

WISKI

WATER RESOURCES MANAGEMENT

Hydrological Measurement Networks



CREATED FOR HIGHEST STANDARDS.



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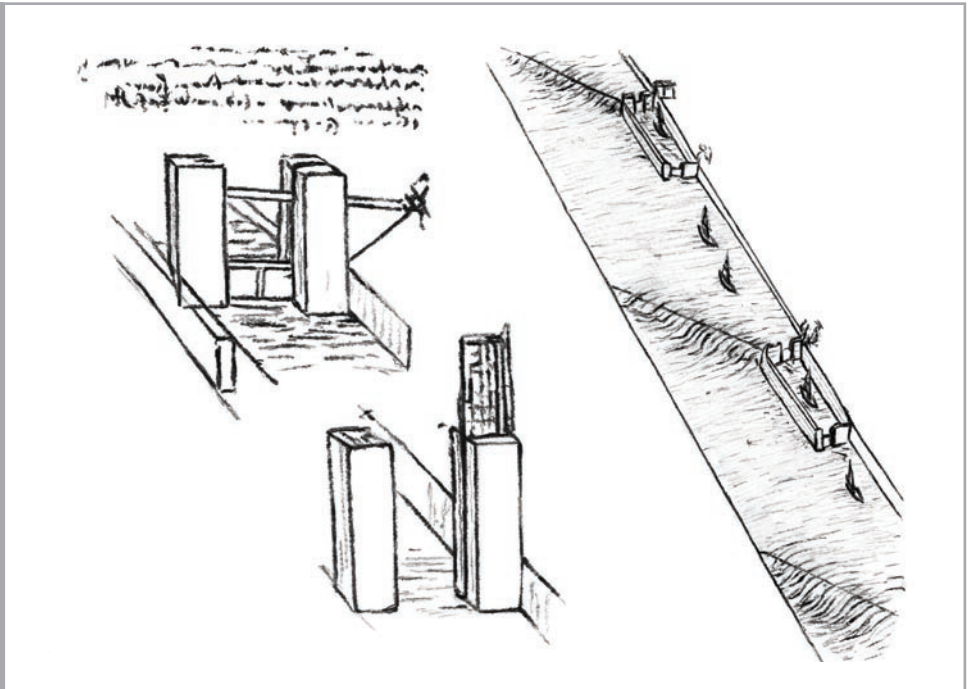
Water is the driving force of all nature.

Leonardo da Vinci | Artist and inventor, visionary and engineer

 **KISTERS**
Pioneering Technologies.

When rivers become waterways.

Leonardo da Vinci dedicated much of his time to the investigation of piloting ships and irregular currents. In 1508 he planned to make the Adda navigable up to Lake Como, in spite of a substantial gradient. He designed the chamber lock: a double-gate system with lowerable wooden cross beams. The system with its variable pressures allowed boats to be raised and lowered. His invention was the prerequisite for the connection of rivers and channels in 15th and 16th century Central and Western Europe.



Optimum efficiency and quality in hydrological data management.

Effective and intelligent support brings you decisive advantages through specialised software solutions in the collection, processing, quality control, evaluation and publication of data from hydrological measurement networks. With WISKI, we provide an information system that meets all requirements for editing data in hydrological measurement networks at the highest level and scope. The range of use encompasses all areas of hydrology.

WISKI collects various quantity and quality parameters from the surface water (inland and coastal), groundwater, hydro meteorology and urban hydrology environmental study fields.

Measured data from various observation areas are collectively archived, processed in graph and table form, analysed, evaluated and presented. Broad configuration options offer comprehensive displays of all work steps within your measurement network, as well as in your calculation and evaluation processes.

Archiving and management of measured data

Measured data from different sources can be archived and managed directly:

- Automatically and manually recording measuring devices
- Remote calls
- Manual data collection carried out during observation and checking trips
- External data
- Data archives
- Digitalisation

WISKI provides cross media availability for all relevant parameters, e.g.:

- Relative and absolute water level
- Discharge
- Velocities
- Water and air temperature
- Precipitation
- Qualitative quality parameters, such as conductivity, pH value, cloudiness and other chemical-physical parameters
- Measuring point height and ground level elevation (including history management) etc.

Self defined parameters can be added by the user.

All standard hydrological basic data is managed in concise basic data sheets (tabs). All measured data is stored systematically, continuously and centrally in a single database.

Discharge measurements are generated and evaluated (BIBER), and rating curves are adapted, validated and updated (SKED). WISKI offers an extraordinarily high level of data security, as original raw data is always maintained within the system. The processing and evaluation of measured data is always carried out on copies of the raw data. The GUI (graphical user interface) facilitates day-to-day operations with your data. Measurement network structures of any complexity are arranged in clear hierarchical structures - including your specific data set.

Collection of measured values

WISKI offers optimised tools for all means of data collection:

- Automatic remote data calls via telephone, GSM, FTP, Internet (SODA)
- Digitalisation of analogue recordings (gauge charts, precipitation sheets) (DIGIT)
- Reading of field devices and data loggers
- Optimised and adapted portable recording masks
- Web interfaces
- Extensive automated import routines and formats
- Copy & Paste from other applications
- Option for direct graphic visualisation / online monitoring of incoming data

All collected original data is archived as read-only data in the central database. Any user can access the data at any time.

Validation of measured data

Sophisticated graph and table tools (e.g. the outstanding graphical data editor) are available for validation checks of your data, i.e. observation, processing, and correction. Your measured data can be passed through automatic or manual tests and plausibility checks as it is read into the system.

The following are among the available test criteria: limit value, distance, gradient (time or value difference), completeness, periods (over/undershot of admissible drawdown values at certain times/periods), calibration (daily, monthly, annual) and own check algorithms (formula editor). Furthermore, a commenting system and Quality Flag System with information on data quality, processing status, time and the way the work was carried out are also a part of the functions offered by WISKI. Status monitoring mechanisms with an alarm function are also available.

Assessment and analysis of measured data

WISKI offers a multidisciplinary system with comprehensive hydrological and meteorological evaluation tools, which can be used to analyse your measured data (e.g. double mass analysis or data validation in the gauge triangle). Powerful calculation, analysis, visualisation, reporting and import/export functions are available for the assessment and analysis of data.

Internationally standardised statistical and evaluation procedures and calculation rules (e.g. extreme value statistics, duration curves, trend analyses, long-term values) are integrated. WISKI is capable of carrying out comprehensive linear and multiple regression analyses across several segments and types. You can also integrate your own calculation algorithms by associating formulae with your data (e.g. calculation of representative flow

velocity from locally measured velocities of an H-ADCP). An internal programming interface is available for project specific extensions.

Presentation of measured data

Several tools are available for the presentation of your measured data.

Complex evaluations (e.g. graphs and reports) can be generated directly through the graphical interface.

- Automatic and manual generation of graphs and reports for arbitrarily selectable time periods (ex. monthly and annual reports)
- Forwarding, processing and integration of data or assessments in external formats (e.g.. MS Excel, PDF, RTF, BMP, JPG, PNG) or in any type of document (e.g.. Word file) is available.
- Evaluation according to different national rules and standards, e.g. German Guideline for Water Gauging and Discharge Measurements (Pegelvorschrift) or German Hydrological Yearbook Guideline, ISO-standards or USGS guidelines
- Direct interface for Web display (internet and intranet)
- Spatial evaluation through a direct connection to your Geographic Information System (GIS), for example for the generation of spatial interpolated precipitation or the current status of your measurement network

Technical Integration and Maintenance:

- Modular client-server application
- Highly reliable backend through deployment of professional data base systems (ORACLE, MSSQL)
- Multi-user system
- RDBMS security routines and maintenance routines

- Scalable integration (RDBMS server, terminal Server)

Professional Project Management

- Technical system integration
- Data migration from legacy systems
- Knowledge transfer and tailor-made training
- Project teams from hydrologists and IT-specialists

Advantages of operative processes

WISKI automatically meets legal requirements for the collection and publication of data, which is required in order to evaluate current predictions for water budgets, with consideration of the increasing number of measurement points to be monitored (locations, positions), and of the increasing demand for information and the need for higher precision and better quality control. The increasing demand for data from environmental compatibility studies, flood protection, dry and drought analyses, as well as studies on climate change, river area and dam management can be easily met.

WISKI is a central, optimised solution for management and especially analysis and archiving of all relevant data with regard to an extensive hydrological network. The system meets process requirements for hydrometric activities, and guarantees collective data maintenance of quantitative hydrological and water quality data in one archive.

Work processes and company processes are automated and optimised.

Support and maintenance expenditure is reduced. Central data storage provides cross-organisational access.

An engineer to measure time.



All through his life, the subject of measuring time was one of Leonardo da Vinci's greatest challenges. He was a born mechanical engineer, and dedicated a lot of attention to the "engine" and energy transmission in clocks. All his basic inventions in the area of spiral gears, mechanical couplings, complex screw transmissions and especially his research in the field of spring driven mechanisms are today components of numerous machines, even in some of the smallest of mechanical watches.

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