## General Description

YESDAQ software for MS-Windows NT/2000/XP supports the collection, database storage and web presentation of instrument data. It lets TSI and RSS users both view and analyze historical data. YESDAQ fully automates the retrieval, processing, and display of data from one or more instruments via the Internet. It supports data collection from multiple

- TSI-880 Total Sky Imagers
- Rotating Shadowband Spectroradiometers
- Automated Radiosonde Launchers
- Vaisala Model CT-25K ceilometers

YESDAQ is designed to meet the needs of the professional meteorological environmental data collection network. It is built around sophisticated standards such as TCP/IP networking for communication with remote systems, helping you leverage your organization's existing Internet communication infrastructure. Because it automates all data collection and presentation processing, it frees you to perform the important tasks of data analysis and interpretation.

Features

- Schedule-driven instrument data collection
- Web server component that provides display to users via a web user interface (WUI)
- Advanced MySQL^{TM} open source database
- Supports large and reliable data storage capacity via the NTFS file system
- "Clientless" web browser interface permits administration from anywhere on the Internet
- ODBC driver allows export of live data to 3rd party MS-Windows user programs
- Native C, Java JDBC and Perl interfaces
- Data re-processing services supports re-analysis of stored data using alternate algorithm settings
- Data replication services permits multiple YESDAQ databases to be synchronized across TCP/IP links, or via a static CD-ROM file system "snapshot image"
- On-demand animation of TSI data via quick view anmations or day-long MPEG-1 movies
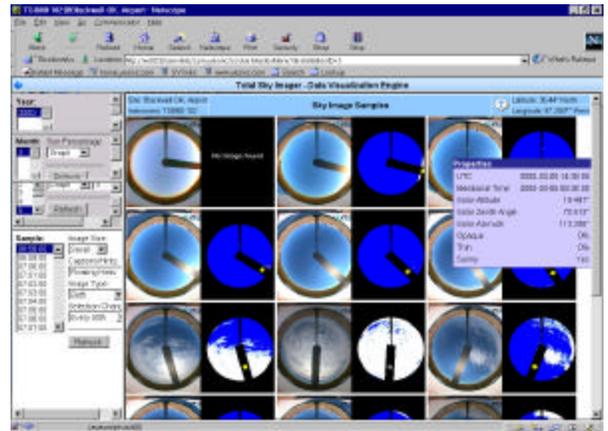
YESDAQ/DVE Showing TSI data via the web.

Applications

- Numerical Weather Prediction model input
- Remote environmental monitoring
- Surface transportation weather
- Long term environmental research
- Physical security and site monitoring

Core Database Technology

YESDAQ is standards-based and uses non-proprietary components including SQL and the Apache web server. In this era of rapid technological change, you can trust your data to YESDAQ and its underlying open source database technology. YESDAQ's architecture rests on a powerful MySQL^{TM} database. The database is open source technology and thus well-tested and supported. It is also expandable as your network grows and you never have to worry that your data are locked up in some "proprietary format".

YANKEE ENVIRONMENTAL SYSTEMS, INC.

Data Visualization Engine

On top of the MySQL™ database sits the *Data Visualization Engine* a layer that permits rapid viewing of stored data for supported instruments. YESDAQ can support hundreds or thousands of remote stations. The DVE provides end users with "self-service" rapid access to data both visually as graphs and as ASCII tables. (For a live demo of this technology please visit our web site at http://www.yesinc.com/)

Data Management

Managing many sites for an extended period of time can create a large data file repository of many GB. At that size data management issues become significant. YESDAQ system logs store errors that can arise from misconfigurations or periodic TCP/IP communications link problems. Data pruning can also be performed to either migrate data to tape or permanently purge it from the database.

Automated Data Collection Links

Instrument data needs a pathway from remote systems into the central YESDAQ database. With the rapid growth of the Internet, TCP/IP provides a reliable and flexible solution and eliminates problems inherent with telephone modems (dropped connections, garbled data from random line noise, etc.) YESDAQ relies upon TCP/IP communications agents, called *links*, to periodically poll remote instruments via the Internet. Each link type is licensed to a specific instrument; YESDAQ installation ships with at least one link, but you can add more as your network of instruments grows. A sophisticated scheduler that can handle the collection of multiple remote sites simultaneously drives the collection engine. As data files are gathered, each is automatically checked for truncation or other common transmission errors. A retry is performed if any errors are encountered. Data are stored in SQL tables for later presentation, and depending on the site-polling interval, YESDAQ can present near-real-time data to remote users via the web.

DSM-Link

Remote sites that do not have Internet connections can be supported by the optional miniature solid state Data Storage Module (DSM). DSMs permit up to 420 MB of local instrument data storage and permit collection of data from remote sites over an extended period of time. They can be "hot-swapped"

from running instruments and brought to a network-connected laptop or desktop PC equipped with a PCMCIA Type I or II slot. Once a DSM is inserted in the PC, DSM-link software transfers data directly to a YESDAQ database (which can be installed on the local machine or anywhere on the Internet). DSM-link then clears the DSM module for reuse; several DSMs support round-robin use in networks where technicians can only visit remote sites periodically.

DVE-produced daily MPEG movie of TSI images

System Requirements

- Operating systems NT4, 2000 (pro), XP (pro)
- 200 MHz (or faster) CPU, 128 MB RAM
- Storage: NTFS with fast disk subsystem. Depending on how many instruments you plan to support, disk storage requirements will vary, e.g. 30Mb/day for a TSI-880 or RSS
- Networking: TCP/IP Ethernet; 10/100BaseT
- Backup: Network tape backup is mandatory. Use of St. Bernard's Open File Manager is highly recommended.
- DSM slot: PCMCIA type I or II slot (this slot can be located on another networked PC)

Note: Although the MySQL™ database itself is open source, it is licensed by YES to a specific end user. YESDAQ itself is not sold under the open source license.

YANKEE ENVIRONMENTAL SYSTEMS, INC.

Network Layout and Architecture

Internet

Internet

TCP/IP Port 80

Apache Web Server

TCP/IP Port 8007

Servlet Technology			Your custom Java applications	MSExcel, MSAccess, Matlab, SPlus, etc.
YESDAQ	TSI-DVE	DVE Modules		
JDBC				ODBC

TCP/IP Port 3306

MySQL Database Server

TSI-880

RSS

YESDAS Manager (MFR, UVMFR, SPUV, ...)

Other

YESDAQ Database

Web, ODBC, and JDBC links

YESDAQ Database

Web, ODBC, and JDBC links

Data replication

YESDAQ Database

Web browser link

ODBC link (MSExcel, MSAccess, Matlab, SPlus, etc.)

JDBC link (your custom Java applications)

YANKEE ENVIRONMENTAL SYSTEMS, INC.
Airport Industrial Park
101 Industrial Blvd., Turners Falls, MA 01376 USA
Tel: (413) 863-0200   Fax: (413) 863-0255
E-mail: info@yesinc.com   http://www.yesinc.com