

## Rock Dust in Farming Redux

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In my 19 February [Communication](#) on 'Rock Dust in Farming,' which discusses a study led by David Beerling and his group in Sheffield, UK, I failed to mention a few points.

(1) The principal net result of the proposed approach, enhanced silicate weathering, is to store carbon in the ocean, mainly as limestone on the ocean floor. The idea is to speed up the natural weathering process that takes CO<sub>2</sub> from the air and deposits carbon in the ocean. This approach has the added benefit of reducing ocean acidification, thus helping to protect corals and shellfish. This approach is thus different than, and additional to, methods, such as biochar addition and minimal plowing, which aim to store more carbon in the soil.

(2) Some readers were disappointed that there is a charge to acquire the article (abstract below). The journal of publication does not allow the common practice of authors paying additional page charge for open access, but they do allow free viewing (no downloading) of the article. I should have included the link for viewing: <http://rdcu.be/HlCp>

(3) Google screening of e-mails has become strict. My Communications now seem to end up in Promotions or worse. If you are signed up and want to receive them in your primary inbox, you need to find one, move it to your primary inbox and affirmatively answer the question about whether you want future ones there.

## Farming with crops and rocks to address global climate, food and soil security

**David J. Beerling, Jonathan R. Leake, Stephen P. Long, Julie D. Scholes, Jurriaan Ton, Paul N. Nelson, Michael Bird, Euripides Kantzas, Lyla L. Taylor, Binoy Sarkar, Mike Kelland, Evan DeLucia, Ilsa Kantola, Christoph Muller, Greg H. Rau, James Hansen**

The magnitude of future climate change could be moderated by immediately reducing the amount of CO<sub>2</sub> entering the atmosphere as a result of energy generation and by adopting strategies that actively remove CO<sub>2</sub> from it. Biogeochemical improvement of soils by adding crushed, fast-reacting silicate rocks to croplands is one such CO<sub>2</sub>-removal strategy. This approach has the potential to improve crop production, increase protection from pests and diseases, and restore soil fertility and structure. Managed croplands worldwide are already equipped for frequent rock dust additions to soils, making rapid adoption at scale feasible, and the potential benefits could generate financial incentives for widespread adoption in the agricultural sector. However, there are still obstacles to be surmounted. Audited field-scale assessments of the efficacy of CO<sub>2</sub> capture are urgently required together with detailed environmental monitoring. A cost-effective way to meet the rock requirements for CO<sub>2</sub> removal must be found, possibly involving the recycling of silicate waste materials. Finally, issues of public perception, trust and acceptance must also be addressed.