alphecca systems

Environmental data acquisition for the global network

ARTEMeS©

A Real Time Environmental Measurement System

Specifications

Architecture

ARTEMeS is a global, distributed, web-based, real time measurement and display system for environmental data built on commercial servers.

Data storage and control system	MySQL™ 5.5
	Oracle™ 10
	™ Oracle and MySQL are trademarks of Oracle Corporation
Web server	Apache Tomcat© 6.0
	© Tomcat is copyright Apache Software Foundation
Programming language	Java®
	® Java and the coffee cup logo are registered trademarks of Oracle Corporation
Software technologies	JDBC, JSP, XML, XSLT, CLDC, MIDP

Acquisition

ARTEMeS accepts data for acquisition presented in a number of different formats.

Direct HTTP via LAN	Devices connected to ARTEMeS using a dedicated program. CLDC J2ME-equipped microcontrollers directly interface instruments to ARTEMeS. Complex post processing performed on PC with results re-acquired to server
Web page	User observations entered on a web-based form
GPRS	Remote device connect to ARTEMeS directly using GPRS modems programmed with custom ARTEMeS firmware.
SMS	Data from remote instruments encoded and sent as 140-character SMS

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Iridium SBD	Data from extremely remote instruments delivered as Short Burst Data using Iridium satellite network
FTP	ASCII-encoded files from other systems are sent by FTP or HTTP Post request
ARTEMeS chain	ARTEMeS servers chain together to provide redundancy and flexible network topologies
Server-side acquisition process	All acquisition includes automatic server side pre-processing for calibration correction or application of complex software algorithms

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Data access

ARTEMeS provides access to acquired data via web pages and specific tools.

Language	Multilingual displays allow data to presented in different languages simultaneously
Character encoding	UTF-8
Display technology	Highly interactive Java graphic components with servlet communication implemented as Applets (deprecated) Web-launched applications Server-generated images
Displays available	Point values Time series Geographical Spatial timeseries 3D current profiles 2D scour transect Image timeseries Hexadecimal table Text field Numerical tables Coloured profile time series Others in development
Metadata	Includes geodetic position, instrument, timezone, project, parameter details, display formats and units
Time Zone	Project-specific, independent of user's PC
Downloader tool	Web-launched Java application provides Excel™-compatible files for user post-processing

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XML/XSLT Query	HTTP requests allow customised data output for external machine processes or input to other systems
Timed export tasks	Server-controlled tasks trigger complex external processes such as automatic fax or document generation
External devices	External devices access data and perform hardware-dependant tasks

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Security

ARTEMeS is a secure system requiring authorisation for all transactions.

Acquisition	All ARTEMeS-originated acquisition data are protected with CRC and password
Web page access	Access to project web pages controlled by user login credentials Login status held in server session
Data access	All requests for data require server-allocated user code and sequential pseudo-random security key
Database security	ARTEMeS database is a part of three-layer architecture with no direct access from public network No user input passed into database queries

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History

ARTEMeS has been operational since 2004.

Countries where ARTEMeS has been used	Cameroun France Hong Kong Indonesia Kazakhstan Malaysia Nigeria	Norway Saudi Arabia South China Sea Turkmenistan United Kingdom United States Yemen

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Project types

Bathymetric correction
Dredge monitoring
Environmental compliance
Meteorological
Offshore construction
Oil and gas
Renewable energy
Port construction
Soliton detection

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