Results from plume mapping along the superfast-spreading southern East Pacific Rise. The upper panel shows plumes mapped using the optical sensor (light-backscattering in terms of Nephelometric Turbidity Units, NTU) on an array of MAPRs attached to the tow wire of the DSL 120A sidescan vehicle. Black lines show the individual MAPR paths above the seafloor (gray solid). Lower panel shows
MAPR circuit board and sensor board, are available in the accompanying engineering drawings. (pdf files)

The map (above-left) shows the path of the midocean ridge system through Earth’s ocean basins. Red ellipses indicate locations where MAPRs have been used by a variety of investigators to study the distribution of hydrothermal plumes. As of 2006, MAPRs have been used in every ocean on more than 40 cruises on research vessels from the USA, New Zealand, UK, Germany, France, Japan, and China. A selection of papers describing results from MAPR work is listed below. For example, Walker et al. [2004] show that mapping hydrothermal plumes by attaching an array of MAPRs along the tow wire of a deep-tow vehicle (see the cartoon left), such as the DSL 120A side scan sonar, gives comparable results to the standard plume-mapping technique of a CTD tow-yo transect (see image above-right).

References:


