PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Sequestration

03/2005

MULTIPLE-INPUT DATA ACQUISITION SYSTEMS (MIDAS) FOR MEASURING THE CARBON CONTENT IN SOIL USING INELASTIC NEUTRON SCATTERING

CONTACTS

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Background

It has been demonstrated that Inelastic Neutron Scattering (INS) can be used to measure the carbon content of soil, rapidly in situ and non invasively. In Phase I, X-Ray Instrumentation Associates will initiate the development of a new, non-invasive technology for static and dynamic in-situ carbon monitoring in soils that will speed up the rate of analysis at reduced cost and improved accuracy. Specifically, X-Ray Instrumentation Associates will upgrade an existing exploratory system developed at Brookhaven National Laboratory (BNL) by adding novel multichannel data acquisition electronics and conducting performance evaluations that will aid in the design of a commercial prototype in Phase II.

Primary Project Goal

The primary goal of this project is to develop a low power, compact INS system which is compatible with field deployment.

Objectives

The objective of this project is to upgrade an existing exploratory INS system at BNL by incorporating new multichannel data acquisition electronics to produce a device that is small, low-power, and compatible with field deployment.

CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

PARTNERS

X-Ray Instrumentation Associates

Brookhaven National Laboratory

COST

Total Project Value

$100,000

DOE/Non-DOE Share

$100,000/$0

Benefits

The improvement to the existing system of adding an array of gamma ray detectors promises to increase sampling volume and improve accuracy while reducing measurement time. Such a system would greatly improve the ability to verify carbon sequestration in terrestrial ecosystems.