

## Unique "fingerprints" could help carbon capture efforts

A new methodology could lead to improved monitoring of geologic carbon sequestration. Although not yet commercially viable, underground sequestration of carbon dioxide is being explored as a way to reduce greenhouse gas emissions from fossil fuels that contribute to global warming.

At present, if several companies decided to sequester CO<sub>2</sub> in the same location, it would be difficult to determine which company's CO<sub>2</sub> were escaping if a leak occurred. Effective monitoring is needed, since large releases of CO<sub>2</sub> could invalidate tax breaks that companies might receive for carbon sequestration and could potentially pose human health risks.

The research group Scottish Carbon Capture and Storage (SCCS) is working on a way to determine whose carbon is whose by using unique chemical "fingerprints." Other researchers have been able to assign carbon emissions to particular emitters by labeling those emissions with noble gases like krypton and xenon, which are nonreactive and thus are conserved in the emissions. However, adding noble gases would increase the cost of a sequestration project. Instead, SCCS plans to determine the composition of noble gases already present in the emissions, which is expected to vary based on the fuel burned. The group intends to test this theory at what it hopes will be the world's first commercial scale carbon capture and storage facility, which it plans to open in 2014 at a coal plant owned by SaskPower in Saskatchewan, Canada.

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