

## **Late Neoproterozoic Pan-African ophiolitic serpentinites of eastern desert of Egypt as natural CO<sub>2</sub> sequestration feedstock and a source of magnesia**

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Late Neoproterozoic ophiolitic serpentinites occur as elongated mountainous ranges in the Central and Southern Eastern Desert of Egypt, following mainly the regional ductile shear zones. They were derived from peridotite/harzburgite protolith and represent obducted oceanic crustal slices onto island-arc successions. These ultramafic, Mg-rich rocks had been acted as a natural CO<sub>2</sub> sequestration feedstock, where enormous quantities of talc-carbonate rocks are distributed in intimate spatial and genetic association with them. The talc-magnesite rocks represent in situ fissure-fed metasomatic products of serpentinite precursors via extensive rock-fluid interactions. The main fluids involved in the transformation processes of serpentinites to talc-magnesite were SiO<sub>2</sub>aqueous solutions and CO<sub>2</sub>. The deposits located along the fault systems cutting the serpentinite-host are magnesite-rich, whereas those located at the contacts between serpentinites and the more siliceous country rocks are typically talc-rich. They could serve as possible natural magnesia source for a wide spectrum of industrial applications such as metallic, chemicals and refractories.