Environmental Science & Technology

Policy Analysis

Ocean Sequestration of Crop Residue Carbon: Recycling Fossil Fuel Carbon Back to Deep Sediments

Stuart E. Strand*
College of Forest Resources, 167 Wilcox Hall, Box 352700, University of Washington, Seattle Washington 98195
Gregory Benford
Department of Physics and Astronomy, 4176 Frederick Reines Hall, University of California, Irvine, Irvine, California 92697

Abstract
Full Text HTML
Hi-Res PDF [133 KB]
PDF w/ Links [163 KB]

Environ. Sci. Technol., **2009**, *43* (4), pp 1000-1007
Publication Date (Web): January 12, 2009

* Corresponding author phone: 206-543-5350; fax: 206-685-3836; e-mail: sstrand@u.washington.edu.

Abstract

For significant impact any method to remove CO_2 from the atmosphere must process large amounts of carbon efficiently, be repeatable, sequester carbon for thousands of years, be practical, economical and be implemented soon. The only method that meets these criteria is removal of crop residues and burial in the deep ocean. We show here that this method is 92% efficient in sequestration of crop residue carbon while cellulosic ethanol production is only 32% and soil sequestration is about 14% efficient. Deep ocean sequestration can potentially capture 15% of the current global CO_2 annual increase, returning that carbon back to deep sediments, confining the carbon for millennia, while using existing capital infrastructure and technology. Because of these clear advantages, we recommend enhanced research into permanent sequestration of crop residues in the deep ocean.

View: Full Text HTML | Hi-Res PDF | PDF w/ Links

Article Tools
Add to Favorites
Download Citation
Email a Colleague
Rights & Permissions
Citation Alerts

SciFinder Links
SciFinder®
View Reference Detail

History
Published In Issue
February 15, 2009
Article ASAP
January 12, 2009
Received: June 5, 2008
Revised: November 18, 2008
Accepted: November 25, 2008

Recommend & Share
CiteULike
Delicious
Digg This
Facebook
Newsvine

Related Content

The start of something big
Environmental Science & Technology

Peridotite rocks show new promise for storing CO_2
Environmental Science & Technology

Corals in peril
Environmental Science & Technology

Other ACS articles by these authors:

Stuart E. Strand
Gregory Benford