



# United States Department of the Interior

OFFICE OF THE SECRETARY

Washington, D.C. 20240

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Dr. Michael H. Freilich, Ph.D.  
Director, Earth Science Division  
Science Mission Directorate  
NASA HQ, Mail Suite 3F71  
300 E Street, SW  
Washington, DC 20546

Dr. Diane E. Wickland, Ph.D.  
Manager, Terrestrial Ecology Program and  
Lead, Carbon Cycle & Ecosystems Focus Area  
Earth Science Division, Mail Suite 3B74 (Room 3G86)  
National Aeronautics and Space Administration  
300 E Street, SW  
Washington, DC 20546

Dear Dr. Freilich and Dr. Wickland:

On behalf of the Department of the Interior and the United States Geological Survey (USGS), we are writing to thank you for NASA's support of the Department of the Interior's work through the Flow Rate Technical Group (FRTG) to estimate the oil flow rate from BP's damaged well into the Gulf of Mexico. We are also requesting your continued assistance in these efforts. In particular, the effort of one of the FRTG teams, the Mass Balance Team, is dependent on the remote sensing data from deployment of the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) and satellite imagery to calculate the amount of oil on the ocean surface on a certain day. NASA's outstanding work provided the data necessary to aid the National Incident Command in assessing the extent of the spilled oil in the ongoing response effort.

As the response continues, the FRTG will shift its focus to development of the science needed to understand ecosystem impact, which will assist in cleanup operations. NASA's continued support, through deployment of AVIRIS, will be invaluable to these efforts. Our understanding is that NASA plans a near-shore mapping effort in the near term, via deployment of AVIRIS on a Twin Otter aircraft, which could be followed by deployment of ER-2 flights to provide additional data that would assist in spill-wide mapping.

We are confident that the use of AVIRIS on the low-altitude Twin Otter aircraft, followed as quickly as possible by AVIRIS data collection on the high-altitude ER-2 platform, will provide invaluable information that will allow us to better define spill response efforts. We request NASA's assistance in providing the crucial support that will allow us to carry out this mission.

Using AVIRIS, we will be able to develop information on the oil's impacts on coastal ecosystems, as well as information about the size, growth, chemical makeup, and evolution of the spill. This analysis would be used to provide specific information to aid in the on-the-ground response to prioritize more effective management strategies. AVIRIS is exceptionally suited as a tool to facilitate these efforts.

To our knowledge, this use of AVIRIS is the first application of this sensor to quantify the impacts of a large, protracted oil spill. The team involved in the data collection, reduction, and analysis is arranging for oceanographic field programs that will provide additional ground truth to validate the results from these studies. Methods for acquiring a scientifically rigorous inventory of oil slicks given the varying thicknesses of oil in the sea have been sorely lacking. This research therefore continues in the NASA tradition of expanding the use of remote sensing tools to new applications for the benefit of all mankind.

NASA has been an indispensable partner in the effort to respond to this disaster, and your continued support is critical. We look forward to continuing that partnership as we engage in an "all hands" effort to assist in the response.

Sincerely,



Anne J. Castie  
Assistant Secretary for Water and Science



Dr. Marcia K. McNutt  
Director, United States Geological Survey