ERDC
Engineer Research and Development Center

Overview of GenCade in SMS 11.1

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GenCade Webinar

16-18 October 2012

US Army Corps of Engineers®

Report Documentation Page

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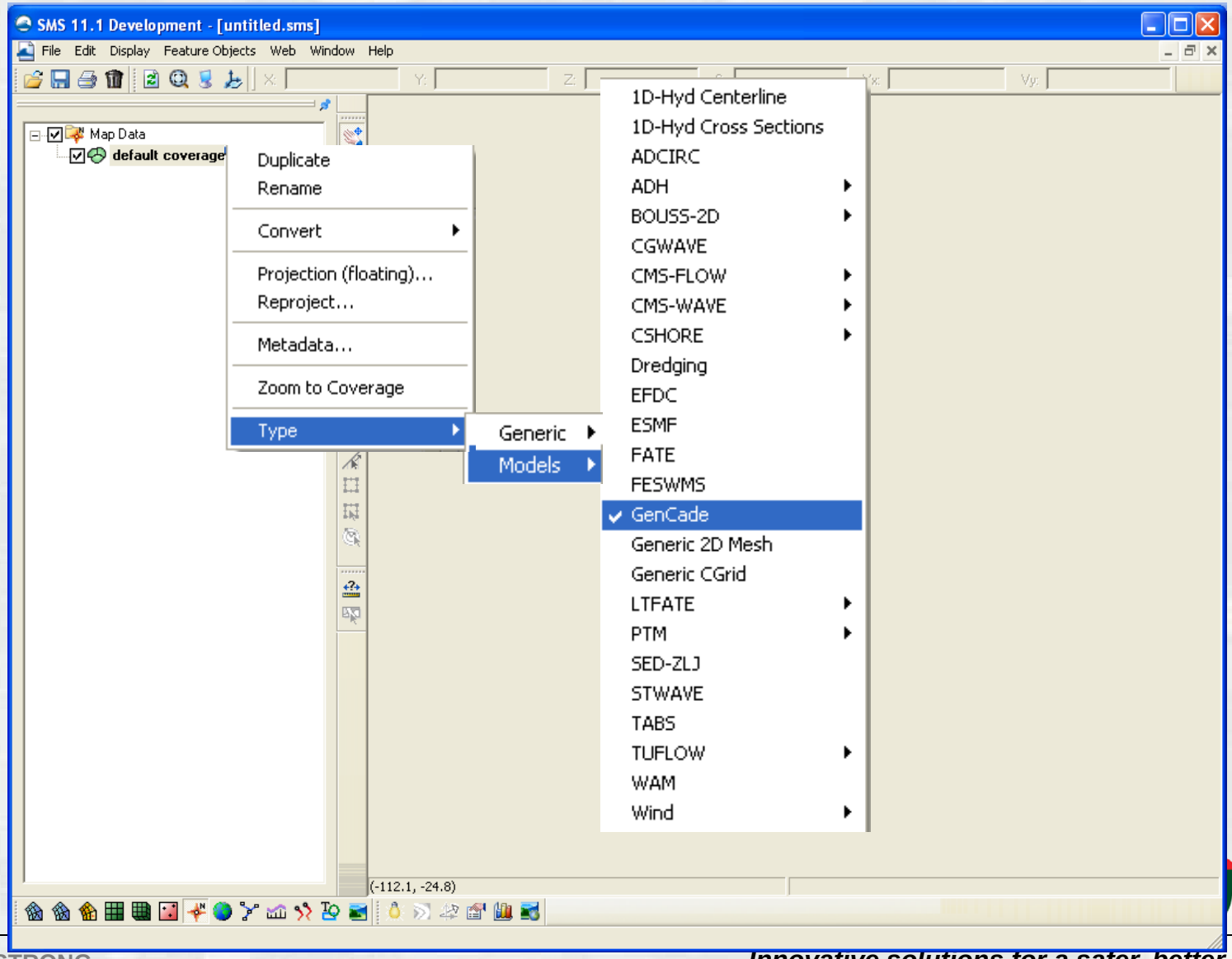
Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

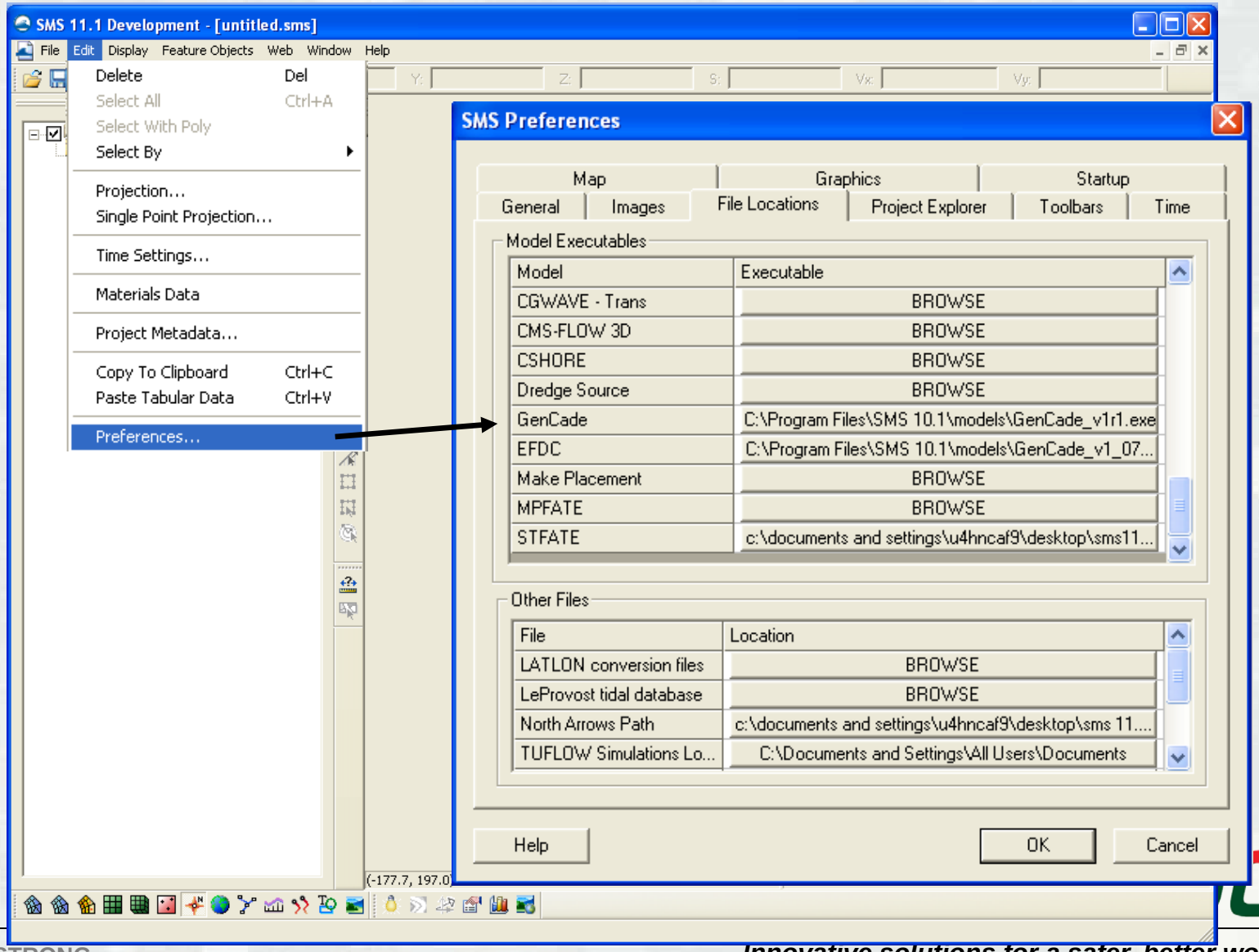
Overview of Presentation

- Introduction to GenCade in the SMS
  - Conceptual model
    - Set up shorelines, waves, and structures in real-world coordinates
  - GenCade model
    - All features are referenced to grid cell numbers
    - GenCade input files are created
    - Set up model control
    - Run GenCade
    - View results

Define as GenCade



Location of Executable



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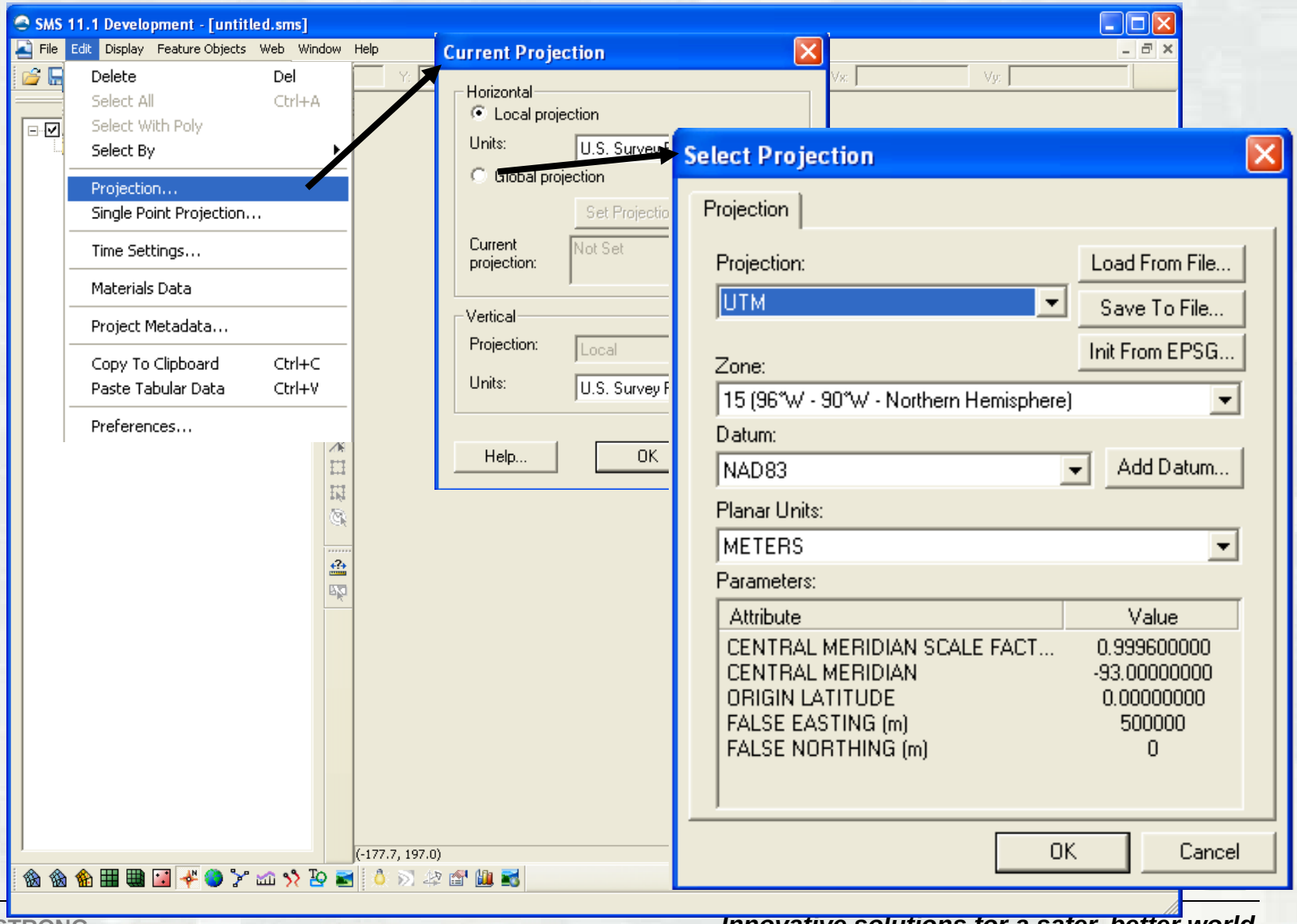
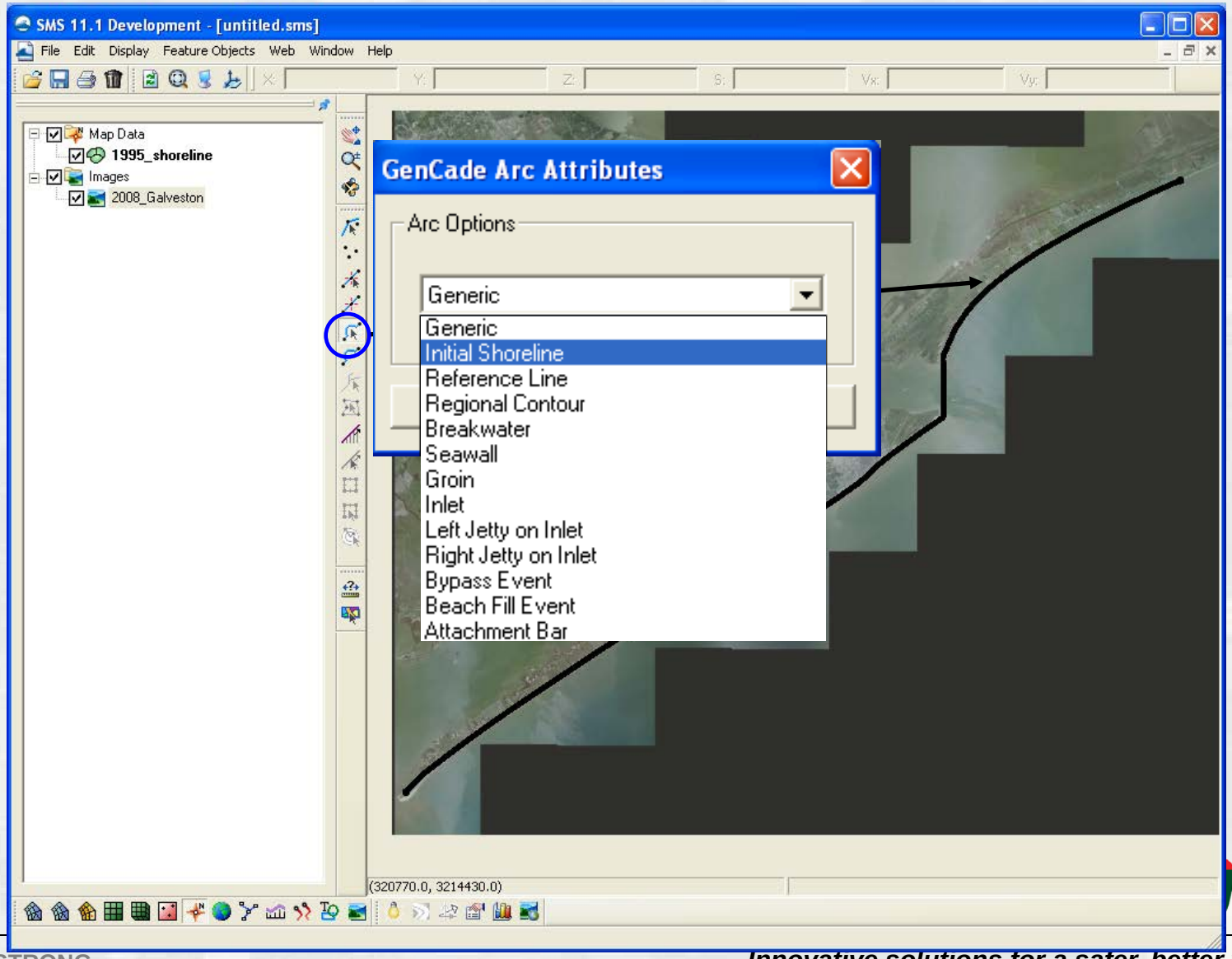
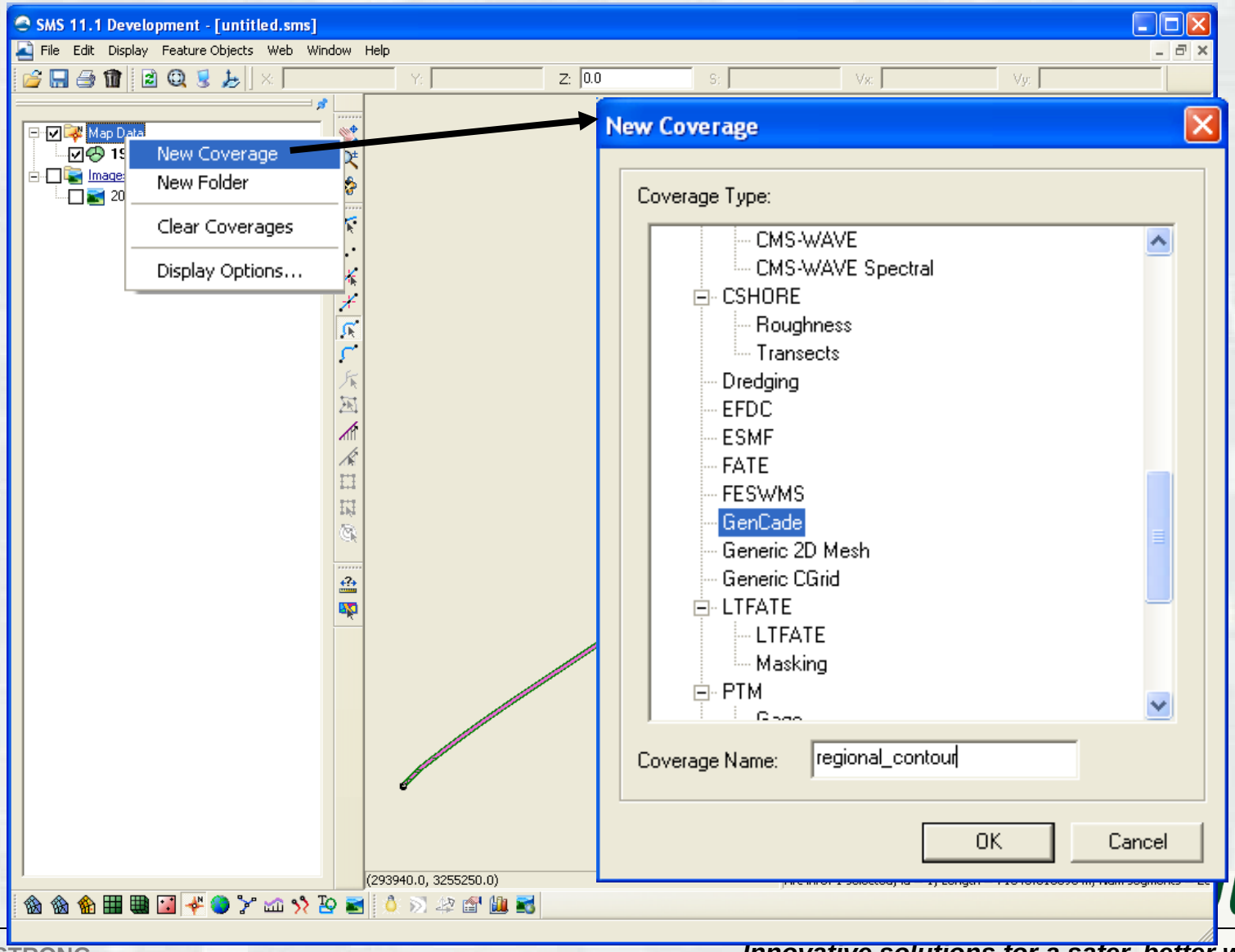


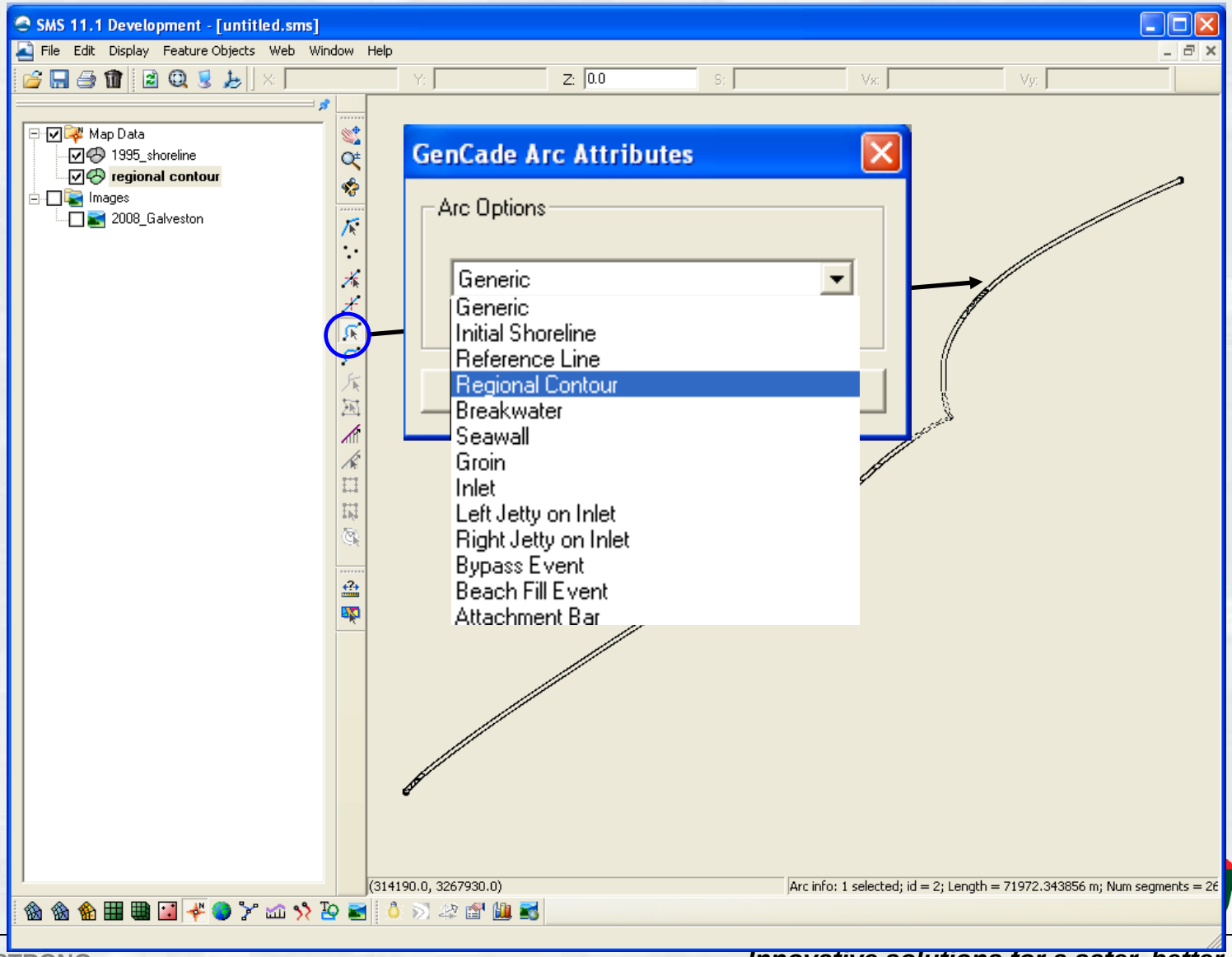
Define Initial Shoreline



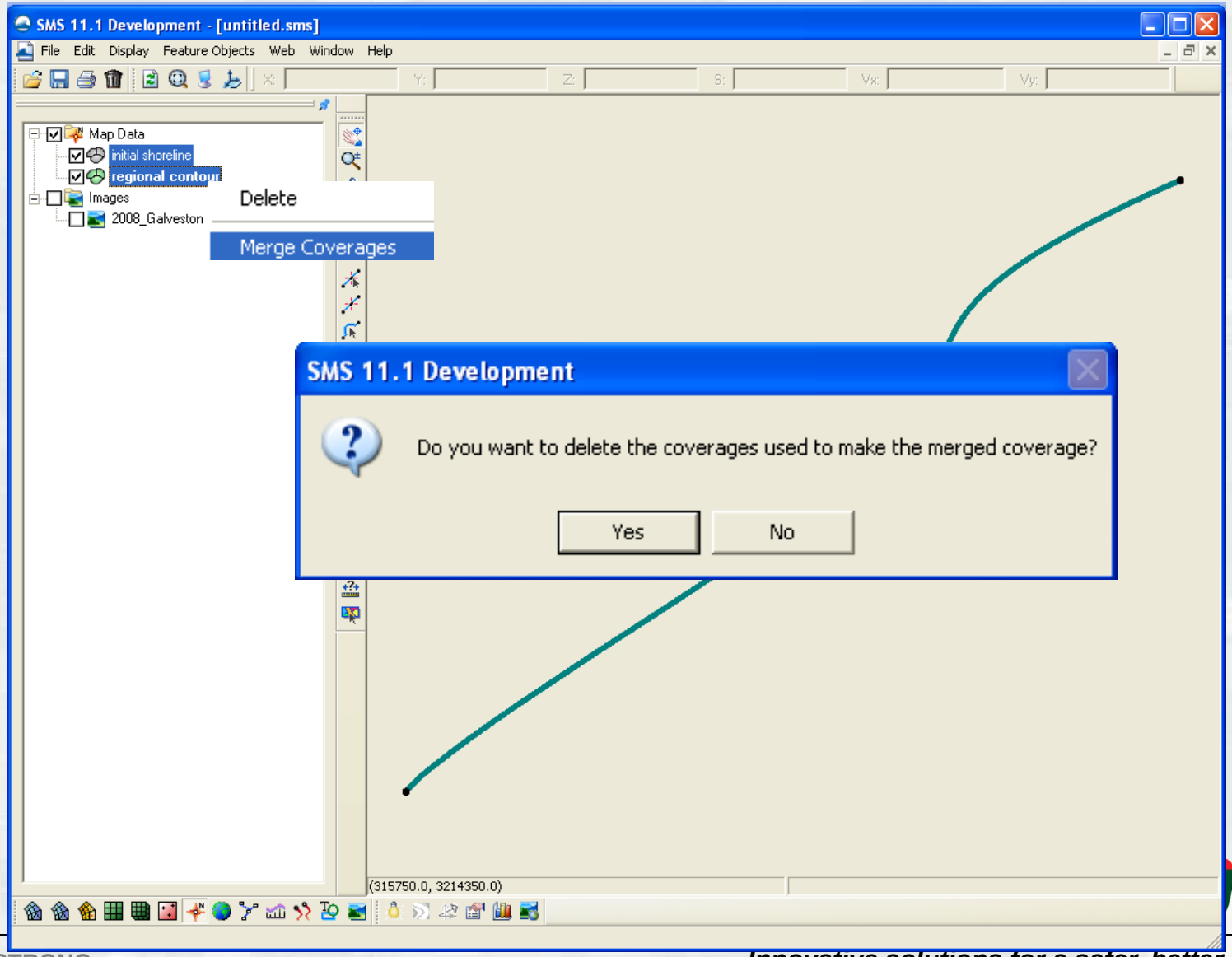
Add New Coverage



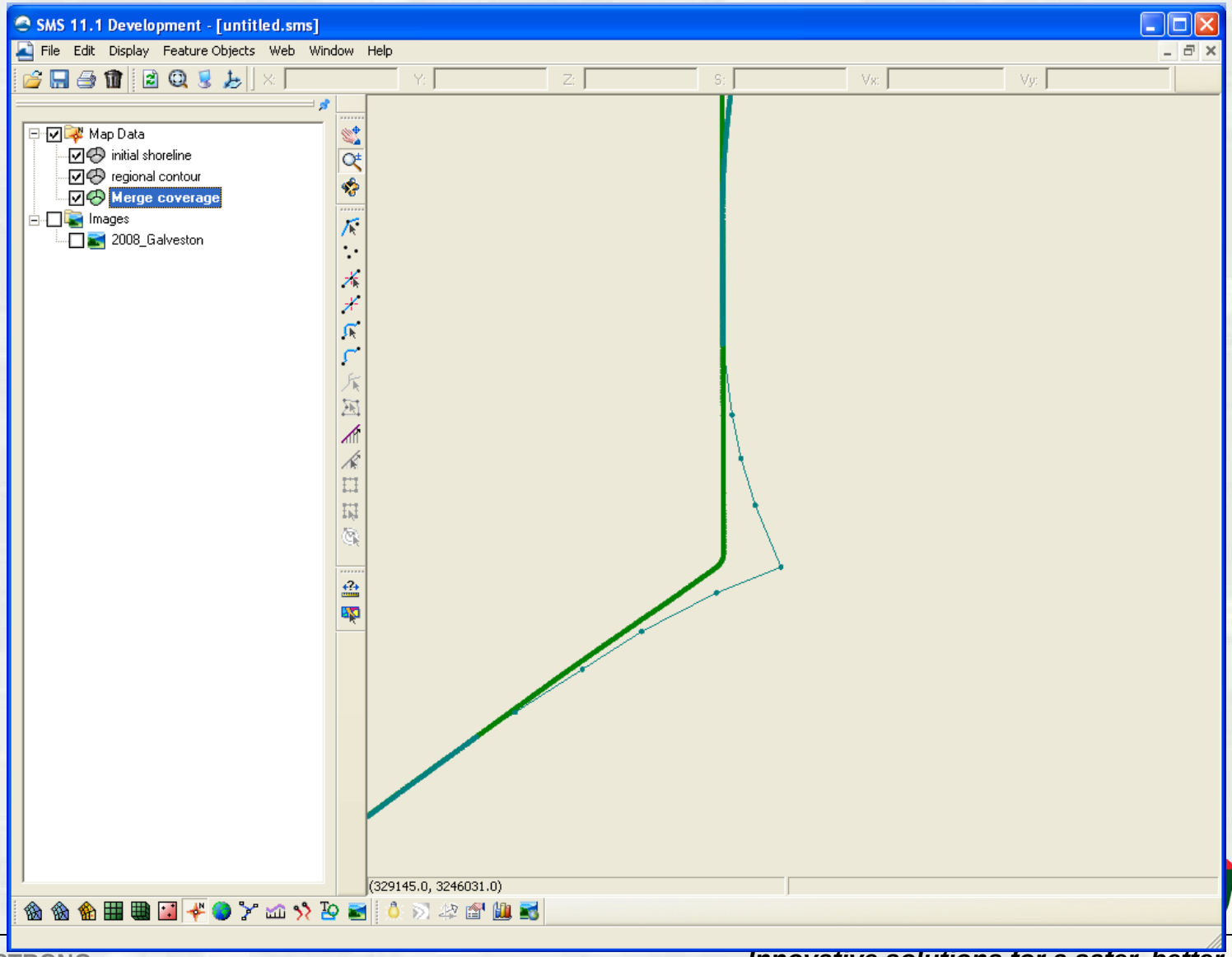
Define Regional Contour



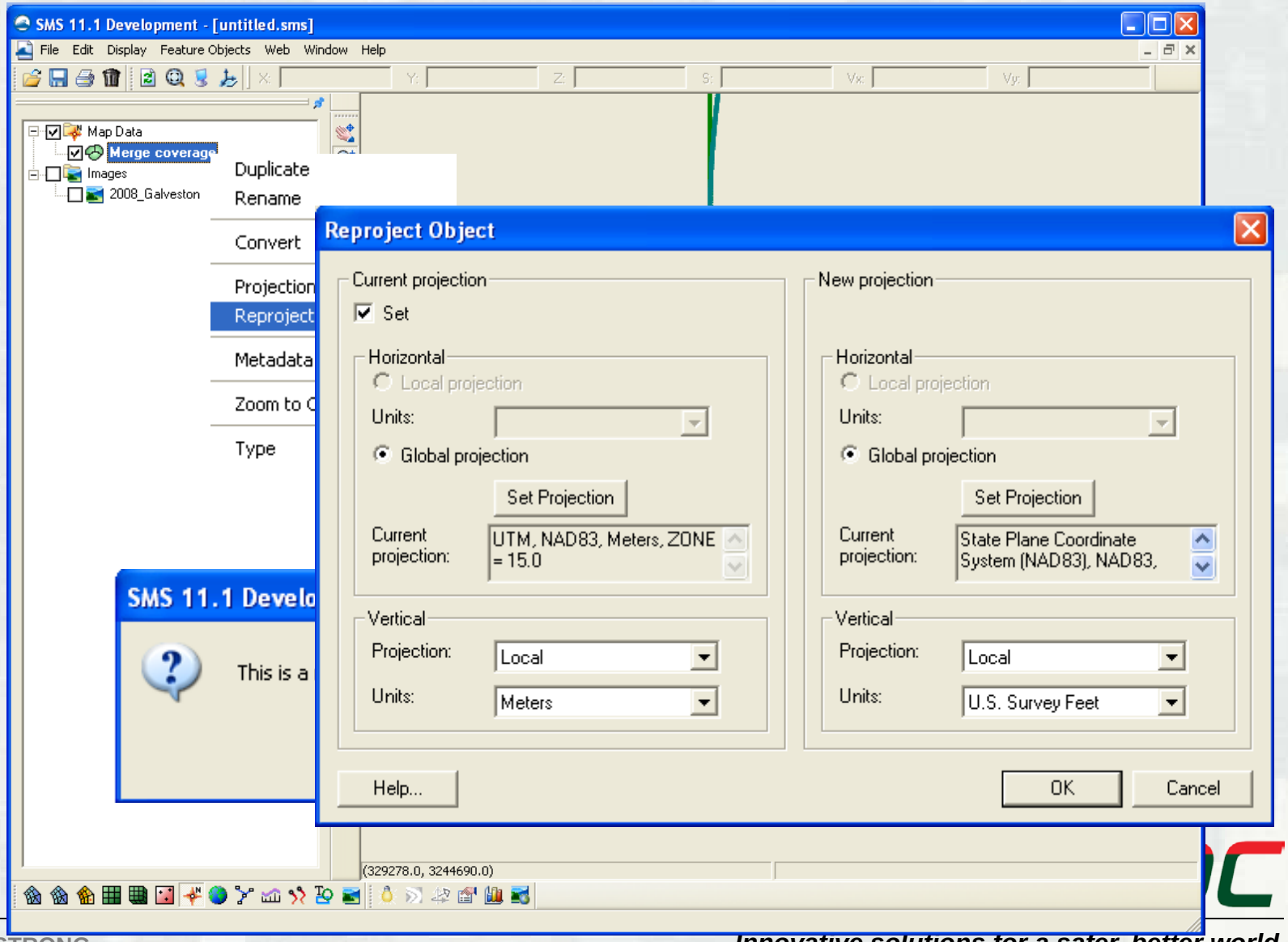
Merge Coverages



Merged Coverages



Convert to New Projection



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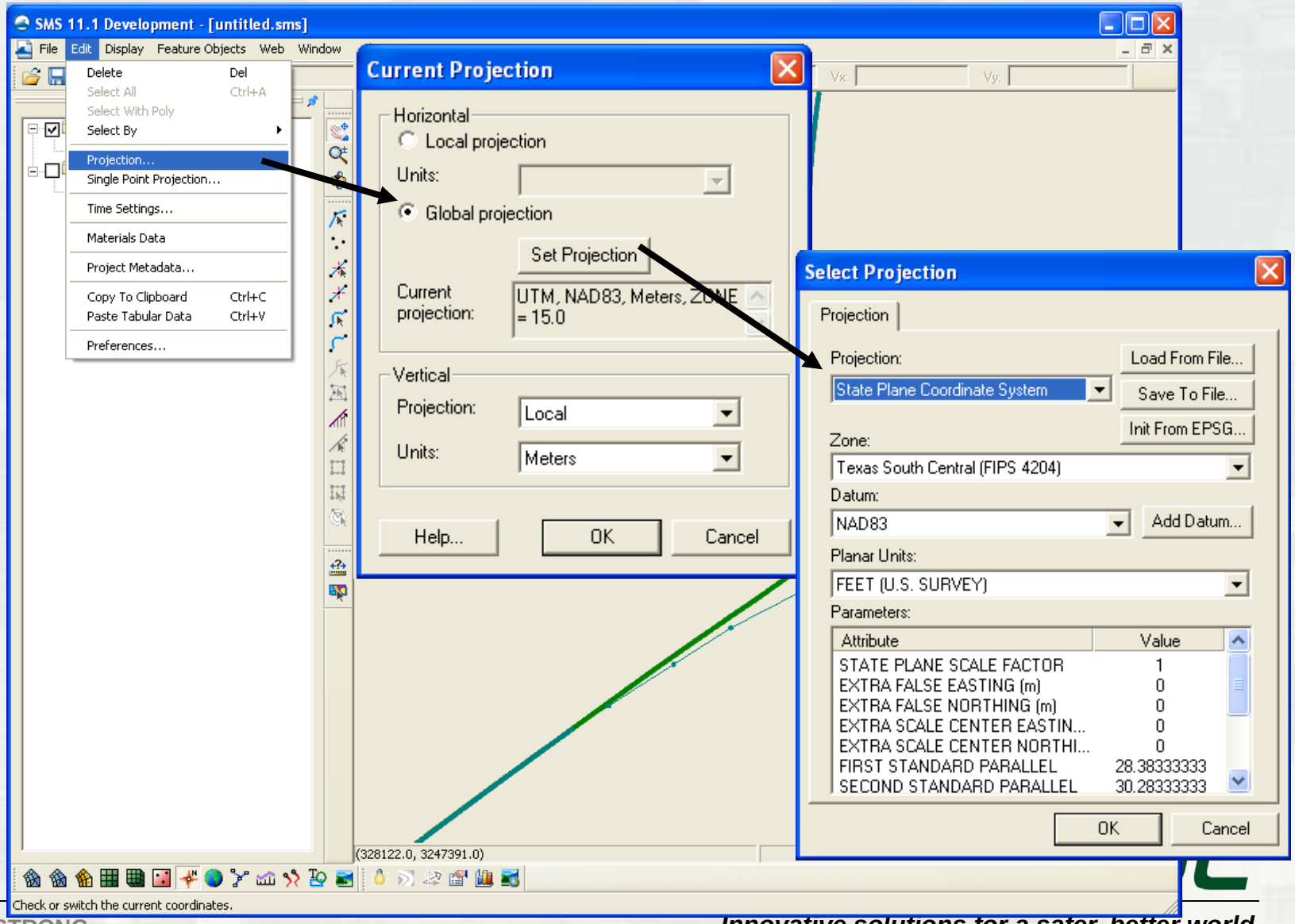
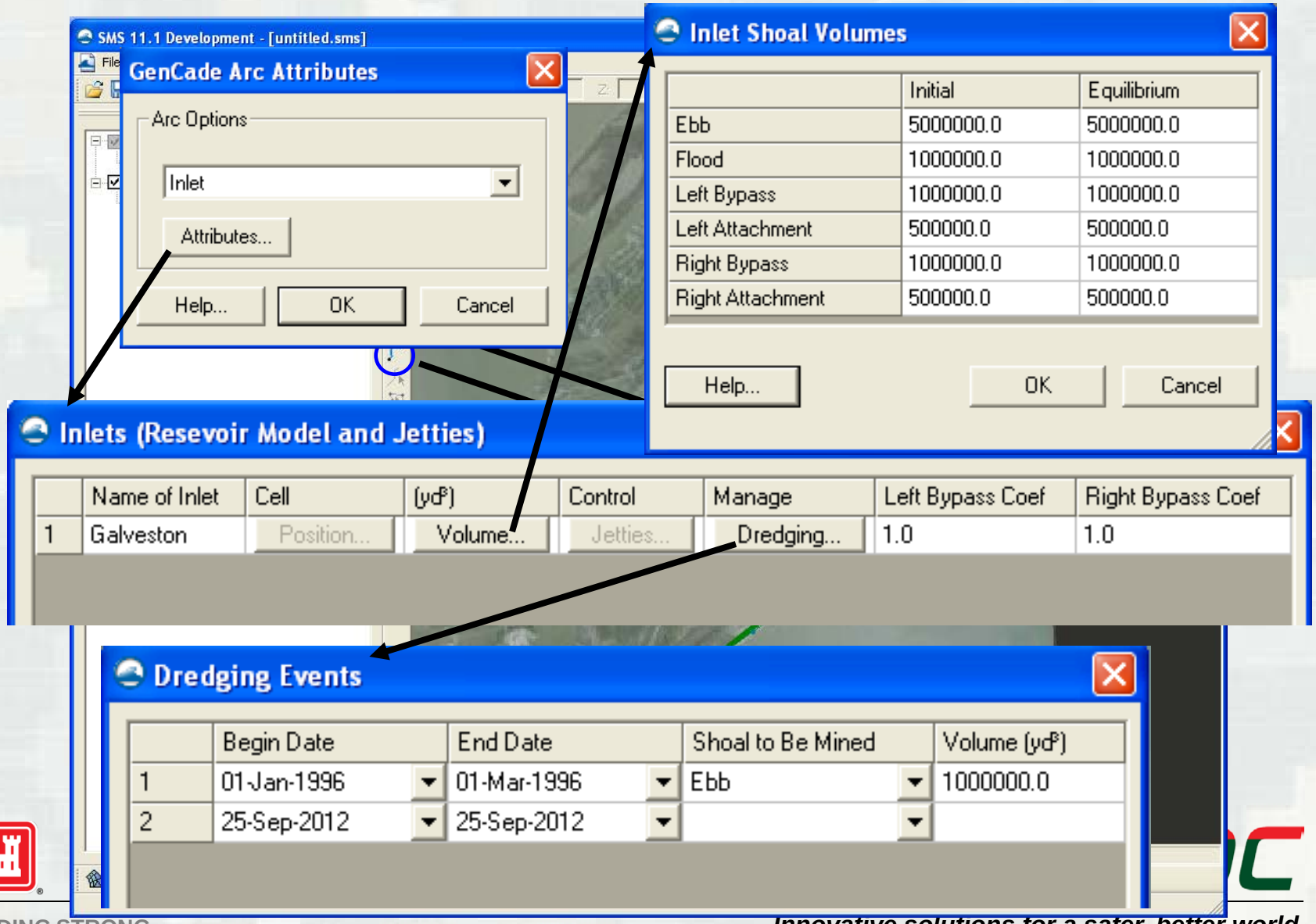
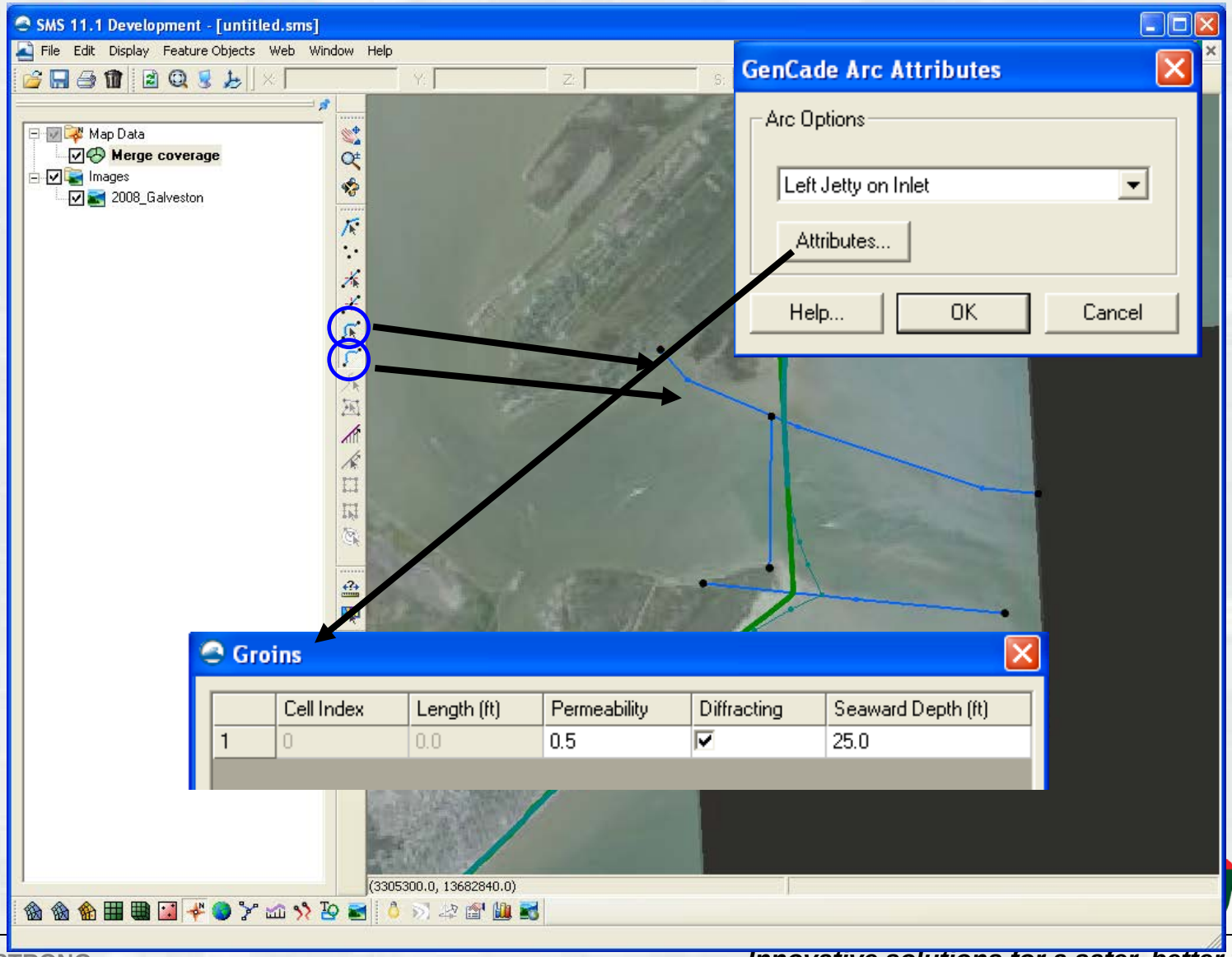


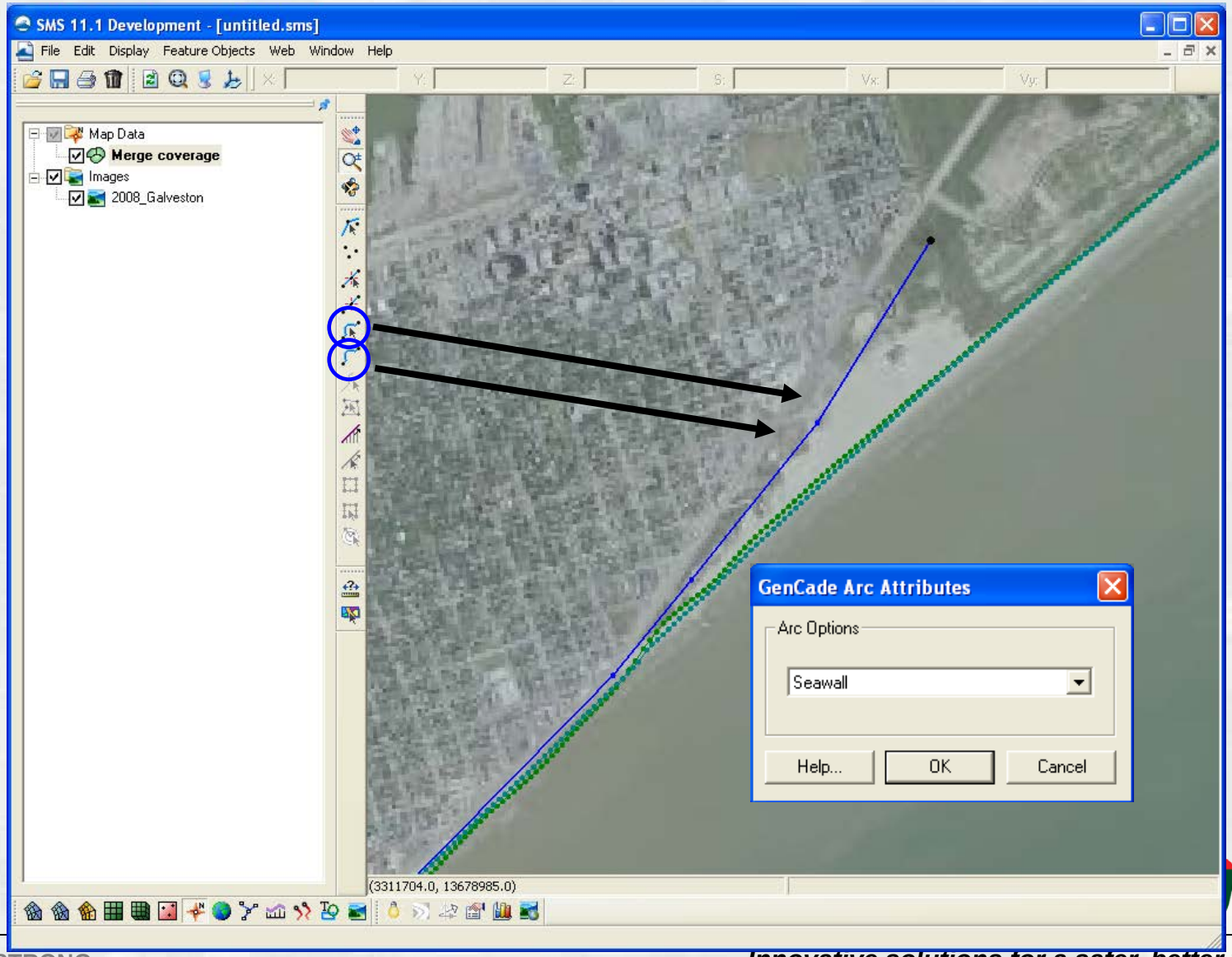
Inlets


SMS 11.1 Development - [untitled.sms]
GenCade Arc Attributes
Arc Options
Inlet
Attributes...
Help...
OK
Cancel
Inlet Shoal Volumes
Initial
Equilibrium
Ebb 5000000.0 5000000.0
Flood 1000000.0 1000000.0
Left Bypass 1000000.0 1000000.0
Left Attachment 500000.0 500000.0
Right Bypass 1000000.0 1000000.0
Right Attachment 500000.0 500000.0
Help...
OK
Cancel
Inlets (Resevoir Model and Jetties)
Name of Inlet
Cell
(yd³)
Control
Manage
Left Bypass Coef
Right Bypass Coef
1 Galveston Position... Volume... Jetties... Dredging... 1.0 1.0
Dredging Events
Begin Date
End Date
Shoal to Be Mined
Volume (yd³)
1 01-Jan-1996 01-Mar-1996 Ebb 1000000.0
2 25-Sep-2012 25-Sep-2012

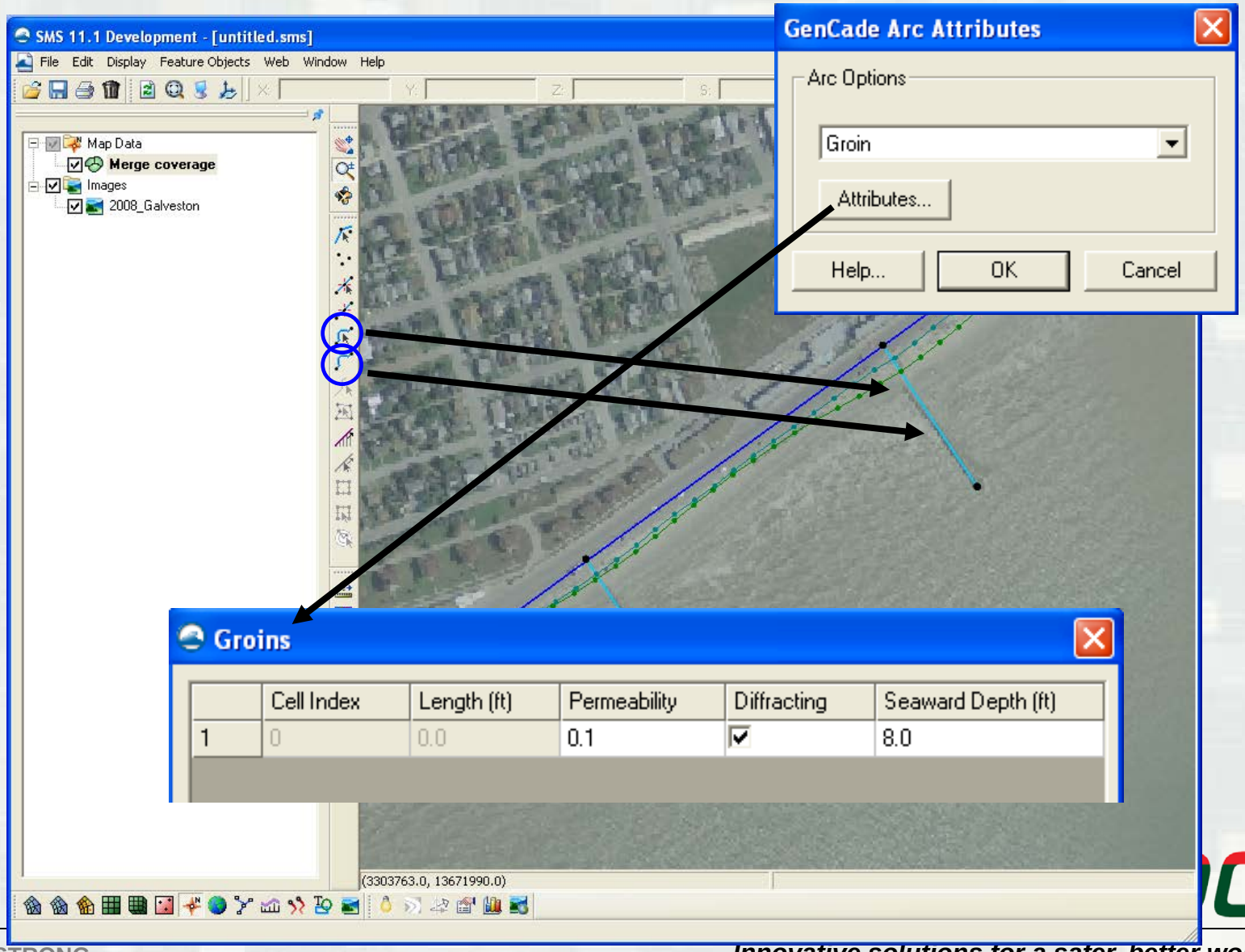
Jetties


SMS 11.1 Development - [untitled.sms]
File Edit Display Feature Objects Web Window Help
Map Data
Merge coverage
Images
2008_Galveston
GenCade Arc Attributes
Arc Options
Left Jetty on Inlet
Attributes...
Help...
OK
Cancel
Groins
Cell Index
Length (ft)
Permeability
Diffracting
Seaward Depth (ft)
1
0
0.0
0.5
25.0
(3305300.0, 13682840.0)

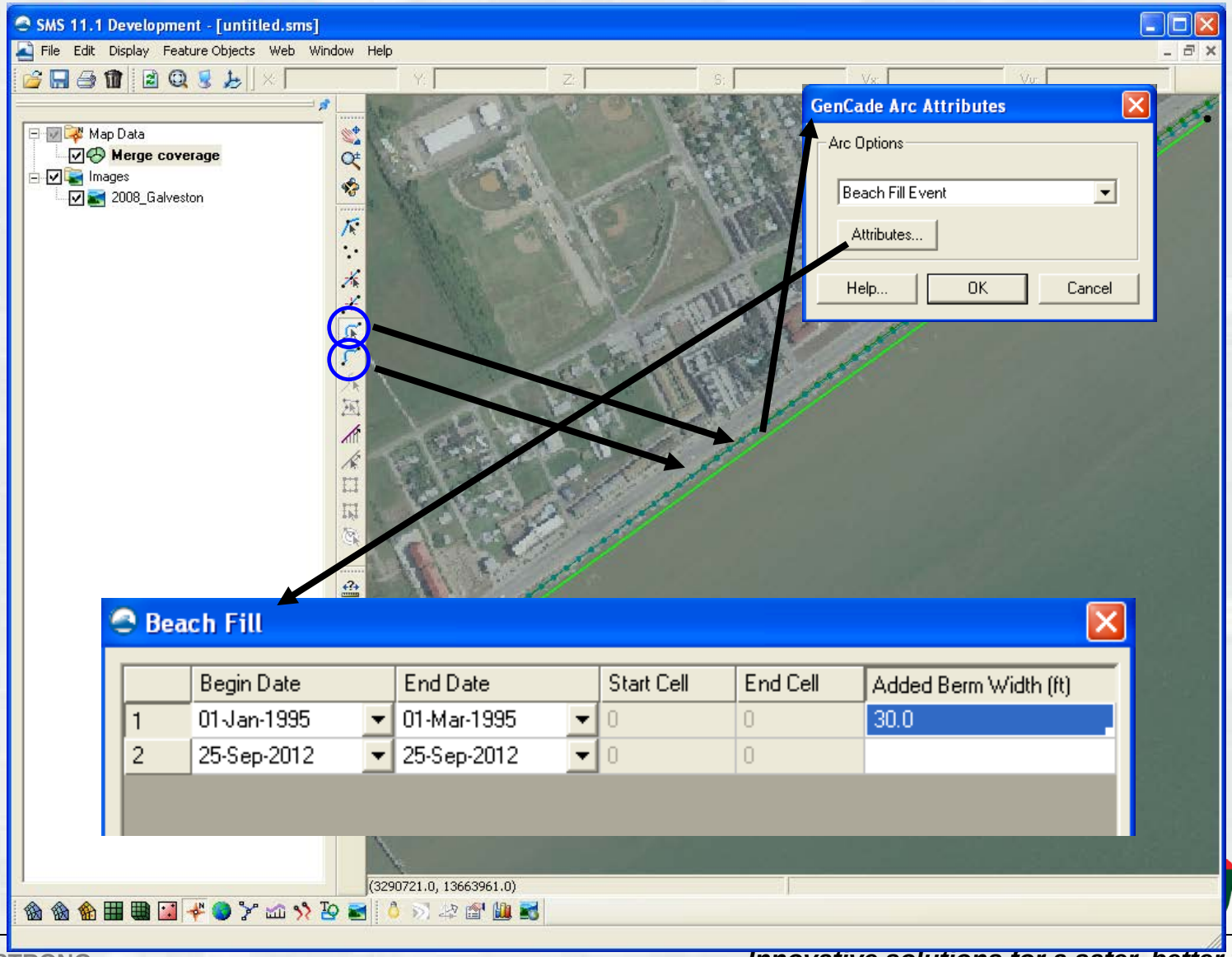
Seawall


SMS 11.1 Development - [untitled.sms]
File Edit Display Feature Objects Web Window Help
Map Data
Merge coverage
Images
2008_Galveston
GenCade Arc Attributes
Arc Options
Seawall
Help...
OK
Cancel
(3311704.0, 13678985.0)

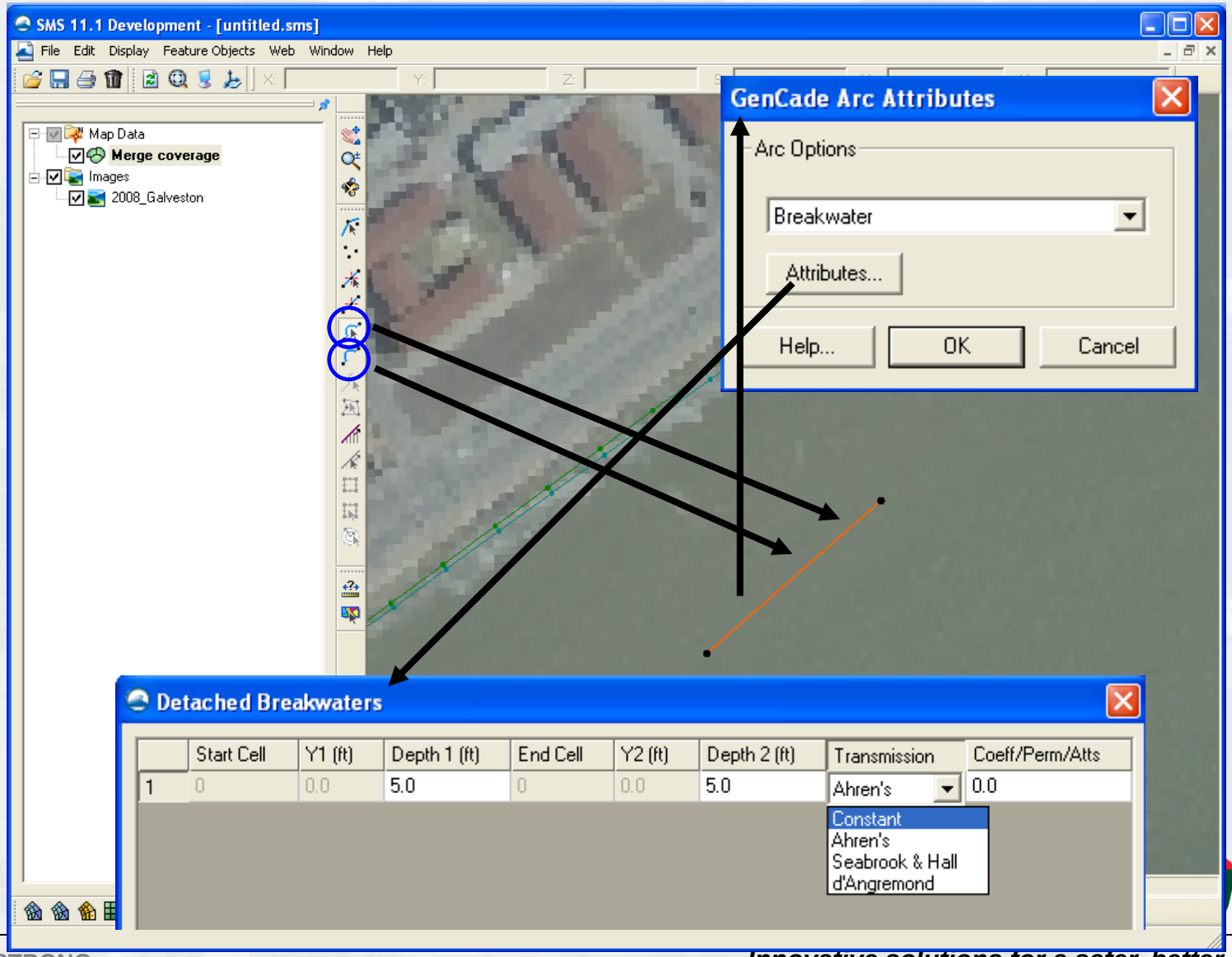
Groins


SMS 11.1 Development - [untitled.sms]
File Edit Display Feature Objects Web Window Help
Map Data
Merge coverage
Images
2008_Galveston
GenCade Arc Attributes
Arc Options
Groin
Attributes...
Help...
OK
Cancel
Groins
Cell Index
Length (ft)
Permeability
Diffracting
Seaward Depth (ft)
1
0
0.0
0.1
8.0
(3303763.0, 13671990.0)

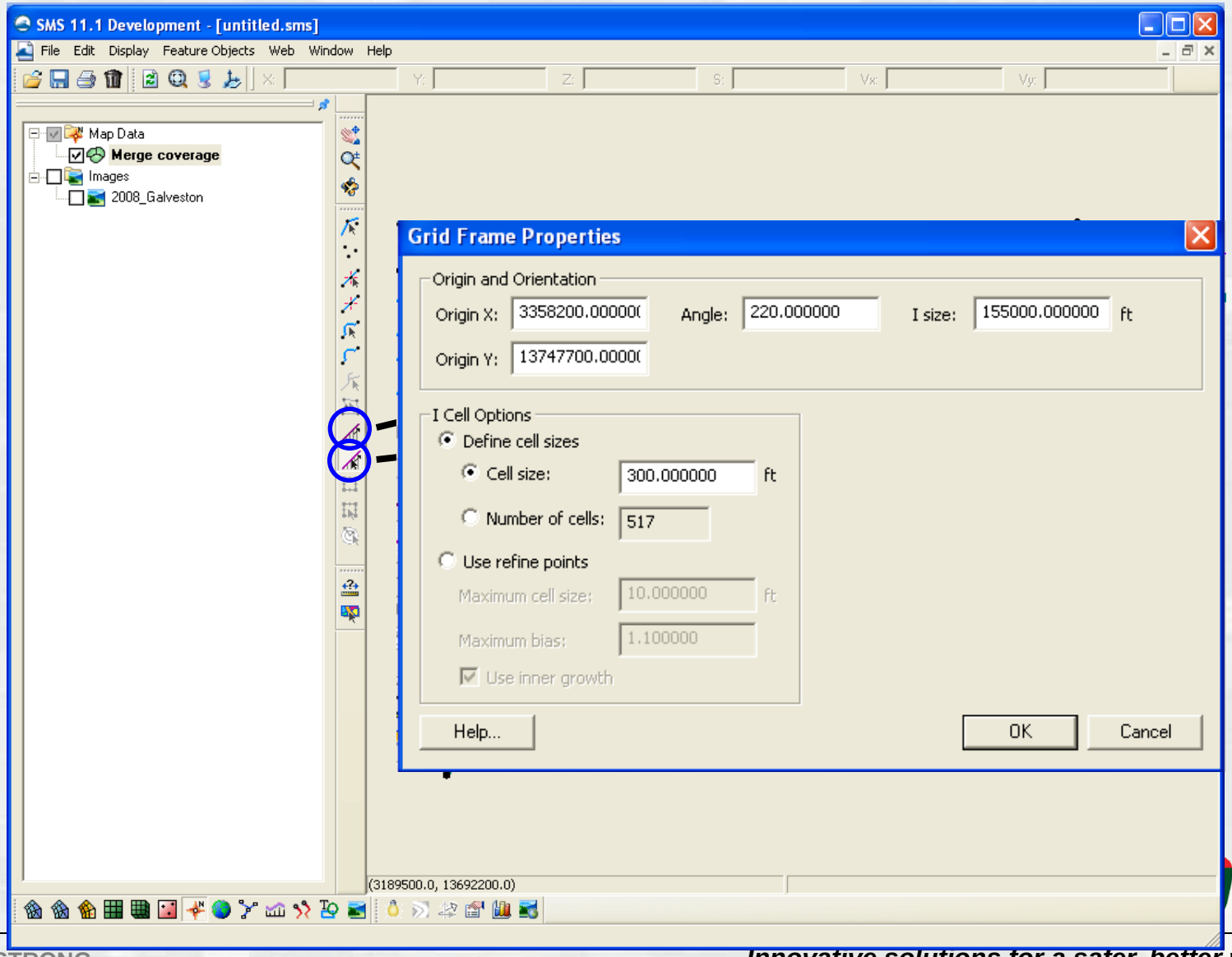
Beach Fill


SMS 11.1 Development - [untitled.sms]
File Edit Display Feature Objects Web Window Help
Map Data
Merge coverage
Images
2008_Galveston
GenCade Arc Attributes
Arc Options
Beach Fill Event
Attributes...
Help...
OK
Cancel
Beach Fill
Begin Date
End Date
Start Cell
End Cell
Added Berm Width (ft)
1
01-Jan-1995
01-Mar-1995
0
0
30.0
2
25-Sep-2012
25-Sep-2012
0
0
(3290721.0, 13663961.0)

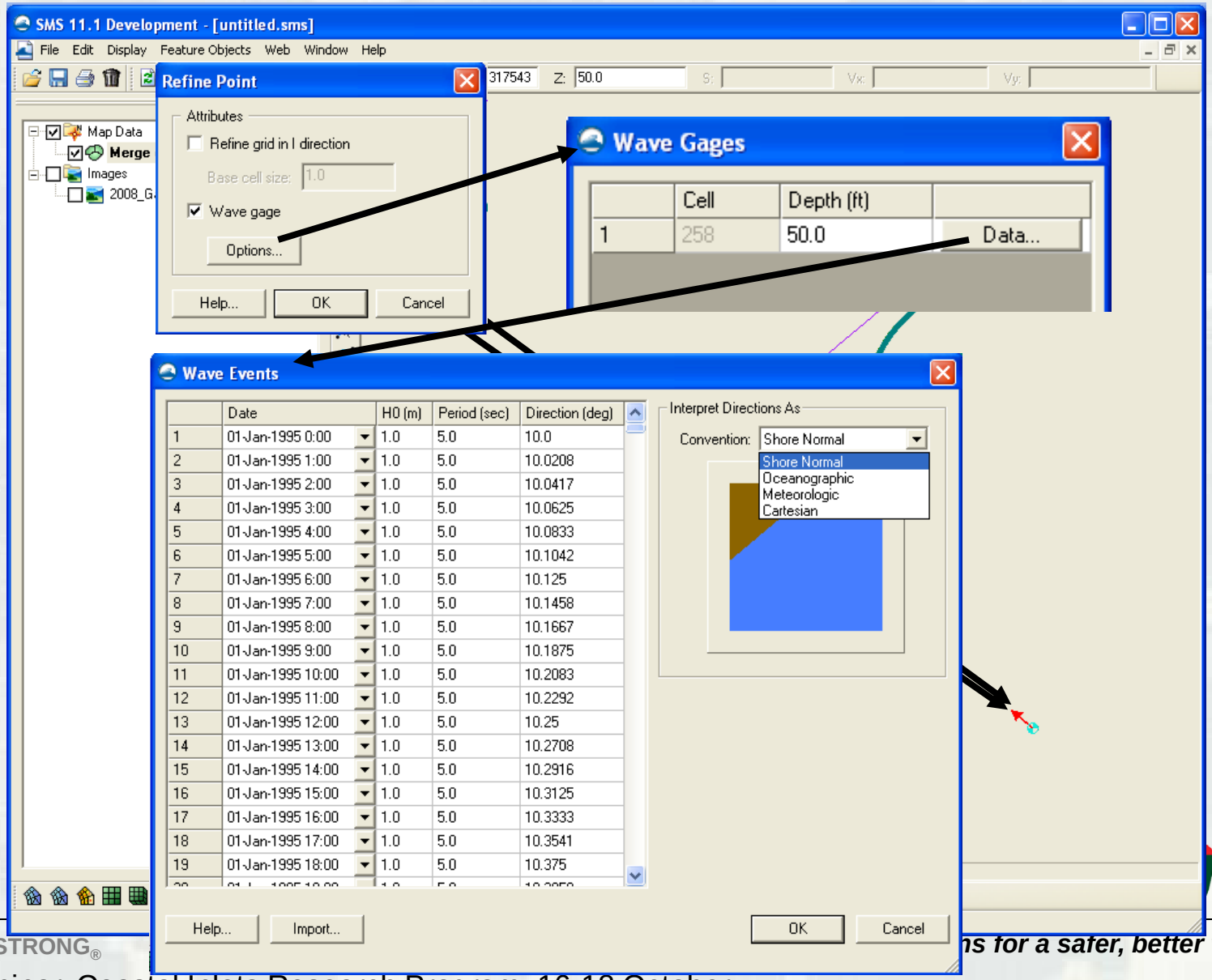
Detached Breakwater



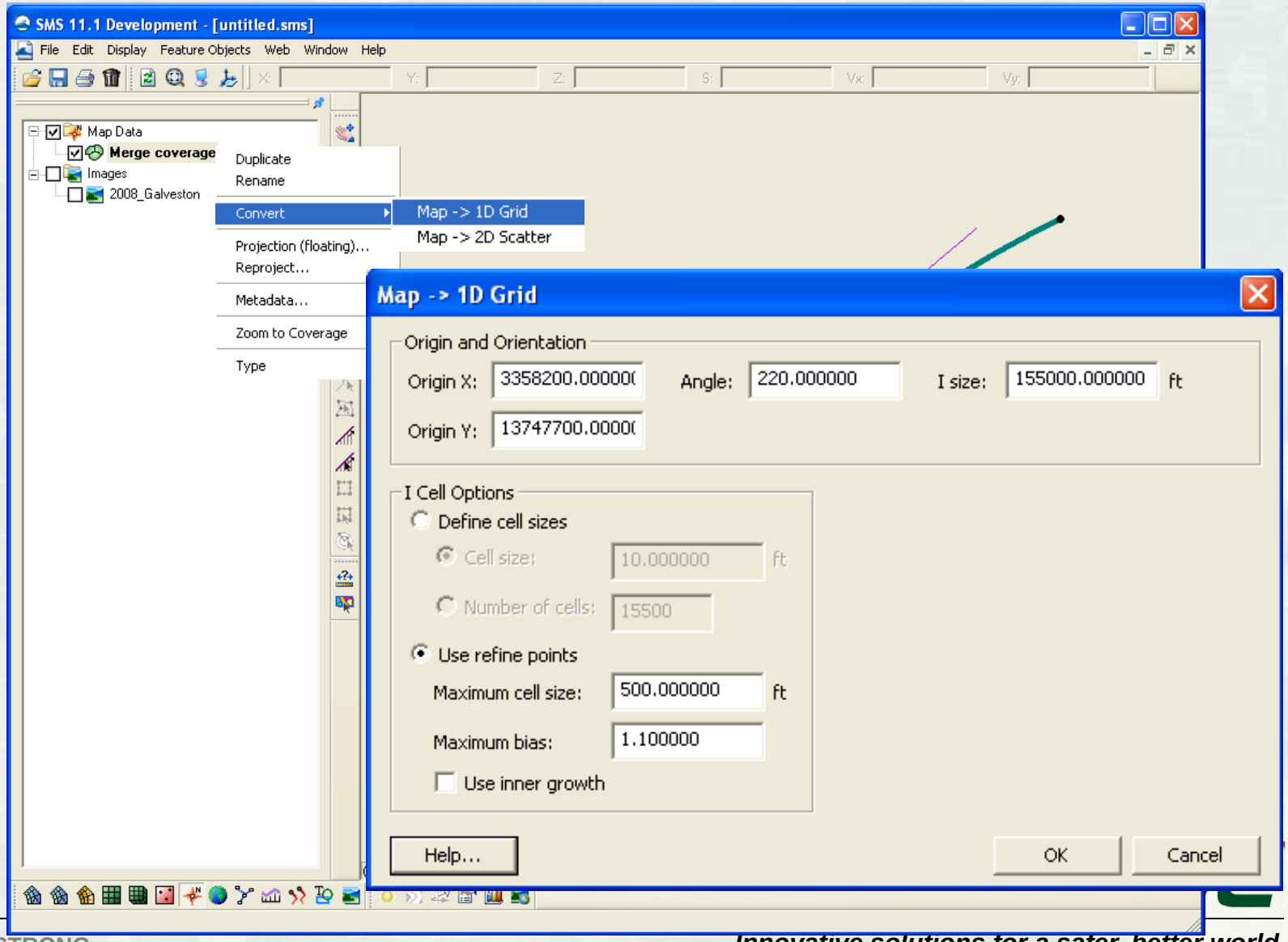
Grid Setup


SMS 11.1 Development - [untitled.sms]
File Edit Display Feature Objects Web Window Help
Map Data
Merge coverage
Images
2008_Galveston
Grid Frame Properties
Origin and Orientation
Origin X: 3358200.00000(
Angle: 220.000000
I size: 155000.000000 ft
Origin Y: 13747700.0000(
I Cell Options
Define cell sizes
Cell size: 300.000000 ft
Number of cells: 517
Use refine points
Maximum cell size: 10.000000 ft
Maximum bias: 1.100000
Use inner growth
Help...
OK
Cancel
(3189500.0, 13692200.0)

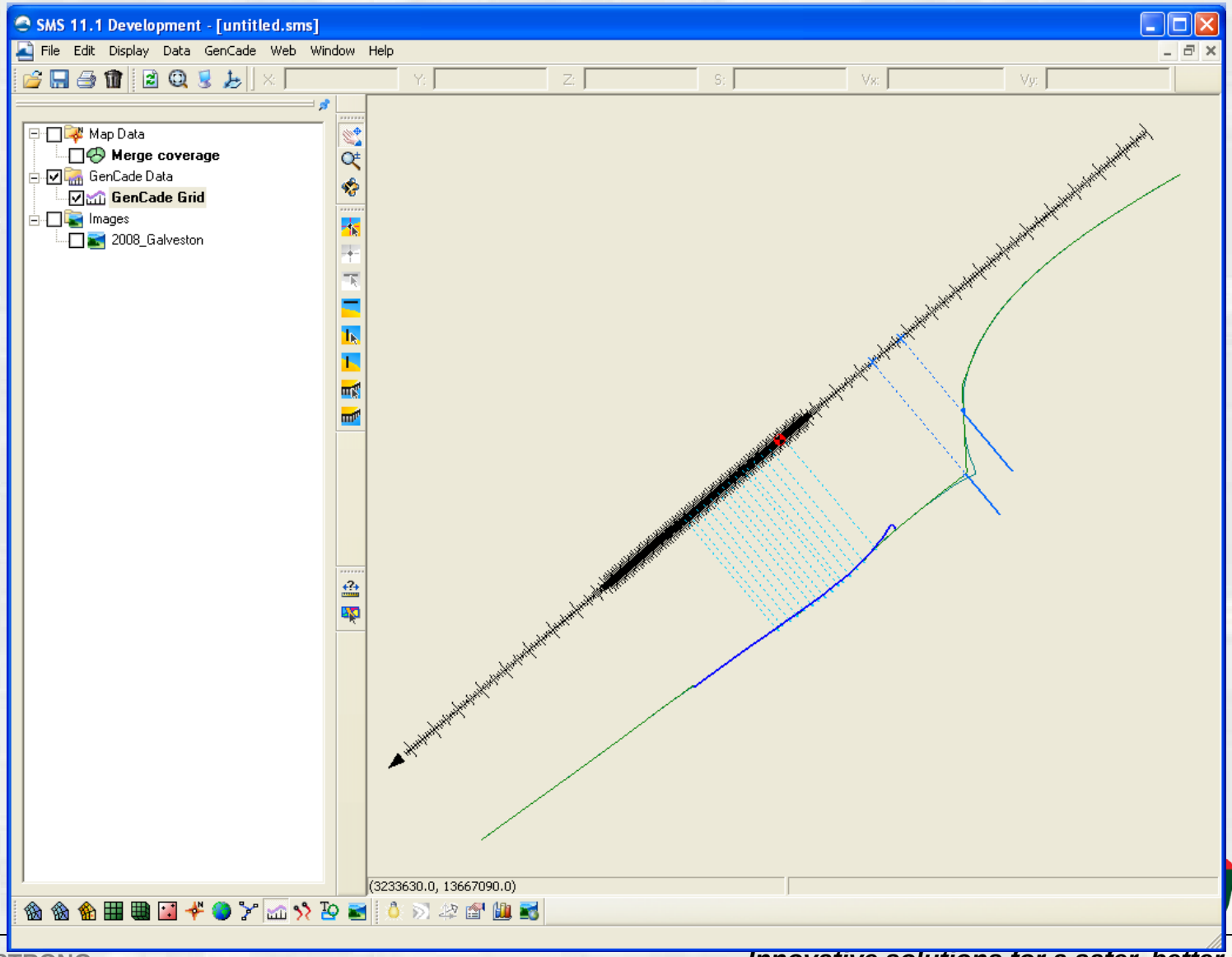
Wave Gauges


SMS 11.1 Development - [untitled.sms]
File Edit Display Feature Objects Web Window Help
Map Data
Merge
Images
2008_G
Refine Point
Attributes
Refine grid in I direction
Base cell size: 1.0
Wave gage
Options...
Help...
OK
Cancel
Wave Gages
Cell
Depth (ft)
1
258
50.0
Data...
Wave Events
Date
H0 (m)
Period (sec)
Direction (deg)
1 01-Jan-1995 0:00 1.0 5.0 10.0
2 01-Jan-1995 1:00 1.0 5.0 10.0208
3 01-Jan-1995 2:00 1.0 5.0 10.0417
4 01-Jan-1995 3:00 1.0 5.0 10.0625
5 01-Jan-1995 4:00 1.0 5.0 10.0833
6 01-Jan-1995 5:00 1.0 5.0 10.1042
7 01-Jan-1995 6:00 1.0 5.0 10.125
8 01-Jan-1995 7:00 1.0 5.0 10.1458
9 01-Jan-1995 8:00 1.0 5.0 10.1667
10 01-Jan-1995 9:00 1.0 5.0 10.1875
11 01-Jan-1995 10:00 1.0 5.0 10.2083
12 01-Jan-1995 11:00 1.0 5.0 10.2292
13 01-Jan-1995 12:00 1.0 5.0 10.25
14 01-Jan-1995 13:00 1.0 5.0 10.2708
15 01-Jan-1995 14:00 1.0 5.0 10.2916
16 01-Jan-1995 15:00 1.0 5.0 10.3125
17 01-Jan-1995 16:00 1.0 5.0 10.3333
18 01-Jan-1995 17:00 1.0 5.0 10.3541
19 01-Jan-1995 18:00 1.0 5.0 10.375
Interpret Directions As
Convention: Shore Normal
Shore Normal
Oceanographic
Meteorologic
Cartesian
Help...
Import...
OK
Cancel

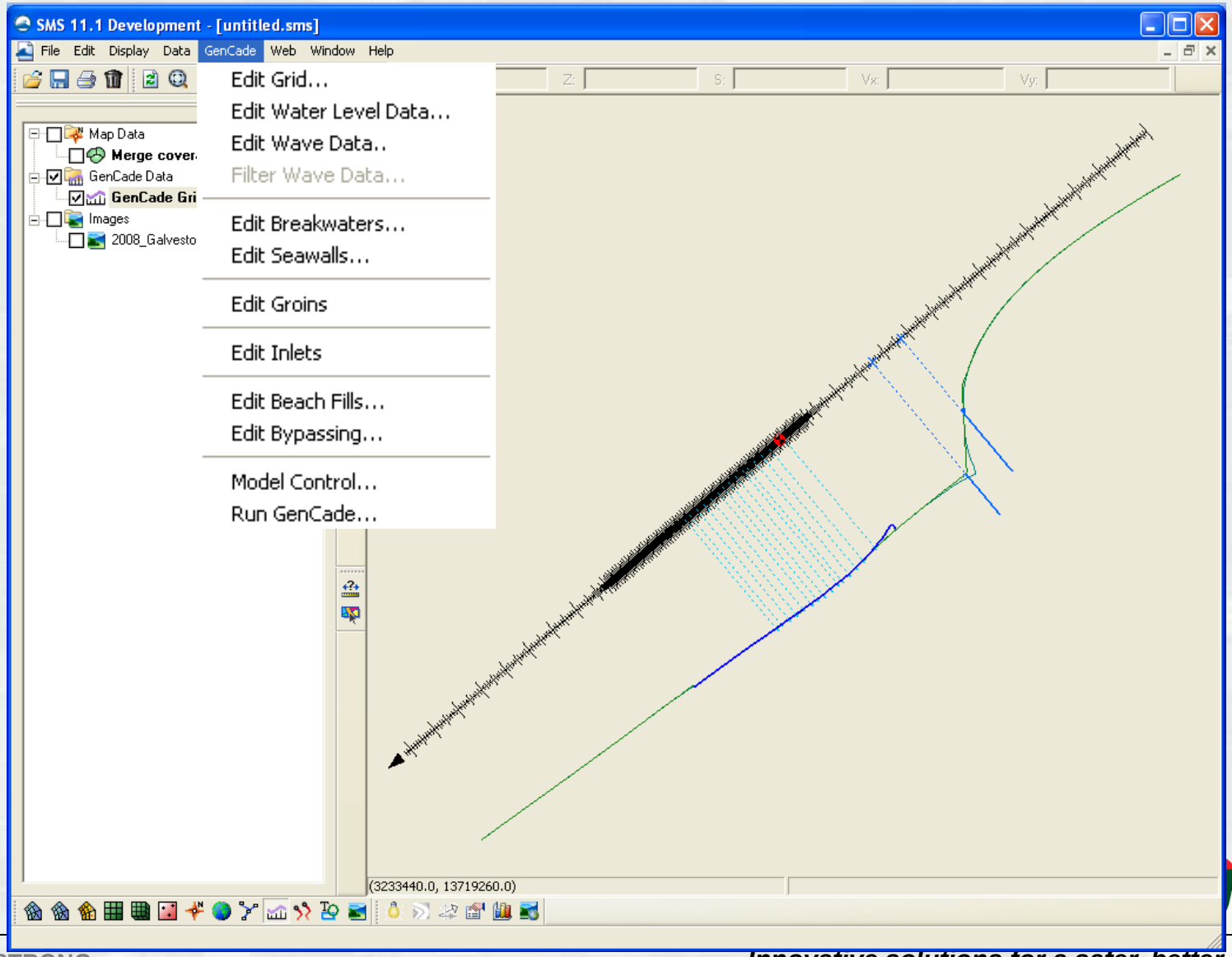
Convert to 1D Grid



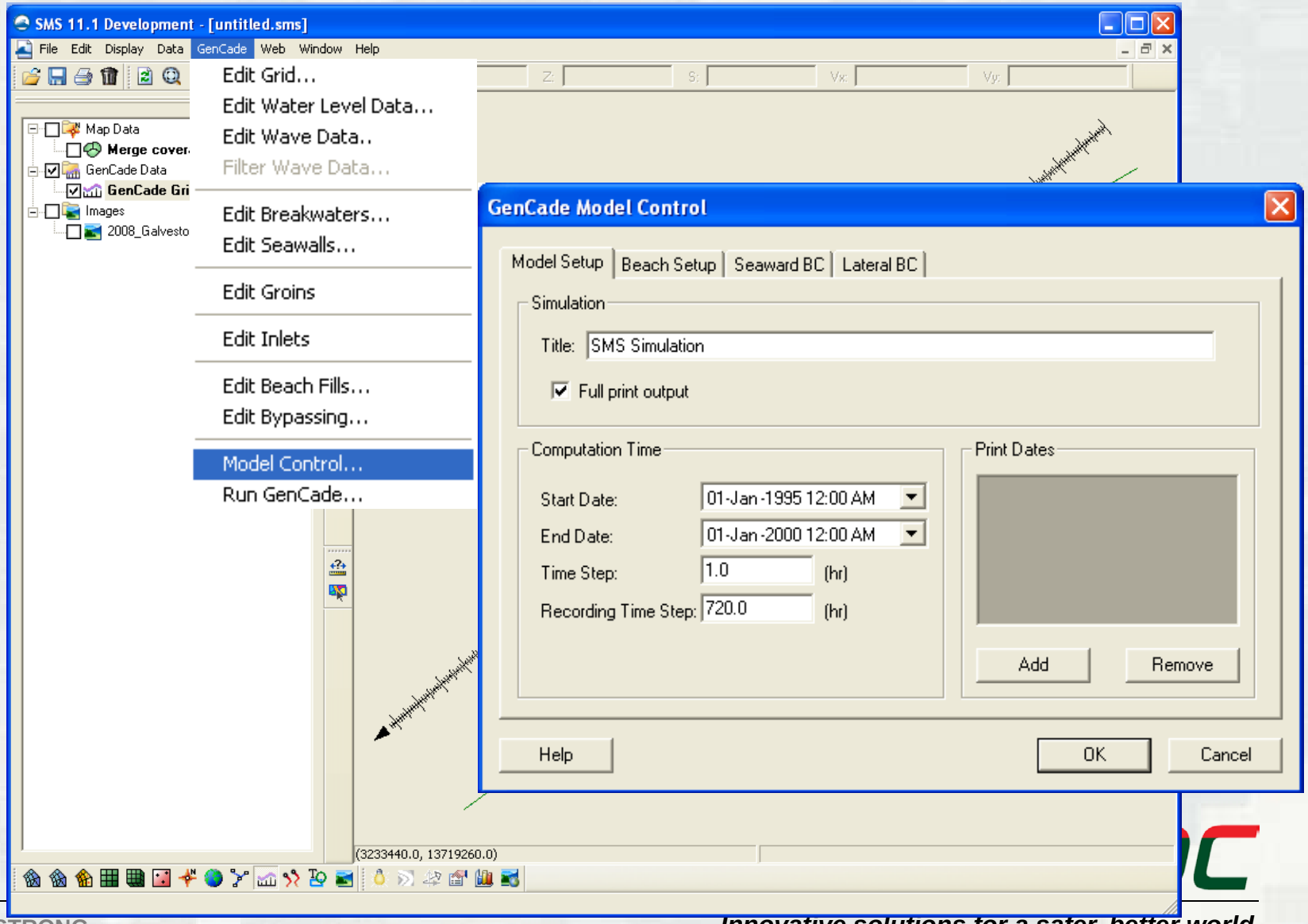
GenCade Model



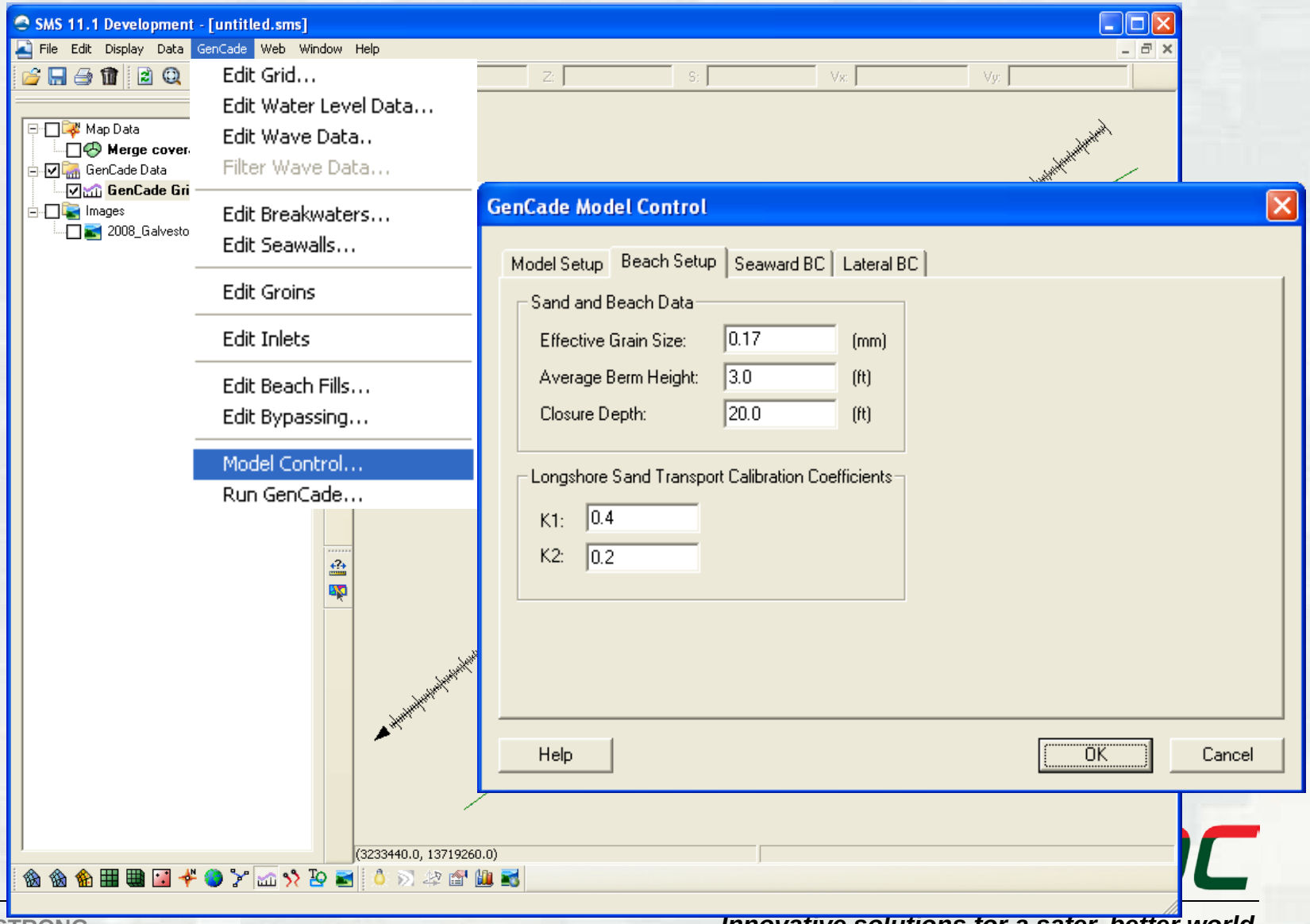
GenCade Model



GenCade Model Control



GenCade Model Control



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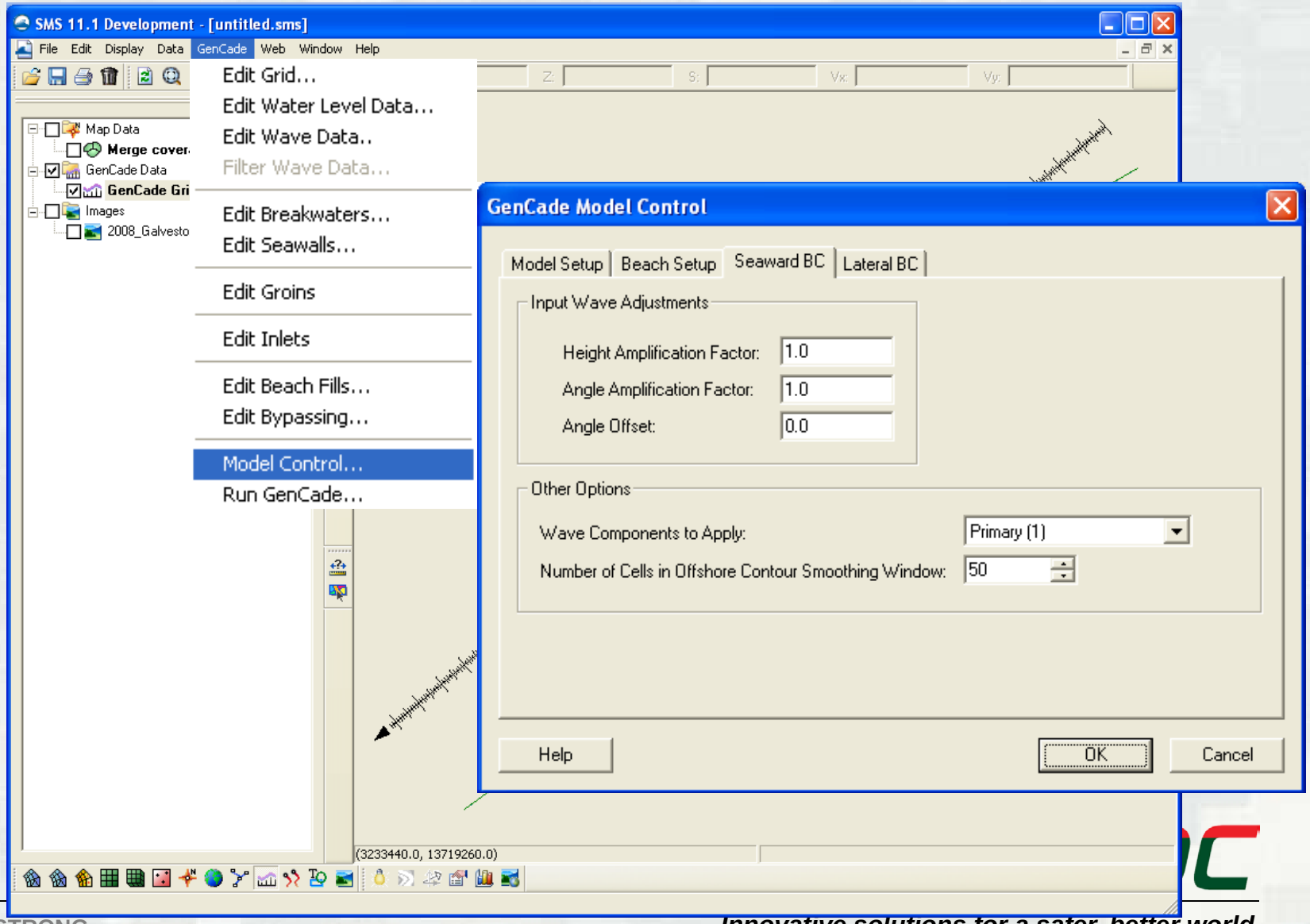
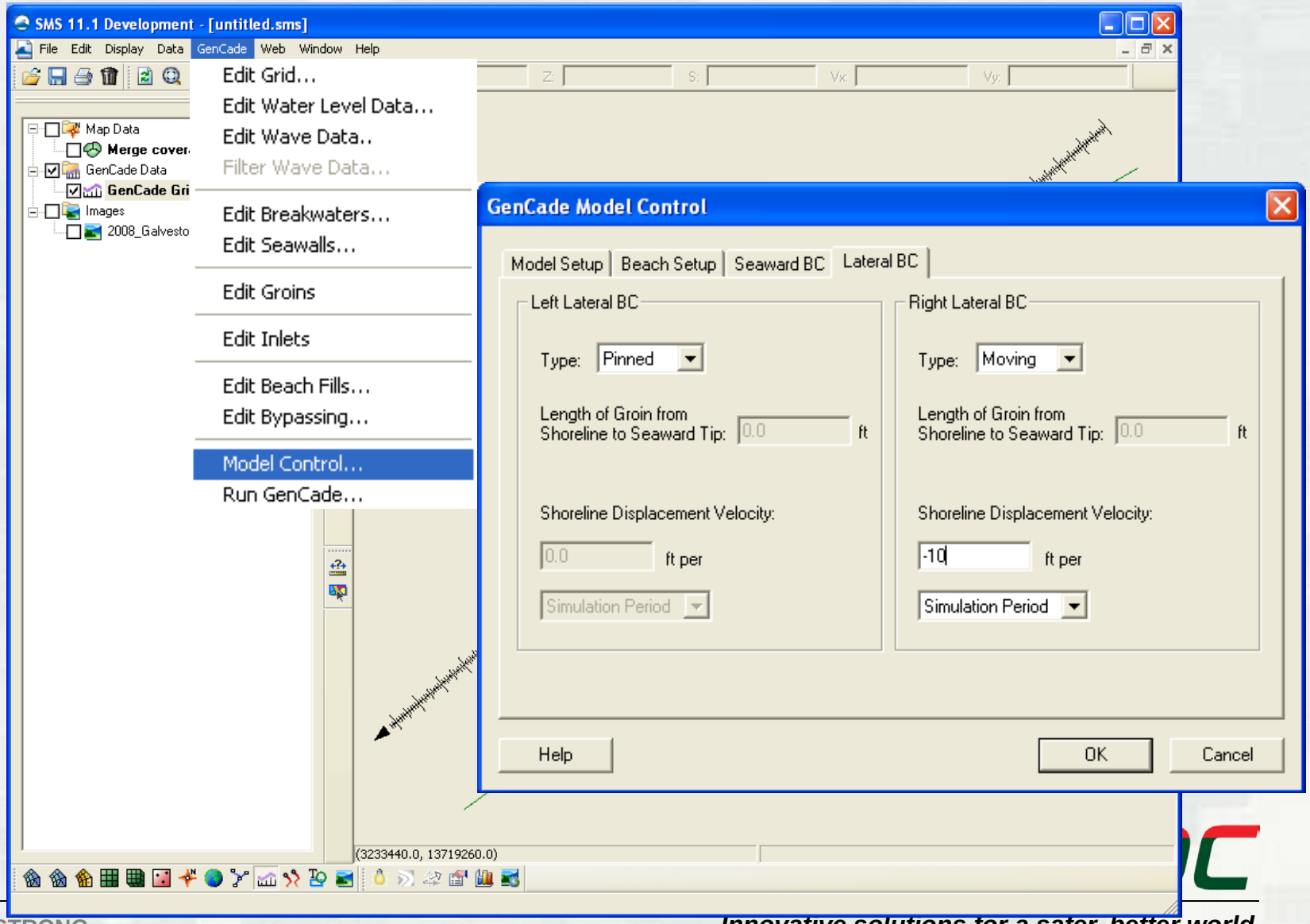
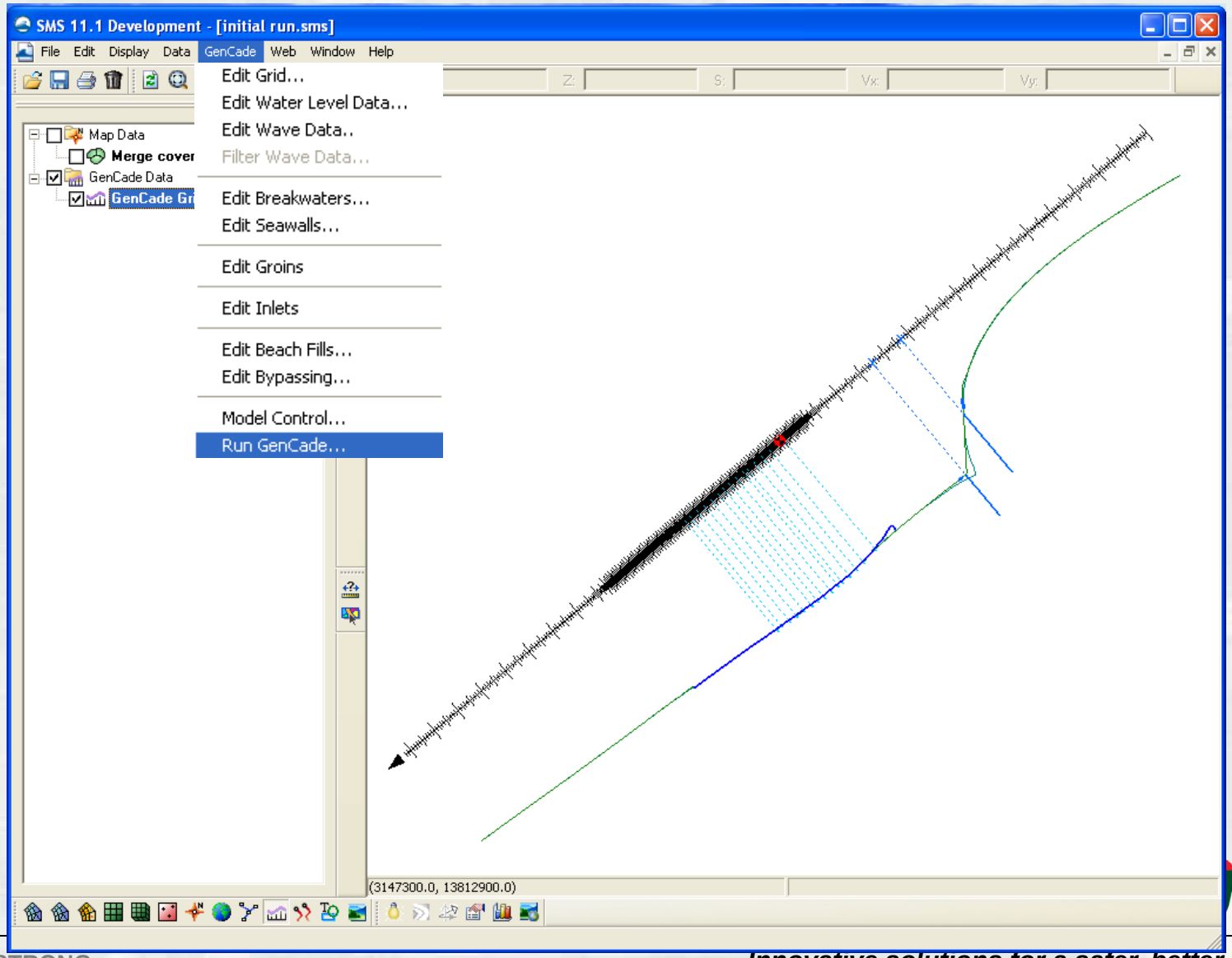


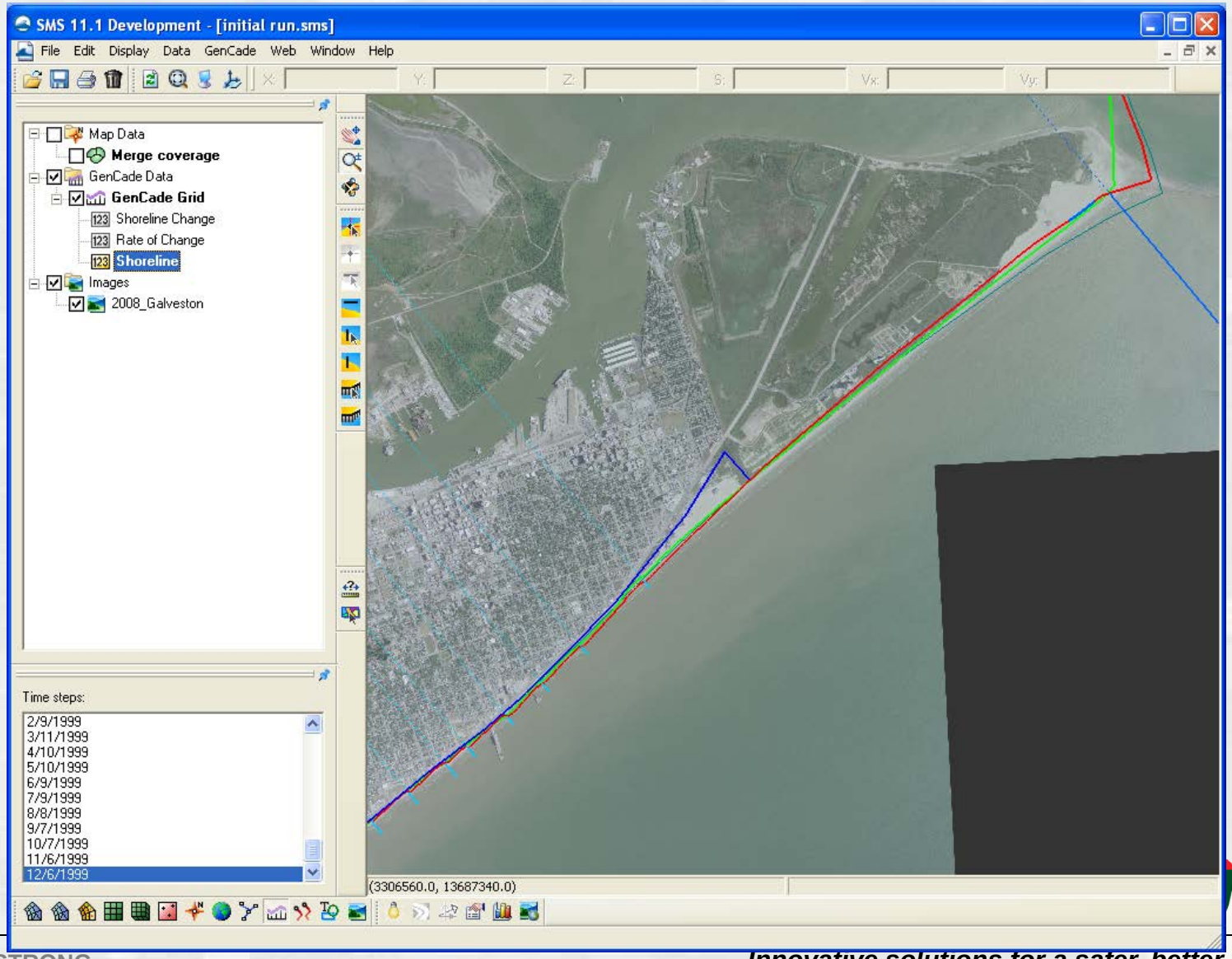
GenCade Model Control



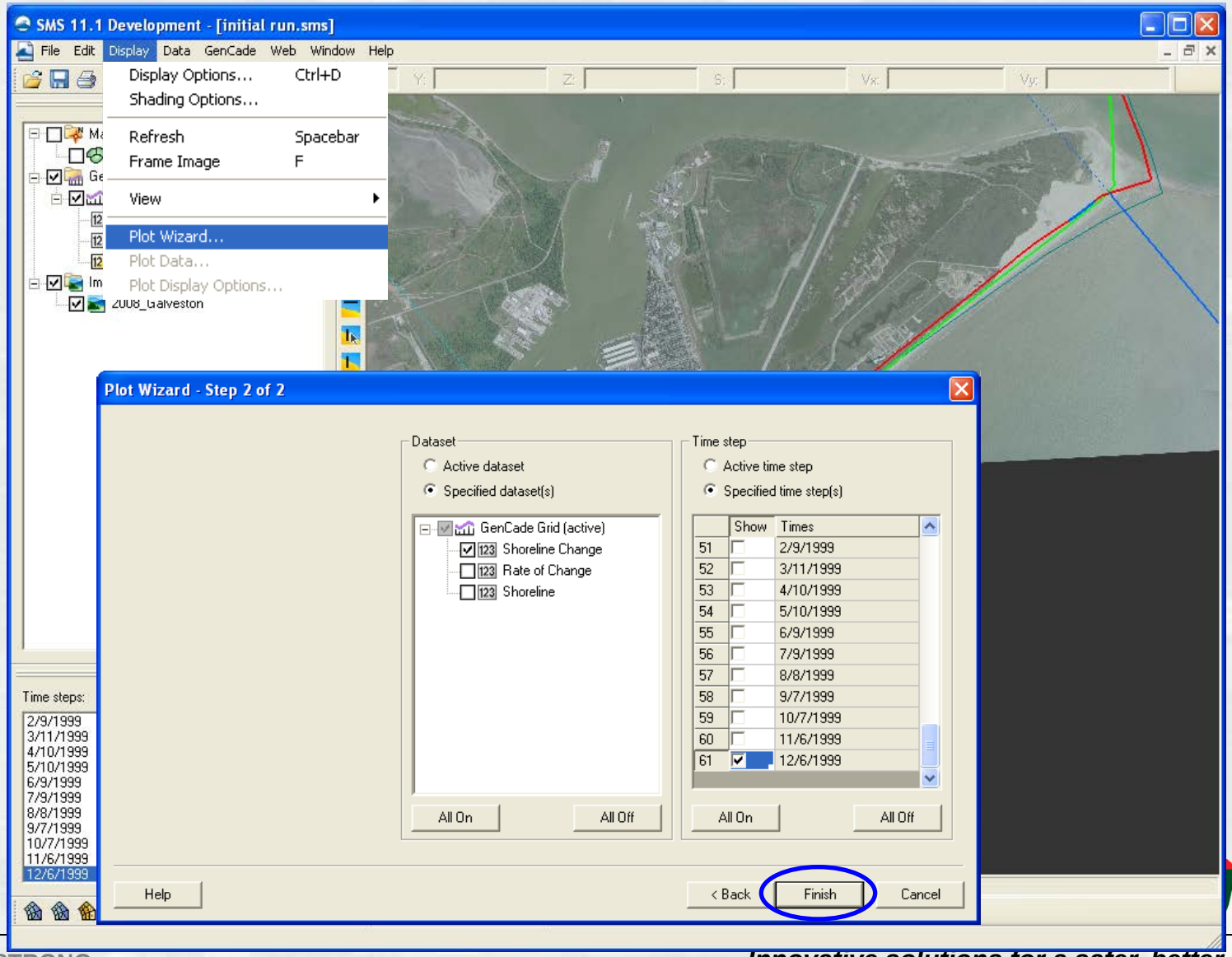
Run GenCade


SMS 11.1 Development - [initial run.sms]
File Edit Display Data GenCade Web Window Help
Edit Grid...
Edit Water Level Data...
Edit Wave Data..
Filter Wave Data...
Edit Breakwaters...
Edit Seawalls...
Edit Groins
Edit Inlets
Edit Beach Fills...
Edit Bypassing...
Model Control...
Run GenCade...
Map Data
Merge cover
GenCade Data
GenCade Gr
(3147300.0, 13812900.0)

GenCade Results



GenCade Results



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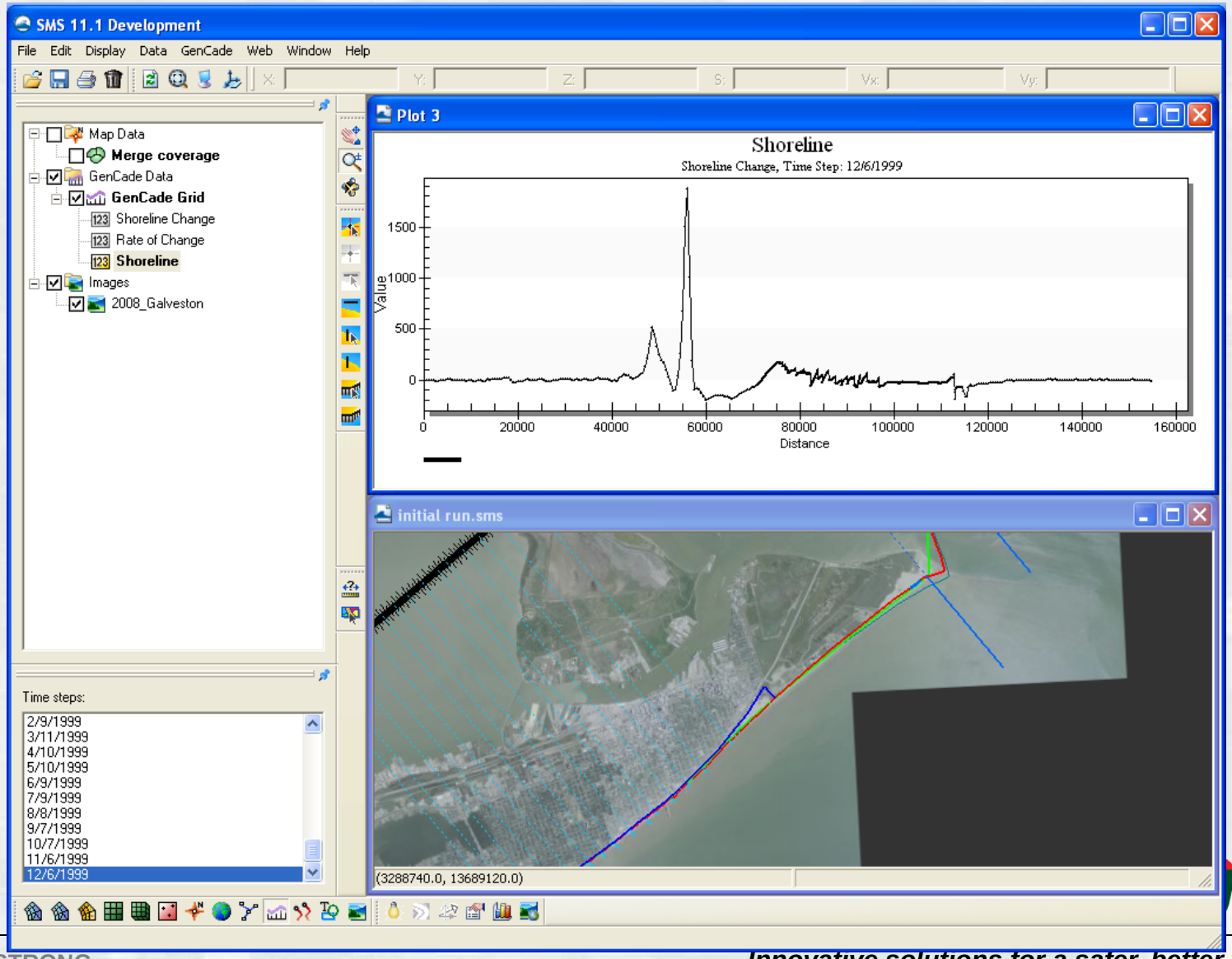
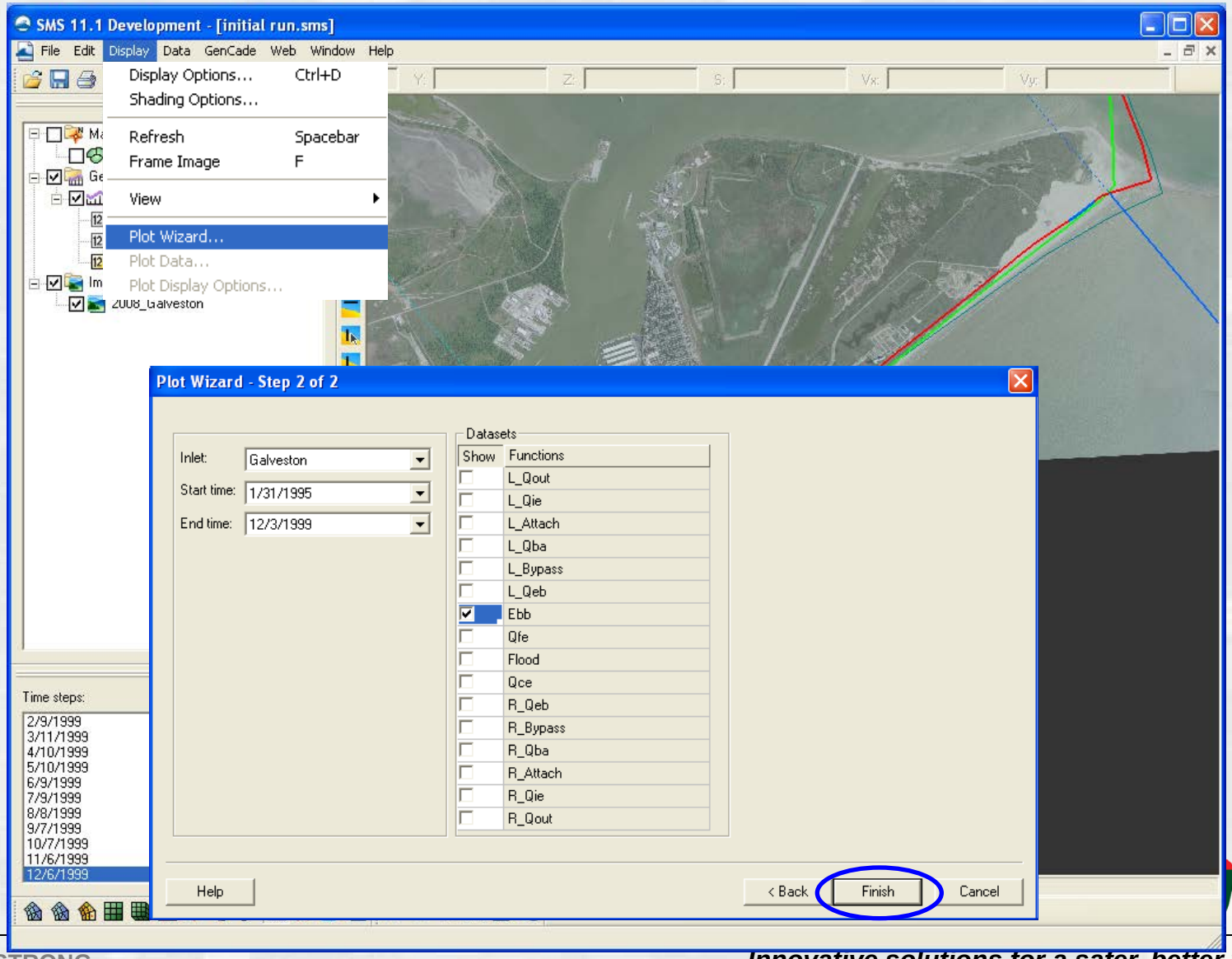
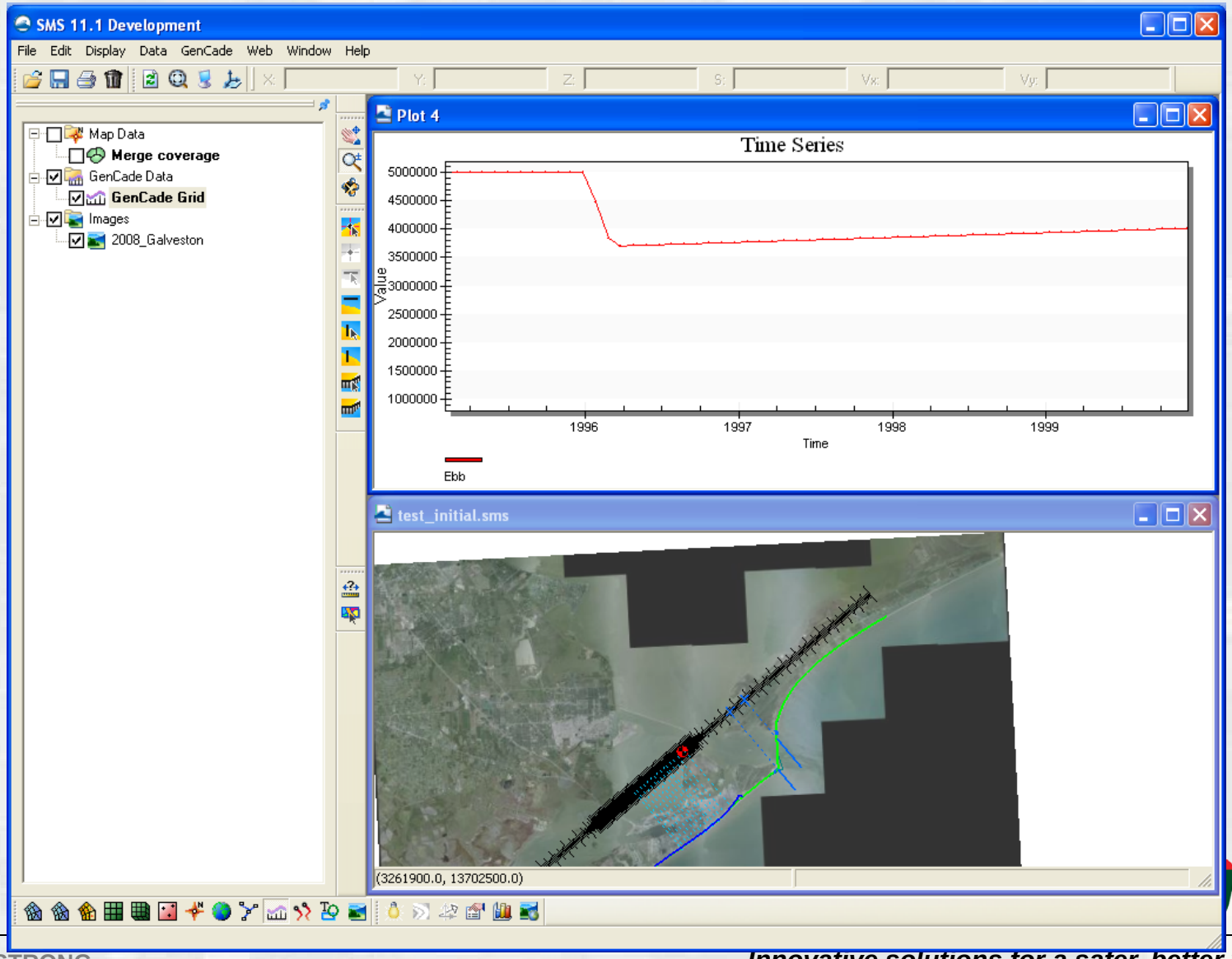


GenCade Results



GenCade Results