

# GeoStudio 2007 Product Details

## I. SLOPE/W 2007

### SLOPE/W 2007 Purchasing Options

GeoStudio 2007						
	Universal	Professional	Standard	SLOPE/W	Basic	Student (Free)
SLOPE/W	●	●	●	●	○	○
SEEP/W	●	●	●		○	○
SIGMA/W	●	●	●		○	○
QUAKE/W	●	●			○	○
TEMP/W	●	●			○	○
CTRAN/W	●	●			○	○
AIR/W	●				○	○
VADOSE/W	●					○

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

### SLOPE/W 2007 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 files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
<b>Analysis Methods</b>			
Ordinary	Yes	Yes	Yes
Bishop Simplified	Yes	Yes	Yes
Janbu Simplified	Yes	Yes	Yes
Morgenstern-Price	Yes	Yes	Yes
Spencer	Yes	Yes	Yes
GLE	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
<b>Advanced Features</b>			
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

## SLOPE/W 2007 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
$S = f(\text{depth})$	Yes	No	No
$S = f(\text{datum})$	Yes	No	No
Anisotropic Strength	Yes	No	No
Shear/Normal function	Yes	No	No
Anisotropic function	Yes	No	No
Combined, $S = f(\text{depth})$	Yes	No	No
Combined, $S = f(\text{datum})$	Yes	No	No
$S = f(\text{overburden})$	Yes	No	No
Add-In material model (user defined)	Yes	No	No

### Advanced Soil Parameters

Unsaturated strength from $\Phi$ B or SWCC	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
Auto Locate	Yes	No	No
User defined axis point	Yes	No	No
Detail results on multiple critical slip surfaces	Yes	No	No

### Pore-Water Pressure

$R_u$	Yes	No	No
B bar	Yes	No	No
Piezometric lines	Yes	One line	One line
Piezometric line with $R_u$ or B bar	Yes	No	No
Phreatic correction	Yes	Yes	Yes
SEEP/W heads	Yes	Yes	Yes
SIGMA/W pwp	Yes	Yes	Yes
QUAKE/W pwp	Yes	Yes	Yes
VADOSE/W heads	Yes	No	No
Spatial variation of pressure head	Yes	No	No
Air Pressure interaction	Yes	No	No

<b>SLOPE/W 2007 Feature Comparison (continued)</b>		● Full	○ Basic	○ Student
<b>External Loads</b>				
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	
<b>Tension Crack Options</b>				
Tension crack line	Yes	Yes	No	
Tension crack angle	Yes	Yes	No	
Auto search for tension crack	Yes	No	No	
<b>Interslice Functions</b>				
Constant	Yes	Yes	Yes	
Half-sine	Yes	Yes	Yes	
Clipped-sine	Yes	No	No	
Trapezoidal	Yes	No	No	
Fully Specified	Yes	No	No	
Corps Eng Assumption 1	Yes	No	No	
Corps Eng Assumption 2	Yes	No	No	
Low-Karafiath	Yes	No	No	

## II. SEEP/W 2007

### SEEP/W 2007 Purchasing Options

	GeoStudio 2007					
	Universal	Professional	Standard	SEEP/W	Basic	Student (Free)
SLOPE/W	●	●	●		○	○
SEEP/W	●	●	●	●	○	○
SIGMA/W	●	●	●		○	○
QUAKE/W	●	●			○	○
TEMP/W	●	●			○	○
CTRAN/W	●	●			○	○
AIR/W	●				○	○
VADOSE/W	●					○

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

### SEEP/W 2007 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 files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No

<b>SEEP/W 2007 Feature Comparison (continued)</b>		● Full	○ Basic	○ Student
<b>Methods</b>				
Steady-State	Yes	Yes	Yes	
Transient	Yes	No	No	
Density-Dependent (CTRAN/W and SEEP/W)	Yes	No	No	
Convective Heat Transfer (TEMP/W and SEEP/W)	Yes	No	No	
Air flow compatible (AIR/W and SEEP/W)	Yes	Yes	Yes	
<b>View Options</b>				
2-Dimensional	Yes	Yes	Yes	
Axisymmetric	Yes	Yes	Yes	
Plan	Yes	Yes	Yes	
Allow surface water to pond	Yes	Yes	Yes	
<b>Finite Element Meshing</b>				
Unstructured mesh	Yes	Yes	Yes	
Structured mesh	Yes	Yes	Yes	
Infinite regions	Yes	No	No	
<b>Equation Solvers</b>				
Direct equation solver	Yes	Yes	Yes	
Parallel Direct Solver	Yes	No	No	
<b>Soil Models</b>				
Saturated only	Yes	Yes	Yes	
Saturated-Unsaturated	Yes	Yes	Yes	
Interface material	Yes	No	No	
<b>Property Functions</b>				
Hydraulic conductivity function	Yes	Yes	Yes	
Volumetric water content function	Yes	Yes	Yes	
Hydraulic modifier function	Yes	No	No	
Vol. water content function estimation from grain size function	Yes	Yes	Yes	
Hydraulic conductivity function estimation from vol. water content function	Yes	Yes	Yes	
Add-in function (user's defined)	Yes	No	No	
<b>Boundary Functions</b>				
	Yes	No	No	

### III. SIGMA/W 2007

#### SIGMA/W 2007 Purchasing Options

GeoStudio 2007						
	Universal	Professional	Standard	SIGMA/W	Basic	Student (Free)
SLOPE/W	●	●	●		○	○
SEEP/W	●	●	●		○	○
SIGMA/W	●	●	●	●	○	○
QUAKE/W	●	●			○	○
TEMP/W	●	●			○	○
CTRAN/W	●	●			○	○
VADOSE/W	●					

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

## SIGMA/W 2007 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 files	<b>Yes</b>	No	No
Licensed for engineering consulting use	<b>Yes</b>	<b>Yes</b>	No
<b>Methods</b>			
Insitu	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Load/Deformation	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Stress Redistribution	<b>Yes</b>	No	No
Volume Change (Uncoupled Stress/Pore-water Pressure)	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Coupled Stress / Pore-water Pressure	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Dynamic Deformation (QUAKE/W and SIGMA/W)	<b>Yes</b>	No	No
<b>View Options</b>			
2-Dimensional	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Axisymmetric	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Finite Element Meshing</b>			
Unstructured mesh	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Structured mesh	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Infinite regions	<b>Yes</b>	No	No
<b>Structural Elements</b>			
Bar element	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Beam element	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Equation Solvers</b>			
Direct equation solver	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Parallel Direct Solver	<b>Yes</b>	No	No
<b>Soil Models</b>			
Linear-Elastic	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Anisotropic-Elastic	<b>Yes</b>	No	No
Hyperbolic Nonlinear-Elastic	<b>Yes</b>	No	No
Elastic-Plastic	<b>Yes</b>	No	No
Modified Cam-Clay	<b>Yes</b>	No	No
Slip Surface	<b>Yes</b>	No	No
Add-In model (user defined)	<b>Yes</b>	No	No
<b>Boundary Functions</b>	<b>Yes</b>	No	No

## IV. QUAKE/W 2007

### QUAKE/W 2007 Purchasing Options

GeoStudio 2007						
	Universal	Professional	Standard	QUAKE/W	Basic	Student (Free)
SLOPE/W	●	●	●		○	○
SEEP/W	●	●	●		○	○
SIGMA/W	●	●	●		○	○
QUAKE/W	●	●		●	○	○
TEMP/W	●	●			○	○
CTAN/W	●	●			○	○
AIR/W	●				○	○
VADOSE/W	●					○

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

### QUAKE/W 2007 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 files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
<b>Methods</b>			
Initial Static	Yes	Yes	Yes
Equivalent Linear Dynamic	Yes	Yes	Yes
Equivalent Linear PWP Only	Yes	No	No
Nonlinear Dynamic	Yes	No	No
<b>Finite Element Meshing</b>			
Unstructured mesh	Yes	Yes	Yes
Structured mesh	Yes	Yes	Yes
<b>Structural Elements</b>			
Bar element	Yes	Yes	Yes
Beam element	Yes	Yes	Yes
<b>Equation Solvers</b>			
Direct equation solver	Yes	Yes	Yes
Parallel Direct Solver	Yes	No	No
<b>Soil Models</b>			
Linear-Elastic	Yes	Yes	Yes
Equivalent Linear	Yes	No	No
Nonlinear	Yes	No	No
<b>Property Functions</b>			
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

<b>QUAKE/W 2007 Feature Comparison (continued)</b>		● Full	○ Basic	○ Student
<b>Property Functions (continued)</b>				
Damping Ratio function	<b>Yes</b>	No	No	No
Add-In function (user defined)	<b>Yes</b>	No	No	No
<b>Boundary Functions</b>	<b>Yes</b>	No	No	No

## V. TEMP/W 2007

### TEMP/W 2007 Purchasing Options

<b>GeoStudio 2007</b>						
	Universal	Professional	Standard	<b>TEMP/W</b>	Basic	Student (Free)
SLOPE/W	●	●	●		○	○
SEEP/W	●	●	●		○	○
SIGMA/W	●	●	●		○	○
QUAKE/W	●	●			○	○
TEMP/W	●	●		●	○	○
CTRAN/W	●	●			○	○
VADOSE/W	●					

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

### TEMP/W 2007 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 files	<b>Yes</b>	No	No
Licensed for engineering consulting use	<b>Yes</b>	<b>Yes</b>	No
<b>Methods</b>			
Steady-State	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Transient	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Convective Heat Transfer (SEEP/W / AIR/W and TEMP/W)	<b>Yes</b>	No	No
<b>View Options</b>			
2-Dimensional	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Axisymmetric	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Plan	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Finite Element Meshing</b>			
Unstructured mesh	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Structured mesh	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Infinite elements	<b>Yes</b>	No	No
<b>Equation Solvers</b>			
Direct equation solver	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Parallel Direct Solver	<b>Yes</b>	No	No
<b>Soil Models</b>			
Coupled Convective Thermal	<b>Yes</b>	No	No

<b>TEMP/W 2007 Feature Comparison (continued)</b>	● Full	○ Basic	○ Student
<b>Soil Models (continued)</b>			
Full thermal	Yes	Yes	Yes
Simplified Thermal	Yes	Yes	Yes
Interface Material	Yes	No	No
<b>Input Data Sets</b>			
Climate data	Yes	No	No
Thermosyphon data	Yes	No	No
Convective surface data	Yes	No	No
<b>Property Functions</b>			
Thermal conductivity functions (vs VWC or temperature)	Yes	Yes	Yes
Unfrozen water content function	Yes	Yes	Yes
Volumetric specific heat capacity function	Yes	Yes	Yes
Thermal modifiers	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
<b>Boundary Functions</b>	Yes	No	No

## VI. CTRAN/W 2007

### CTRAN/W 2007 Purchasing Options

	GeoStudio 2007					
	Universal	Professional	Standard	CTRAN/W	Basic	Student (Free)
SLOPE/W	●	●	●		○	○
SEEP/W	●	●	●		○	○
SIGMA/W	●	●	●		○	○
QUAKE/W	●	●			○	○
TEMP/W	●	●			○	○
CTRAN/W	●	●		●	○	○
AIR/W	●				○	○
VADOSE/W	●					○

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

### CTRAN/W 2007 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 files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
<b>Methods</b>			
Advective-Dispersion	Yes	Yes	Yes
Particle Tracking	Yes	Yes	Yes
Density Dependent (SEEP/W and CTRAN/W)	Yes	No	No

<b>CTRAN/W 2007 Feature Comparison (continued)</b>		● Full	○ Basic	○ Student
<b>View Options</b>				
2-Dimensional		Yes	Yes	Yes
Axisymmetric		Yes	Yes	Yes
Plan		Yes	Yes	Yes
<b>Finite Element Meshing</b>				
Unstructured mesh		Yes	Yes	Yes
Structured mesh		Yes	Yes	Yes
Infinite elements		Yes	No	No
<b>Equation Solvers</b>				
Direct equation solver		Yes	Yes	Yes
Parallel Direct Solver		Yes	No	No
<b>Property Functions</b>				
Diffusion function		Yes	Yes	Yes
Adsorption function		Yes	Yes	Yes
Add-In function (user defined)		Yes	No	No
<b>Boundary Functions</b>				
		Yes	No	No

## VII. AIR/W 2007




### AIR/W 2007 Purchasing Options

	<b>GeoStudio 2007</b>					
	Universal	Professional	Standard	AIR/W	Basic	Student (Free)
SLOPE/W	●	●	●		○	○
SEEP/W	●	●	●		○	○
SIGMA/W	●	●	●		○	○
QUAKE/W	●	●			○	○
TEMP/W	●	●			○	○
CTRAN/W	●	●			○	○
AIR/W	●			●	○	○
VADOSE/W	●					○

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



























### AIR/W 2007 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 files	Yes	No	No
Licensed for engineering consulting use	Yes	Yes	No
<b>Methods</b>			
Steady-State	Yes	Yes	Yes
Transient	Yes	No	No
Convective Heat Transfer (AIR/W and TEMP/W)	Yes	No	No

<b>AIR/W 2007 Feature Comparison (continued)</b>	 Full	 Basic	 Student
<b>View Options</b>			
2-Dimensional	Yes	Yes	Yes
Axisymmetric	Yes	Yes	Yes
<b>Finite Element Meshing</b>			
Unstructured mesh	Yes	Yes	Yes
Structured mesh	Yes	Yes	Yes
Infinite regions	Yes	No	No
<b>Equation Solvers</b>			
Direct equation solver	Yes	Yes	Yes
Parallel Direct Solver	Yes	No	No
<b>Soil Models</b>			
Saturated Only	Yes	Yes	Yes
Saturated-Unsaturated	Yes	Yes	Yes
Interface Material	Yes	No	No
<b>Property Functions</b>			
Air conductivity function	Yes	Yes	Yes
Vol. water content function estimation from grain size function	Yes	No	No
Air conductivity function estimation from vol. water content function	Yes	Yes	Yes
Add-In function (user defined)	Yes	No	No
<b>Boundary Functions</b>	Yes	No	No



## VIII. VADOSE/W 2007\*

### VADOSE/W 2007 Purchasing Options

	GeoStudio 2007			VADOSE/W	Student (Free)
	Universal	Professional	Standard		
SLOPE/W					
SEEP/W					
SIGMA/W					
QUAKE/W					
TEMP/W					
CTRAN/W					
AIR/W					
VADOSE/W					

Key:  = Full edition (all features)  = Student edition (limited features)

### VADOSE/W 2007 Feature Comparison

	 Full	 Student
Number of multiple/staged analyses (within one file)	No limit	2
Number of regions	No limit	10
Number of materials	No limit	3
Number of elements	No limit	500
Import regions from AutoCAD DXF files	Yes	No
Licensed for engineering consulting use	Yes	No

<b>VADOSE/W 2007 Feature Comparison (continued)</b>	<input checked="" type="radio"/> Full	<input type="radio"/> Student
<b>Methods</b>		
Steady-State	Yes	Yes
Transient Coupled	Yes	Yes
Transient Uncoupled	Yes	No
Transient Isothermal	Yes	No
Vegetation	Yes	No
Gas diffusion	Yes	No
Ground freezing	Yes	No
<b>View Options</b>		
2-Dimensional	Yes	<b>1D only</b>
Axisymmetric	Yes	No
Plan	No	No
<b>Finite Element Meshing</b>		
Unstructured mesh	Yes	No
Structured mesh	Yes	Yes
Infinite elements	Yes	No
<b>Equation Solvers</b>		
Direct equation solver	Yes	Yes
Parallel Direct Solver	Yes	No
<b>Soil Models</b>		
Hydraulic and full thermal	Yes	No
Hydraulic and simplified thermal	Yes	Yes
Interface material	Yes	No
<b>Input Data Sets</b>		
Climate data	Yes	<b>40 days</b>
Vegetation data	Yes	No
<b>Property Functions</b>		
Conductivity functions	Yes	Yes
Water content function	Yes	Yes
Thermal functions	Yes	No
Water content function estimation	Yes	Yes
Conductivity function estimation	Yes	Yes
Add-In function (user defined)	Yes	No
<b>Boundary Functions</b>		
	Yes	No

*\*See the VADOSE/W Basic document for a complete description of the features available in VADOSE/W Basic.*