; here we show how the spatial distribution of carbon evolves through time with the motion of the tectonic plates. Carbon is sequestered at mid-ocean ridges, as new oceanic crust forms, and is transported similar to a conveyor belt until it is recycled at subduction zones. We budget the amount of carbon that has been recycled at subduction zones over the past 230 million years using a global plate reconstruction. The present-day distribution of in-plate carbon, taking into consideration the last 230 million years of plate influx, is predominantly distributed in the Atlantic. In contrast, most of the carbon that was sequestered in Pacific seafloor from 230 Ma has since been subducted. Therefore, it is likely that the carbon stored in Pacific seafloor has played an important role in stimulating volcanic activity along the Ring of Fire.