

SoilVision Systems Presents ...



SoilVision[®]
Systems Ltd.

SoilVision

Soil Database

Unlock the power of your
Geotechnical and
Geoenvironmental Data

Performance

www.soilvision.com

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- **Released SoilVision 1.0 in 1997**
 - First soil database application to provide knowledge-based components.
 - Only database capable of managing unsaturated soils information.
 - Developed on the Microsoft Access Platform.
- **Released SoilVision 2.0 in 1999**
 - Major revision
- **Released SoilVision 3.0 in 2001**
 - Many improvements in data import/export

■ SoilVision 3.0!

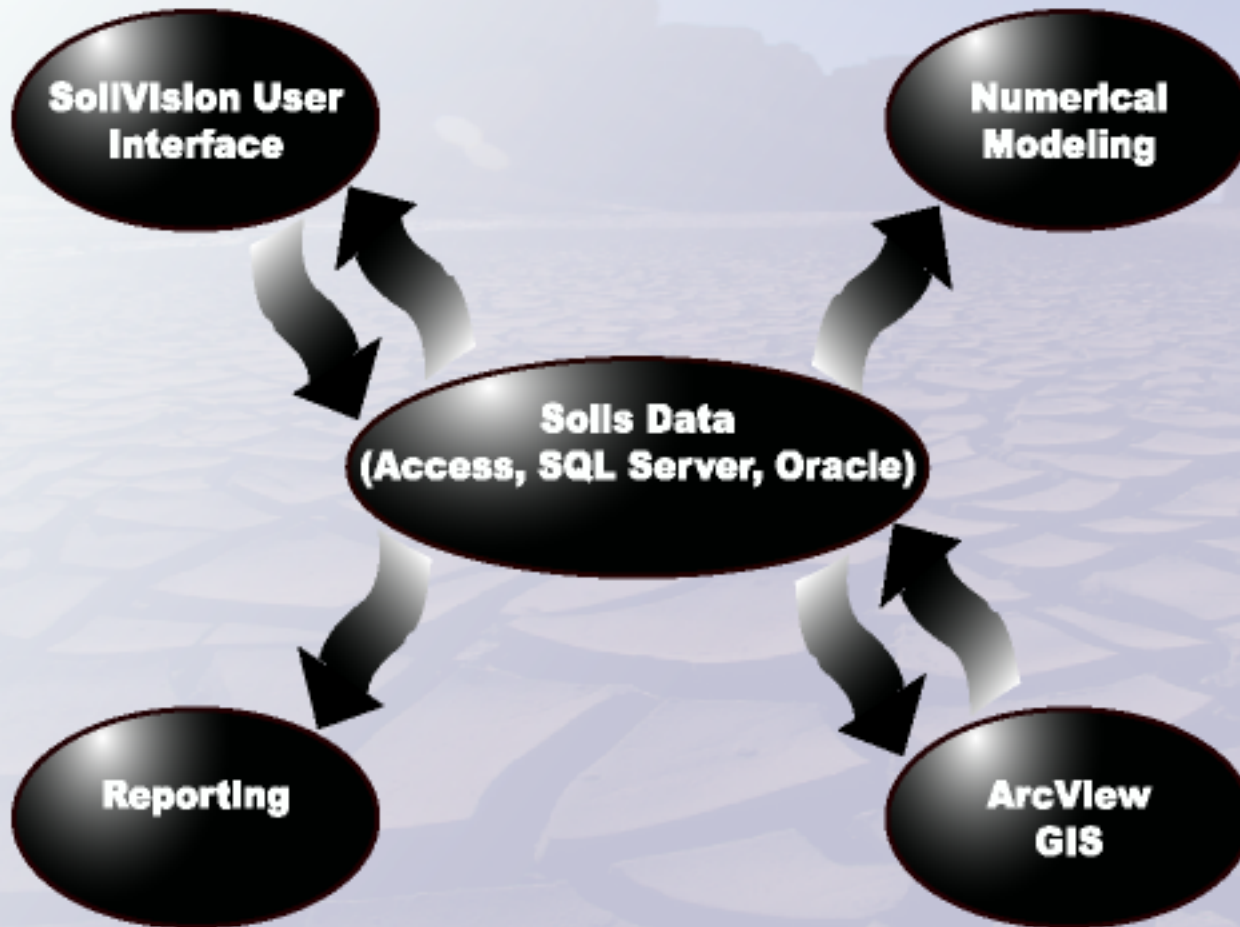
- Complete database solution to move seamlessly from the laboratory to finite element models.
- Standardized data model in Access, SQL Server, or Oracle.
- Open database architecture.
- Unsaturated soils and geoenvironmental data
- ASTM laboratory standardized.
- Theoretical and statistical estimation of soil properties.
- Database of laboratory data on over 6000 soils.

Our Philosophy



- **Your data is the heart of your corporate knowledge.**
- **The power of your data will be lost if this data is not managed in a standardized data warehouse.**
- **Many corporations store test data in EXCEL spreadsheets - hard to query in the future.**
- **The data is often misplaced when a project is complete.**
- **Non-standard EXCEL format is not conducive for easy data retrieval.**

System Overview



■ Standardized data format

- There is a need to be standardized.
- Many databases of both soil science and geotechnical origins were reviewed in the creation of SoilVision.

■ Open database architecture

- The tables storing soils data are stored in MS Access, SQL Server, or ORACLE format.
- The tables are open to the client.
- The client is free to generate their own reports or develop a customized interface.

Your view of the data



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- Advanced user interface
- Forms are presented in a manner that logically represents data
- Data entry is according to ASTM standards

SoilVision - Soils

Dataset ID: SP1015 Borehole ID: 7 Soil Counter: 3270
Sample ID:

Texture | Volume-Mass | Grain-size | Atterberg Limits and Misc. | Properties | Location | Origin | Publisher | Mineralogy

USDA Texture: Silt Loam << Classify Abb: SIL
USCS (ASTM) Texture: << Classify Abb:
Family:
Soil Series: CARIBOU
Contact: Walter Rawls
Texture Modifier: Structure grade: Weak
Date Entered: 30-Sep-1996 0:00 Structure size: Fine (or thin)
Soil Name: Structure type: Granular
Soil Description:
Geologic Description:
Notes:

Grainsize

Purpose: Describe the relationship between percentage of soil passing by weight and particle diameter.

Grainsize Soil Counter: 18719

Required Properties | Sieve Data | Hydrometer Data | Unimodal Fit | Bimodal Fit

Grainsize Sieve Specimen ID:
Sieve Count: 10

Experimental Sieve Data:

Particle Diameter (mm):	Percent Passing (%):
0.06	2.00%
0.2	3.50%
0.3	5.00%
0.6	18.00%
1	24.00%
2	28.00%
6	35.00%
10	46.00%
20	73.00%
40	100.00%

Record: 1 of 10
ASTM D422-54T
NOTE: please enter required properties before sieve data



■ SoilVision implements a Search Wizard to allow free-form searches based on any soil parameter and criteria.

- The real power of a database is its ability to let you see the data you want to see, and in the order you want to see it (Microsoft, 1992).
- A Geostatistics module is implemented for univariate statistics, bivariate statistics, and geostatistics.
- SoilVision is the only commercial database package which provides the ability to create free-form searches.
- View your data in any way *fast!*
- Normal distribution of k_{sat} for sands...?

Query Wizard

Creator: All Please select a query. To edit or change a query, press the buttons at the bottom of the form. View SQL

Keyword:

Query Name	Creation Date	# of Records
Demo Bimodal Grainsize	25-Oct-1999	8
Demo Grainsize	25-Oct-1999	173
Demo Similar Grainsize	25-Oct-1999	68
Coarse soils for Ruth	24-Oct-1999	69
Demo SWCC	24-Oct-1999	753
Demo Permeability	24-Oct-1999	76
Demo Compaction	24-Oct-1999	28
Demo Shrinkage	24-Oct-1999	52
Demo Constitutive	24-Oct-1999	22
A certain texture with ksat info	21-Oct-1999	647

Query Name: Creator:

Comments: Keyword:

Univariate Statistics

Field: z-test | Probability Density: Log Probability Density | Frequency: AutoCorrelation | Probit

Probability density

ln(Laboratory_ksat)

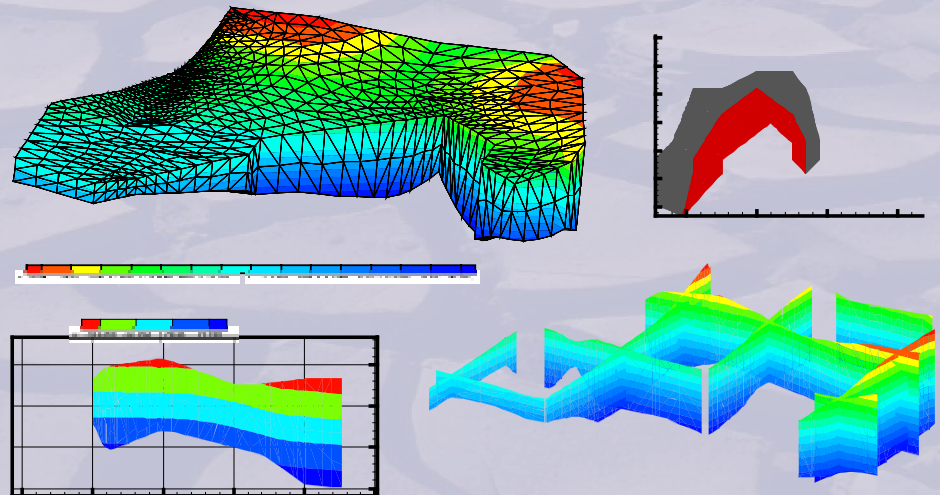
Graph limits indicate 2.0 standard deviations or 95.44% probability level

Confidence Interval: Minimum: Maximum:

Note: This statistical analysis will take a few minutes Analyze

- **SoilVision is the only database system that comes with existing laboratory data on over **6000** soils.**
- **Highly detailed unsaturated soil data.**
- **Most recent additions include compression, shrinkage, and compaction data.**
- **Experimental data provides a method for confirming the results of theoretical estimations of soil properties.**

- SoilVision is the only database application which is designed to prepare your data for modeling.
- Seepage properties such as soil-water characteristic curve and permeability information may be output in mathematical function form or as a series of points.
- SoilVision can provide soil properties for SVFlux, SEEP/W, Visual Modflow, FEFLOW, and other popular seepage software.



- **Modeling** - Partial list of the modeling software packages for which SoilVision provides input soil properties - SVFlux, SEEP/W, FEFLOW, Visual MODFLOW, GMS, SoilCover, Crisp, Plaxis, SIGMA/W, SLOPE/W, CTRAN/W
- **Graphics** - Excel, Surfer
- **GIS** - ArcView GIS, Sylvan Maps
- **Borehole Logs** - WinLog, QuickLog, QuickFence
- **Report Writers** - Crystal Reports, Word, CrossTab

Mining Industry Applications



- **SoilVision is used extensively by the mining industries in Canada, Australia, and other parts of the world for the estimation of seepage soil properties for cover design.**
- **Cover design requires accurate seepage soil properties.**
- **Laboratory costs may be greatly reduced through the use of SoilVision.**

Customer Acceptance



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■ SoilVision has gained worldwide acceptance.

"SoilVision 2.0 has many new features significantly. Some of these new options for dealing with gap-graded soils, and representation of clay soils. Additional of soil suction data as a function of grain size distribution and soil-water characteristic curve fitting equations that

Sandra Houston, Ph.D.
Arizona State University

"I think everyone in the geotechnical industry is centralized so the longer it takes to get the software becomes. This software saves time and is competitive.

The software quality plotting of dollars on different software packages to estimate soil properties by comparing similar soils. From just conductivity, cohesion, angle of internal friction

I am confident of the software as a geotechnical engineer. You'll find a list of common questions that

Haytham Nabils
California Registered Geotechnical Engineer

"The power of SoilVision is in its large database of soil-water characteristic curves, and the fact that this database can be added to by the user. The "query" option allows grouping of soils with similar characteristics, such as grain-size distribution and classification. SoilVision is a valuable tool for use in unsaturated soil studies."

Claudia E. Zapata, M.Sc.
Arizona State University

"SoilVision is a valuable program with many management faculties such as land use planning, the soil-water characteristic curves, and the ability to use SoilVision to estimate the properties of soils. This allows simple index properties. This allows optimum soils may be selected for construction cases it is possible to provide a cost-effective way to confirm soil properties.

G.W. Wilson, Ph.D.
Professor
Department of Civil Engineering
University of British Columbia

"I have found SoilVision to be very helpful in my numerical modeling work. I use SoilVision to predict hydraulic conductivity functions for modeling in the vadose zone. The sound theoretical background of the predictive methods in SoilVision gives me great confidence in using the data. The database in SoilVision lets me cross reference soil properties with similar soil types. I recommend SoilVision for people who deal with soil properties."

Jude Loi, M.Sc.
Project Engineer
Clifton Associates

"I use SoilVision extensively in both research and teaching; as a teaching tool to demonstrate key unsaturated soil property relationships for courses on the mechanics of unsaturated soils. In forestry research we have had good results linking SoilVision with GIS, stored soil texture, moisture and topography data and soil mechanics models to estimate the risk of soil compaction by machinery over sensitive areas of a site. Knowledge-based programs such as SoilVision will become increasingly important to scientists and engineers for the management of soil resources in which knowledge of the spatial variability of properties is key."

Devorali Wulfsohn, Ph.D.
Professor
Department of Agricultural and Biological Resources
University of Saskatchewan

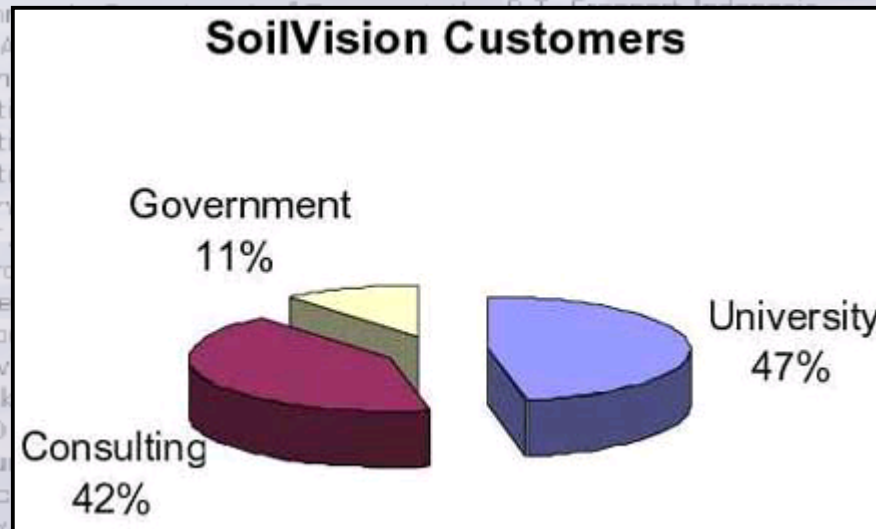
Customer Acceptance



■ **Hundreds of users.**

■ **Used extensively by consultants, Government Agencies, and Universities.**

- AGRA Earth and Environmental
- Alfred Cayre Associates
- AMEC Earth and Environmental
- Argonne National Laboratory
- Arizona State University
- Baylor University
- BGC Engineering Inc.
- CAMNET
- CEPSA
- CETEM - Brazil
- Clifton Associates Ltd.
- Cogema
- Colenco Power Engineering Ltd.
- Ecole Polytechnique - France
- École Polytechnique de Montréal
- Environmental Geochemistry International Pty Ltd.
- Escola Politecnica da USP
- Exponent Environmental Group, Inc.
- Golder Associates Ltd.
- Gularte & Associates
- Hanoi Water Resources University
- Hong Kong Univ of Science and Technology
- Indian Institute of Technology, Bombay
- Institut für Geotechnik
- Korea University
- Laboratorio de Geotecnia - UMSS
- Lakefield Research Limited
- Malaysia Hydro
- Manitoba Hydro
- Mecsek Ore Environment
- Mining Resources Canada
- Norwest Mine Services
- Resources Canada
- University of Queensland
- University of Saskatchewan
- University of Southampton
- University of Toledo
- University of Wisconsin
- US Army Corps of Engineers
- USACE Waterways Experiment Station
- USDA
- USDA - ARS
- USDA Crrel
- Victoria University



Single and Multiple User License



- **SoilVision allows solutions for the individual or corporation.**
- **Multiple user network-based solutions are provided in MS Access, SQL Server, or ORACLE database formats.**
- **Power up to our large solutions with ORACLE!**

Single and Multiple User License



- **The multi-user versions are perfect for the corporate environment of the university laboratory.**
- **Solutions including ArcView allow for geographical representation of borehole data.**
- **SQL Server and ORACLE solutions start at \$40,000.**

System Requirements



- **Database applications are memory and disk intensive.**
- **Speed is primarily related to hard disk speed.**
 - Windows 95, 98, NT, 2000 OS.
 - 64 MB RAM recommended minimum.
 - 50 MB hard disk space required minimum.
 - Number of users?
 - Grow from Access to SQL Server or Oracle.

System Requirements



TM

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Thank You...!