Circulation of Chalcophile Elements in the Earth Surface

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Elements are removed from the ocean by the precipitation of minerals in sediments on oceanic floor. Chalcophile elements are also removed from the ocean by the precipitation of sulfide minerals in oceanic basalt close to mid-oceanic ridge. This is because sulfate ions are reduced by iron silicate minerals in the basalt and change to sulfide ions. This basalt eventually descends toward mantle in a subduction. The rise of temperature changes the assemblage of the reduced sulfur and magnetite into the oxidized sulfur and iron-silicates. Thus, the sulfide minerals decompose and move to fluid phase in crust.