

of a real time Radiation Sensor Network for Atmospheric Radiotracer Experiments

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A series of atmospheric transport experiments is being conducted to collect tracer data that will allow the refinement of meteorological models in complex terrain at short distances. Radiotracers were used to measure complex terrain flow features that influence diffusion and transport. Data were collected using an array of 22 real time radiation sensors dispersed over a 5 km region. Each sensor consists of a 5x10x40 cm NaI(Tl) crystal attached to a photomultiplier tube with pulse height information collected by a digital tube base. The sensors are protected from the environment by a case and mounted vertically on a tripod approximately one meter off the ground. Each sensor is co-located with a separate environmental enclosure containing a data acquisition computer, a cellular modem for communications, and a battery for power. The sensors are synchronized to UTC via a time server and gamma ray spectra are collected for 20 seconds and then transmitted via cellular network for cloud based storage. A real time display has also been written that it shows the total counts and counts in a region of interest for each sensor. The system has been recently field tested and preliminary results will be shown.

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Promotional text

This sensor system will provide data that will allow for models to be improved which will lead to the better understanding Theme 1.1 desires.

Oral preference format

in-person

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