Worldwide Meteorite Fall Recovery Using Weather Radars

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The combination of weather radar imagery, seismometry, and internet-based aggregation of eyewitness reports has proven to be effective methodology for rapid recovery of meteorite falls. With the growth of the internet and development of national weather radar networks, these techniques are increasingly available around the world. As a result, institutions around the world – even small or remote institutions – may have the capability to rapidly locate and recover meteorite falls. Given that these meteorite "falls" are generally preferred for research over "find" meteorites recovered from old fall events, an increase in freshly-fallen meteorites available for research should have a positive effect on meteorite research in general. Such recovery techniques can also provide small and/or lightly funded universities around the world with an inexpensive means to obtain local meteorite falls of high scientific value.

Data sources for rapid meteorite recovery are available worldwide. Weather radars, for one, are currently used for civilian weather forecasting by about 75 nations. In the United States, the NEXRAD weather network operated by the US National Oceanic and Atmospheric Administration (NOAA) provides near-continuous areal radar coverage of the US. These radar data are provided for free to the public through an internet portal which includes access to extensive archives of radar data. Around the world, radar operations and data dissemination routines vary widely but the data are generally available. Seismometry data is also a powerful tool for locating fireball events, and seismometry data are readily available through the Incorporated Research Institutions for Seismology (IRIS, www.iris.edu). Eyewitness reports are also very important for meteorite recovery. The American Meteor Society (AMS, www.amsmeteors.org) and others aggregate eyewitness accounts in near-real-time on their website. The AMS actively seeks to disseminate its website software package to meteor societies around the world. All of these factors can be assembled by local institutions to perform low-cost, regional meteorite recovery programs.