

Wind stress and distribution of chemical parameters in the Krka River Estuary

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Krka river estuary is a carstic, mainly stable stratified estuary, characterised by close interactions of hydrometeorological phenomena, underground carstic waters and nearshore saline water of the Adriatic sea.

Some enquiries were made during windy weather (autumn 1987), and some (autumn 1984, partially 1986) during stable hydrometeorological conditions. Selected surveys showed no great differences in river flow and similar stratification. So, we supposed windy weather was the main factor influenced on dynamic and distribution of chemical parameters.

Thermocline and halocline sinked during windy weather. In the same situation current field was formed under influence of drift currents (Fig.1). Even in these conditions, prevailing effects on current direction were by periodic tide currents.

Tide oscillations were taken from tide gauge registration in Zlarin, near the mouth of the estuary. Validity of this data were checked by visual hours registrations on a few places along the estuary. It was established Zlarin's tide gauge registrations has been representative for the whole estuary under the waterfall.

General picture of the current field indicated that in the upper part of the estuary and Prokljan lake dominated influence of the river flow, while near mouth of the estuary and Šibenik, harbour, dominate periodical tide currents.

Distribution of the chemical parameters offered important effects of wind stress upon surface fresh layer and the upper part of deep saline layer. For example, oxygen content shows undersaturation, even during wind blowing. Aeration played important role only in the upper part of the water column, while near bottom undersaturation remained.

During windy days sinking of thermocline and halocline enables oxygen supersaturation. This was a short time disaster and after few hours former state returned. Distribution of nutrients were also examined. While, for phosphate, there was no way to get a straight line of mixing, because of small concentration and antropogenic influences, nitrate and silicate gave straight line near theoretic for situations without wind, for the whole estuary. During a windy conditions, we registered dropping concentration of nutrients in surface fresh water layer, and growing in saline layer. It's possible that processes of remineralization also play a role in last phenomena. Higher values of total alkalinity indicate that convection also intensifies mixing of layers.

Conclusions

Results confirmed influence of wind stress on dynamic of the estuary and distribution of some chemical parameters. More conservative parameters were representative for a windy situation. Some parameters like phosphorus and ammonia made a problem because of a small concentration and urban influences. In next investigations it had been proposed better quantification of the registered phenomena.

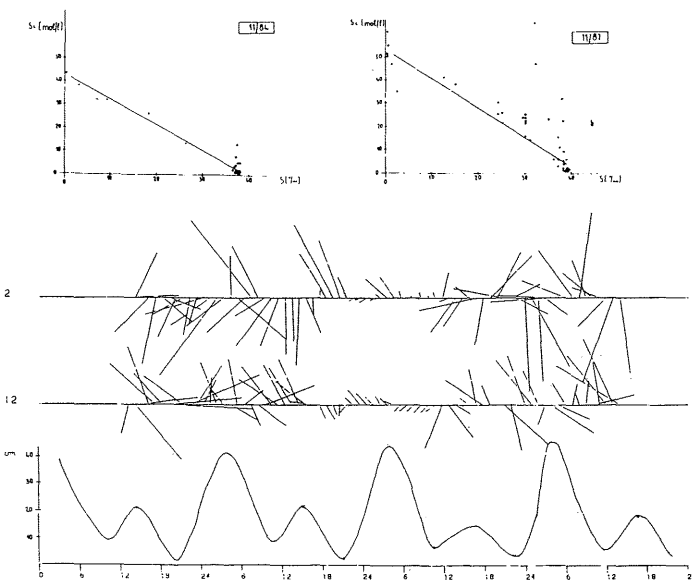


Fig. 1. Wind stress effect on current hours vectors (18.-21.11.1987) and distribution of silicate

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Etudes des paramètres physico-chimiques des sels nutritifs dans le lac de Bafa Aydin (Turquie)

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RESUME

Dans ce travail nous avons étudié quelques paramètres hydrographiques; S %, DO, T^oC, NO₂⁻-N, NO₃⁻-N, NH₄⁺-N, PO₄⁻³-P et SiO₄⁻²-Si. Des prélèvements ont été effectués chaque mois de Septembre 1986 à Août 1987, sur quatre stations caractéristiques du lac de Bafa.

Les résultats obtenus ont montré que les concentrations des NO₂⁻-N, NO₃⁻-N, NH₄⁺-N, PO₄⁻³-P, SiO₄⁻²-Si varient aussi de 0.00 à 49.61 ; 0.24 à 41.00 ;

13.65 à 504.46 ; 0.00 à 93.93 µg/l , 2.28 à 27.36 µg.at/l pour Si en fonction des stations et des pluies.

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