



## **Aquatic Organic Matter Fluorescence - from phenomenon to application**

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The use of fluorescence to quantify and characterise aquatic organic matter in river, ocean, ground water and drinking and waste waters has come along way since its discovery as a phenomenon in the early 20th century. For example, there are over 100 papers published each year in international peer reviewed journals, an order of magnitude increase since a decade ago (see Figure taken from ISI database from 1989 to 2007 for publications in the fields of river water and waste water). Since then it has been extensively used as a research tool since the 1990's by scientists and is currently used for a wide variety of applications within a number of sectors. Universities, organisations and companies that research into aquatic organic matter have either recently readily use appropriate fluorescence based techniques and instrumentation. In industry and government, the technology is being taken up by environmental regulators and water and wastewater companies. This keynote presentation will give an overview of aquatic organic matter fluorescence from its conception as a phenomenon through to its current use in a variety of emerging applications within the sectors concerned with understanding, managing and monitoring the aquatic environment.

### **About the Speaker**

Darren Reynolds pioneered the use of fluorescence spectroscopy for the analysis of wastewaters in the 1990's. He currently leads a research group within the Centre for Research in Biosciences and sits on the Scientific Advisory Board for the Institute of Bio-Sensing Technology at the University of the West of England, Bristol. He is a multidisciplinary scientist concerned with the development of technology platforms for applications in the fields of environment/agri-food and health. His current research interests include the development of optical technologies and techniques for environmental and biological sensing and bio-prospecting applications. He is currently involved in the development and use of synthetic biology (bioluminescent reporter bacteria) for the discovery and characterization of bacteriophage and to assess their potential use as a bio-control/antimicrobial in the health and agri-food sectors. Presently, he is developing, in collaboration with industrial partners, in-situ fluorescence sensors to help further understand the role of dissolved organic matter in underpinning the microbial processes in aquatic systems through time, a project funded by the Natural Environment Research Council, UK.