

原位与在线多传感器监测系统 BIOFISH

物理, 化学和生物参数 (深度, 温度, 电导率, 氧饱和度, pH值, 浊度, CDOM, 叶绿素, 和光合有效辐射) 等高分辨率原位参数在三维扩展的水体可被永久记录。BIOFISH可在高达10 km/h的小船上及高达> 120 m的可变深度工作。通过5x50 mL样品遥控系统于船上的直接数据可视化使得水样采集具有针对性并高效省时。

为可持续管理揭幕水质动态

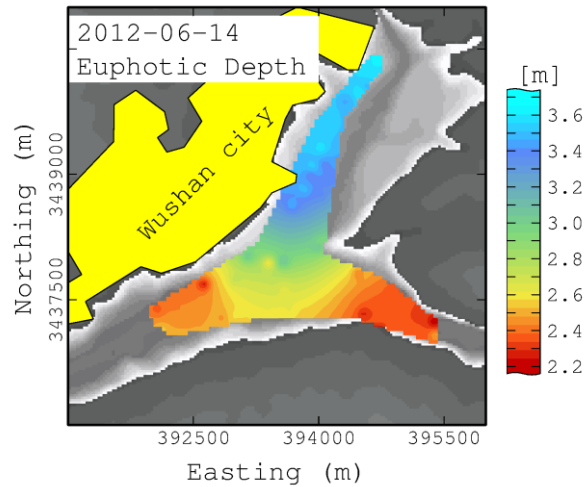
数据评估, 解释和可视化 环境可持续性 与人类健康均以完整的水环境系统为基础。只有对这些系统的科学过程深刻理解才可促进水体管理的有效实施从而缓解问题百出的环境状况。通过BIOFISH调查手段获得的结果将以图表, 地图和清晰明了的数据库形式直观可视化从而进行专业阐述分析。

先进 (地质) 统计分析和建模

时空水体特征 应用先进的地质统计学克里格插值技术模拟永久记录的时空分布原位数据。模拟结果对诸如藻华发展的过程与营养物质/污染物的来源与路径等提供详尽见解。这些结果可被用于验证水质模型和制定改善水质及确保良好水质的管理策略。



BIOFISH survey in the Gironde estuary, France



Euphotic depth around Wushan city in the Three Gorges Reservoir; kriging of spatially distributed BIOFISH data

如果您需要调查湖泊, 水库, 河流和河口的 ...

水体分层, 水团混合, 缺氧影响, 污染来源, 污染物输送, 富营养化现象, 或其他水质问题。

赶紧来和我们的专家联系吧!

Selected references / 选用参考文献

Holbach, A., Bi, Y., Yuan, Y., Wang, L., Zheng, B., Norra, S. (2015) Environmental water body characteristics in a major tributary backwater of the unique and strongly seasonal Three Gorges Reservoir, China. *Environmental Science: Processes & Impacts*, 17, 1641-1653.

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The BIOFISH

Advanced Water Quality Monitoring
Services / 先进水质监测服务系统

ENVIRONMENTAL MINERALOGY &
ENV. SYSTEM ANALYSIS (ENMINSA)
INSTITUTE OF APPLIED GEOSCIENCES (AGW)



You need to investigate lakes,
reservoirs, rivers, or estuaries for...

- ❖ stratification of water bodies,
- ❖ mixing of water masses,
- ❖ effects of anoxic conditions,
- ❖ pollution sources,
- ❖ pollutant transport,
- ❖ eutrophication phenomena,
- ❖ or any other question of water quality ?

Get into contact with our experts !

Contact / 联系方式

Dr. Andreas Holbach
andreas.holbach@kit.edu
+49 721 608-47613

Prof. Dr. Stefan Norra
stefan.norra@kit.edu
+49 721 608-47850



Address

Karlsruhe Institute of Technology (KIT)
Environmental Mineralogy & Env. System Analysis (ENMINSA)
Institute of Applied Geosciences (AGW),
Adenauerring 20b
76131 Karlsruhe, Germany
www.agw.kit.edu

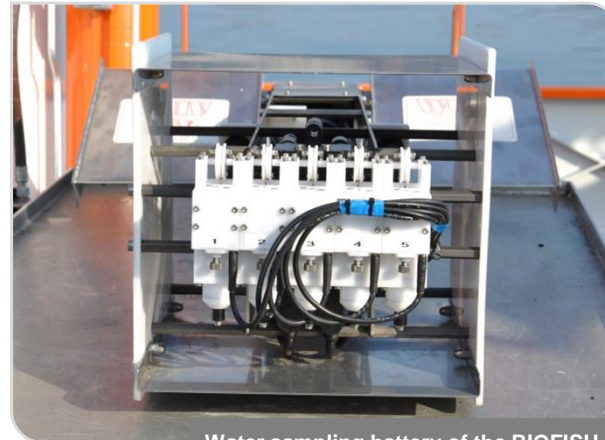
Publisher

Karlsruhe Institute of Technology (KIT)
Kaiserstraße 12
76131 Karlsruhe
www.kit.edu

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In situ and online multi-sensor monitoring with the BIOFISH

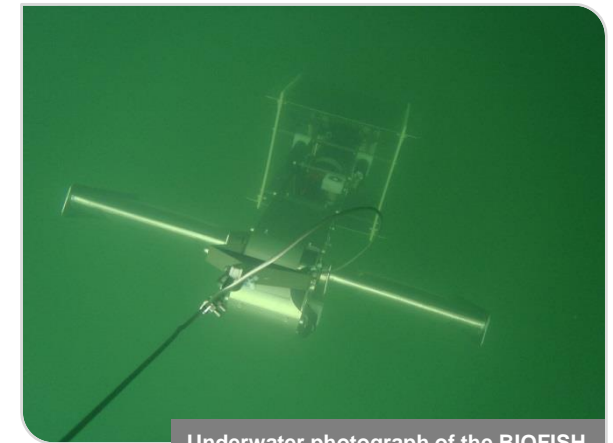
Physical, chemical and biological *in situ* parameters (depth, temp., el. conductivity, O₂-sat., pH, turbidity, CDOM, chlorophyll, and photosynthetic active radiation) are permanently recorded with high resolution across the 3D expansion of water bodies. The BIOFISH is deployed from a boat at speeds of up to **10 km/h** and at variable depths of up to **>120 m**. Direct data visualization aboard a ship enables for effective, targeted, and extremely time saving **water sampling** by its remote controlled system for 5x50 mL samples.



Water sampling battery of the BIOFISH

Unveiling water quality dynamics for sustainable management

Data evaluation, interpretation and visualization
Environmental sustainability and human health are based on intact aquatic environmental systems. Only profound scientific process understanding of these systems can help to implement effective water body management and to mitigate problematic environmental conditions. Results gained by means of BIOFISH investigations will be professionally elaborated and visualized in diagrams, maps and comprehensible databases.

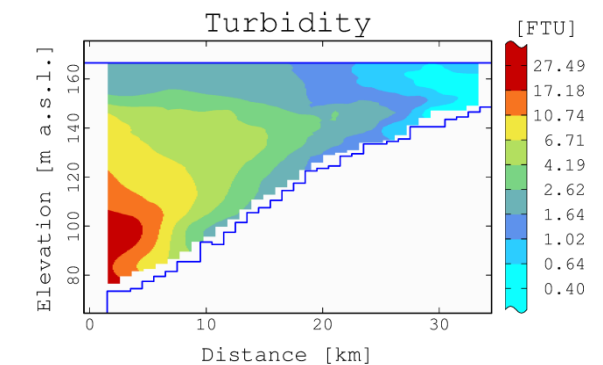


Underwater photograph of the BIOFISH

Advanced (geo-)statistical analysis and modeling

Spatial-temporal water body characteristics

The permanently recorded *in situ* data across space and time are modelled employing advanced geostatistical kriging interpolation techniques. The obtained results provide detailed insights into processes such as the development of algal blooms, as well as into sources and pathways of nutrients or pollutants. The results can be used to validate water quality models and to develop management strategies for improving and guaranteeing good water quality.



Turbidity plume in the Three Gorges Reservoir; kriging of spatio-temporally distributed BIOFISH data