

The ability of the United States' Federal Radiological Monitoring and Assessment Center to collect and disseminate environmental measurements during radiological emergencies

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The Federal Radiological Monitoring and Assessment Center (FRMAC) is the United States' response organization for radiological emergencies. The FRMAC is structured as an operations center and employs the combined resources of several federal agencies to respond to any disaster resulting in the release of radioactivity. The mission of the FRMAC is to support state and local authorities in the gathering of environmental data using an array of survey equipment ranging from alpha probes, beta/gamma probes, and high-purity germanium (HPGe) spectroscopy to the gathering of physical samples. Once collected, the data are projected on maps to assist public officials make protective action decisions. In addition to the accumulation of data, it is the legal obligation of the FRMAC to keep archival records of all data points and their actions.

During an event, it is conceivable that hundreds to thousands of sample points will be recorded over a relatively short time. It is in the interest of the federal government and public that the information collected be put to the best use as fast as possible. Toward this end, the Remote Sensing Laboratory, working under the direction of the United States Department of Energy's National Nuclear Security Administration, is investigating the use of several technologies that will accelerate data flow from field teams to the FRMAC and, finally, distribution of data to decision makers and the public. Not only can finished data products be viewed through the internet, but the actual collection of data via "real-time" telemetry can be viewed using this same method.

Data from the field will be transferred directly to the FRMAC using the MCPD (multi-path communication device). This base station receives the survey information from the field teams via Bluetooth and instantly investigates the best communication pathway to transfer data to the FRMAC. Possible paths include standalone radio, commercial cellular networks (GPRS and CDMA) and satellite. Once inside the FRMAC, this information is transferred to the pertinent divisions for review, data storage, and eventual display on map products.

The internet is also a powerful communications tool being utilized by the FRMAC. Using a secure internet connection, field team location and data collection can be viewed live-time by any computer attached to the internet. Similarly, survey information from our fixed-wing aircraft can be viewed while the mission is being flown. All accumulated data and maps generated in the FRMAC are disseminated on a web page through the secure FRMAC web site.

Several new data communication processes are being investigated to aid the FRMAC. Each of these provides an important tool to efficiently collect, record and disseminate environmental measurements to FRMAC scientists and decision makers. The ultimate goal of these processes is to improve the flow of protection decisions and information to the public.