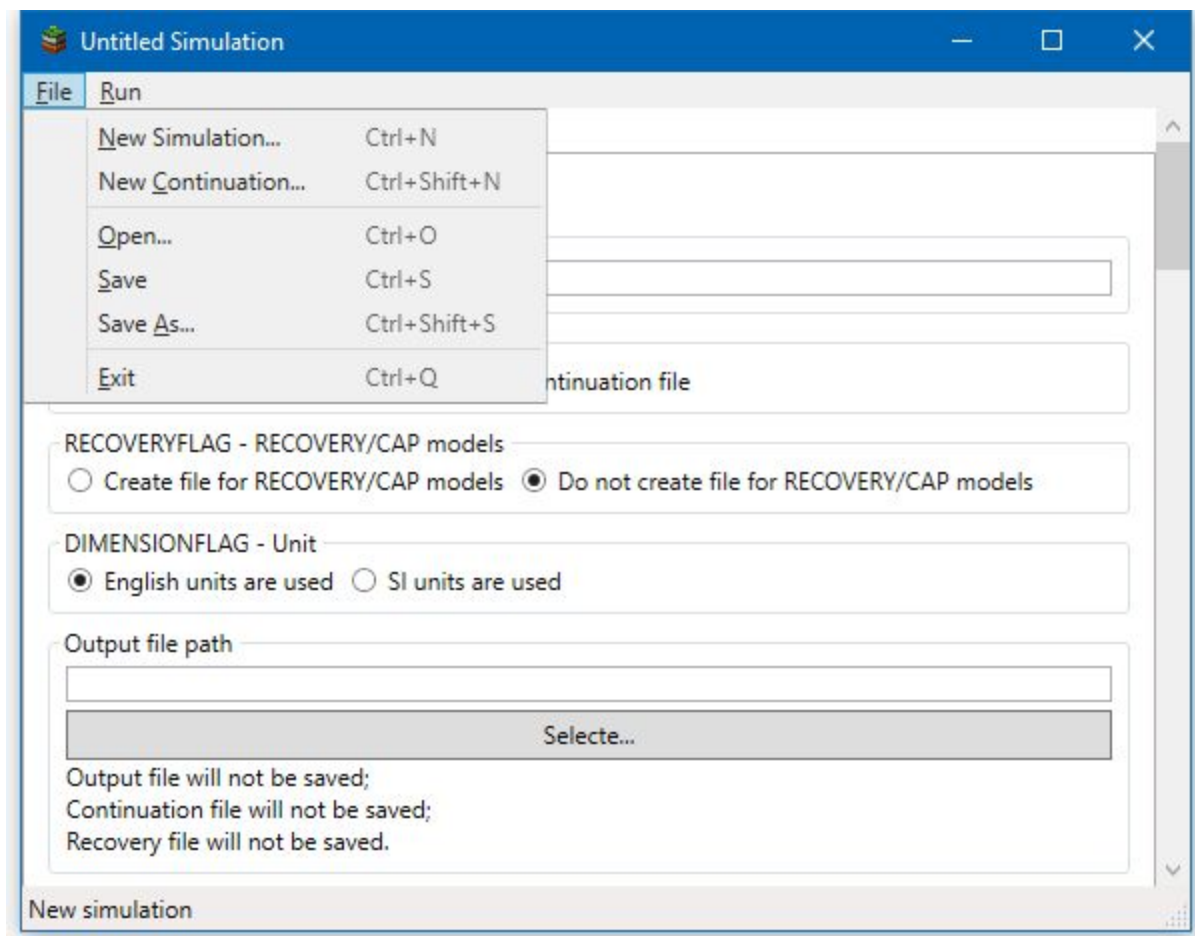


PSDDF is an console program on DOS written in Fortran95. The program utilizes finite strain consolidation theory, the C_a/C_c concept for secondary compression, and an empirical desiccation model to estimate the changes in dredged material surface elevation with time. This allows determination of the optimal filling schedule and quantification of the effects of operational techniques on the service life of confined dredged material placement areas. The program can also simulate underwater placement of cohesive or cohesionless soil and placement of a sand capping or drainage layer.

PsddfCsApp is an interactive Windows application for visualizing simulation data generated by PSDDF. It is written in C# using Windows Presentation Foundation by Kailang Fu from University of Illinois under the supervision of Professor Timothy D. Stark from Civil and Environmental Engineering Department of UIUC. To better maintain PSDDF in the future, Kailang Fu also rewrote PSDDF in C#.

The source files for PsddfCsApp and the migrated PsddfCs was posted at github.com/Kailang/PsddfCsApp and github.com/Kailang/PsddfCs. The source files are removed from GitHub by the request of Professor Stark in September 22nd, 2018.



Menu with shortcuts.

- Now, we can create a new file, open an existing file, save file, save as another file, or exit the program like you would do in any other modern applications.
- Common shortcuts like Ctrl+N for opening and Ctrl+S for saving, are also available.

Charleston South Carolina

File Run

New Simulation Continuation

Group A/B - Description

NPROB - Problem name
Charleston South Carolina

NDATA2 - Continuation file
☒ Do not save continuation file ☐ Save continuation file

RECOVERYFLAG - RECOVERY/CAP models
☐ Create file for RECOVERY/CAP models ☒ Do not create file for RECOVERY/CAP models

DIMENSIONFLAG - Unit
☒ English units are used ☐ SI units are used

Output file path

Output file will not be saved;
 Continuation file will not be saved;
 Recovery file will not be saved.

Group C - Incompressible foundation

Group D1 - Compressible foundation layers

Group D2/D3 - Compressible foundation materials

Group D4/D5 - Dredged fill materials

Group F - First dredged fill layer

Group G - Print time details

Group H - Desiccation parameters

TPM - Number of days per month
30

DREFF - Surface drainage efficiency
1

CE - Maximum dredged fill evaporation efficiency
0.75

Group I - Precipitation Data

Opened D:\VisualStudio\PsdffCsApp\PsdffCsApp\bin\Debug\Resources\EXAMPLE4O.psi

Foldable input groups listed.

- Now, we can quickly jump to and view any input group and fields by just scrolling and temporarily hide information by folding input groups.

Charleston South Carolina

File Run

New Simulation Continuation

Group A/B - Description

Group C - Incompressible foundation

Group D1 - Compressible foundation layers

Group D2/D3 - Compressible foundation materials

Duplicate Edit Material Properties...

KOM - Material ID	GSDF - Specific gravity	CACC - Ca/Cc	CRCC - Cr/Cc	LDF - Number of Data Points
1	2.83	0.039	0.15	36

Group D4/D5 - Dredged fill materials

Duplicate Import Desiccation Preset... Edit Material Properties...

KOM - Material ID	GSDF - Specific gravity	CACC - Ca/Cc	CRCC - Cr/Cc	SL - Saturation Limit	DL
2	2.6	0.04	0.145	6.7	3.1
3	2.75	0.041	0.17	6.7	3.1

Group F - First dredged fill layer

Group G - Print time details

Duplicate Time Increment 0

PRINTT - Print Time	AHDF - Initial Thickness	ATDS - Days to Desiccation	NMS - Month to Desiccation
180	0	820	4
300	3.6	820	4
500	0	820	4
730	3.2	820	4
820	0	820	4
850	0	850	5
910	0	910	7
970	0	970	9
1060	0	1060	12
1100	0	1100	12
1140	0	1140	12
1480	0	1480	6
1530	0	1530	6
1700	0	1700	6
2000	0	2000	6
2555	0	2555	6

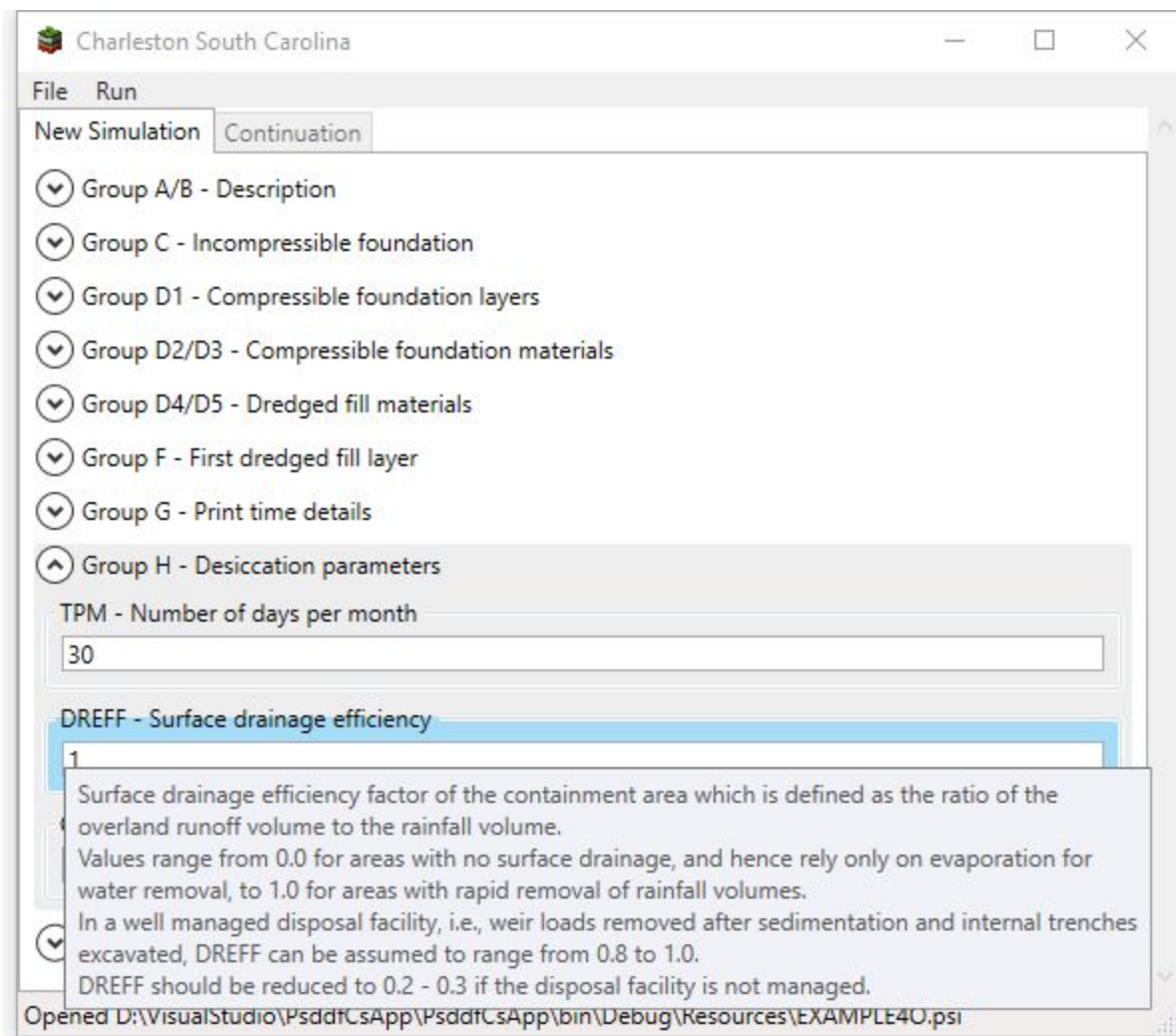
Group H - Desiccation parameters

Group I - Precipitation Data

Opened D:\VisualStudio\PsdffCsApp\PsdffCsApp\bin\Debug\Resources\EXAMPLE4O.psi

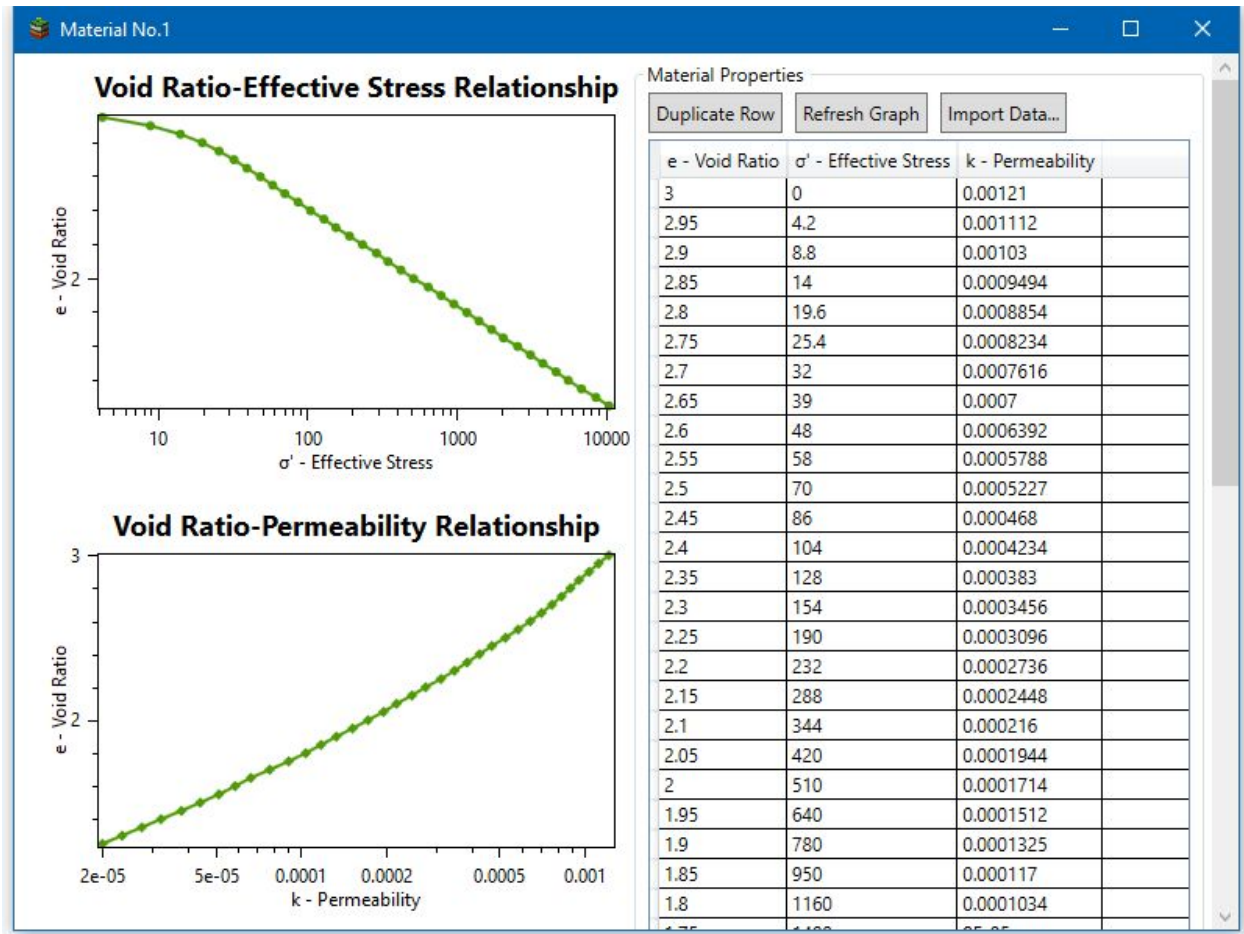
Table for material types, compressible foundation layers, and print times.

- Now, we can edit material types, compressible foundation layer properties, and print time definitions in the table form.
- This enables us quickly to add new materials, new layers, and new print times.
- We can even duplicate a print time entry with a time increment to add new print times super fast!



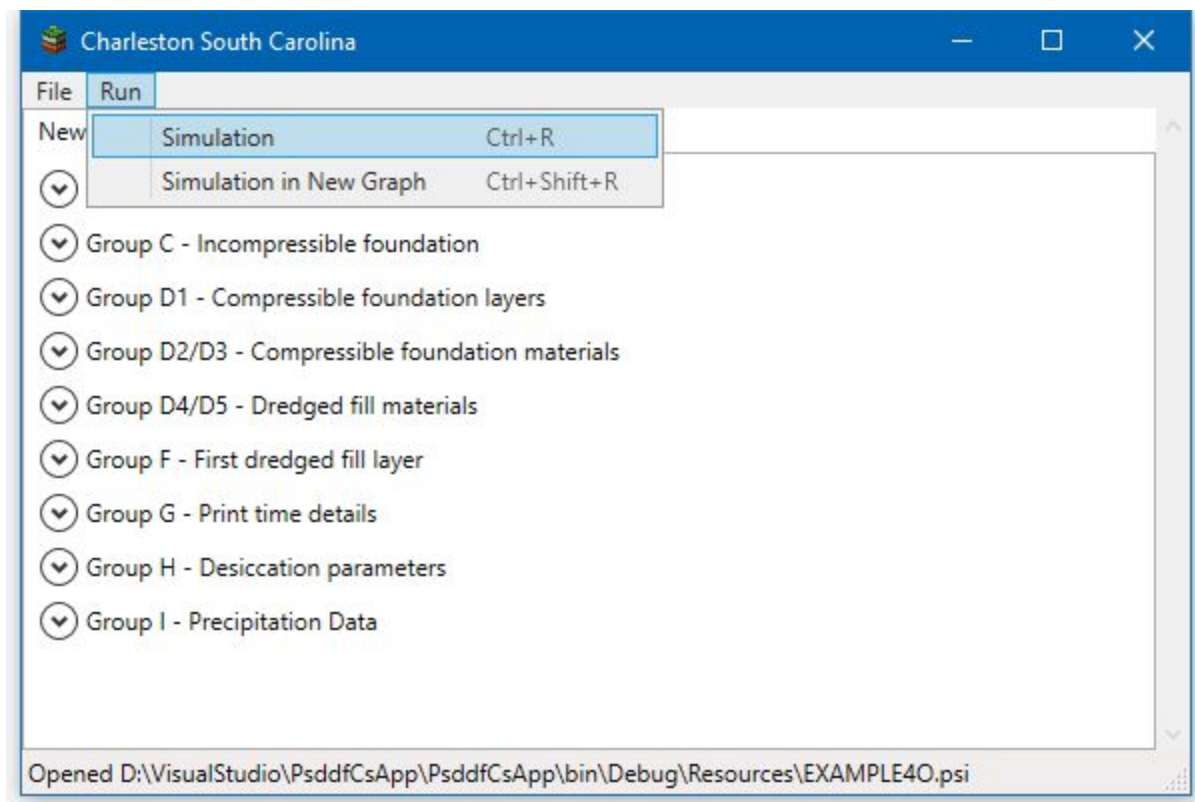
See help on mouse hover.

- Now, we can see the documentation on any field by moving the mouse over it.



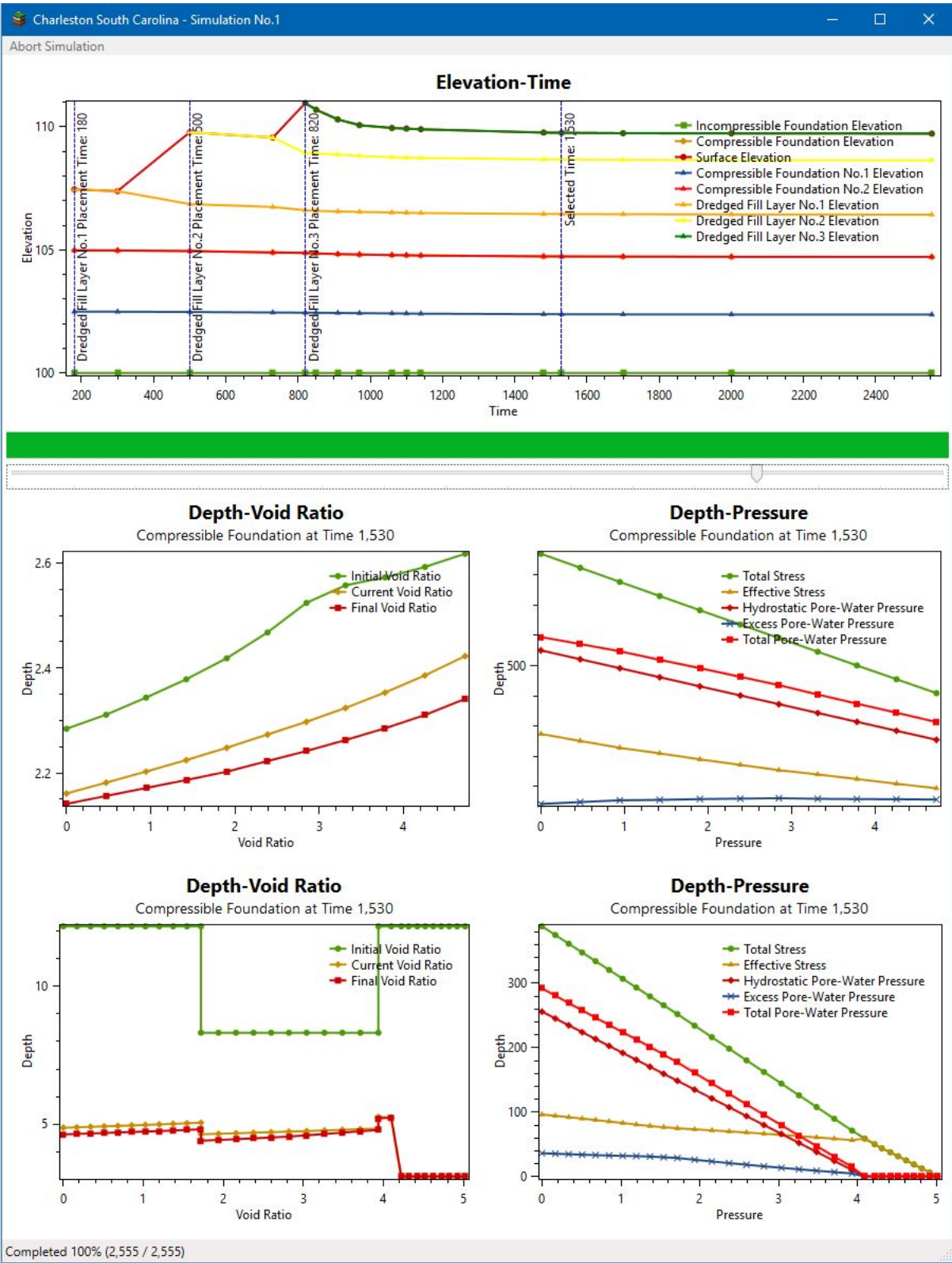
Edit void ratio-effective stress and void ratio-permeability relations with graphs!

- We can now see the e -log σ' and e -log k relations directed in the application.



Run simulation by pressing Ctrl+R!

- Run simulation super fast.



View simulation results in GRAPHS in REAL TIME.

- View detailed graph for elevation changes.
- View graphs for depth-void ratio and depth-pressure relations for compressible foundation layers and dredged fill layers.
- Select time using the slider to inspect depth-void ratio and depth-pressure relations across the simulated time interval.
- All graphs are updated as the simulation proceeds.
- Aborting the simulation will not delete the simulated results.

Import Material Properties

Import Cancel

SiteName	SoilClassification	PlasticityIndex	InitialVoidRatio
Black Rock, CT	OH	66	10.75
Cape Canaveral, FL	CH	103	11.5
Craney Island, VA	CH	88	10.5
Drum Island, SC	CH	91	12.15
Dutch Kills, NY	OH	50	10.7
Duwamish, WA	CH	39	9
Earle Navy, NY	SC	15	11.2
Houston Galveston, TX	CH	56	9.37
Houston Galveston, TX	CH	91	10.07
Houston Galveston, TX	CH	40	9.05
Houston-Galveston, TX	SC	23	9
Kings Bay, GA	CH	163	10.73
Kings Bay, GA	CH	149	10.67
Kings Bay, GA	SC	56	12.62
Lower Passiac, NY	CH	63	8.9
New Haven, CT	CH	68	8.5

Import Precipitation Properties

Import Cancel

SiteName
Black Rock, CT
Cape Canaveral, FL
Craney Island, VA
Drum Island, SC
Dutch Kills, NY
Duwamish, WA
Earle Navy, NY
Houston-Galveston, TX
Kings Bay, GA
Lower Passiac, NJ
New Heaven, CT
Newark Bay, NJ
NWS Concord-wetland, CA
Port Authority, NY
Port Elizabeth, NY
Red Hook, NY

Import Desiccation Properties				
<input type="button" value="Import"/> <input type="button" value="Cancel"/>				
SiteName	PlasticityIndex	DessicationLimit	SaturationLimit	SaturationAtDesiccation
Black Rock, CT	66	2.82	5.16	0.5
Cape Canaveral, FL	103	2.5	3.7	0.52
Craney Island, VA	88	3.2	6.5	0.43
Drum Island, SC	91	3.1	6.7	0.49
Dutch Kills, NY	50	2.32	3.92	0.77
Duwamish, WA	39	2.02	3.26	0.5
Earle Navy, NY	15	1.48	1.83	0.5
Houston-Galveston, TX	56	2.19	4.3	0.85
Houston-Galveston, TX	91	2.56	6.36	0
Houston-Galveston, TX	40	2.02	3.36	0.65
Houston-Galveston, TX	23	1.84	2.35	0.47
Kings Bay, GA	163	3.1	9.8	0.5
Kings Bay, GA	149	3.2	9.3	0.5
Kings Bay, GA	56	1.8	4.1	0.48
Lower Passiac, NJ	63	2.28	4.54	0.5
New Haven, CT	68	1.81	4.64	0.5

Import from databases, as always.

- Import material properties (e- σ' and e-k relations), desiccation presets, and precipitation properties.