New cooperation

ViSKon has established a permanent partnership with the National Academy of Sciences of Ukraine (Ukraine Centre for Environmental and Water Projects), and we are now in a position where we can offer advisory services in all kinds of advanced water and environmental modelling, including GIS/Remote Sensing, advanced data analysis and general database & software development. The partnership is aiming at providing competent and price-competitive consultancy services to public authorities, private companies and international donors in the fields of hydro informatics, advanced water and environmental modelling, monitoring and assessments (fresh and marine waters) in connection with integrated water resources planning/management, coastal protection, water supply and drainage/sewerage system design, river rehabilitation and nature restoration.

Model collection - MODTOX

ViSKon/UCEWP's modelling and analysis expertise covers all aspects of the hydrological cycle from overall system analysis/optimisation, numerical weather forecasts, rainfall prediction, hydrological (surface water/groundwater) models of varying complexity dependent on the actual problem and available data, hydrodynamic models including morphology/water quality/ecology for rivers, lakes, estuaries and marine waters. MODTOX is a comprehensive and flexible modelling system that has been developed over the last 10 years, and the components have been tested in a large number of international applications. The main components have now been internationally recognised and constitutes e.g. the core of EU-RODOS (real-time online decision support system for nuclear emergency management), developed for the European Commission during the last 3 EU Framework R&D-programmes. In addition to the familiarity with our own model system, we have also extensive experience in application of other commercially available modelling systems, e.g. MODFLOW and the MIKE system developed by DHI Water & Environment.

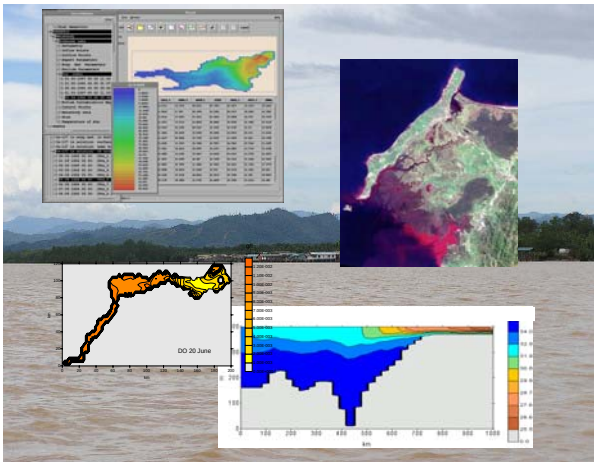
Physically-based environmental models

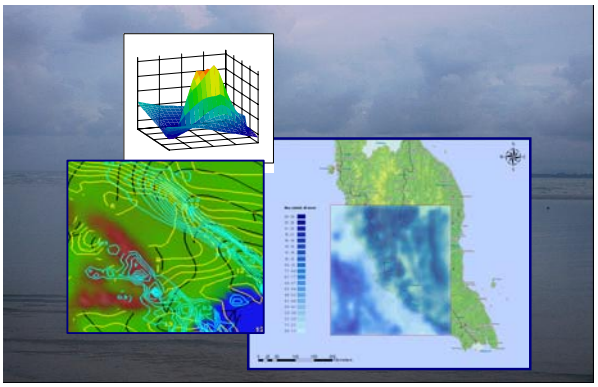
MODTOX includes the following models:

- *1D river network models – hydraulics (Q/H) and water quality/sediment*
- *2D (horizontal/vertical) models – hydrodynamics, water quality, sediment transport, wave processes.*
- *3D stratified flow - hydrodynamics and water quality. The model also includes wave and costal morphology processes.*

Selected references:

- *Dnieper River and reservoir cascade, Ukraine*
- *Johor Strait, Malaysia/Singapore*
- *Lake Boden, Germany*
- *Bergumermeer, Netherlands*
- *Coastal protection (the Pacific), WA/US*





Meteorology & numerical weather forecasts

Our expertise covers:

- *Rainfall forecasts for flood warning*
- *Atmospheric deposition assessment*
- *Air pollution studies*
- *Accidental nuclear release (RODOS)*

Selected references:

- *Local area meteorological forecast system, Ukraine*
- *Rainfall/flood forecasting system, Hungary/Slovakia, Hungary*
- *Rainfall forecast system, Malaysia*

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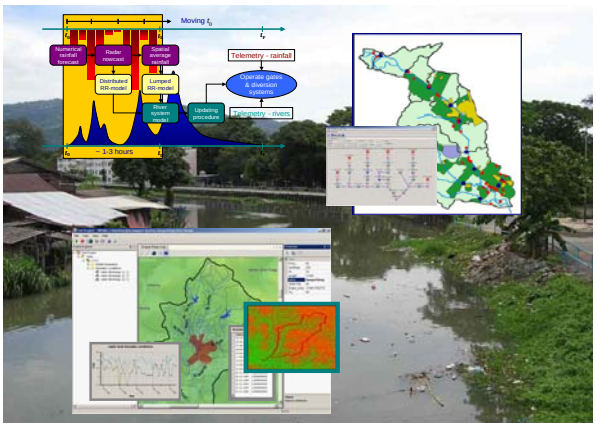
Hydrology and catchment management

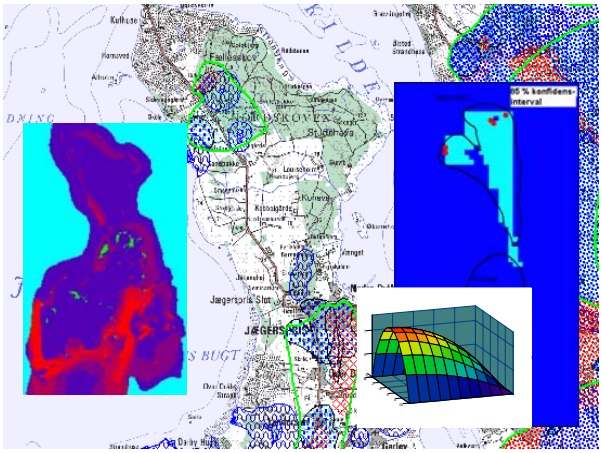
Managing water on the catchment scale is a challenge that requires information and appropriate decision support tools. ViSKon/UCEWP can offer a number of applications for, e.g.:

- *River rehabilitation action plans*
- *Resource assessment, use and optimisation*
- *Flood management – protection & warning*

Selected references:

- *Skudai River Basin, Malaysia*
- *Hong-ru River Basin, China*
- *Tuy Loan River, Vietnam*
- *Dnieper River, Ukraine*





Coastal zone management

We are presently developing an integrated 2D/3D wave-beach-groundwater models for design of coastal protection measures. The system includes modelling of groundwater effects on swash sediment transport and beach profile changes. In addition, we apply own morphological models as well as MIKE21 and others.

Selected references:

- *Tioman Island Marine Environment , Malaysia*
- *Black Sea management plan, The Black Sea Commission*
- *Coastal protection, Washington State, US*

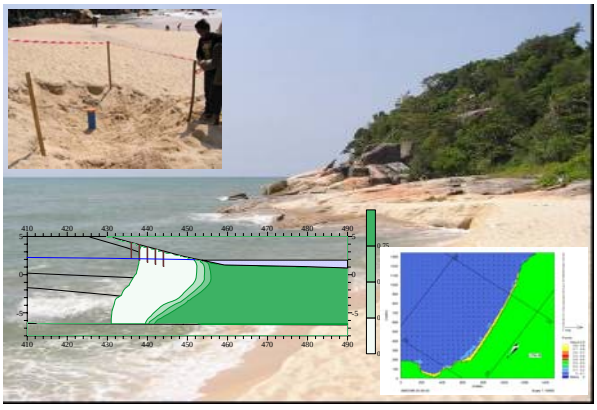
Groundwater modelling and protection

Groundwater aquifers are important elements of the hydrological cycle. We have therefore developed our own 3D groundwater model for resource and pollution assessments. In addition, we master the following model systems if the clients so desire:

- *MODFLOW*
- *Groundwater uncertainty modelling (GRUM) – A groundwater supply/pollution risk assessment tool*

Selected references:

- *Tjernobyl protection project, Ukraine*
- *Copenhagen Metro Area, Denmark*
- *Ignalina NPP EIA, Lithuania*



Supporting activities

To complement our modelling and assessment activities, we have a number of highly competent specialists in GIS and remote sensing, data base development and programming, Internet based applications, development of user-specific models and/or analysis tools and in applied mathematics and statistics. Consequently, we can tailor-make models as well as software applications to suit specific needs and wishes of the client.

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