

Automated measurement stations and water quality modelling

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Summary

The technical evolution has led to an important improvement of automated measurement stations (AMS) during the last years (1). Therefore AMS seem increasingly being part of measurement campaigns in the frame of water management projects. The advantages and disadvantages of AMS versus samplers and discrete manual sampling for the optimization, calibration and validation of integrated wastewater models will be evaluated in this paper

Materials and Methods

On-line measurement stations with sensors for dissolved oxygen, temperature, redox, conductivity, pH, nitrate, ammonia, turbidity, waterflow, sunradiation and rainfall. Statistical process control (SPC) was used for the implementation of total quality management (TQM) of the on-line measurements. Activity based costing (ABC) was used as a decision supporting tool for the TQM and the planning of the measurement campaigns. The on-line measurement dataserie were used for the calibration and validation of models in ISIS, Aquasim and West++.

Overview and discussion of results

The application of AMS can have major advantages when several events are to be monitored. Especially in case of short, intensive events like sewer overflows a continuous simultaneous follow up is required by means of several AMS at different places at a time. Before the data are actually available, however, numerous practical problems in defining, ordering, buying, setting up and running of such systems must be dealt with. Because of the high AMS investment cost, considerable prior research and collection of information is necessary to avoid waste of time and money. In this paper some background will be given on the advantages and disadvantages of several on-line systems and essential probes and sensors. Also, problems encountered during running such systems (personnel, development of standard operation procedures and manuals, maintenance, safety, data management, additionally needed equipment, ...) will be commented upon.

Conclusions

The application of AMS can have major advantages in generating valuable dataserie for calibration and validation of integrated wastewater models. However, numerous practical problems in defining, ordering, buying, setting up and running of such systems must be dealt with.

References

(1) Integrated Modelling User Group, Brussels (1998): 'Towards a Common European Procedure for Integrated Waste Water Planning and Management' model parameters. *Water Sci. Technol.*, **37**(12), 237 - 246.