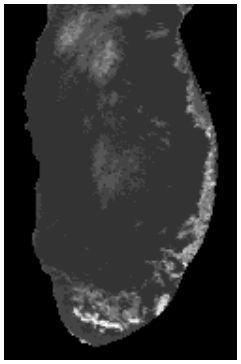
5-year study begins of Lake Michigan mud plume

A massive mud plume, that appears each year along the southern end of Lake Michigan, has captured the attention of a team of scientists from six federal agencies and 12 universities.



From March 16 to April 24, Lake Michigan ice melts and mud plume forms. (Photos courtesy of NASA)

The researchers have begun deploying instruments as part of a five-year study of the mud plume which can grow to 12 miles wide and 200 miles long, stretching from Milwaukee to Grand Haven, Mich.

Although lasting only about a month each year, it is expected that the plume has a profound impact on the ecology of Lake Michigan and may be the major mechanism for re-suspending and transporting both nutrients and contaminants in the lake.

First observed in 1980 and only visible from a NOAA environmental satellite 450 miles above the lake, the plume is believed to consist of more than 1 million tons of very fine clay particles and sediments eroded from the western shore of Lake Michigan in late winter and early spring. Scientists think the eroded bluff material is first deposited temporarily along the coastline, then re-suspended in the water column by winter storms.

"The 45 scientists ... expect to develop the most sophisticated research models ever created for the Great Lakes, models that should provide a more realistic assessment of how nutrients and contaminants in the sediments continue to recycle within the lake and control its ecosystem," said Brian Eadie, NOAA scientist and project coordinator.

The $13.75-million study is sponsored primarily by NOAA and the National Science Foundation.

The project kicked off as scientists aboard the NOAA research vessel Shenehon, based at the NOAA Lake Michigan Research Station in Muskegon, Mich., deployed equipment that will sample and measure sediments in waters at locations one to 12 miles off Muskegon and St. Joseph, Mich., and Milwaukee. The University of Michigan’s research vessel

Laurentian and the Environmental Protection Agency's research vessel Lake Guardian will also participate.

Eventually, the team will deploy two dozen strings of instruments to measure water velocities and temperatures in a 1,500-square-mile area of the southern end of the lake. These measurements will be complemented by satellite-tracked instruments on drifting buoys to measure both large-scale circulation in the lake and track the plume.

Whenever NOAA forecasts a large storm that may trigger the plume, U.S. Coast Guard helicopters will strategically seed the lake with drifting instrument packages. For the first time in the Great Lakes, two coastal over-the-horizon radars will also be used to study surface currents.

Participants include scientists from the University of Michigan and the NOAA-University of Michigan Cooperative Institute for Limnology and Ecosystems Research; the University of Wisconsin-Milwaukee; Michigan Technological University; Ohio State University, the University of Texas; Rutgers University; the University of Georgia; the University of Southern Mississippi; Texas A&M University, the Academy of Natural Sciences (a non-profit research institute in Philadelphia, Pa.); the U.S. Department of Energy-University of Chicago's Argonne National Laboratory; the U.S. Department of Agriculture's Agriculture Research Service; the U.S. Geological Survey; the U.S. Coast Guard; the Environmental Protection Agency; and NOAA's Great Lakes Environmental Research Laboratory.