Data Management

Mapping

Cross-Sections

Borehole Logging

3D Visualization

Schlumberger
WATER SERVICES

Hydro GeoAnalyst

From Data Discovery to Project Delivery

Hydro GeoAnalyst

Project Delivery Redefined

In every team, each environmental expert performs unique activities that require specialized software applications. As a result, project managers are faced with multiple challenges when looking for ways to deploy the right tools for their staff and clients.

Hydro GeoAnalyst* (HGA), from Schlumberger Water Services (SWS), delivers a powerful, enterprise-class working environment for an entire team of environmental or groundwater professionals. What you get is complete control and understanding of your data so you can focus on delivering your projects faster.

HGA's Multi-Functional Approach

Whether entering and managing complex data, analyzing and visualizing information, or developing high-impact reports, HGA's dynamic multi-window environment supports each professional in your team, including:

- Field Technicians
- Data Entry Clerks & Database Managers
- GIS Specialists & Data Analysts
- Geologists
- Hydrogeologists
- Geochemists
- Hydrogeochemists
- Groundwater Modelers
- Reporting Clerks

"Hydro GeoAnalyst was able to complement our entire team from our data entry clerk to the Project Manager." -Sam Sunguro, Water Resources, Zimbabwe

The HGA working environment provides th deliver entire projects

MULTIPLE TASKS, ONE ALL-INCLUSIVE ENVIRONMENT

Perform flexible multi-format data imports; conduct powerful search queries; create detailed cross-sections, time-series, and borehole log plots. Hydro GeoAnalyst is the ultimate companion for professionals looking for robust, yet easy-to-use, integrated tools to manage, analyze, and report complex environmental and groundwater data.

Project Managers - Efficiently manage projects from inception to completion across multiple disciplines and job functions

GIS and Data Analysts - Easily import and normalize geographic and unit based data, make powerful queries, and map results

Geologists and Hydrogeologists - Bring field data to life with a complete set of subsurface characterization, mapping, and three-dimensional visualization tools

Geochemists and hydrogeochemists - Accurately explore sample data, assess data quality, and report findings

Groundwater Modelers - Quickly determine hydrogeologic layers and regional flow gradients for use in models

Reporting Clerks - Create unlimited report templates and quickly organize information for producing high-quality reports

With HGA you get complete control and understanding of your project data

QUALITY CONTROL & ASSURANCE, COMPLETE PEACE OF MIND

HGA's intelligent quality control an assurance functionalities provide you with unparalleled reliability and accuracy.

- Automatically validate import data
- Effortlessly identify and manage duplicate, spiked, and blank samples
- Accurately compare blank samples to method detection limits
- Quickly create metadata reports
- Display, retrieve, and save QA results on demand

SUPERIOR REPORTS, ENGAGING PRESENTATIONS

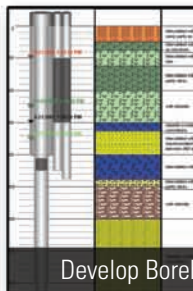Featuring advanced authoring tools, HGA lets you create more compelling reports and engaging presentations.

High-Impact Maps - Visualize water table elevations, recharge areas, and contaminant hot-spots in full color and with great detail

Seamless Graphs and Tables - Quickly generate time-series plots and cross-tab query tables

Precise Cross-Sections - Display geologic or hydrogeologic layers for accurate interpretation

Immediate Borehole Log Plots - Build your own or choose from a range of borehole log templates; graphically display your borehole logs; produce customizable log reports

Impressive 3D Rendering - Bring data to life with a breath-taking range of three-dimensional rendering and animation tools
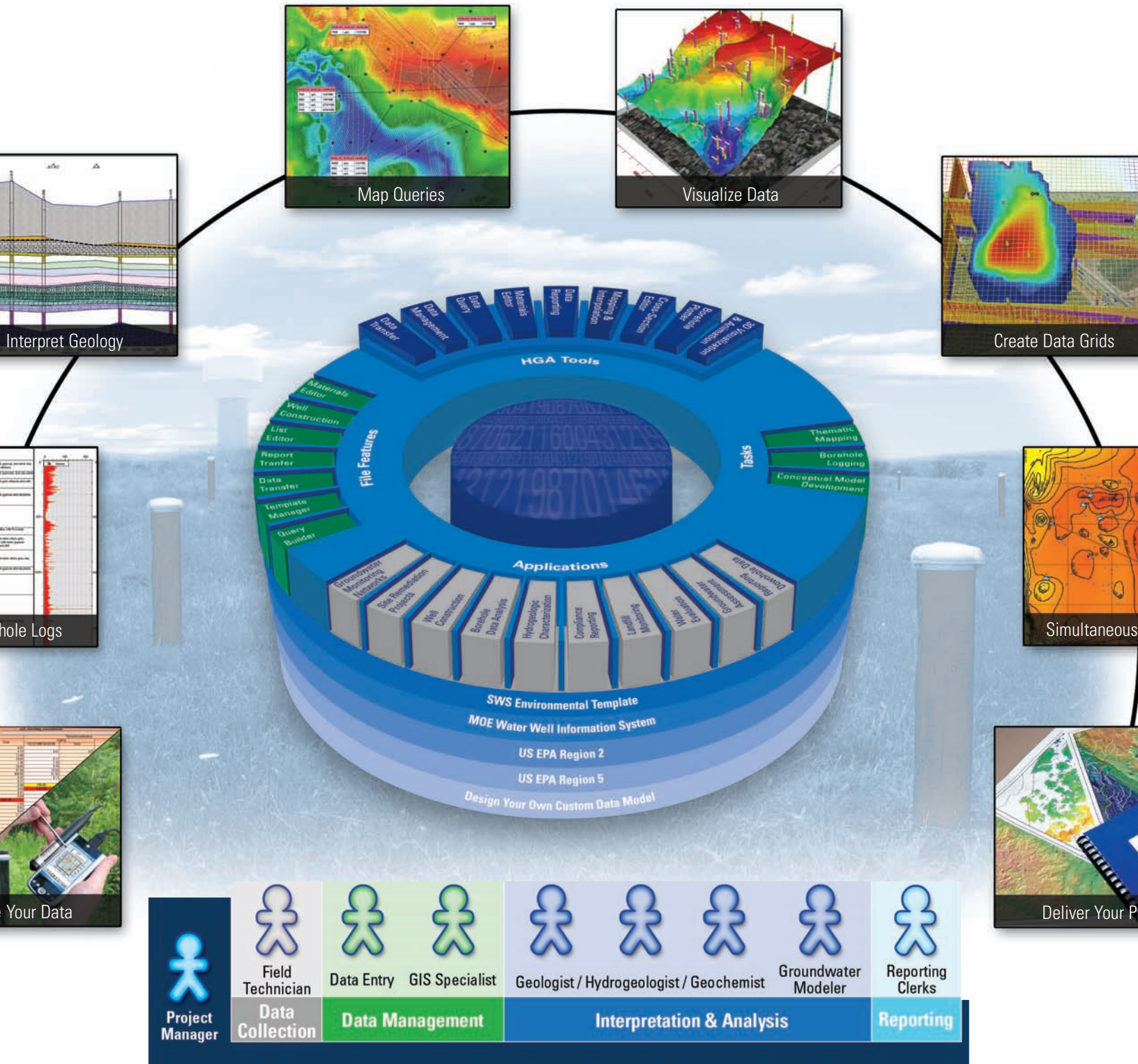
Develop Borel

Retrieve

me means to

Map Queries

Visualize Data

Interpret Geology

Create Data Grids

hole Logs

Simultaneous

HGA Tools

File Features

Tasks

Applications

Materials Editor
Well Construction
List Editor
Report Transfer
Data Transfer
Template Manager
Query Builder

Thematic Mapping
Borehole Logging
Conceptual Model Development

Data Transfer
Data Management
Data Query
Materials Editor
Data Reporting
Mapping & Annotation
Cross-Section Editor
Borehole Position
3D Visualization

Groundwater Monitoring Networks
Site Remediation Projects
Well Construction
Borehole Data Analysis
Hydrogeologic Characterization
Compliance Reporting
Liquid Boundary
Water Exploration
Groundwater Assessment
Reporting Download Data

SWS Environmental Template
MOE Water Well Information System
US EPA Region 2
US EPA Region 5
Design Your Own Custom Data Model

e Your Data

Deliver Your P

Project Manager

Field Technician
Data Collection

Data Entry   GIS Specialist
Data Management

Geologist / Hydrogeologist / Geochemist   Groundwater Modeler
Interpretation & Analysis

Reporting Clerks
Reporting

HGA provides a systematic approach to

HGA'S WIDE RANGE OF USERS

From government agencies to mining professionals, Hydro GeoAnalyst brings together a variety of tools widely used in multiple fields and areas of expertise.

Government Agencies – HGA offers powerful environmental assessment features to help authorities and legislators accurately define zoning and land use policies.

- Map environmentally sensitive areas
- Compare land use plans with existing zoning regulations
- Characterize subsurface environments, identify risks, and develop long-term water usage plans

Environmental Consultants – Engineers, hydrogeologists, and scientific experts now have a complete set of tools to satisfy the needs of their clients.

- Interpret and display accurate geologic and subsurface conditions
- Create complete soil and water reports for remediation sites
- Manage data from monitoring programs including water levels and concentrations

Water Supply Managers – Water professionals can efficiently address regulatory requirements to provide clean sustainable water.

- Map recharge areas and analyze regional water quality trends
- Create complete reports of water and soil concentration data
- Develop contingency plans in drought conditions

Comparisons

roject

Groundwater Modelers – Modelers can now enjoy an exceptionally flexible system for developing geologic models.

- Characterize the aquifer
- Define model layers interpreted directly from borehole logs
- Determine regional flow gradients and use as initial simulation conditions

Mining Professionals – HGA provides continuous data management to support mining operations including aggregates or deep ore extraction.

- Easily assess changes in water quality
- Complete subsurface interpretations
- Store site information including maps, roads, building layouts, etc.
- Prepare permits and compliance reports

PREPARING FOR THE FUTURE

Over time, most environmental projects are reopened, reassessed or further improved. Extracting information from legacy projects or obtaining new data can be challenging when the information you need is scattered in many places or saved in different formats.

HGA offers a systematic approach to storing, organizing, managing, and retrieving vital data for future use. That translates to increased flexibility and easy access to information right when you need it.

SWS, YOUR PARTNER

Working side-by-side with consultants, government agencies, and businesses around the world, we offer a range of consulting and monitoring services to support your unique project needs. Call us at **(519) 746-1798** and let us be part of your team. Visit us at **www.swstechnology.com**.
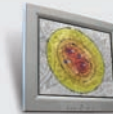
MAXIMIZE DATA EXCHANGE

HGA's flexibility let's you do more. Easily link HGA to a suite of leading software and instrumentation technologies.

Aqueous Geochemical Analysis

Connect HGA to AquaChem* and conduct in-depth analyses of water quality data. With a wide range of functionalities, AquaChem is ideally suited for projects requiring management, analysis, and reporting of aqueous geochemical and water quality data.

Pumping and Slug Test Data Analysis

Link HGA to AquiferTest Pro* and rapidly analyze pumping and slug test data. Designed to estimate the hydraulic properties of an aquifer, AquiferTest Pro offers the tools for accurately assessing confined, unconfined, leaky, or fractured aquifers.

Modeling and Simulation

HGA offers the ultimate combination of tools and capabilities to assist you in the preparation and management of data used in Visual MODFLOW Premium* and FEFLOW® models.
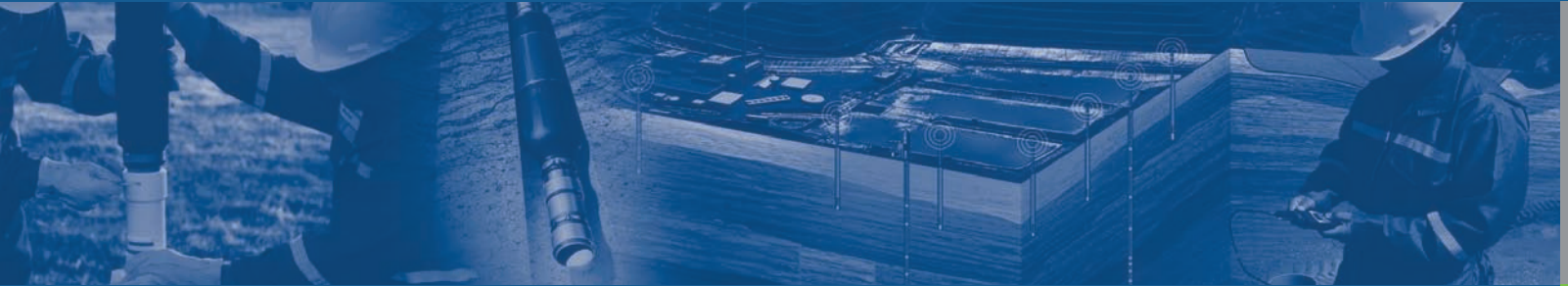
Groundwater Monitoring

Conduct in-depth groundwater investigations; produce advanced maps and reports; satisfy regulatory compliance requirements. Fully compatible with Diver* .MON files, HGA is an essential component of the Diver-NETZ* wireless groundwater monitoring network.

managing vital information for future use

Working as an integral part of your team, we offer several scalable solutions to meet your specific environmental needs.

HydroGeo Analyst Highlights

User Access Management
- Application Level - control permissions to features such as creating new projects, backing up and restoring databases, etc.
- Project Level - control access to individual projects and the various tasks (eg. data access, maps, queries, templates, etc.)
- Create and manage user groups (eg. create, edit, delete user groups, and add, remove, edit, users into existing user groups)
- Enforce access levels assigned to each user group

Data Transfer System
- Flexible data import including Text files (CSV), MS Excel™ (XLS, XLSX) MS Access™ (MDB, ACCDB), SQL™ Server
- Import data directly into pre-defined database templates for widely used environmental database schemas
- Quickly export data to various formats including text, spreadsheets, MS Access database, SQL Server
- Easy exchange of data between GIS and CAD environments

Data Exchange
- Import Diver .MON files to display and interpret data
- Exchange data from HGA into AquiferTest Pro to analyze water level data and characterize hydrogeological units
- Link water quality data with AquaChem for in-depth analysis
- Prepare and manage Visual MODFLOW input data in HGA for conceptual model development
- Pre-process data in HGA for use in FEFLOW® geologic models
- Link to Isatis¹ software for Advanced 2D Interpolation and Analysis

Queries
- Develop advanced queries for virtually any parameter
- Export crosstab queries to PDF, HTML, or MS Excel™ format
- Efficiently map query results directly to the Map Manager
- Quickly generate simple or complex data statistics

Time Series Plotting
- Create time-series plots based on data queries
- Add best fit, trend, formula, or statistical lines to the plot
- Display uncertainty or detection limits
- Interactive, simultaneous display of multiple plot windows
- Display one or more water quality standard values as a line or symbol, for quick detection of samples that exceed the standards

Quality Control
- Analyze duplicate, spiked and blank samples:
  - Compare relative percent difference and coefficient of variation
  - Analyze percent recovery for spiked samples
  - Compare blank samples to method detection limits
- Save assessment results to a MS Excel™ spreadsheet
- Compare sample holding times, detection limits and dilution factors against user-defined quality acceptance standards
- Automatically identify and flag samples that do not meet user-defined quality acceptance standards
- Monitor unit inconsistencies and filter anomalies

Chemistry Data
- Create sample schedules including sample locations, media, dates and parameters to be measured
- Chemistry data import wizard: Import sample id data and result values in a one easy step
- Import analytical lab results from many file formats
- Seamless data validation and error checking during data import
- Display concentration data on time-series plots
- Conduct statistical analysis on your chemistry data using standard functions (AVG, MIN/MAX, STDEV, SUM, VAR, etc.)
- Display summary results with exceedences highlighted on a map

Map Manager
- Create and export colour shaded maps to display data
- Display timeseries plots linked to stations on maps
- Choose intersecting layers to create new layers
- Group layers in the legend to help simplify management
- Create contours using selected stations and/or restrict the lines to a digitized shape
- Improved legend for displaying layer details with graduated or value rendering
- Perform on-the fly datum conversions
- Send high-resolution scaled maps to the Report Designer
- Add grid lines to maps to pinpoint exact locations of interest
- Import maps with accuracy using two to three georeference points
- Import and display raster data (DEMs, Surfer and ESRI® grid files)
- Import an array of basemap formats
- Quickly contour data from pre-defined queries or station data
- Interpolate any data layer(s) and generate grided data files
- Display summary results on map in a tabular format, and modify display properties of table (color, style, fields)
- Flexible placement and adjustment of labels for wells/points layers
- Display secondary labels for well locations (eg. name, water level)

Cross-Section Editor
- Import cross-section lines from shapefiles
- Modify cross-section buffers, axis or vertical exaggeration
- Pan and zoom while defining cross-section lines and snap lines to stations with a click of the mouse
- Display intersecting cross-sections and features for accurate representations
- Print high-resolution cross-sections in the Report Designer
- Use DEM data to display true topography between wells
- Create geological, hydrogeological, and model interpretations
- Interpret model layers for use in groundwater models
- Query and map interpretation results (eg. overburden thickness)
- Display borehole logs and geophysical plots to assist in interpretations
- Display mutliple surfaces on cross-sections (eg. water table, MODFLOW model layers, bedrock layer) to assist in correlation and QA/QC

Borehole Log Plotter
- Display well nests, reducers and telescoping casings
- Display selected water levels (max, min, avg, first, last, etc.) with customized symbols
- Display annular fills in boreholes and between piezometers
- Customize display settings (casing color, image patterns etc.)
- Display multiple data series on a single borehole log plot column to better display depth profiles for multiple contaminants, downhole geophysical logging data, or other depth dependent data
- Borehole logs are mapped directly from the data source
- Choose from a selection of pre-designed borehole log templates

HGA 3D-Explorer
- Render colorful, high-impact, 3D cross-section views
- Display 3D plumes directly from source data
- Generate static or transient plumes for one or more contaminant(s)
- Create .AVI animation files for use in presentations
- Calculate volumetric results based on the isosurface values
- Display concentration color maps and contours along a cross-section line or horizontal YZ, XZ plane, and specify cut-off limits
- Display 2D surfaces with color shading or contours

Report Editor
- Create and save unlimited number of dynamic report layouts
- Incorporate data values, tables, logs, cross-sections, 3D views, maps, etc.
- Export reports to various file formats (eg. PDF, HTML, RTF, etc.)
- Dynamic linking of reports to HGA data and components automates the report creation process
- Supports MS Visual Basic™ Script and JavaScript events/expressions

Call (519) 746-1798 or visit www.swstechnology to download a complimentary demo today.

www.swstechnology.com