



A low-cost miniaturised detector for environmental radioactivity measurements

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We have developed a low-cost (£ few hundred), low-power (40mA), low-mass (30g) detector for environmental radioactivity measurements, using scintillator and solid state technology. The detector can measure energy and therefore has the capability to distinguish between different types of energetic particle. Results from recent tests, when our detector was integrated with a meteorological radiosonde system, and flew on a balloon up to ~25km, identified the transition region between energetic particles near the surface, dominated by terrestrial gamma emissions, and higher-energy particles in the free troposphere from cosmic rays. The detector can be used with Bluetooth technology for remote monitoring, which is particularly useful for hazardous areas. It is also small and cheap enough to be used in sensor networks for a wide range of applications, from atmospheric science to disaster monitoring.