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Reducing the Buildup of Carbon Dioxide in the Atmosphere

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ABSTRACT

Recent world events confirm that human populations face appreciable risk from natural hazards such as hurricanes, floods, earthquakes, landslides, volcanic eruptions and tsunamis. These hazards may be driven to some degree by changes in global climate. While climate change itself is certainly closely interconnected with natural variability and long-term earth system cycles, research has also indicated the high probability of a direct connection between anthropogenic activities and certain climate change indicators. The U.S. Environmental Protection Agency (EPA) has blamed human activities for most of the warming over the last 50 years, including the buildup of greenhouse gases that trap heat. Climate change associated with global warming is a direct result of greenhouse gas (GHG) emissions from burning coal, oil and gasoline as well as agriculture and land-use changes. In 2005, Idaho State University (ISU) and Idaho Department of Water Resources (IDWR) proposed to develop a geospatial outreach program (GOP) that capitalizes on the collaborative efforts of the NOAA-funded Boise Center Aerospace Laboratory (BCAL), the Department of Geosciences at ISU, IDWR and the US Bureau of Reclamation (USBR). BCAL is an established remote sensing laboratory in southwest Idaho that provides research and educational links between ISU campuses. ISU and IDWR have a strong working relationship and build upon this partnership through the GOP program and the effort to transfer remote sensing and GIS technology to local water delivery organizations (LWDOs). The program started in 2006 with extensive meetings and training on the use and application of these tools and data that empowered LWDOs to solve local water issues. The establishment of a geospatial outreach program in conjunction with BCAL allowed for better interaction with the community for geospatial training and education, enabled remote sensing research technologies developed at BCAL and its partner (IDWR) to be distributed in decision support systems within the community, and helped facilitate long-term support for BCAL in Idaho by demonstrating BCAL's expertise and willingness to partner with the community. The current project proposal, Farming Contribution in Climate Change Mitigation, is a natural follow-on to the establishment of the GOP. The purpose of this proposal is to extend this effort by include promotion of community level efforts and awareness to address climate change. There are more than 170 water users associations in Idaho that promote and assist the development, control, conservation, preservation and utilization of the water resources within the state. There are thousands of acres of alfalfa, grain, corn, potatoes, beet and other crops. Farmers can play a central role to reduce global warming by adopting environmentally friendly farming methods. For example, they can use improved soil management methods to reduce greenhouse gases or foster deep-rooted perennial plant species that have significant biomass in their root systems. In addition, no-till farming, besides helping to meet targeted reductions in atmospheric carbon dioxide and reduce the harmful effects of global warming, it improves soil quality, reduces soil erosion, saves the farmer work, reduces the need for fertilizers and fuel, and increases crop yields. However, not all the framers are aware of their potential role. We propose to educate the farming by posting useful information at the irrigation district offices and we will print

educational brochures on the benefits of no-till farming that has illustrations and facts excerpted from EPA, DOE, UN recent publications that encourage farmers in this direction.

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