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GLOBAL FRESHWATER MONITORING FOR REAL-TIME CONTAMINATION DETECTION

Abstract

Recent breakthroughs in the field of bio-detector technology have made it possible for highly sensitive (up to part per billion) in-situ detection of various pollutants to be carried out in freshwater. Real-time contamination detection remains a challenge for remote freshwater regions around the globe — prolonging the risk of contamination-related disasters. The proposed system is an effective way to monitor hazardous threats and to track their origin by utilizing space based navigation and communication assets. This wetware sensor concept provides global positioning and map tracing capabilities within a few hours of pollution occurrence — better enabling effective hazard control. The system utilises floating buoys dispersed from air or ground, consisting of an optical biosensor, GPS receiver and an ARGOS network transmitter. The compact modular design of the detection device will enable global public and private entities to monitor the evolution of freshwater resources and minimise the disastrous consequences of prolonged contamination in a precise and cost effective manner.