

GeoStudio Product Details

I. SLOPE/W

SLOPE/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	SLOPE/W	Basic	Student (Free)
SLOPE/W	●	●	●		●	○	○
SEEP/W	●	●	●	●		○	○
SIGMA/W	●	●	●			○	○
QUAKE/W	●	●				○	○
TEMP/W	●	●		●		○	○
CTRAN/W	●			●		○	○
AIR/W	●					○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

SLOPE/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Finite Element Integration	No limit	500 elements	500 elements
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Analysis Methods			
Ordinary	Yes	Yes	Yes
Bishop Simplified	Yes	Yes	Yes
Janbu Simplified	Yes	Yes	Yes
Morgenstern-Price	Yes	Yes	Yes
Spencer	Yes	Yes	Yes
SIGMA/W finite element stress	Yes	Yes	Yes
QUAKE/W finite element stress	Yes	Yes	Yes
QUAKE/W Newmark Deformation	Yes	Yes	Yes
Corps of Engineers 1	Yes	No	No
Corps of Engineers 2	Yes	No	No
Lowe-Karafiath	Yes	No	No
Janbu Generalized	Yes	No	No
Sarma (Vertical Slice Only)	Yes	No	No
Advanced Features			
Probabilistic analysis	Yes	No	No
Sensitivity analysis	Yes	No	No
Automatic inclusion of ponded water load	Yes	Yes	Yes
Staged Rapid Drawdown	Yes	No	No
Partial Factor analysis	Yes	Yes	Yes
Staged Pseudo-static	Yes	No	No

SLOPE/W Feature Comparison (continued)

● Full

○ Basic

○ Student

Soil Strength Models

Mohr-Coulomb	Yes	Yes	Yes
Spatial Mohr-Coulomb	Yes	No	No
Bedrock (impenetrable)	Yes	Yes	Yes
Undrained (Phi = 0)	Yes	No	No
Bilinear	Yes	No	No
S = f(depth)	Yes	No	No
S = f(datum)	Yes	No	No
Anisotropic Strength	Yes	No	No
Shear/Normal function	Yes	No	No
Anisotropic function	Yes	No	No
Combined, S = f(depth)	Yes	No	No
Combined, S = f(datum)	Yes	No	No
SHANSEP, S = f(overburden)	Yes	No	No
Add-In material model (user defined)	Yes	No	No
High Strength	Yes	No	No

Advanced Soil Parameters

Unsaturated strength from Phi B or VWC	Yes	No	No
Anisotropic function	Yes	No	No
Unsaturated unit weight	Yes	No	No
Steady-state strength for liquefied material	Yes	No	No
Water content function estimation	Yes	No	No

Slip Surface Options

Grid and Radius	Yes	Yes	Yes
Entry and Exit	Yes	Yes	Yes
Optimize critical slip surface location	Yes	Yes	Yes
Fully Specified	Yes	Yes	No
Block Specified	Yes	Yes	No
User defined axis point	Yes	No	No
Detail results on multiple critical slip surfaces	Yes	No	No

Pore-Water Pressure

Ru	Yes	No	No
B bar	Yes	No	No
Piezometric lines	Yes	One line	One line
Piezometric line with Ru or B bar	Yes	No	No
Phreatic correction	Yes	Yes	Yes
SEEP/W pore-water pressure	Yes	Yes	Yes
SIGMA/W pore-water pressure	Yes	Yes	Yes
QUAKE/W pore-water pressure	Yes	Yes	Yes
Spatial variation of pressure head	Yes	No	No
Air Pressure interaction	Yes	No	No

External Loads

Point Loads	Yes	Yes	No
Reinforcement Loads	Yes	No	No
Horizontal Seismic Loading	Yes	Yes	No
Vertical Seismic Loading	Yes	Yes	No
Surcharge Loads	Yes	Yes	No

SLOPE/W Feature Comparison (continued)	● Full	○ Basic	○ Student
Tension Crack Options			
Tension crack line	Yes	Yes	No
Tension crack angle	Yes	Yes	No
Interslice Functions			
Constant	Yes	Yes	Yes
Half-sine	Yes	Yes	Yes
Clipped-sine	Yes	No	No
Trapezoidal	Yes	No	No
Fully Specified	Yes	No	No

II. SEEP/W

SEEP/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	SEEP/W	Basic	Student (Free)
SLOPE/W	●	●	●			○	○
SEEP/W	●	●	●	●	●	○	○
SIGMA/W	●	●	●			○	○
QUAKE/W	●	●				○	○
TEMP/W	●	●		●		○	○
CTRAN/W	●			●		○	○
AIR/W	●					○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

SEEP/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Number of elements	No limit	500	500
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Number of physical processes per analysis	No limit	1	1
Analysis Types			
Steady-State	Yes	Yes	Yes
Transient	Yes	No	No
Physical Processes			
Pressure-driven and gravity-driven water transfer	Yes	Yes	Yes
Vapor transfer: isothermal	Yes	No	No
Vapor transfer: thermally-driven (+TEMP/W)	Yes	No	No
Free convection: thermal effects (+TEMP/W)	Yes	No	No
Free convection: solute effects (+CTRAN/W)	Yes	No	No
Coupled air-water transfer (AIR/W and SEEP/W)	Yes	No	No

SEEP/W Feature Comparison (continued) Full Basic Student**Analysis Dimension**

1-Dimensional	Yes	Yes	Yes
2-Dimensional	Yes	Yes	Yes
Axisymmetric	Yes	Yes	Yes
Plan	Yes	Yes	Yes

Finite Element Meshing

Structured and unstructured mesh	Yes	Yes	Yes
Mesh refinement options	Yes	Yes	Yes

Soil Models

Saturated only	Yes	Yes	Yes
Saturated-Unsaturated	Yes	Yes	Yes

Property Functions

Hydraulic conductivity function	Yes	Yes	Yes
Volumetric water content function	Yes	Yes	Yes
Hydraulic modifier function	Yes	No	No
Volumetric water content estimation: sample library	Yes	Yes	Yes
Volumetric water content estimation: grain size data	Yes	Yes	Yes
Volumetric water content estimation: Van Genuchten	Yes	Yes	Yes
Volumetric water content estimation: Fredlund-Xing	Yes	Yes	Yes
Hydraulic conductivity function estimation	Yes	Yes	Yes
Add-In function (user defined)	Yes	No	No

Boundary Functions

	Yes	No	No
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Boundary Conditions

Total head	Yes	Yes	Yes
Pressure head	Yes	Yes	Yes
Water rate	Yes	Yes	Yes
Water flux	Yes	Yes	Yes
Potential seepage face	Yes	Yes	Yes
Total head vs. volume	Yes	Yes	Yes
Land-climate interaction	Yes	No	No
Unit Gradient	Yes	Yes	Yes

Miscellaneous

Particle tracking	Yes	No	No
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III. SIGMA/W

SIGMA/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	SIGMA/W	Basic	Student (Free)
SLOPE/W	●	●	●			○	○
SEEP/W	●	●	●	●		○	○
SIGMA/W	●	●	●		●	○	○
QUAKE/W	●	●				○	○
TEMP/W	●	●		●		○	○
CTRAN/W	●			●		○	○
AIR/W	●					○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

SIGMA/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Number of elements	No limit	500	500
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Analysis Types			
Insitu	Yes	Yes	Yes
Load/Deformation	Yes	Yes	Yes
Stress Redistribution	Yes	No	No
Volume Change (Uncoupled Stress/Pore-water Pressure)	Yes	Yes	Yes
Coupled Stress / Pore-water Pressure	Yes	No	No
Dynamic Deformation (+QUAKE/W)	Yes	No	No
Analysis Dimension			
2-Dimensional	Yes	Yes	Yes
Axisymmetric	Yes	Yes	Yes
Finite Element Meshing			
Structured and unstructured mesh	Yes	Yes	Yes
Mesh refinement options	Yes	Yes	Yes
Structural Elements			
Bar element	Yes	Yes	Yes
Beam element	Yes	Yes	Yes
Soil Models			
Linear-Elastic	Yes	Yes	Yes
Anisotropic-Elastic	Yes	No	No
Elastic-Plastic	Yes	No	No
Modified Cam-Clay	Yes	No	No
Hyperbolic	Yes	No	No
Add-In model (user defined)	Yes	No	No
Property Functions			
E-modulus vs y-effective/y-total stress	Yes	Yes	Yes
E-modulus vs y-coordinate	Yes	Yes	Yes
Undrained strength vs y-coordinate/y-total stress	Yes	No	No
Volumetric water content function	Yes	No	No

SIGMA/W Feature Comparison (continued)	● Full	○ Basic	○ Student
Boundary Functions	Yes	No	No
Boundary Conditions			
Force or displacement	Yes	Yes	Yes
Normal or tangential stress	Yes	Yes	Yes
X-Y stress	Yes	Yes	Yes
Hydrostatic pressure	Yes	Yes	Yes
Rotation	Yes	Yes	Yes

IV. QUAKE/W

QUAKE/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	QUAKE/W	Basic	Student (Free)
SLOPE/W	●	●	●			○	○
SEEP/W	●	●	●	●		○	○
SIGMA/W	●	●	●			○	○
QUAKE/W	●	●			●	○	○
TEMP/W	●	●		●		○	○
CTRAN/W	●			●		○	○
AIR/W	●					○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

QUAKE/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No Limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Number of elements	No limit	500	500
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Analysis Types			
Initial Static	Yes	Yes	Yes
Equivalent Linear Dynamic	Yes	Yes	Yes
Nonlinear Dynamic	Yes	No	No
Analysis Dimension			
2-Dimensional	Yes	Yes	Yes
Finite Element Meshing			
Structured and unstructured mesh	Yes	Yes	Yes
Mesh refinement options	Yes	Yes	Yes
Structural Elements			
Bar element	Yes	Yes	Yes
Beam element	Yes	Yes	Yes
Soil Models			
Linear-Elastic	Yes	Yes	Yes
Equivalent Linear	Yes	No	No
Nonlinear	Yes	No	No

QUAKE/W Feature Comparison (continued)	● Full	○ Basic	○ Student
Property Functions			
Pore-water pressure function	Yes	Yes	Yes
Cyclic number function	Yes	Yes	Yes
Ka-correction function	Yes	Yes	Yes
Ks-correction function	Yes	Yes	Yes
G-Reduction function	Yes	No	No
Property Functions (continued)			
Damping Ratio function	Yes	No	No
Add-In function (user defined)	Yes	No	No
Boundary Functions			
	Yes	No	No
Boundary Conditions			
Force or displacement	Yes	Yes	Yes
Normal or tangential stress	Yes	Yes	Yes
X-Y stress	Yes	Yes	Yes
Hydrostatic pressure	Yes	Yes	Yes
Rotation	Yes	Yes	Yes

V. TEMP/W




TEMP/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	TEMP/W	Basic	Student (Free)
SLOPE/W	●	●	●			○	○
SEEP/W	●	●	●	●		○	○
SIGMA/W	●	●	●			○	○
QUAKE/W	●	●				○	○
TEMP/W	●	●		●	●	○	○
CTRAN/W	●			●		○	○
AIR/W	●					○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

TEMP/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Number of elements	No limit	500	500
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Number of physical processes per analysis	No limit	1	1
Analysis Types			
Steady-State	Yes	Yes	Yes
Transient	Yes	No	No

TEMP/W Feature Comparison (continued)	 Full	 Basic	 Student
Physical Processes			
Conduction heat transfer	Yes	Yes	Yes
Forced-convection: water (+SEEP/W)	Yes	No	No
Forced-convection: air (+AIR/W)	Yes	No	No
Forced-convection: vapor (+SEEP/W)	Yes	No	No
Analysis Dimension			
1-Dimensional	Yes	Yes	Yes
2-Dimensional	Yes	Yes	Yes
Axisymmetric	Yes	Yes	Yes
Plan	Yes	Yes	Yes
Finite Element Meshing			
Structured and unstructured mesh	Yes	Yes	Yes
Mesh refinement options	Yes	Yes	Yes
Soil Models			
Full thermal	Yes	Yes	Yes
Simplified thermal	Yes	Yes	Yes
Coupled convective thermal	Yes	No	No
Property Functions			
Thermal conductivity function	Yes	Yes	Yes
Unfrozen water content function	Yes	Yes	Yes
Volumetric specific heat capacity function	Yes	No	No
Unfrozen water content function estimation	Yes	Yes	Yes
Thermal conductivity function estimation	Yes	Yes	Yes
Add-In function (user defined)	Yes	No	No
Boundary Functions	Yes	No	No
Boundary Conditions			
Temperature	Yes	Yes	Yes
Heat rate	Yes	Yes	Yes
Heat flux	Yes	Yes	Yes
Thermosyphon	Yes	No	No
Convective surface	Yes	No	No
Surface energy balance	Yes	No	No

VI. CTRAN/W

CTRAN/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	CTRAN/W	Basic	Student (Free)
SLOPE/W	●	●	●			○	○
SEEP/W	●	●	●	●		○	○
SIGMA/W	●	●	●			○	○
QUAKE/W	●	●				○	○
TEMP/W	●	●		●		○	○
CTRAN/W	●			●	●	○	○
AIR/W	●					○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

CTRAN/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Number of elements	No limit	500	500
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Number of physical processes per analysis	No limit	1	1
Analysis Types			
Steady-state	Yes	Yes	Yes
Transient	Yes	No	No
Physical Processes			
Solute diffusion	Yes	Yes	Yes
Gas diffusion	Yes	Yes	Yes
Solute advection-dispersion (+SEEP/W)	Yes	No	No
Gas advection-dispersion: air (+AIR/W)	Yes	No	No
Gas advection-dispersion: water (+SEEP/W)	Yes	No	No
Analysis Dimension			
1-Dimensional	Yes	Yes	Yes
2-Dimensional	Yes	Yes	Yes
Axisymmetric	Yes	Yes	Yes
Plan	Yes	Yes	Yes
Finite Element Meshing			
Structured and unstructured mesh	Yes	Yes	Yes
Mesh refinement options	Yes	Yes	Yes
Property Functions			
Diffusion coefficient function	Yes	Yes	Yes
Adsorption function	Yes	Yes	Yes
Add-In function (user defined)	Yes	No	No

CTran/W Feature Comparison (continued)	● Full	○ Basic	○ Student
Boundary Functions	Yes	No	No
Boundary Conditions			
Solute concentration	Yes	Yes	Yes
Solute rate	Yes	Yes	Yes
Solute flux	Yes	Yes	Yes
Gas concentration	Yes	Yes	Yes
Gas rate	Yes	Yes	Yes
Gas flux	Yes	Yes	Yes
Source concentration	Yes	Yes	Yes
Free exit	Yes	Yes	Yes

VII. AIR/W

AIR/W Purchasing Options

	GeoStudio						
	Universal	Professional	Standard	Vadose	AIR/W	Basic	Student (Free)
SLOPE/W	●	●	●			○	○
SEEP/W	●	●	●	●		○	○
SIGMA/W	●	●	●			○	○
QUAKE/W	●	●				○	○
TEMP/W	●	●		●		○	○
CTran/W	●			●		○	○
AIR/W	●				●	○	○

Key: ● = Full edition (all features) ○ = Basic edition (limited features) ○ = Student edition (limited features)

AIR/W Feature Comparison

	● Full	○ Basic	○ Student
Number of multiple/staged analyses (within one file)	No limit	2	2
Number of regions	No limit	10	10
Number of materials	No limit	10	3
Number of elements	No limit	500	500
Import regions from AutoCAD® DXF™ and DWG™ files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
Number of physical processes per analysis	No limit	1	1
Analysis Types			
Steady-State	Yes	Yes	Yes
Transient	Yes	No	No
Physical Processes			
Pressure-driven air transfer	Yes	Yes	Yes
Free-convection: thermal	Yes	No	No
Coupled air-water transfer (+SEEP/W)	Yes	No	No

AIR/W Feature Comparison (continued)	<input checked="" type="radio"/> Full	<input type="radio"/> Basic	<input type="radio"/> Student
Analysis Dimension			
1-Dimensional	Yes	Yes	Yes
2-Dimensional	Yes	Yes	Yes
Axisymmetric	Yes	Yes	Yes
Finite Element Meshing			
Structured and unstructured mesh	Yes	Yes	Yes
Mesh refinement options	Yes	Yes	Yes
Soil Models			
Single phase	Yes	Yes	Yes
Dual phase (air-water)	Yes	Yes	Yes
Property Functions			
Air conductivity function	Yes	Yes	Yes
Air conductivity function estimation	Yes	Yes	Yes
Add-In function (user defined)	Yes	No	No
Boundary Functions	Yes	No	No
Boundary Conditions			
Air total head	Yes	Yes	Yes
Air rate	Yes	Yes	Yes
Air flux	Yes	Yes	Yes
Gauge air pressure	Yes	Yes	Yes
Absolute air pressure	Yes	Yes	Yes
Barometric air pressure	Yes	Yes	Yes
Miscellaneous			
Gas particle tracking	Yes	Yes	Yes

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