The Role of Time-Series Management in Hydrology
The KISTERS Objective.

The effective management of the resources water and energy as well as the improvement of air quality are the key challenges of our and future generations.

KISTERS, being a company specialized in environmental informatics, develops and distributes software solutions for resource management as well as for environmental protection and safety.

KISTERS IT-solutions play a key role in the successful achievement of these goals, today and tomorrow.
A Company with Sustainable Growth.

- Acquisition of EUS GmbH – decentralized power generation and renewable energies
- Acquisition of deneg GmbH – optimization methods and process control systems for energy management
- Acquisition of Hydstra Australia and North America – worldwide resource management
- BelVis. Software for Europe’s deregulated energy market
- Acquisition of the EHS department of Siemens-Nixdorf
- WISKI. The first hydrological software with database-based time series management
- First software for the digitization of water level data
- The engineering company KISTERS for hydraulic engineering and water management
The KISTERS Group.
A Firm Basis – 1.000 B2B Customers.

Water management

Energy market
Hydrological data management processes...
Hydrological Management

**BIBER**
Discharge measurement and evaluation

**SKED**
Rating Curve Editor

**WISKI WQM**
Water Quality Extension

**STATISTICS**
Statistic Package

**DIGIT**
Digitisation of time series from chart recorders

**SODA**
Telemetry system

**WAM**
Alarm Manager

**WSP**
Service Provider

**ArcGIS Ext.**
Setting point data into spatial context

**WCS**
Calculation Server

**Kisters WEB**
Data warehousing

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Discharge measurement evaluation using BIBER

Vertical management

Rating Curve Comparison

Velocity distribution

Cross Section
Precip radar information as raster time-series
ArcGIS-Extension
ArcGIS Extension

New tree navigation with direct access to time-series storage
Retrieve temporal data into ArcGIS

selected subsets are integrated into file-based GDB to be used in CHARTs or Tracking Analyst, spatial analyst, ...
DATA SOURCES

KISTERS TSM Storage

Using Various protocols: (s)ftp, http(s), gprs ,gsm, radio, satellite, tcp/ip, filesystem

- Datalogger: ... ~100
- Data formats: ... ~150
- Manual input
- DIGIT
- BIBER: Discharge Measurement
- WebServices WaterML: ~20
- Databases ArcHydro, ODM: ~15
Hydrological Stations and Data Loggers

**protocols and raw data formats** of remote call stations and dataloggers:

| BAI (D) | Comtex (D) | Gesytec (D) | Läufer (D) | Hoffmann Messtechnik (D) | OTT (D) | Quantum (D) | SEBA (D) | Theodor Friedrichs (D) | Thies (D) | W.A.S. (D) | Logotronic (AT) | SAT (AT) | Sommer Messtechnik (AT) | Kern (CH) | Rittmeyer (CH) | MTX (IT) | CPL (F) | Amass Data (US) | CDI (US) | Delta–T Devices (US) | Enviro Labs (US) | Sutron (US) | Telemark (US) | Campbell (UK) | Grants Datataker (UK) | Hydrological Services (UK) | Mace (AUS) | Mindata (AUS) | Unidata | Valcom |
DATA EXPORTs & Access

**APIs:** Basic, JAVA

**Data formats:** ... ~150

**Reports in PDF, BMP, XLS, ...**

Using Various protocols: (s)ftp, http(s), tcp/ip, filesystem

**KISTERS TSM Storage**
The new hydrometric archiv

- 500 river gage
- 1000 climate stations
- 300 snow courses
- Fail-safe infrastructure (two locations)
- 5-10 concurrent user
- 50-100 web user
Case Study: Environment Agency, England

The new national hydrometric archive of England and Wales

The **HARP** Project of the Environment Agency

- ~50,000 stations
- 300 concurrent user
- 600 maximum user
- 230 GB national archive

Pictures are taken from the EA web site
Benefits

- **Central database** means reduction of costs for hardware and software maintenance.
- **Improvement of data quality** by uniform procedures and central quality controls.
- **Increase of productivity** by automation of workflows and provision of an integrated seamless solution.
- **No staff increase**, by growing work load.
- **Bring back topics into daily work** by using "ready-to-go" techniques.
- **ROI after 2,5 years**.
- **Availability of**: training, consulting, maintenance, support, continuous enhancements, online-help, use-case descriptions.
Selected References

Resources water & air
- Bavarian State Agency for Water Management, Germany
- Coca Cola Germany
- DDE Dordogne, France
- Hydro Tasmania, Australia
- Ministerie van de Vlaamse Gemeenschap - AMINAL, Belgium
- Ministry of Natural Resources, Ontario, Canada
- Ruhr Association, Germany
- Shanghai Pudong Hydrology & Water Resource Administration, China
- Swedish Meteorological and Hydrological Institute, Sweden
- Tyrol Gydro Power, Inc., Austria
- German Federal Waterways and Shipping Administration, Germany

Energy
- BS|Energy, Germany
- Cegedel, Luxemburg
- E.ON Mitte AG, Germany
- E.ON TEAG, Germany
- ENDESA Italia, Italy
- Enel.it S.r.l., Italy
- MVV Energie AG, Germany
- N-ERGIE AG, Germany
- rhenag Rheinische Energie AG, Germany
- RWE Energy AG, Germany
The Reasons for our Success.

- Innovation thanks to our interdisciplinary team of computer scientists, engineers, natural scientists and hydrologists.
- Technological advantage over the international competition
- Good scalability of our solutions
- Our quality guarantee - for secure, load resistant systems
- Close customer relationship due to regional and international subsidiaries
- From product concept to the implementation – all services from one source
- Leading position in Germany, international acknowledged expertise, unique expertise in time series management
- Sustainability as a business goal
Thank you for your interest!

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