Hydrometeorological data acquisition, management and analysis for the Athens water supply system

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Topic: *Information systems for decision support and technologies* Session: ***A***

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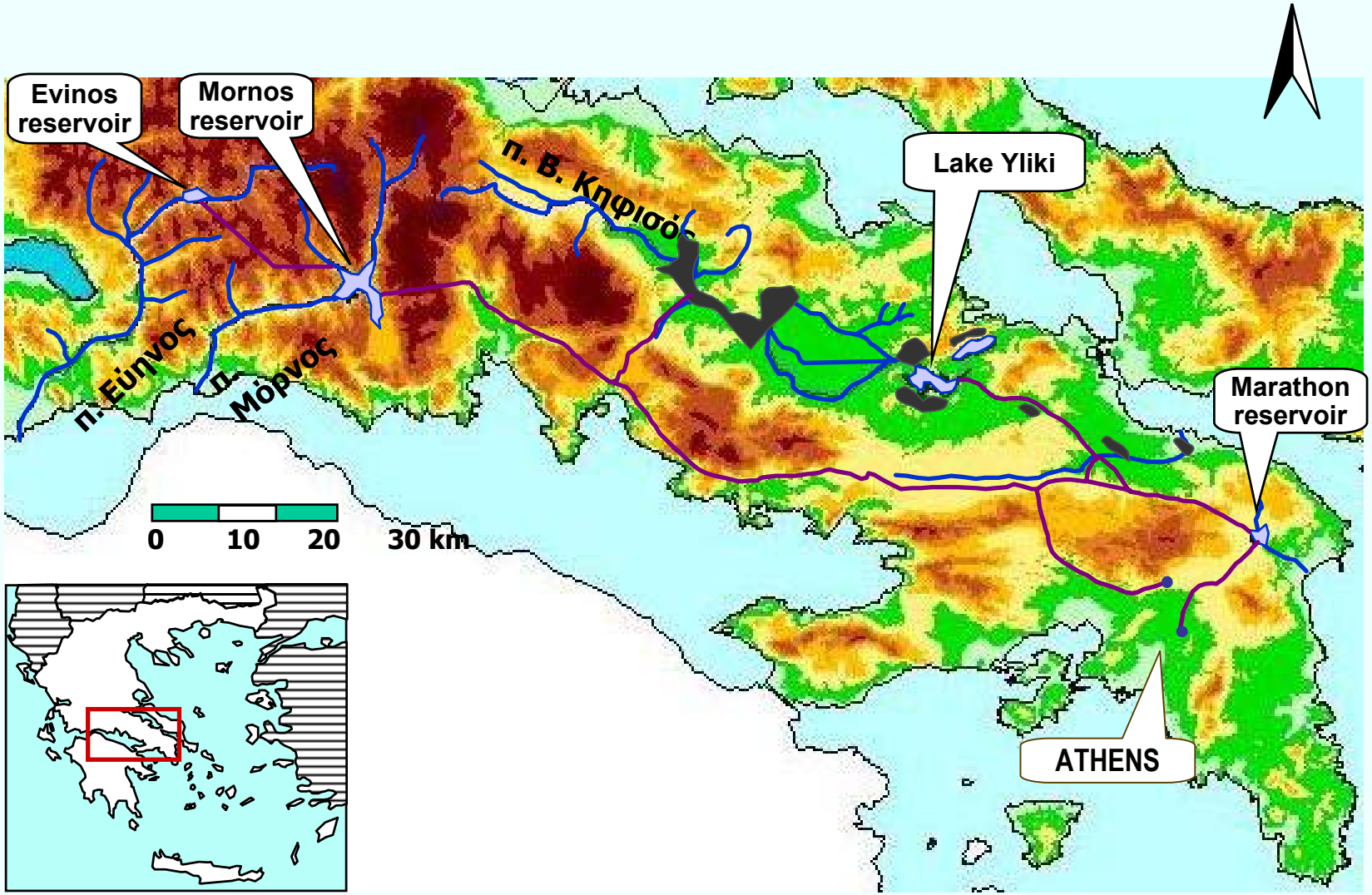
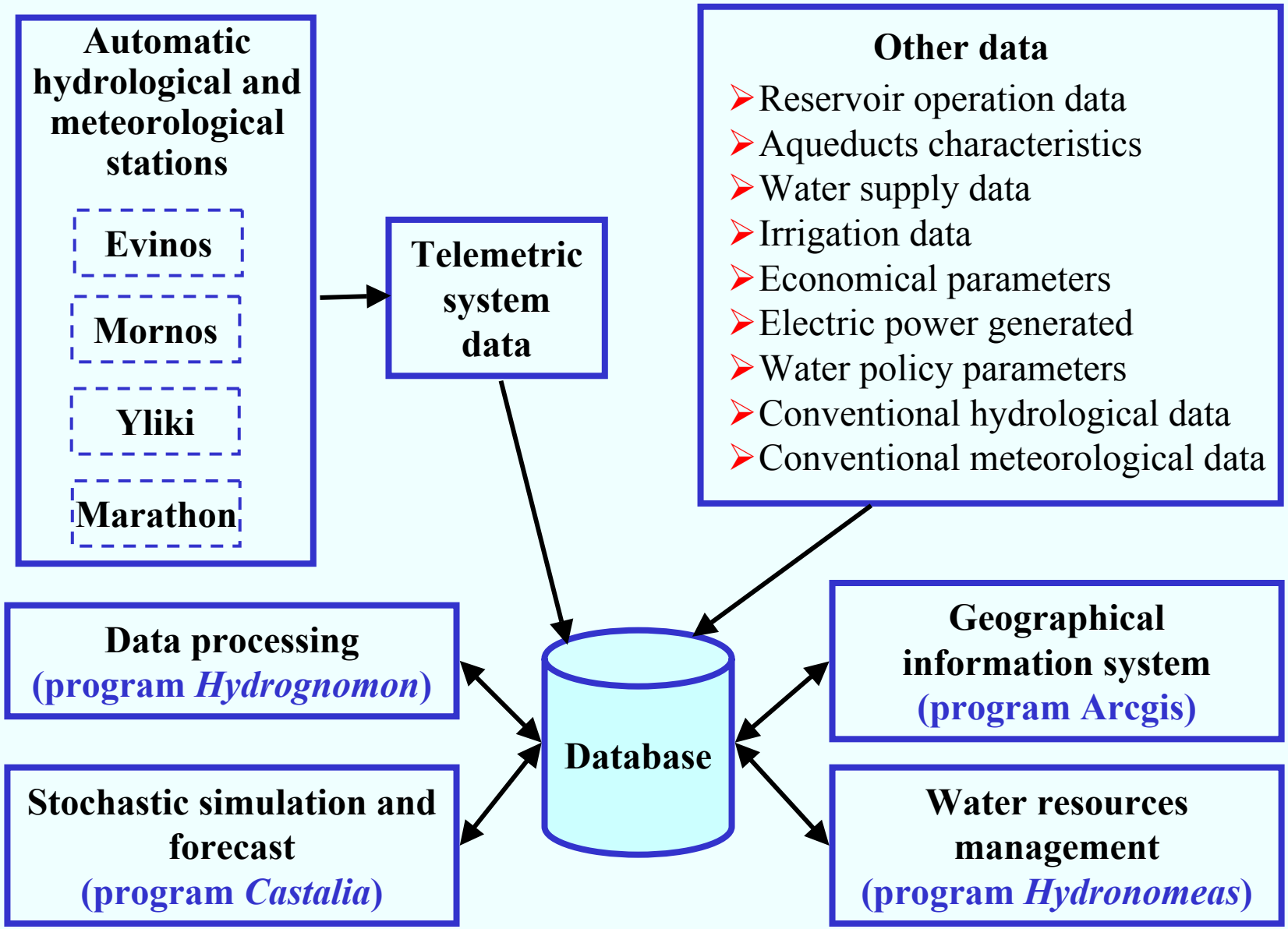
Elements of the Athens water resource system



General scheme of the Decision Support System

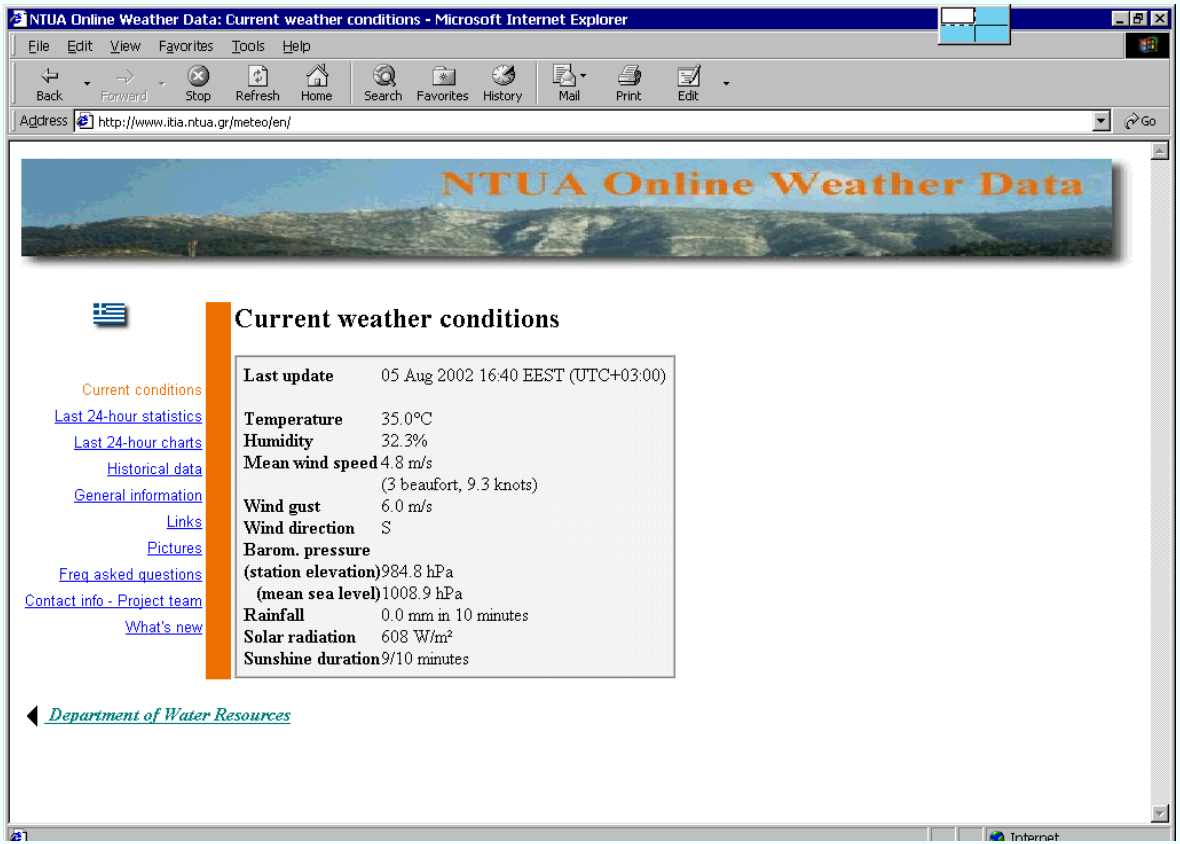


Main purposes of the telemetric system

- Feeding of the Decision Support System with reliable data
- Quantitative inspection of the water resources of the catchments that contribute to the water supply of Athens
- Improvement of the estimation of the parameters involved in the reservoirs' water budget
- Exploration of the hydrological and climatic characteristics of the study area after compilation of reliable time series of hydrometeorological variables
- Supply of hydrometeorological and water availability data in real time on the Internet for public awareness

Existing infrastructure

Experience from the 11-year operation of the telemetric station at NTUA Campus



*Current conditions *Last 24-hour statistics *Pictures *Last 24-hour charts *Historical data
*What's new *General information *Links *FAQ *Contact info-Project team

Positioning of the stations

General criteria

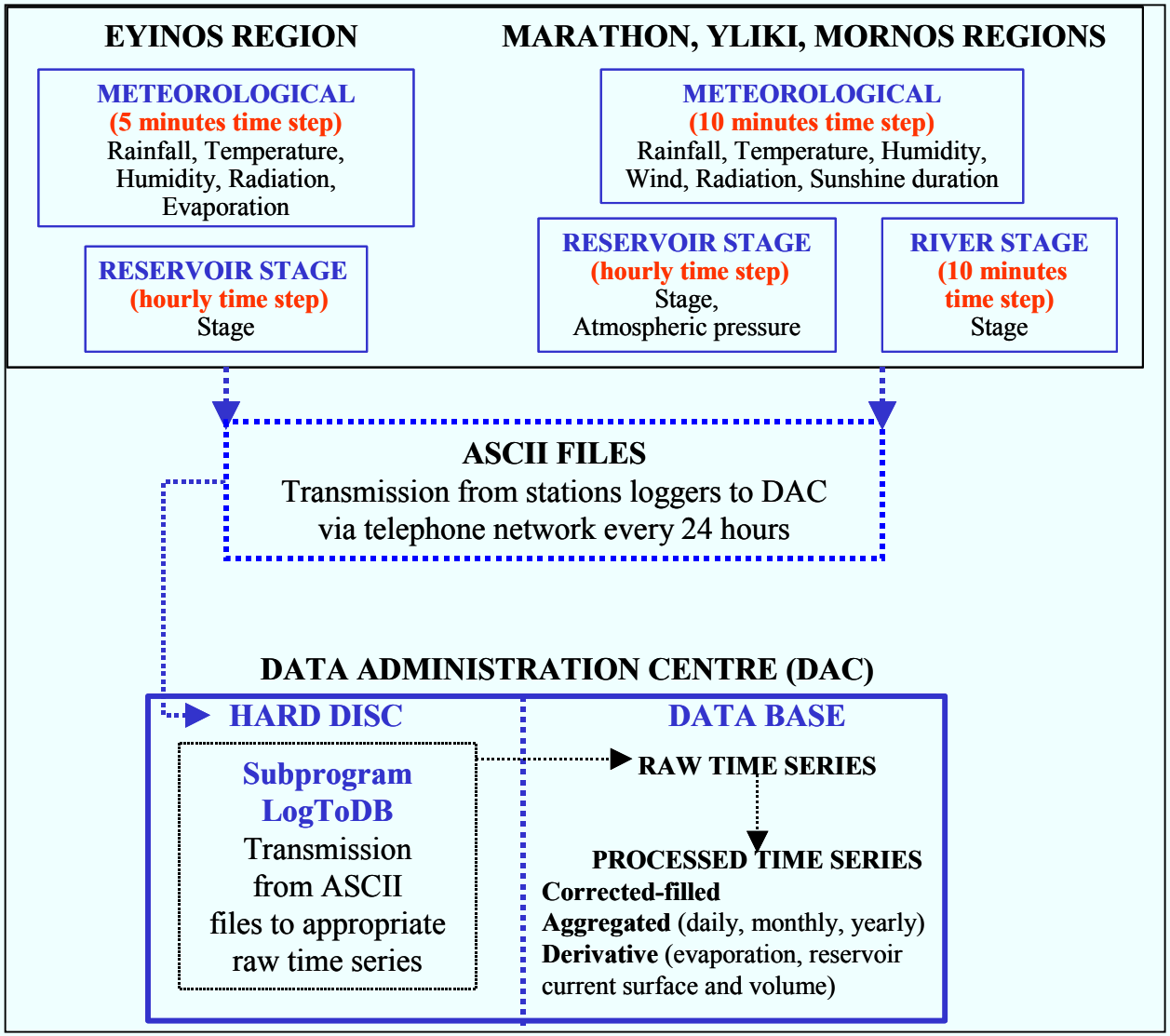
- The sites should be hydrologically appropriate and fulfilling the WMO specifications
- The sites must be near to facilities (dams or water pumping stations) in order to ensure the safety of the station and the availability of electricity and telephony
- The sites of meteorological stations must be close to the maximum reservoir elevation in order to be as representative as possible for the variables that take part in the reservoir's water budget
- The reservoir stage stations must be installed at the deepest point in the reservoir (but above the dead storage)
- The flow measuring stations must be as close as possible to the dams (above maximum reservoir elevation) in order to measure the maximum portion of inflow to the reservoir

Procedure

- Bibliographical review (using previous reports for candidate sites and using WMO specifications)
- Visits to the candidate sites (ensuring the participation of experts and local personnel, making record of specific site characteristics and taking photos and videos)
- Comparison of different characteristics (hydrological suitability, security, availability of electricity and telephony, ease of installation)

Data management and processing

General scheme of telemetric data acquisition



System functions

Automatic storage of telemetric data

Organised viewing and management of various information

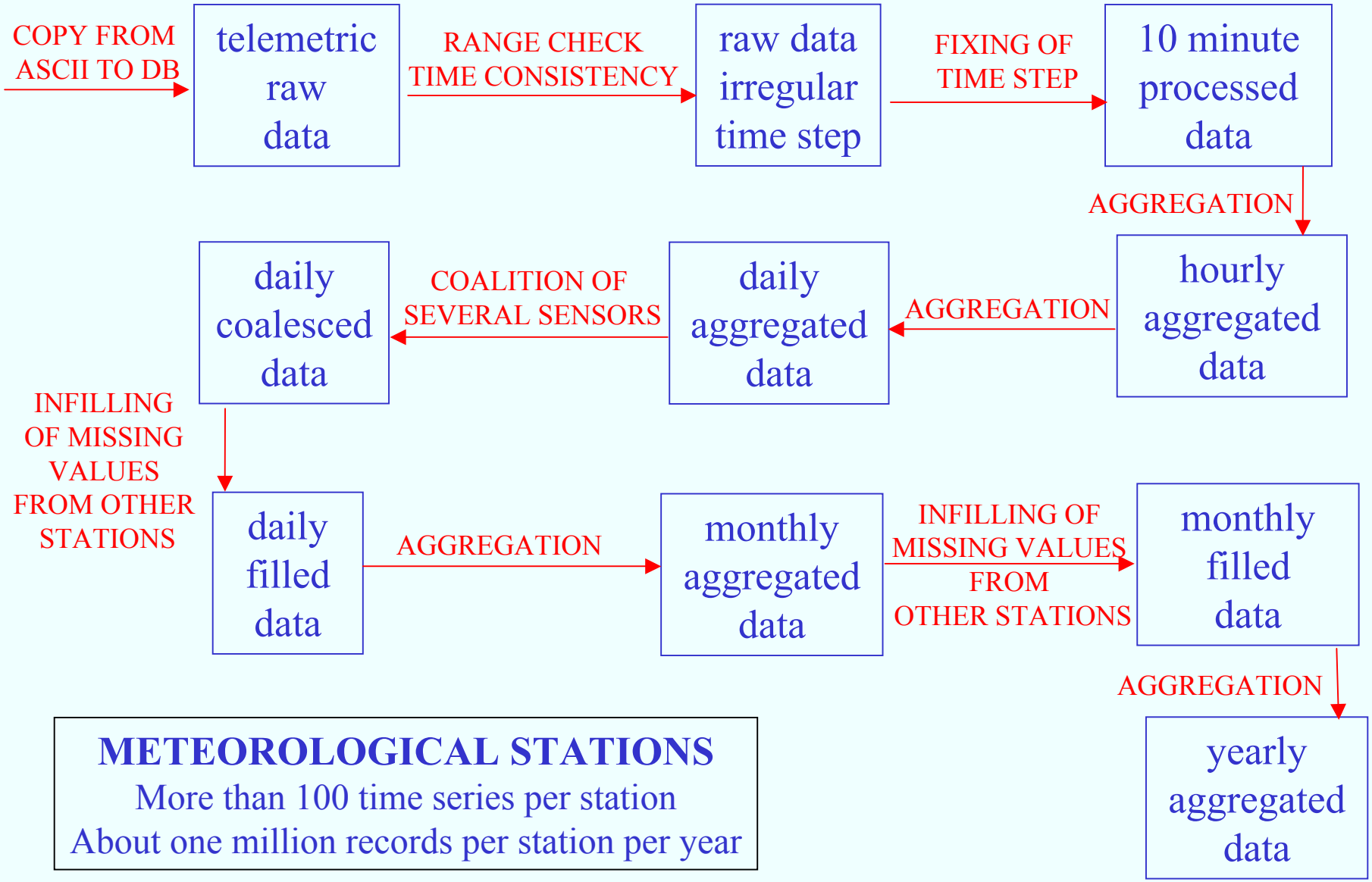
- station-instrument characteristics
- time series
- multimedia

Data processing module

- range/time consistency check facility
- fixing of time step
- infilling of missing values
- time series aggregation
- double mass analysis
- construction of stage-discharge curves
- calculating derivative time series (evaporation, discharge)
- statistical analysis

Data management and processing

Time series manipulation



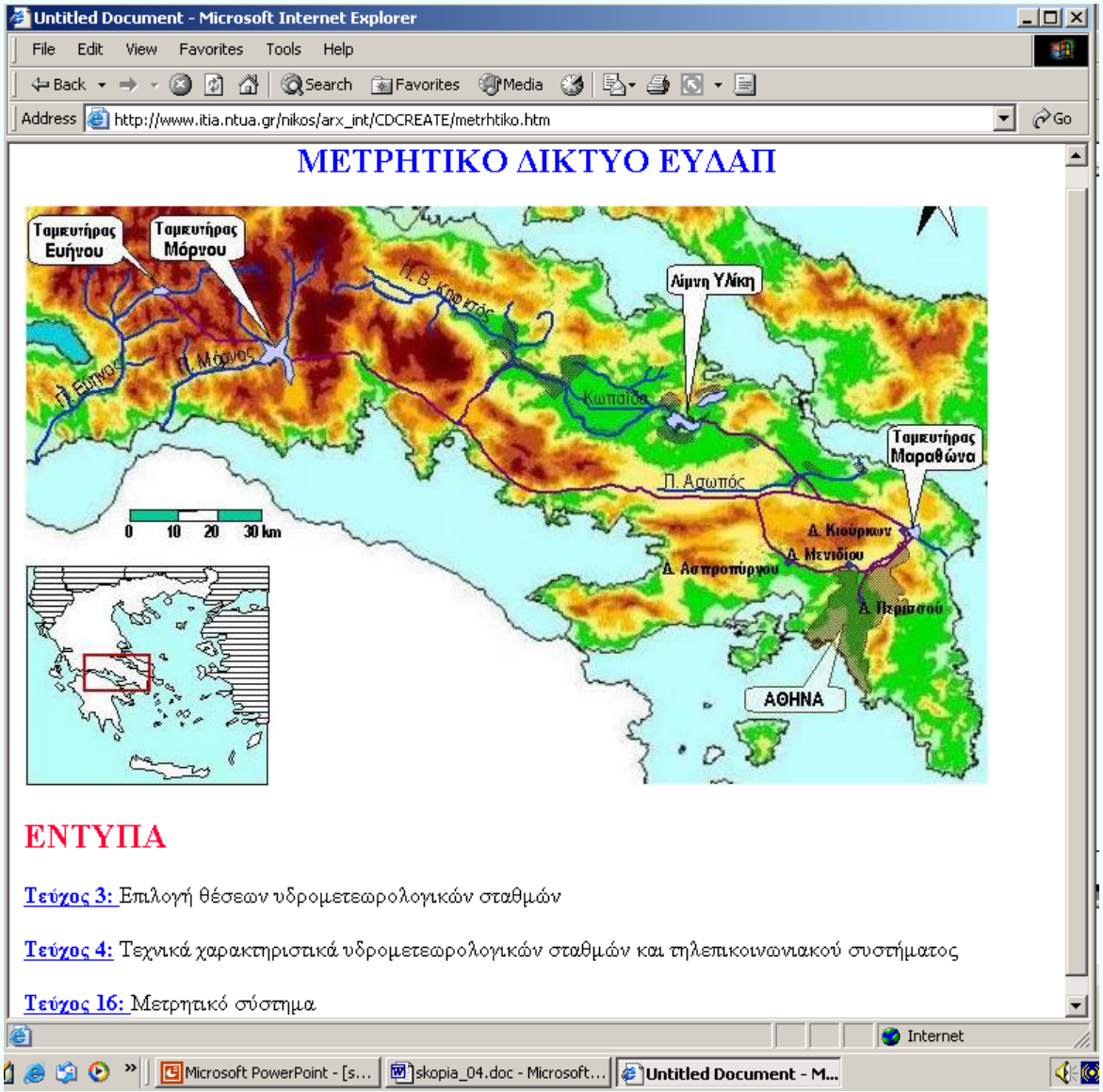
METEOROLOGICAL STATIONS

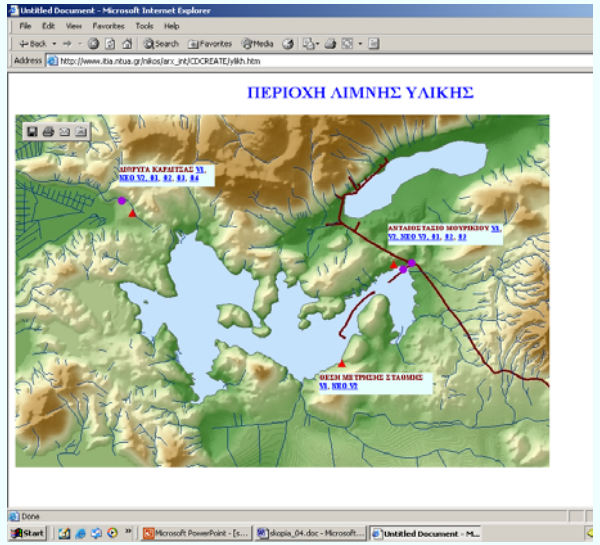
More than 100 time series per station

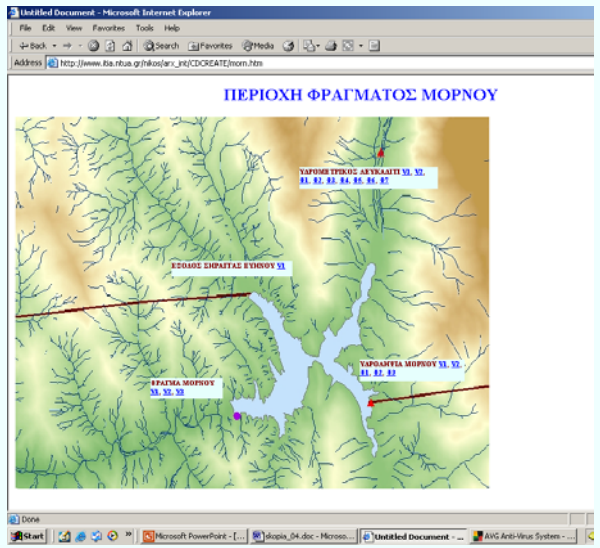
About one million records per station per year

Internet application (actually in Greek)

http://www.itia.ntua.gr/nikos/arx_int/CDCREATE/metrhtiko.htm







Related current project: "ODYSSEYS"

Project title:
Integrated Management of Hydrosystems in Conjunction with an Advanced Information System ("**ODYSSEYS**")

Project aim:
Development of a commercial software package