



A geospatial mapping image of the Mississippi River between Arkansas and Mississippi. Image by U.S. Geological Survey.

## Quantifying Enhanced Rock Weathering in Soils

By Mark Fogarty

Tribal Carbon Solutions recently attended Air Miners' multiple sessions on monitoring, reporting and verifying carbon dioxide removal, with a particular focus on soils. The session featured a discussion on enhanced rock weathering as a means of sequestering carbon by spreading rock over soil, crushing, grinding, and dissolving it.

Dr. Leonard Smith, the Vice President

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of Methodologies at [Puro.earth](#), moderated the session and acknowledged that quantifying enhanced weathering is challenging, but there are several easy-to-measure components such as the amount of rock spread, the type of rock used, and baseline measurements of soil composition.

The discussion included perspectives from three companies: UNDO, Lithos Carbon, and Silicate. Dr. Mel Murphy, the research lead at UNDO, discussed how they are developing an MRV framework for enhanced weathering to offer credits that can be sold on voluntary carbon markets. They have already spread over 18.5 tons of carbon over two continents.

Mary Yap, the co-founder and CEO of Lithos Carbon, works with basalt and farmland for permanent carbon removal of 10,000 years or longer. They have spread 11,000 tons of rock this year but recognize the need for scalability to achieve megaton/billion-ton scale. Yap also emphasized the importance of developing a credible MRV framework with a simulation model that can predict

outcomes at scale.

Finally, Prof. Frank McDermott of University College, Dublin, discussed his collaboration with the Irish firm Silicate, which has spread about 1000 tons of material over the past few months. McDermott agreed with Yap on the need for more measurements, including water, solids, and mass balance, to account for all components in a soil system.

Overall, the group acknowledged that while enhanced rock weathering is scalable and cost-effective, it is necessary to develop an MRV framework that can ensure trust, vigor, and credibility in the field. This requires the generation of good data and a multi-proxy approach that takes into account the complexity of soil systems.

Tribes interested in enhanced rock weathering should contact local or regional agricultural extension offices, soil conservation districts, or other related agencies can provide information on how rock weathering may be applicable to the specific soil and climate conditions in their territories.

