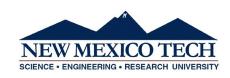
Carbon Mineralization in New Mexico

DE-FE0032257

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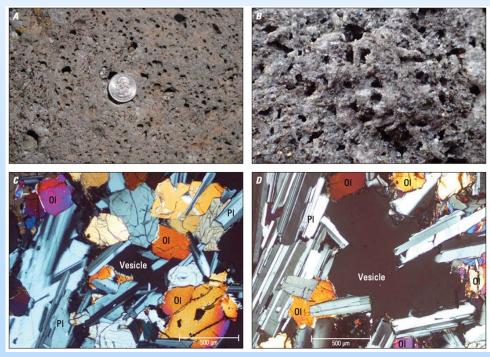


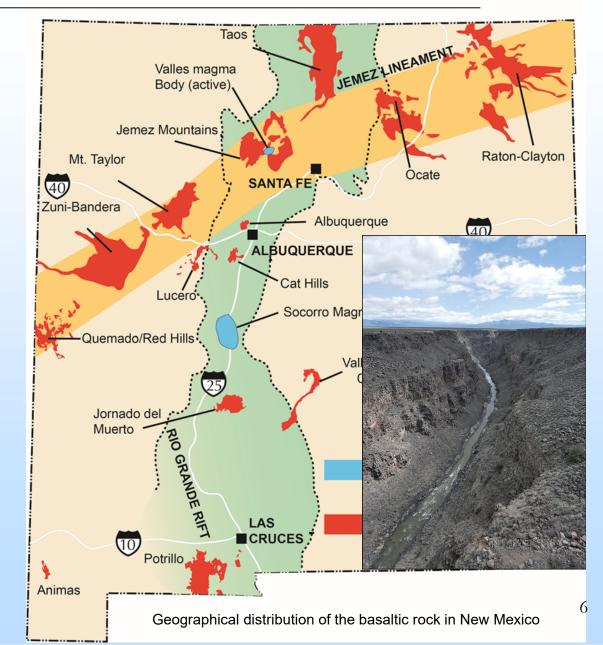
What is Carbon Mineralization?

BELOW GROUND	ABOVE GROUND		
IN-SITU	EX-SITU	SURFICIAL	
CO2 is injected into the	Alkaline feedstock reacts	Alkaline feedstock reacts	Enhanced Rock Weathering Alkaline feedstock is spread
ground and reacts with basaltic rocks, forming carbonate minerals that store the CO2.	with concentrated CO2 in high-pressure / high-temperature reactors and produces outputs such as carbonated concrete.	with ambient or concentrated CO2. These reactions can be sped up by stirring the material.	on agricultural fields, on coastlines, or added to seawater where it reacts with CO2 and stores it in solid carbonates.
CO2	+ CO2	+ (02)	+ (CO2
Concentrated CO2	Alkaline Concentrated feedstocks CO2	Alkaline Ambient or feedstocks concentrated	Alkaline Ambient feedstocks C02
	YY	CO2	
			\mathcal{A}
Mafic or ultramafic rocks			
CARBONATE MINERALS	OUTPUTS LIKE CARBONATED CONCRETE	CARBONATED ROCK POWDER	CARBONATED ROCK POWDER

Basalts in New Mexico

 Project Objective: Identify and access statewide resources for potential CO2 storage via mineralization processes, including basalt formations and related stratigraphic units, and mining wastes in the state of New Mexico, as well as identify and characterize potential targeted storage sites/complexes to provide insights on storage capacity.



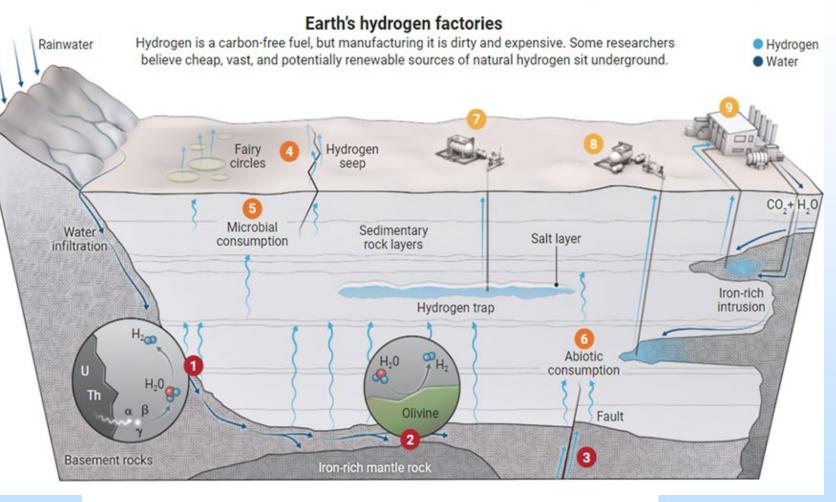


Other opportunity on Basaltic Rocks?

Geological Hydrogen (White H2) Generation

Ultramafic Rocks -Olivine

Explore the potential to combine hydrogen generation with carbon mineralization for dual benefits



$$\begin{split} \mathbf{Mg}_{1.82} Fe_{0.18} \mathbf{SiO}_4 + w\mathbf{H}_2 \mathbf{O} &\rightarrow 0.5 \\ (\mathbf{Mg}, Fe^{II}, Fe^{III})_3 (\mathbf{Si}, Fe^{III})_2 \mathbf{O}_5 (\mathbf{OH})_4 + x (\mathbf{Mg}, Fe) (\mathbf{OH})_2 + yFe_3 \mathbf{O}_4 + z\mathbf{H}_2 \\ & \text{Olivine} \ (Fo_{91}) \end{split}$$

Mechanism: Fe(II) oxidizes to Fe(III) in water, releasing hydrogen

Thank you!