NTHMP MAPPING AND MODELING WORKSHOP
TSUNAMI CURRENTS VALIDATION

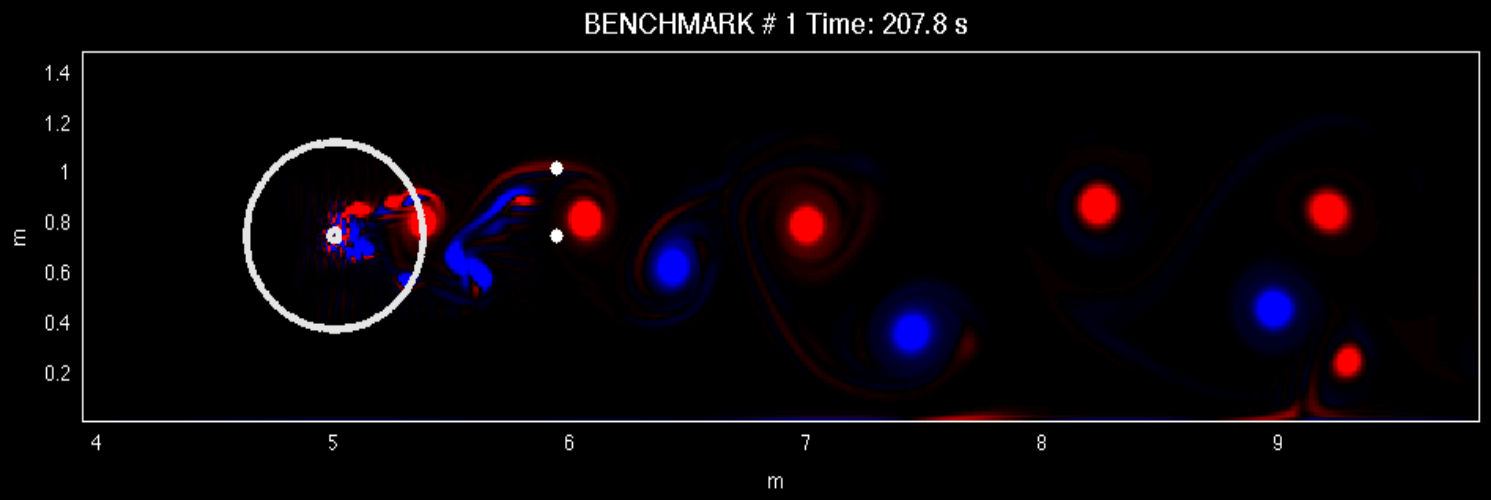
Diego Arcas
NOAA/PMEL
University of Washington

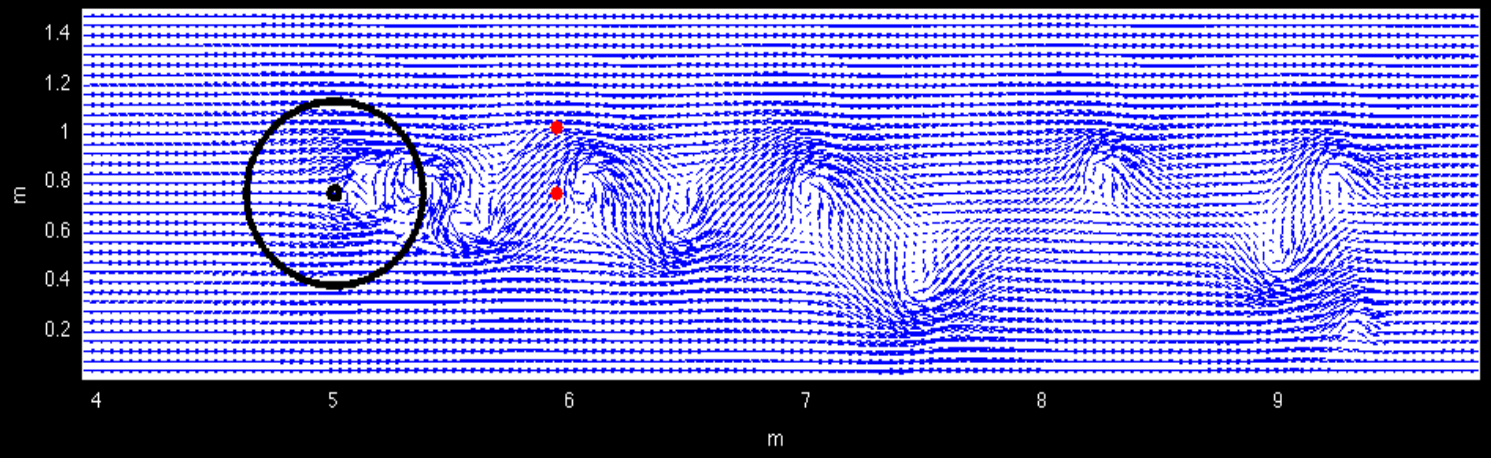
BENCHMARK Problem #1

Prescribed Conditions

Manning Friction Coefficient = 0.01

Grid Size=985 x 153





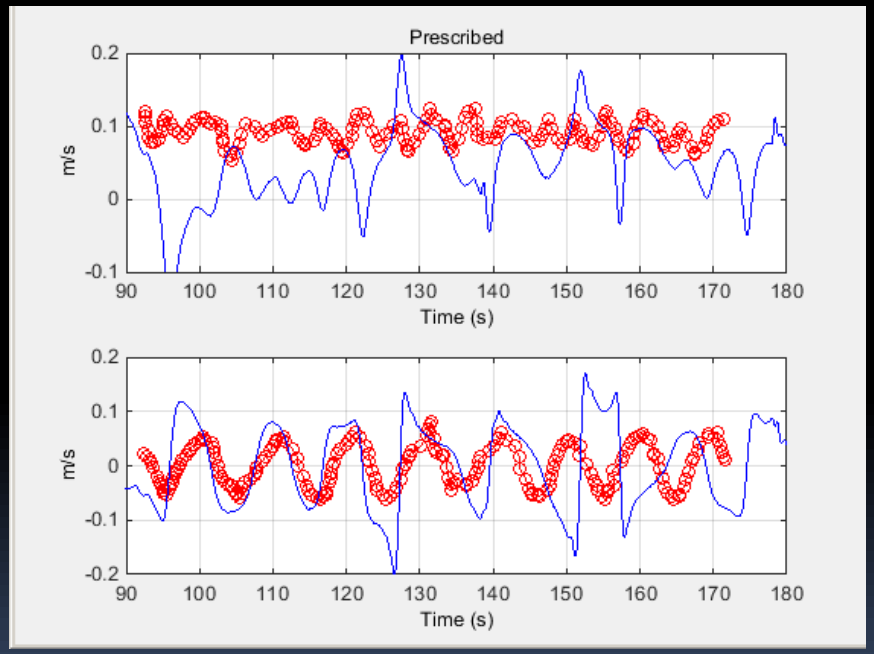
BENCHMARK Problem #1

Prescribed Conditions

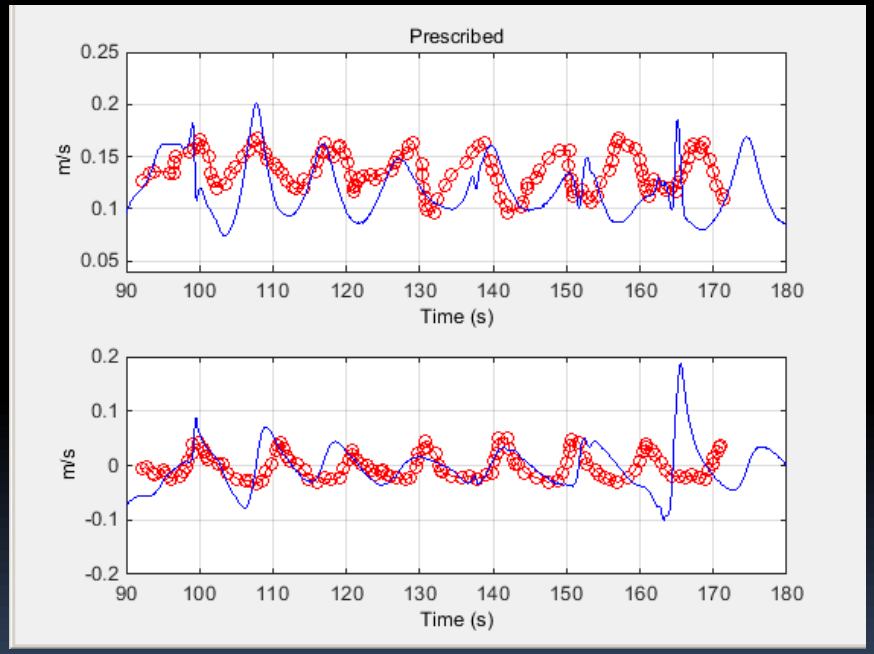
Manning Friction Coefficient = 0.01

Grid Size=985 x 153

Gage 1



Gage 2

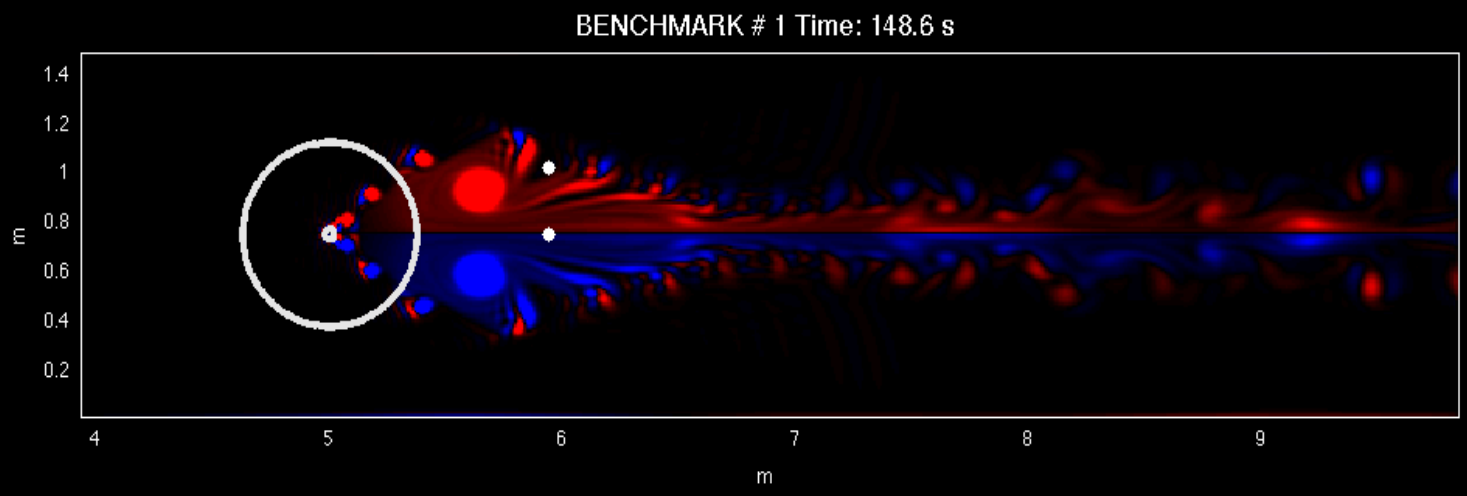


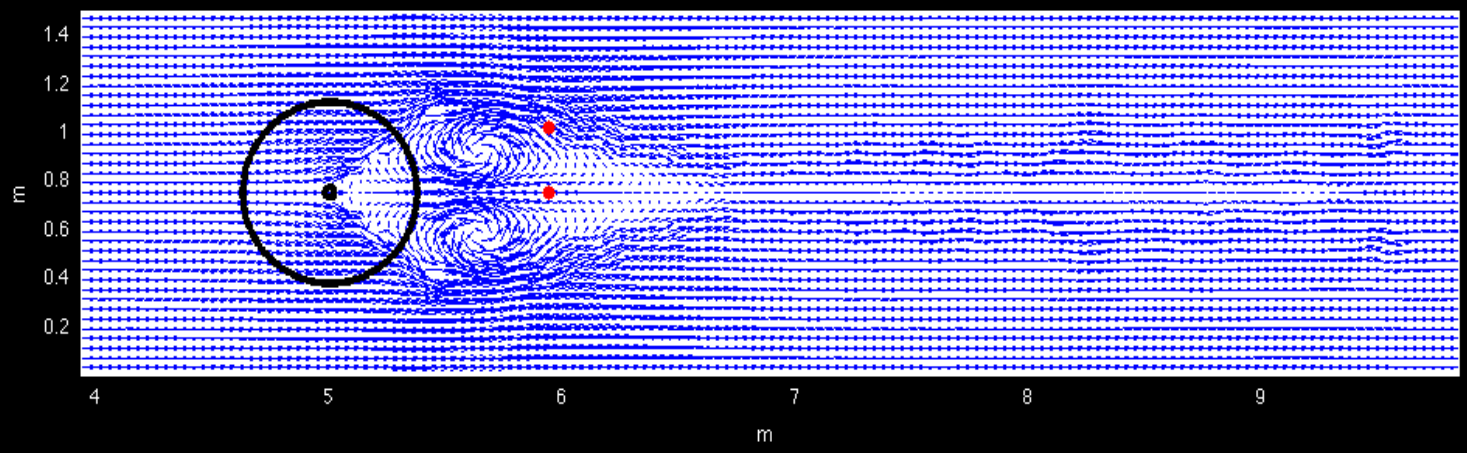
BENCHMARK Problem #1

Inviscid Conditions

Manning Friction Coefficient = 0.0

Grid Size=985 x 153

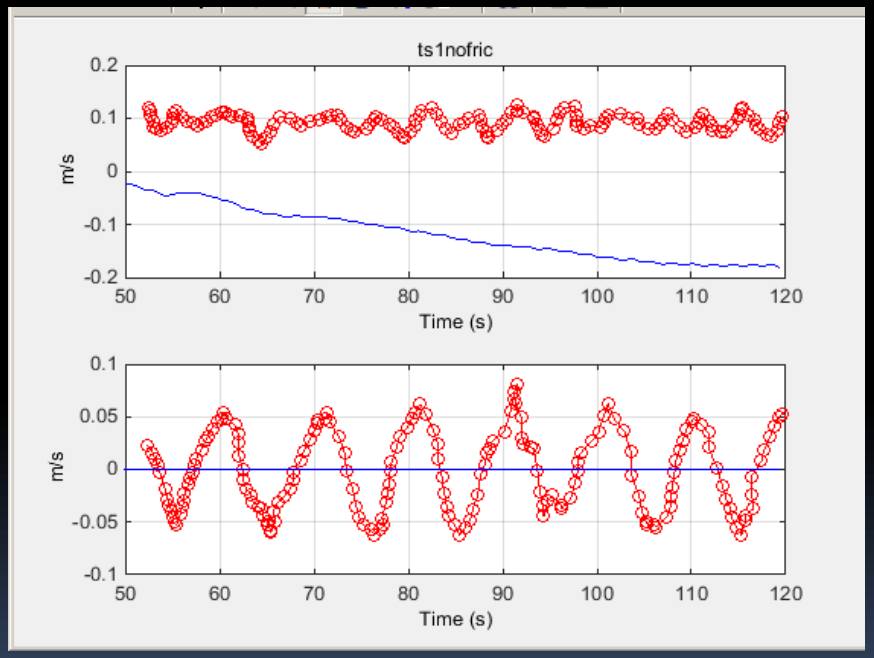




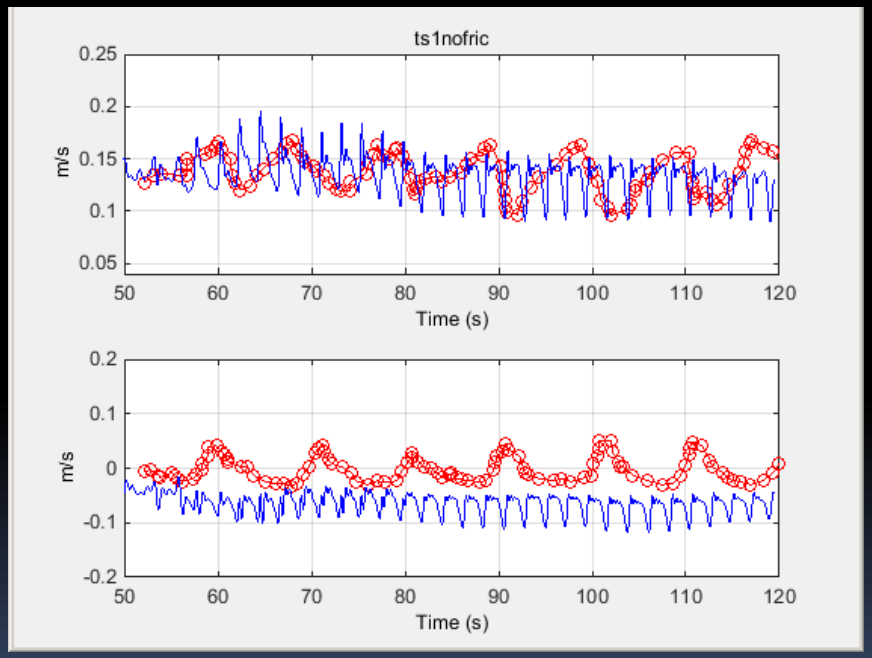
BENCHMARK Problem #1

Inviscid Conditions
Manning Friction Coefficient = 0.0
Grid Size=985 x 153

Gage 1



Gage 2

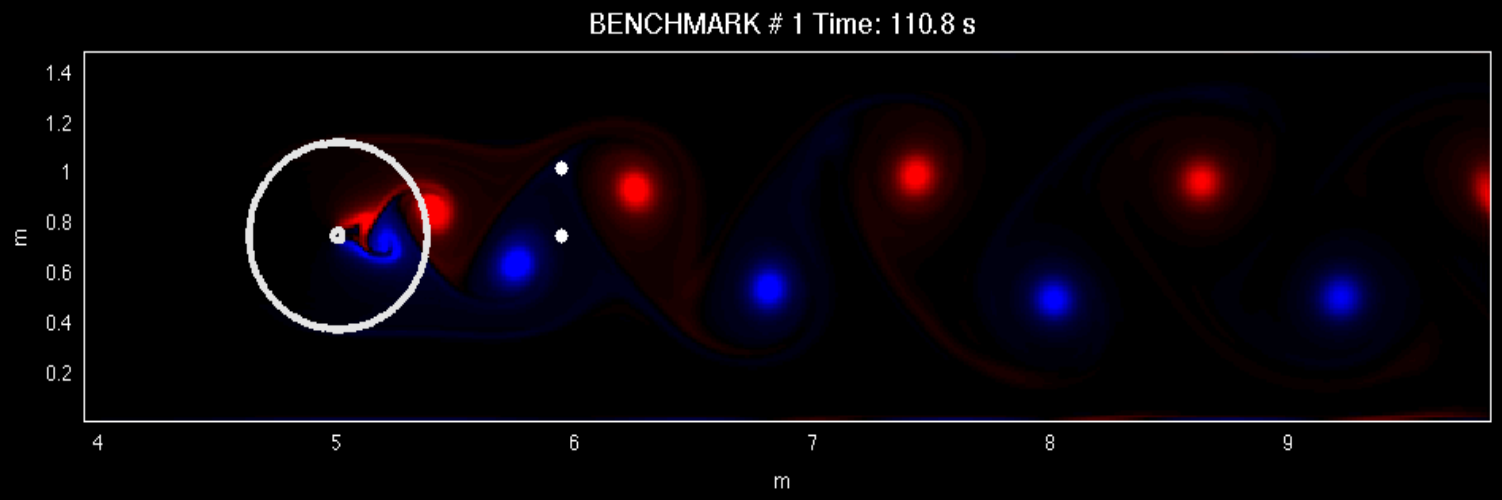


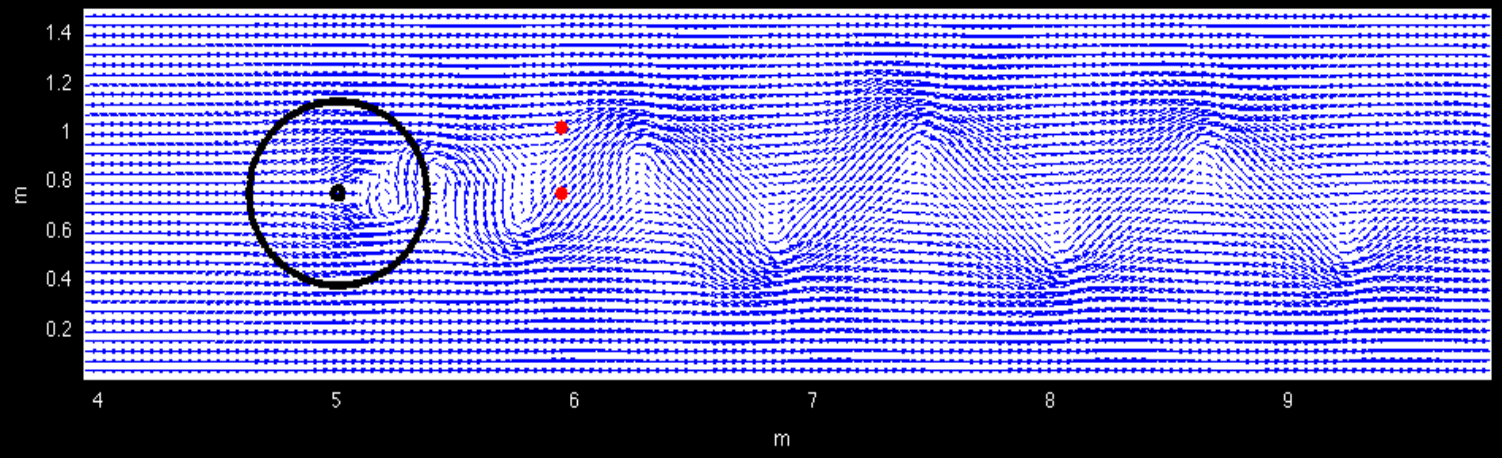
BENCHMARK Problem #1

Optimized Conditions

Manning Friction Coefficient = 0.01/0.025

Grid Size=985 x 153





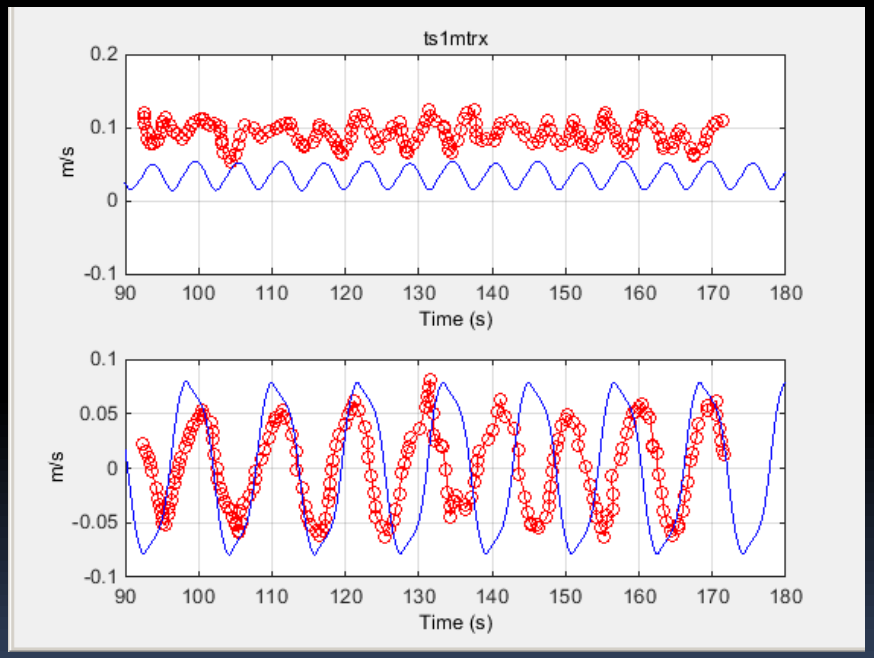
BENCHMARK Problem #1

Optimized Conditions

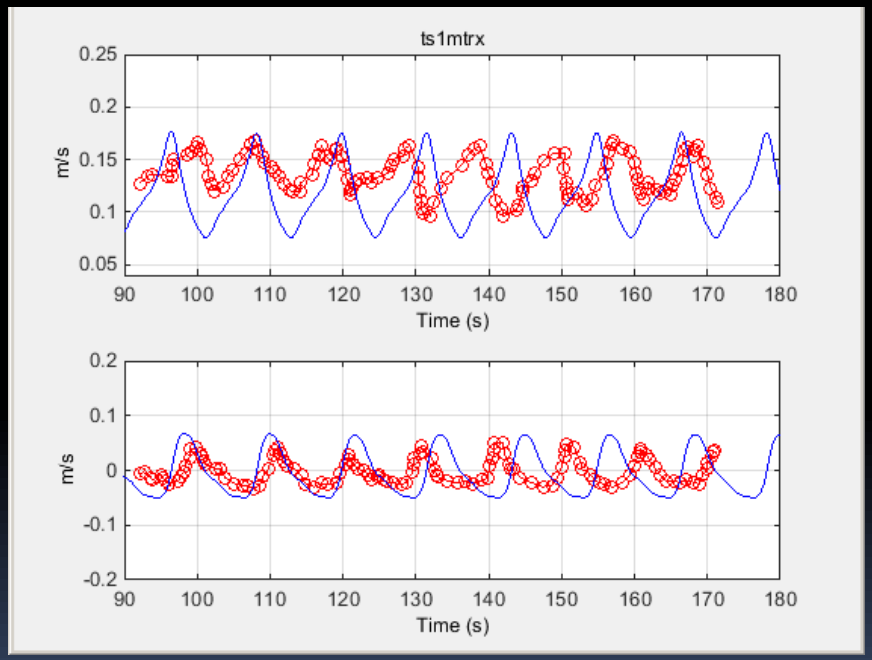
Manning Friction Coefficient = 0.01/0.025

Grid Size=985 x 153

Gage 1

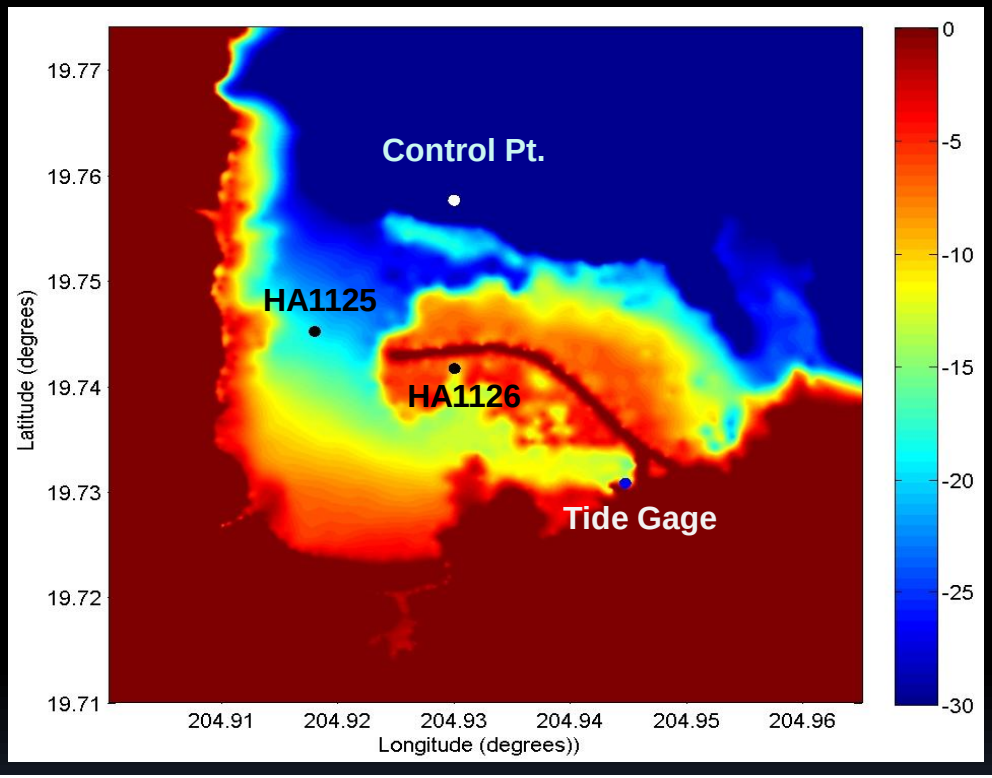


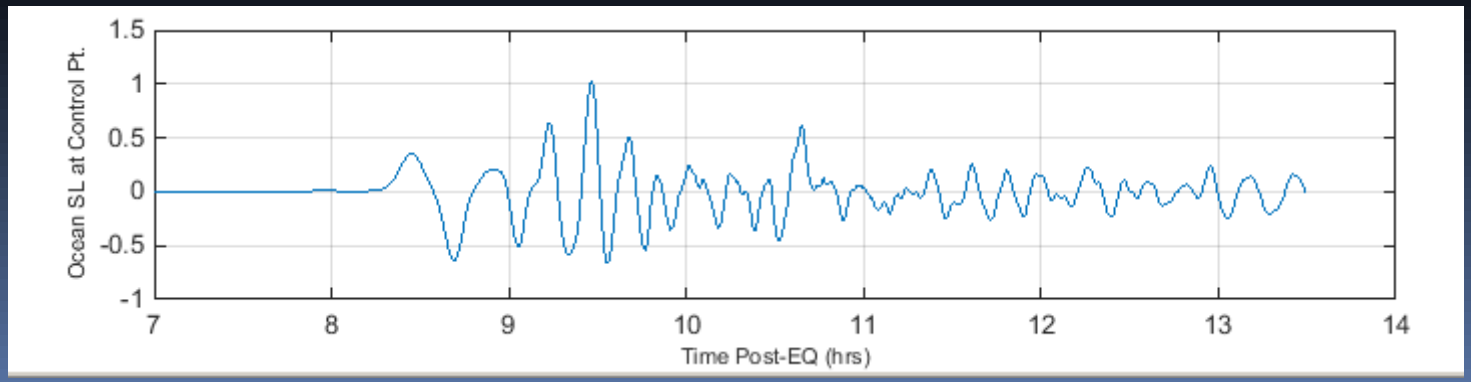
Gage 2



BENCHMARK Problem #2

Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=20m/10m/5m



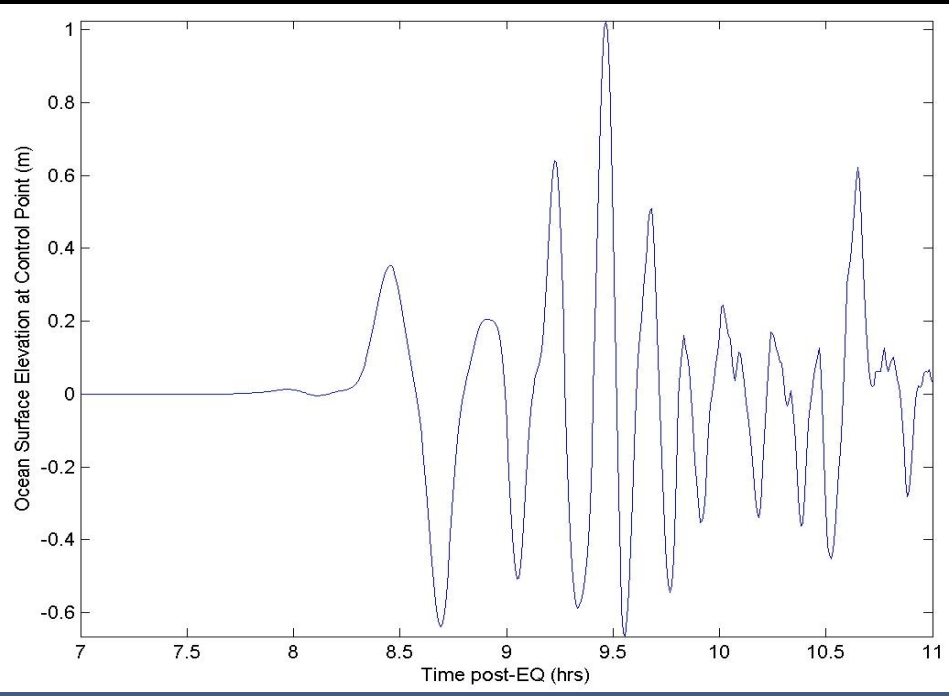


BENCHMARK Problem #2

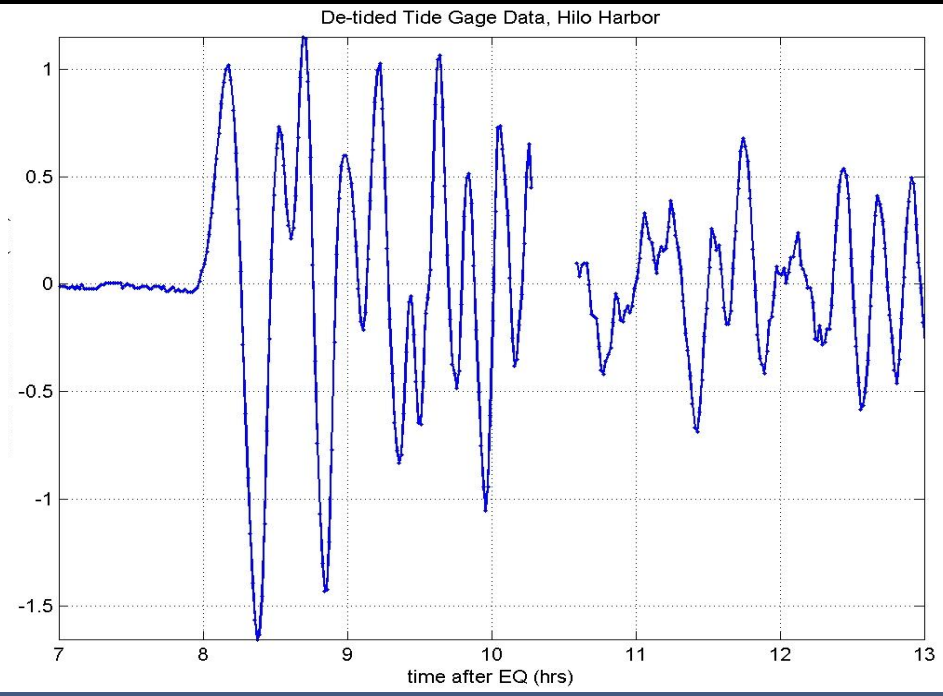
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=20m/10m/5m

PROVIDED DATA

Control Point



Tide Gage



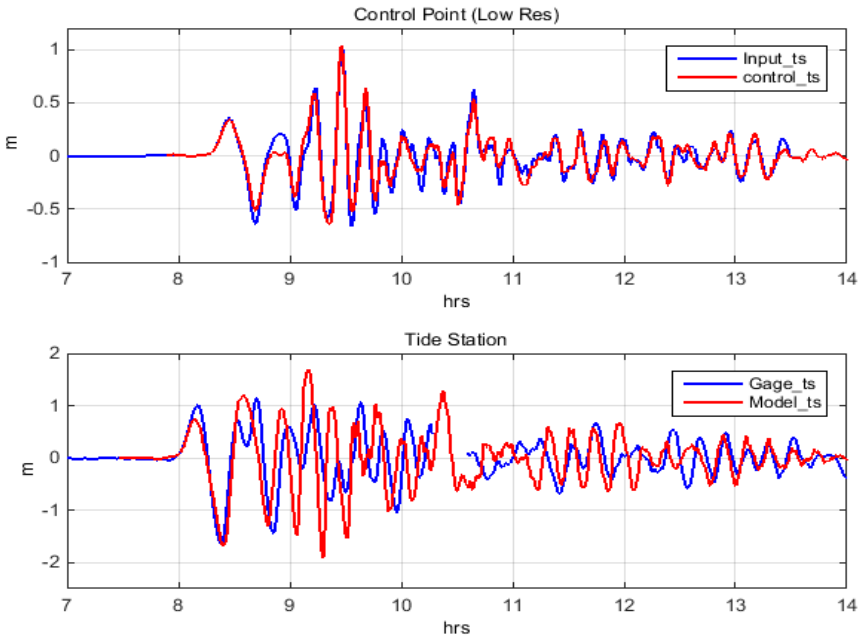
BENCHMARK Problem #2

Low and Medium Resolution

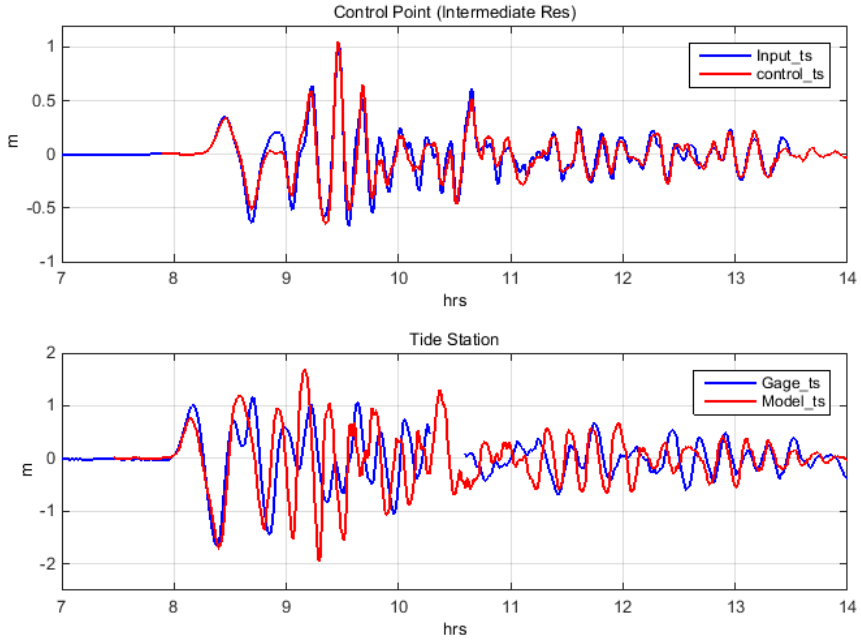
Prescribed Manning Friction Coefficient = 0.025

Grid Resolution=20m/10m

Low



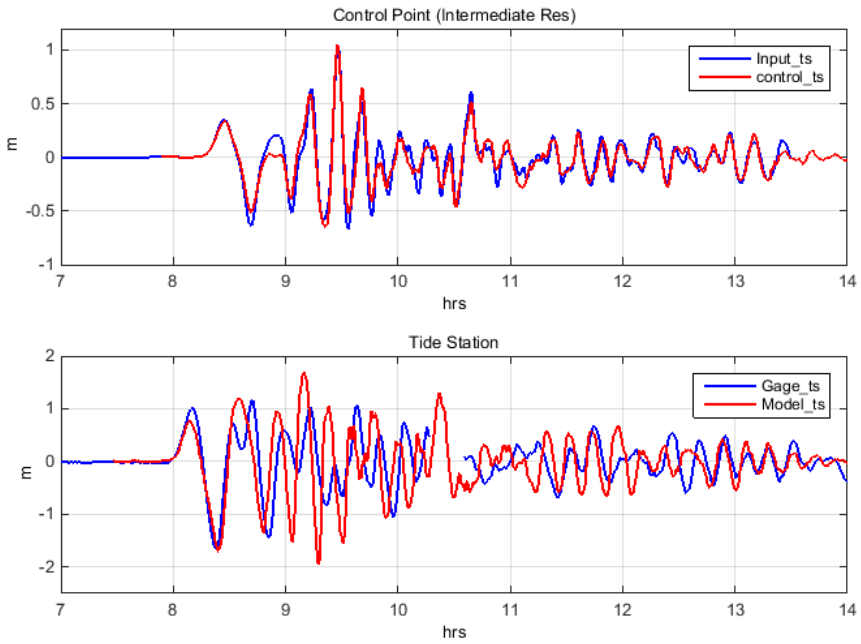
Medium



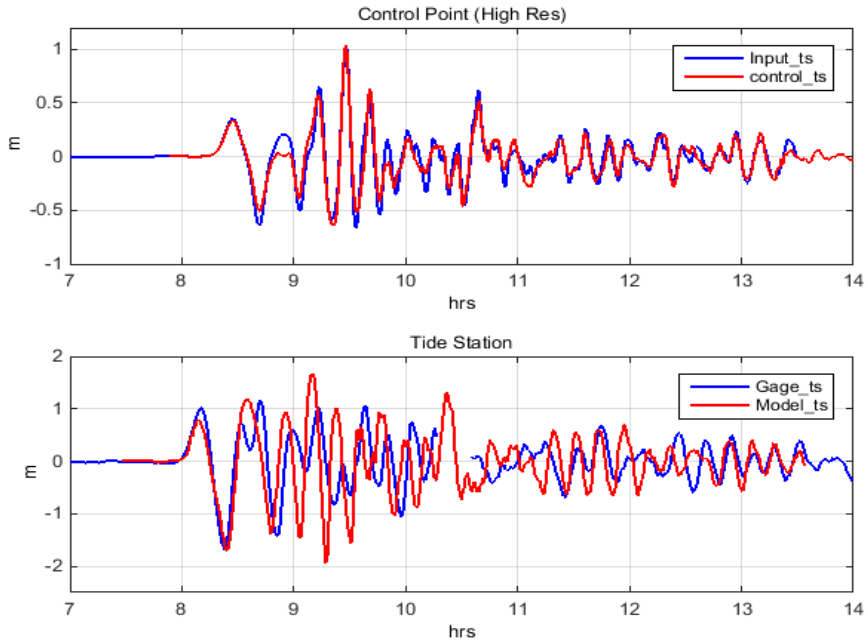
BENCHMARK Problem #2

Intermediate and High Resolution
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=10m/5m

Medium



High



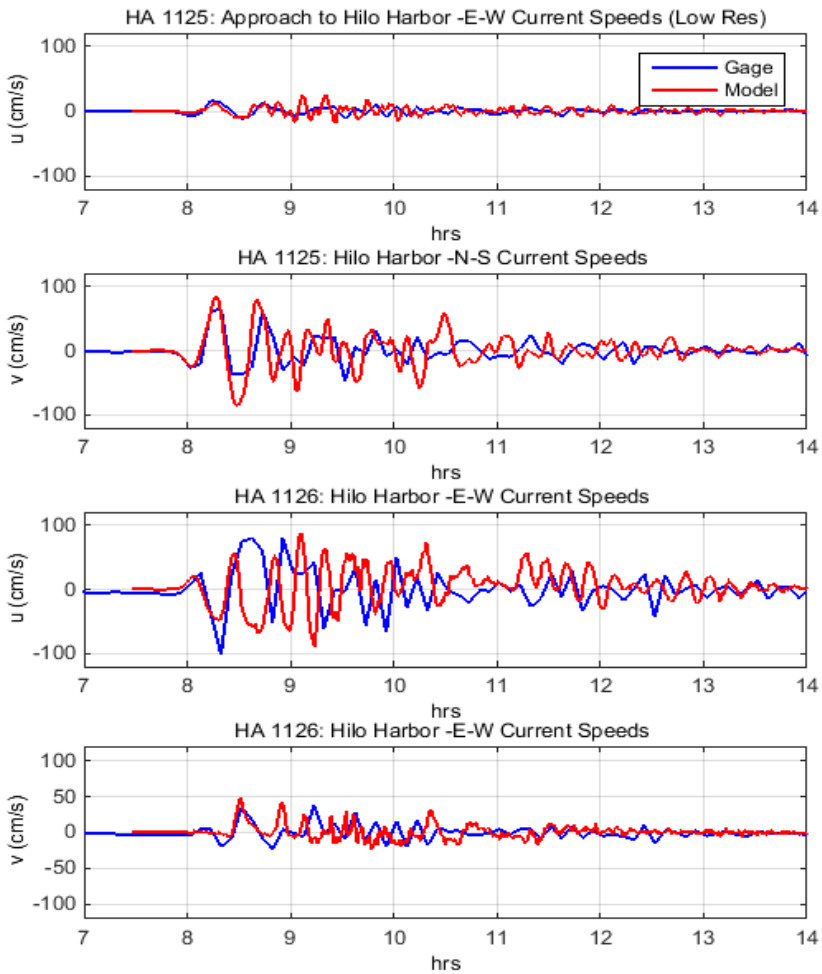
BENCHMARK Problem #2

Low and Medium Resolution

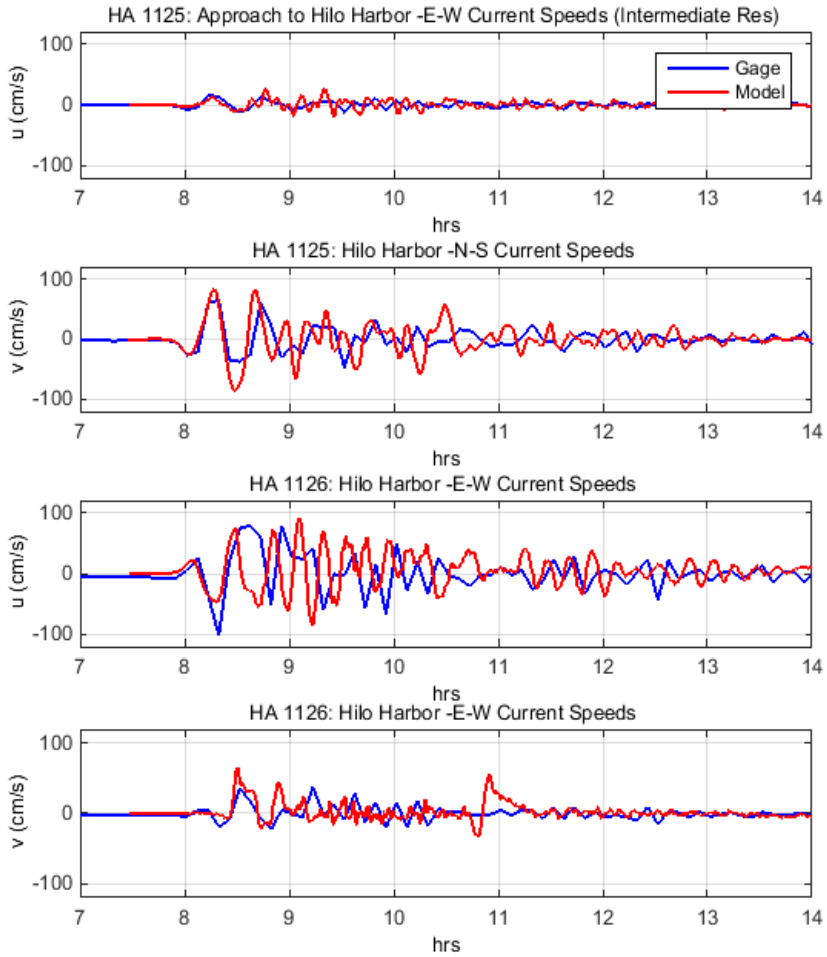
Prescribed Manning Friction Coefficient = 0.025

Grid Resolution=20m/10m

Low



Medium



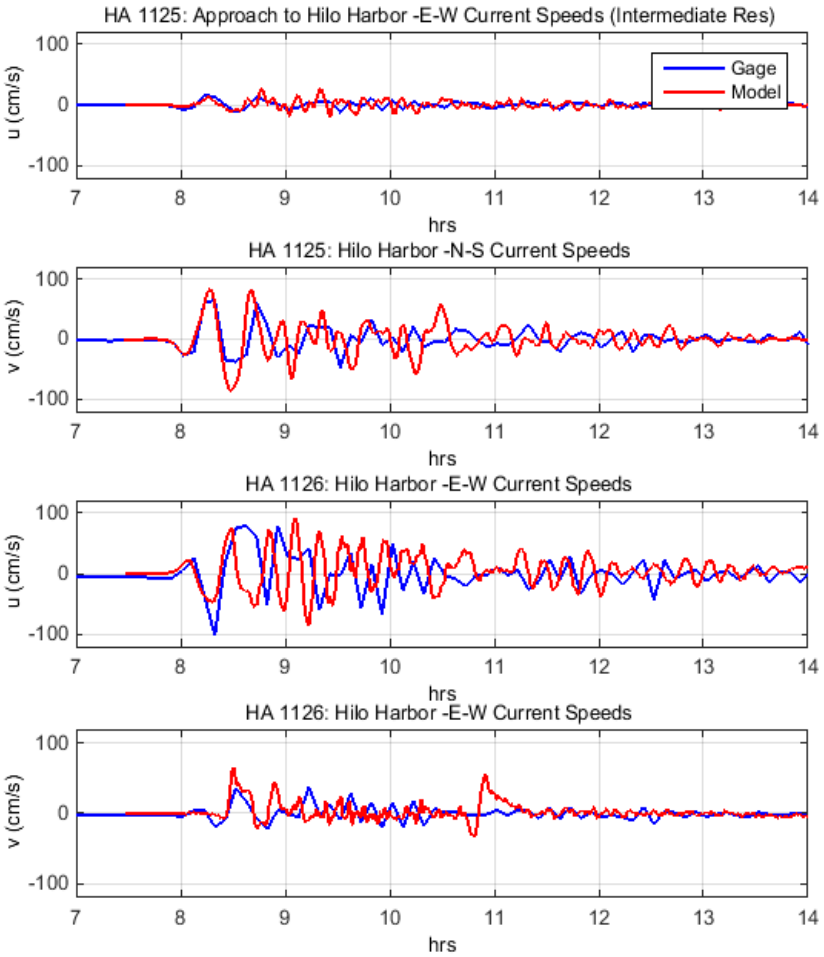
BENCHMARK Problem #2

Medium and High Resolution

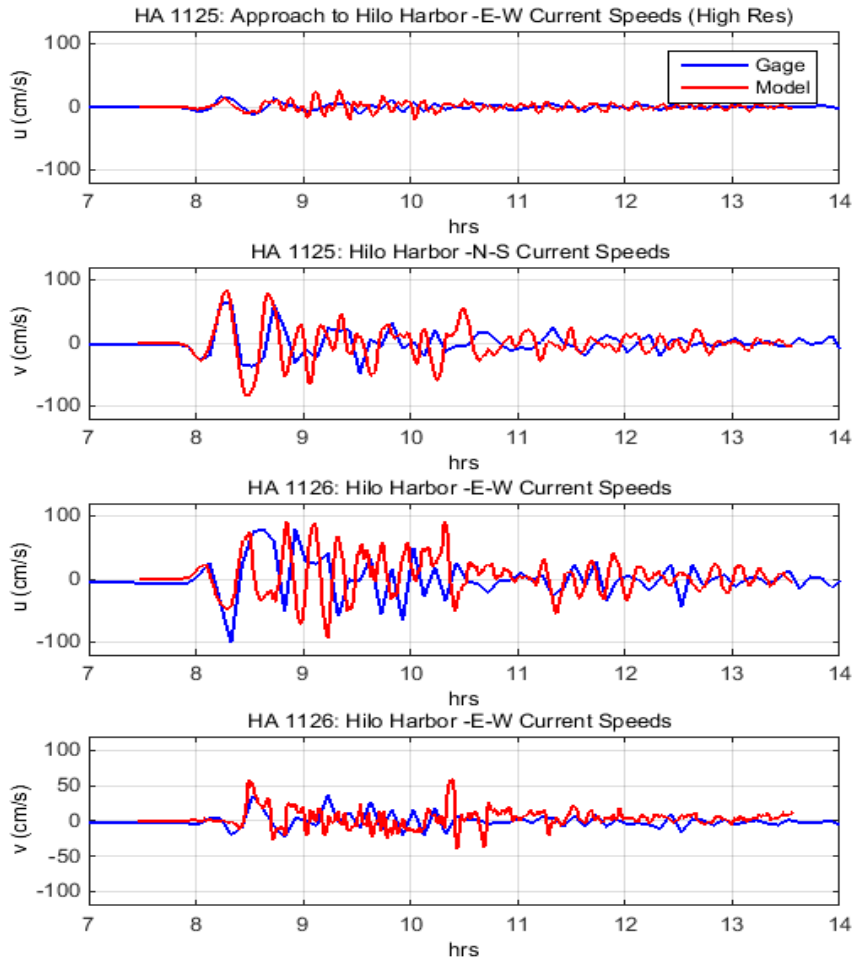
Prescribed Manning Friction Coefficient = 0.025

Grid Resolution=10m/5m

Medium



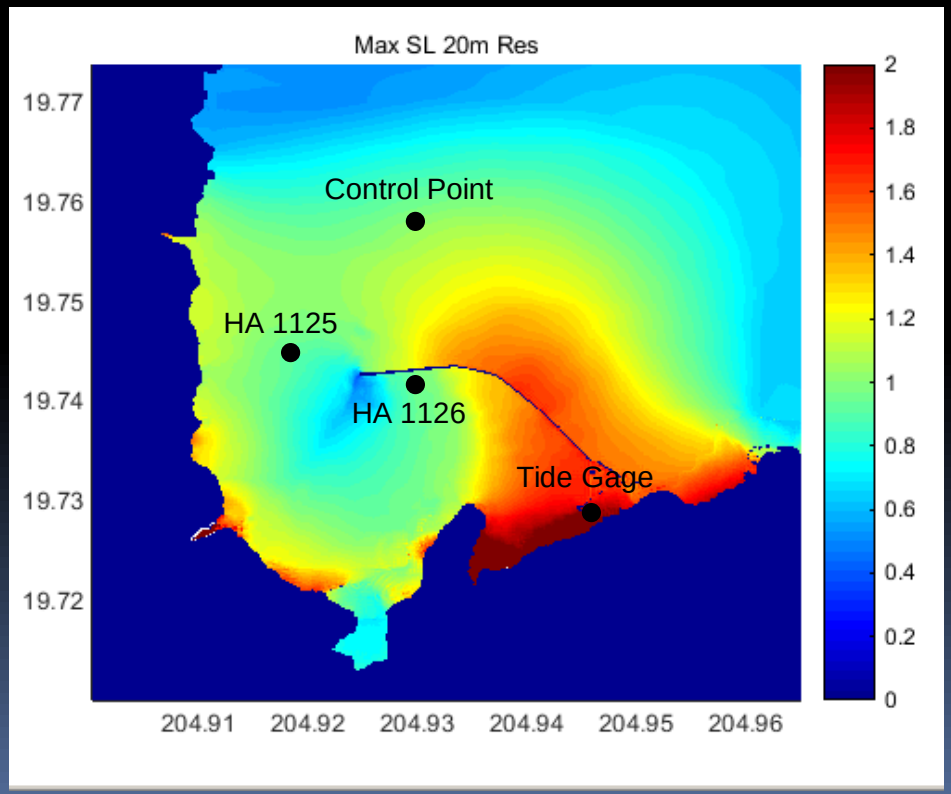
High



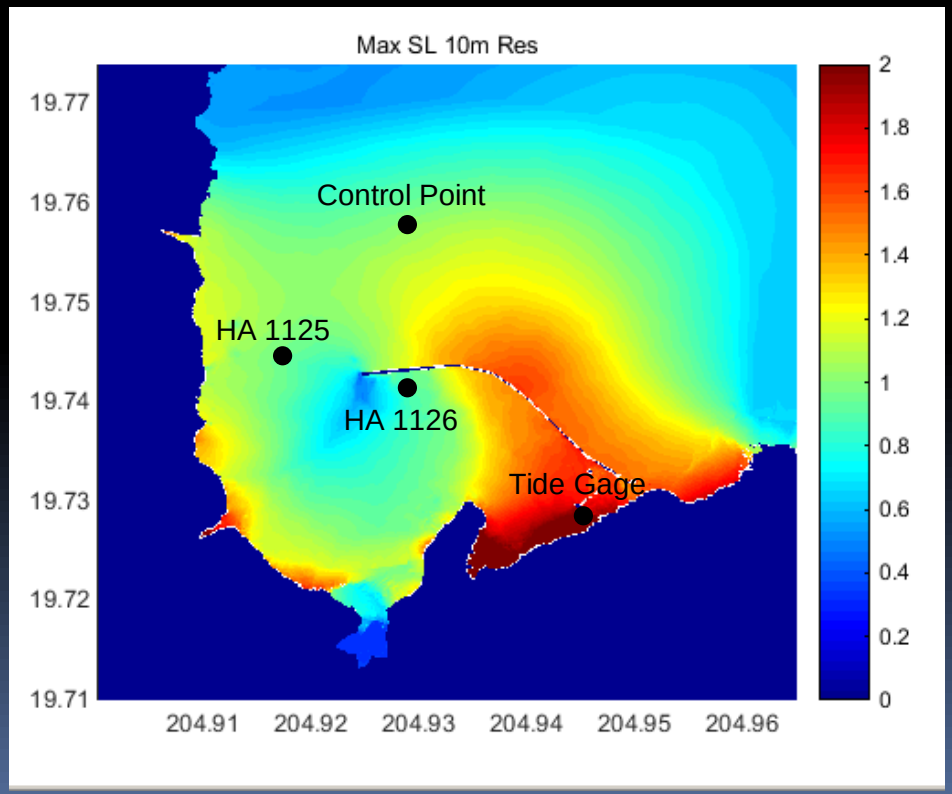
BENCHMARK Problem #2

Low and Medium Resolution
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=20m/10m

Low



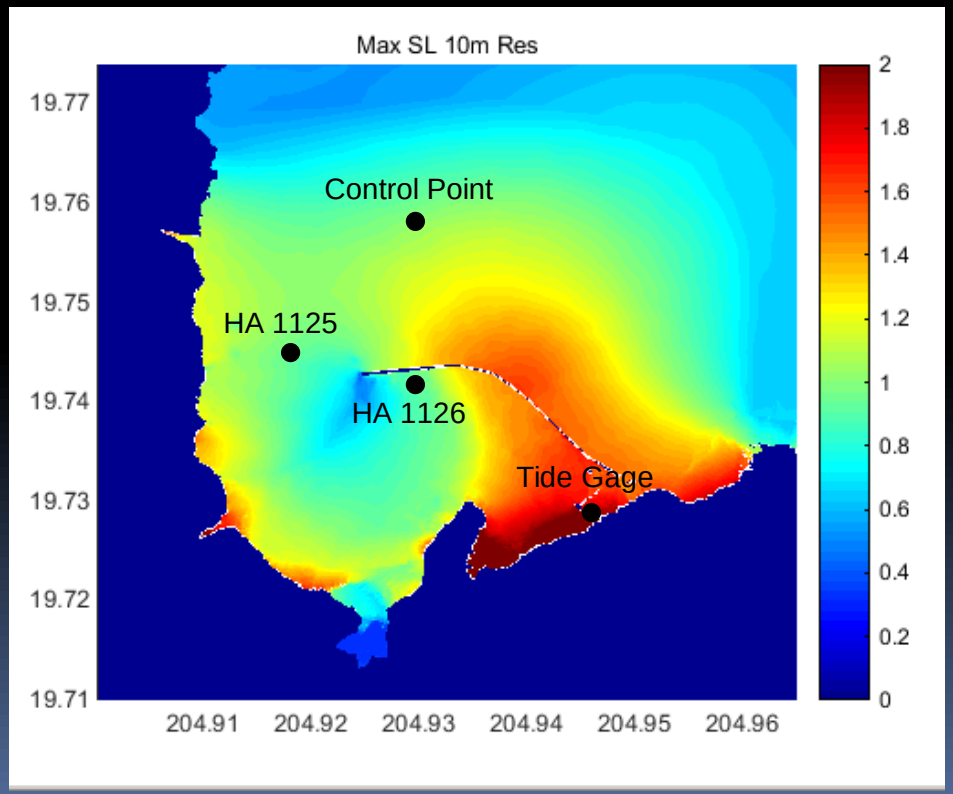
Medium



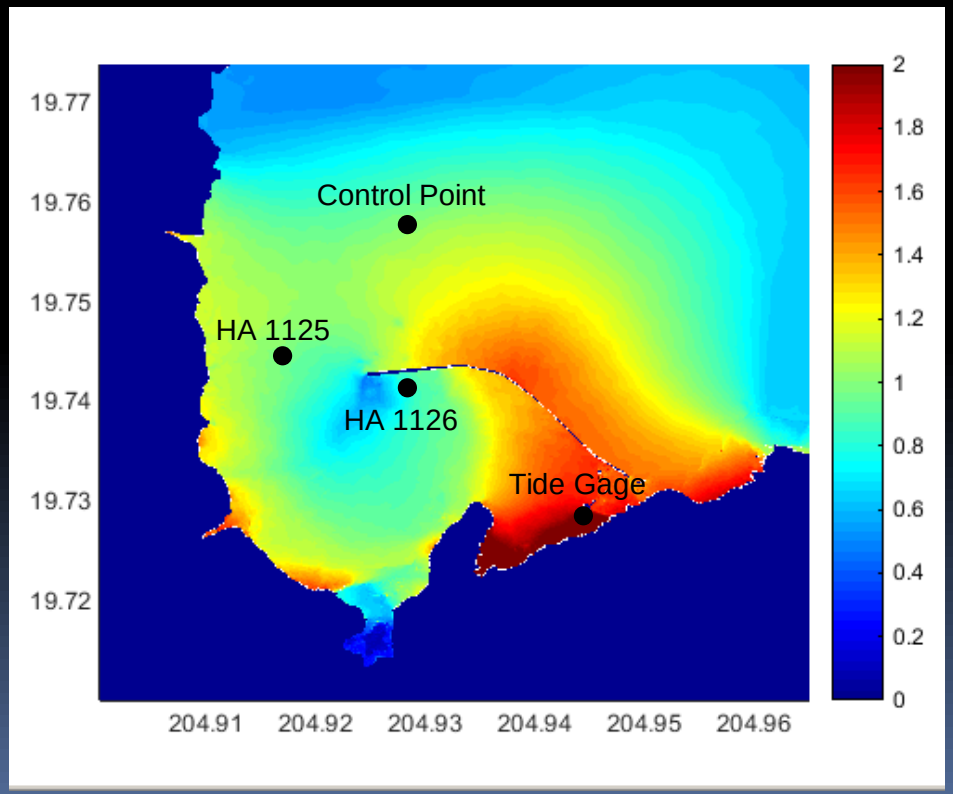
BENCHMARK Problem #2

Medium and High Resolution
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=10m/5m

Medium



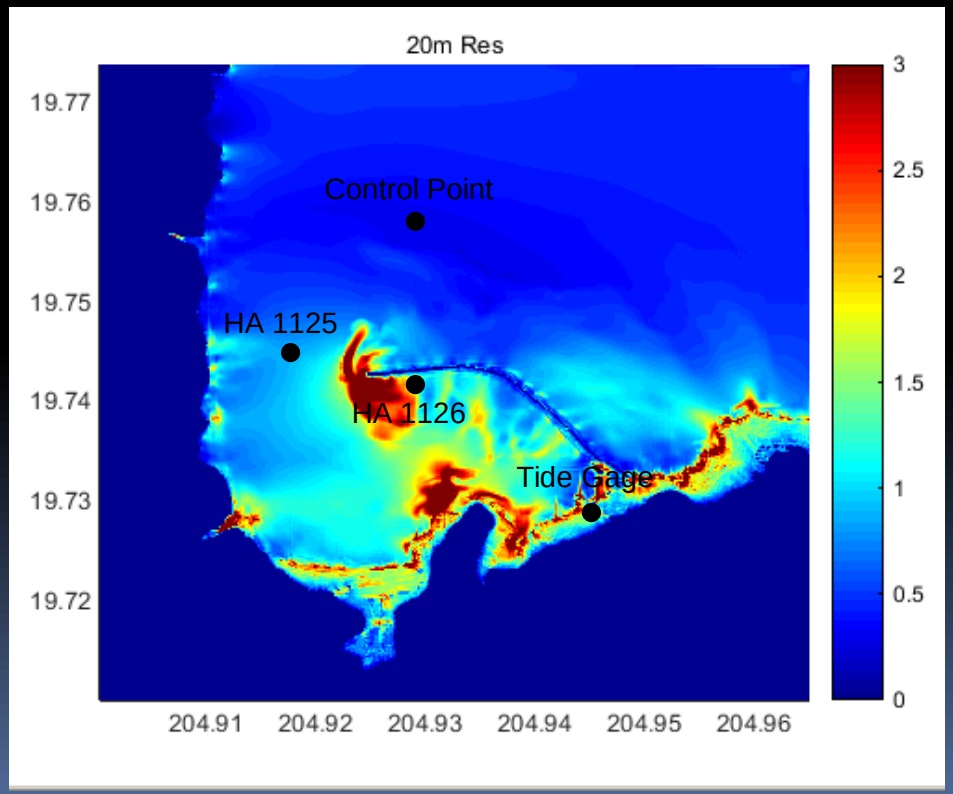
High



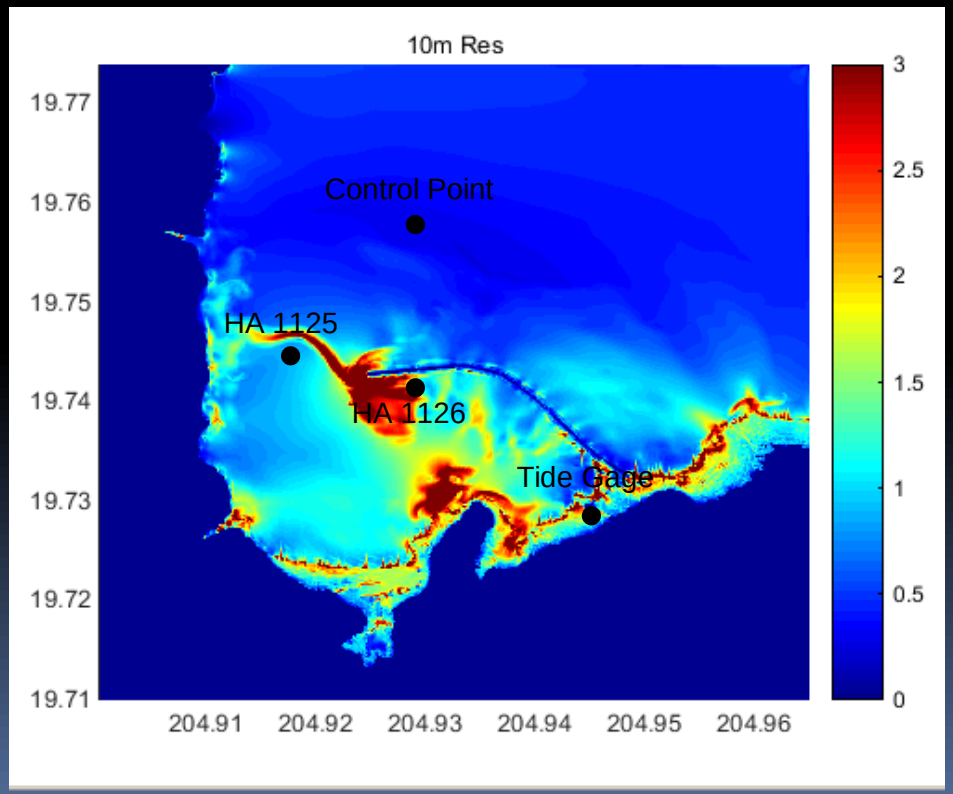
BENCHMARK Problem #2

Low and Medium Resolution
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=20m/10m

Low



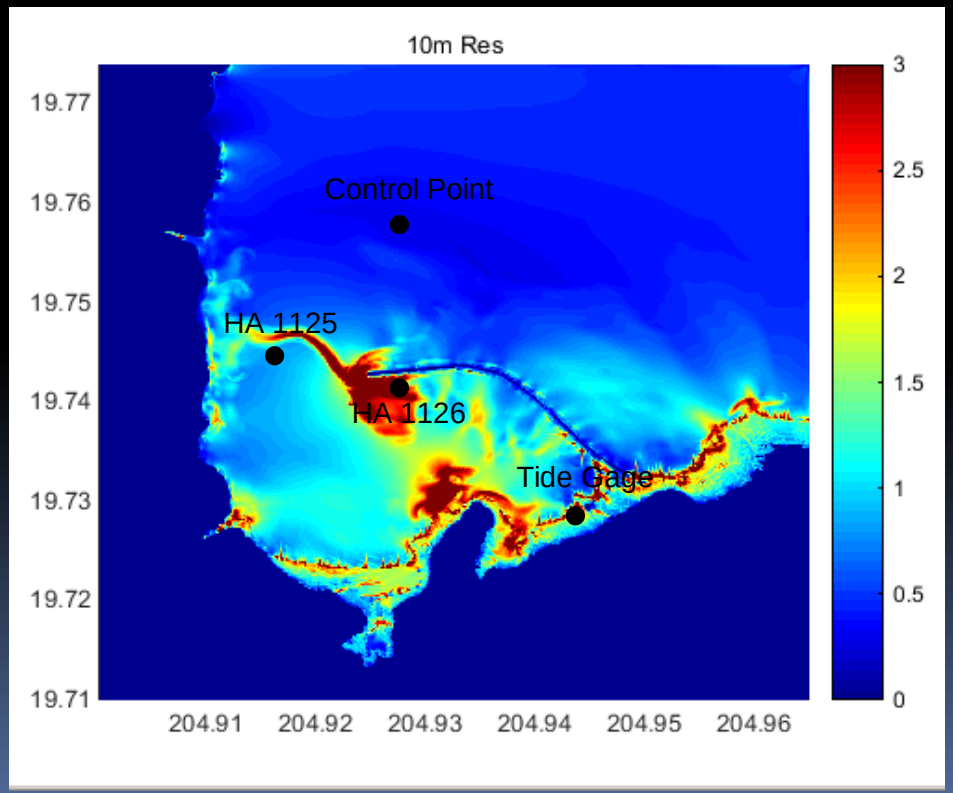
Medium



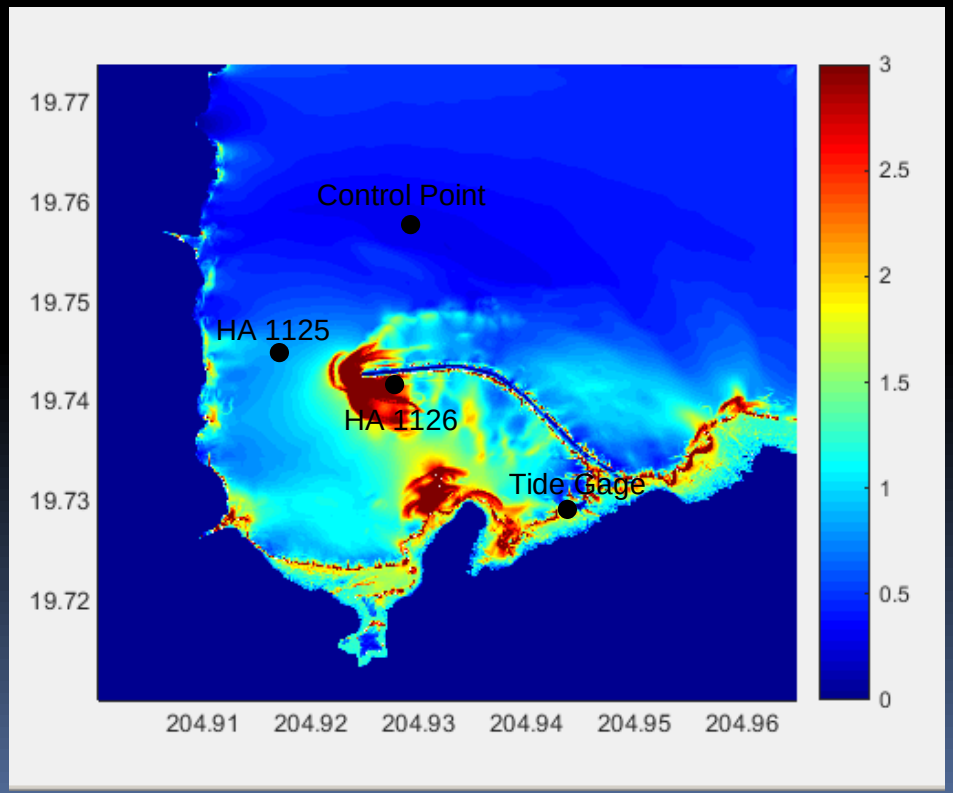
BENCHMARK Problem #2

Medium and High Resolution
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=10m/5m

Medium



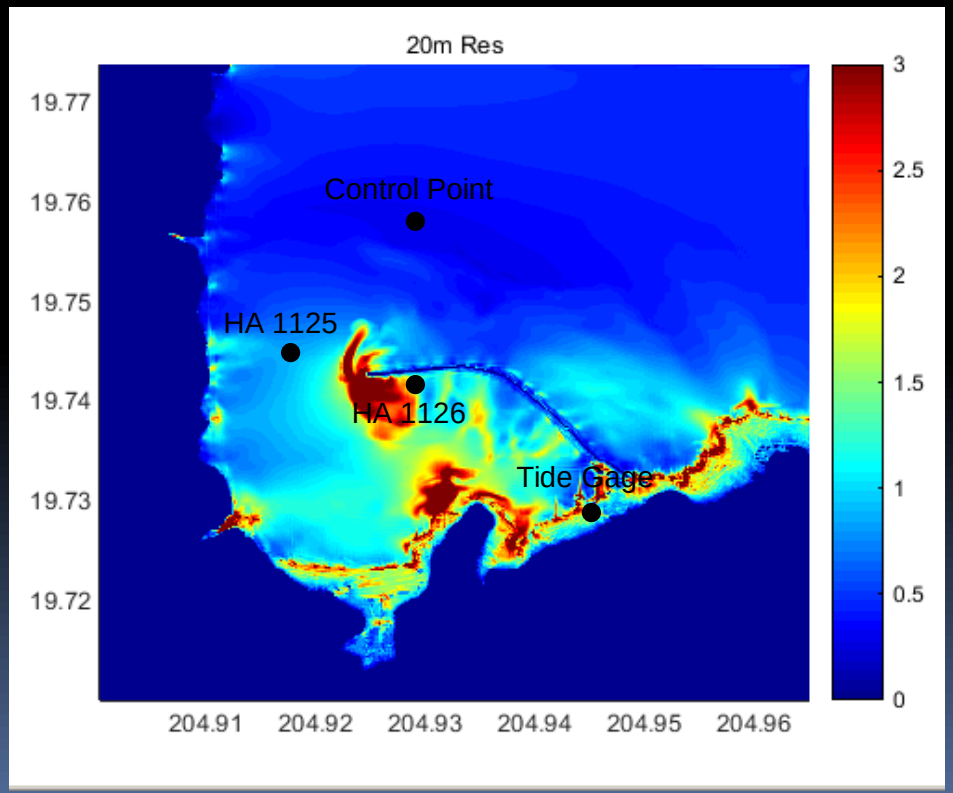
High



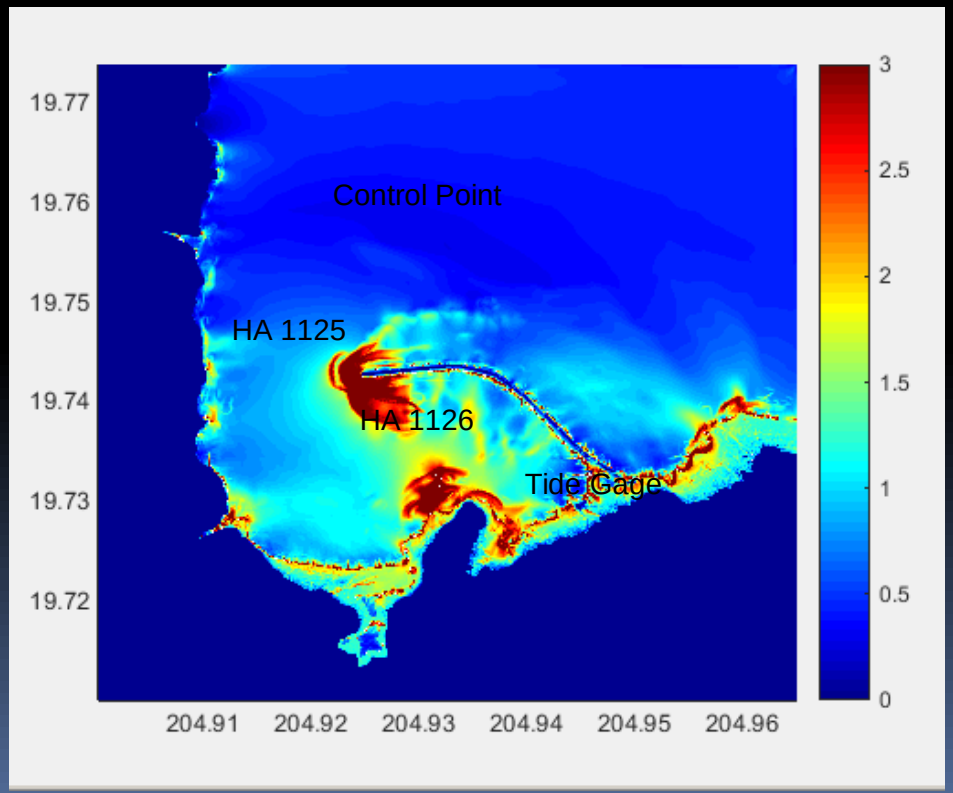
BENCHMARK Problem #2

Low and High Resolution
Prescribed Manning Friction Coefficient = 0.025
Grid Resolution=20m/5m

Low

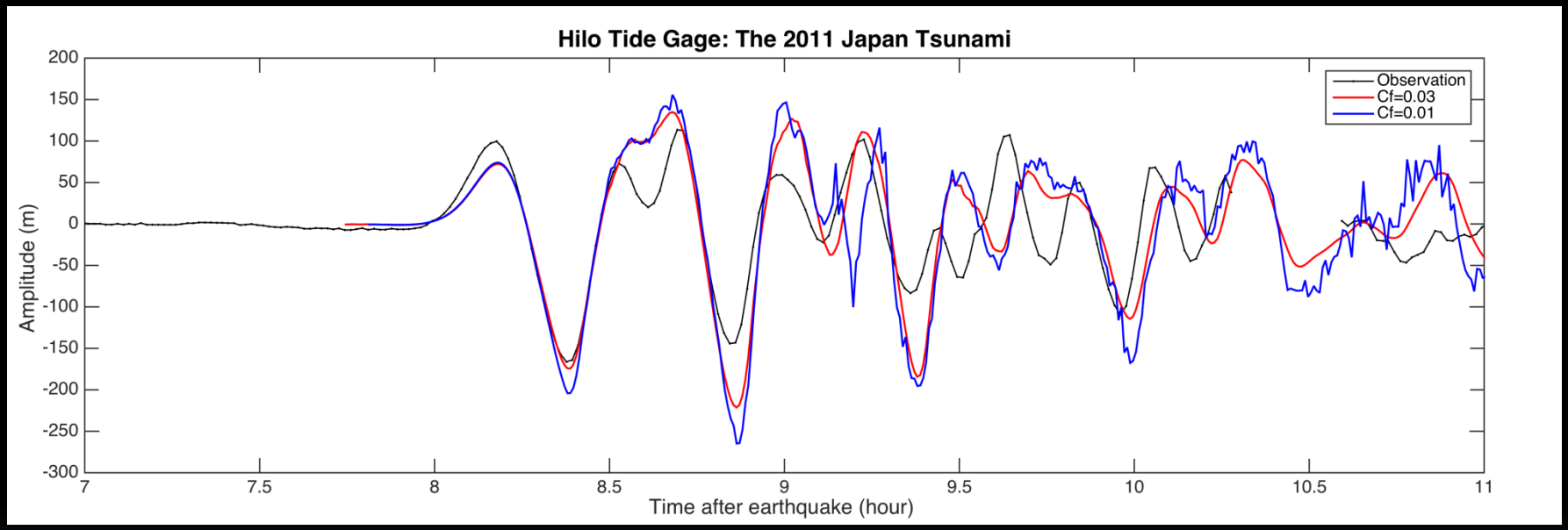


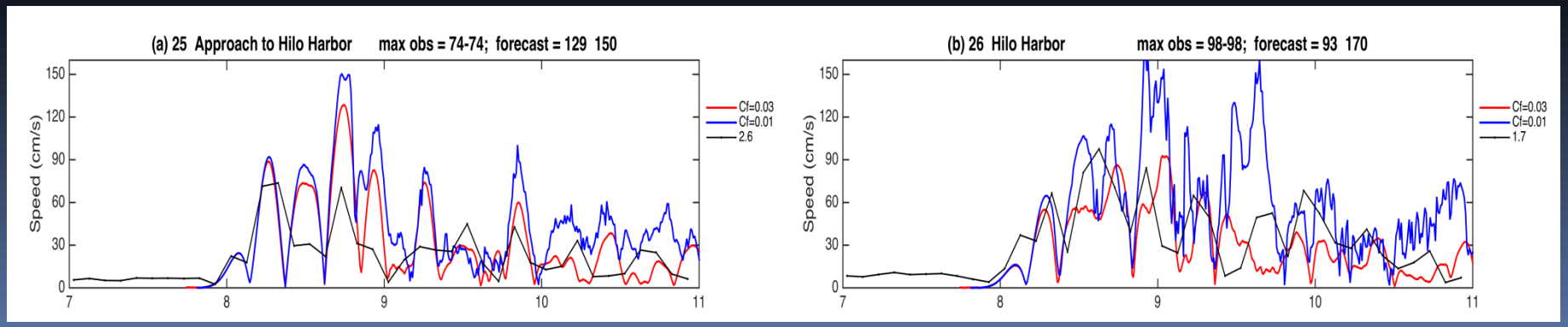
High



BENCHMARK Problem #2

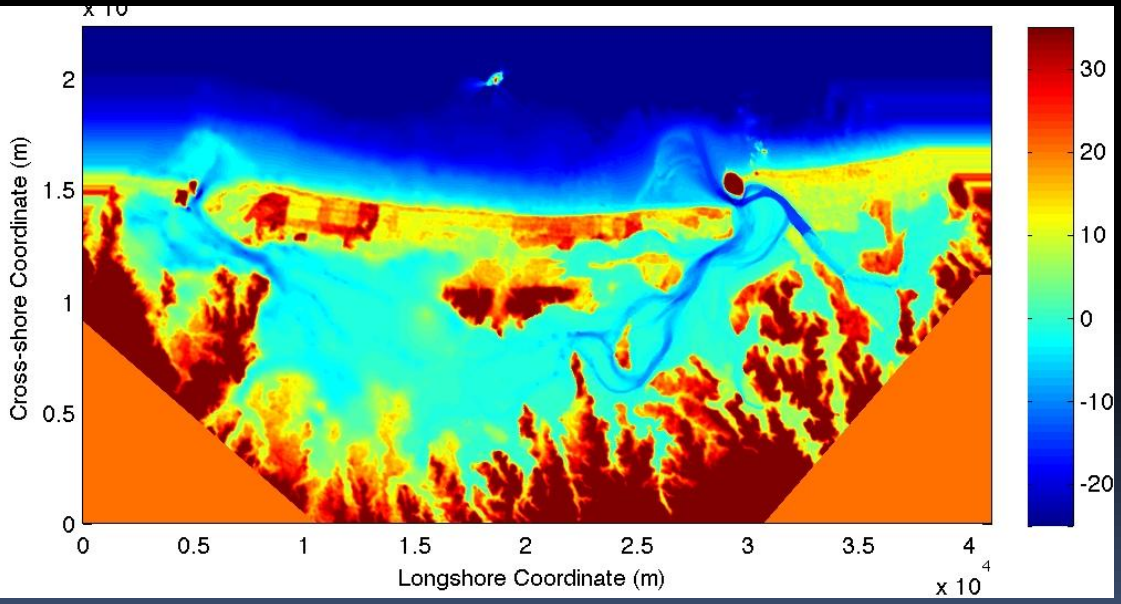
Modeler Optimized
Friction Coefficient = 0.025
Grid Resolution=10





BENCHMARK Problem #3

Grid Orientation: Unrotated
Manning Friction Coefficient = 0.02
Grid Resolution=20m



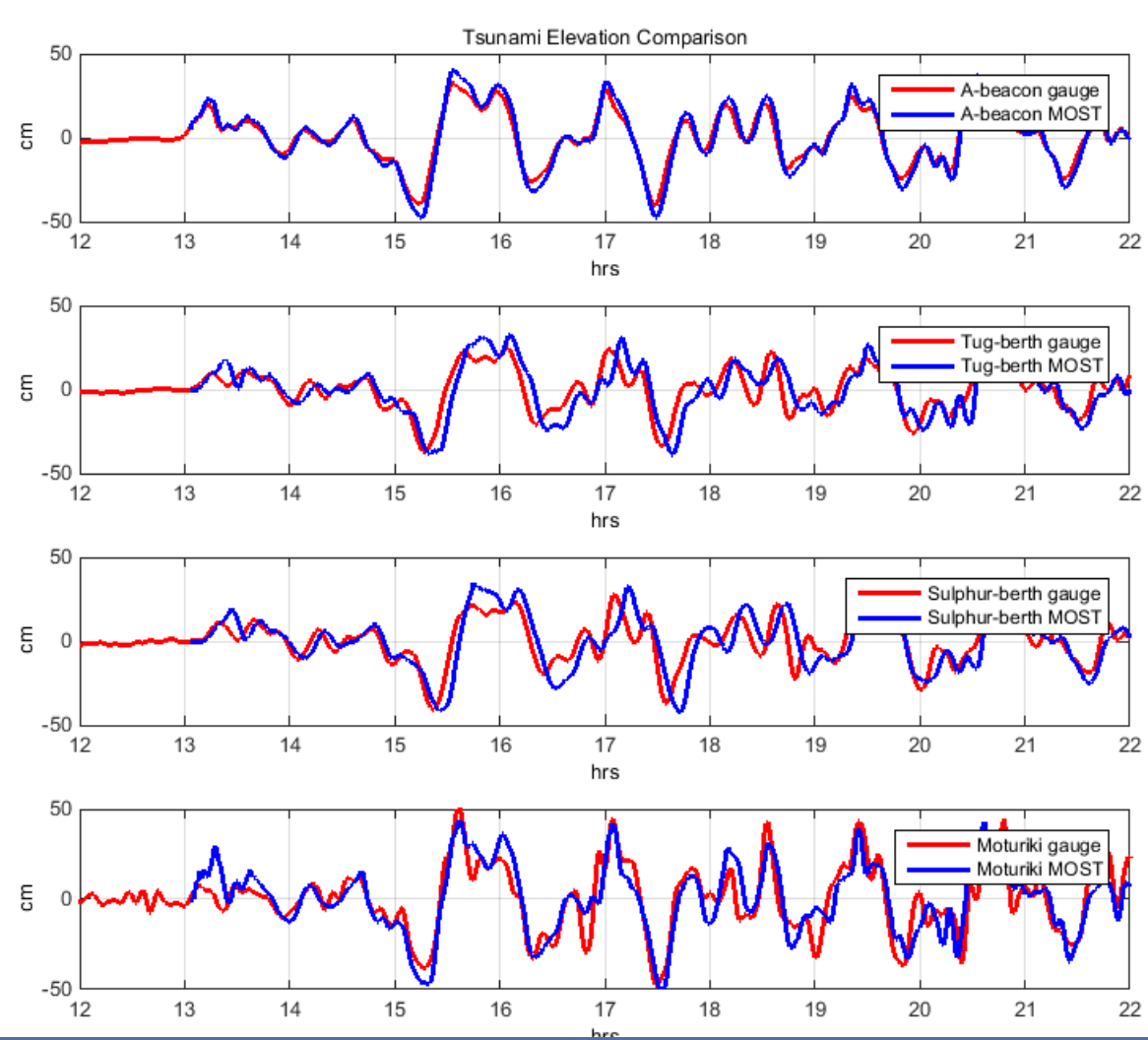
BENCHMARK Problem #3

Tsunami Only (Sea Level Elevation)

Grid Orientation: Unrotated

Manning Friction Coefficient = 0.02

Grid Resolution=20m



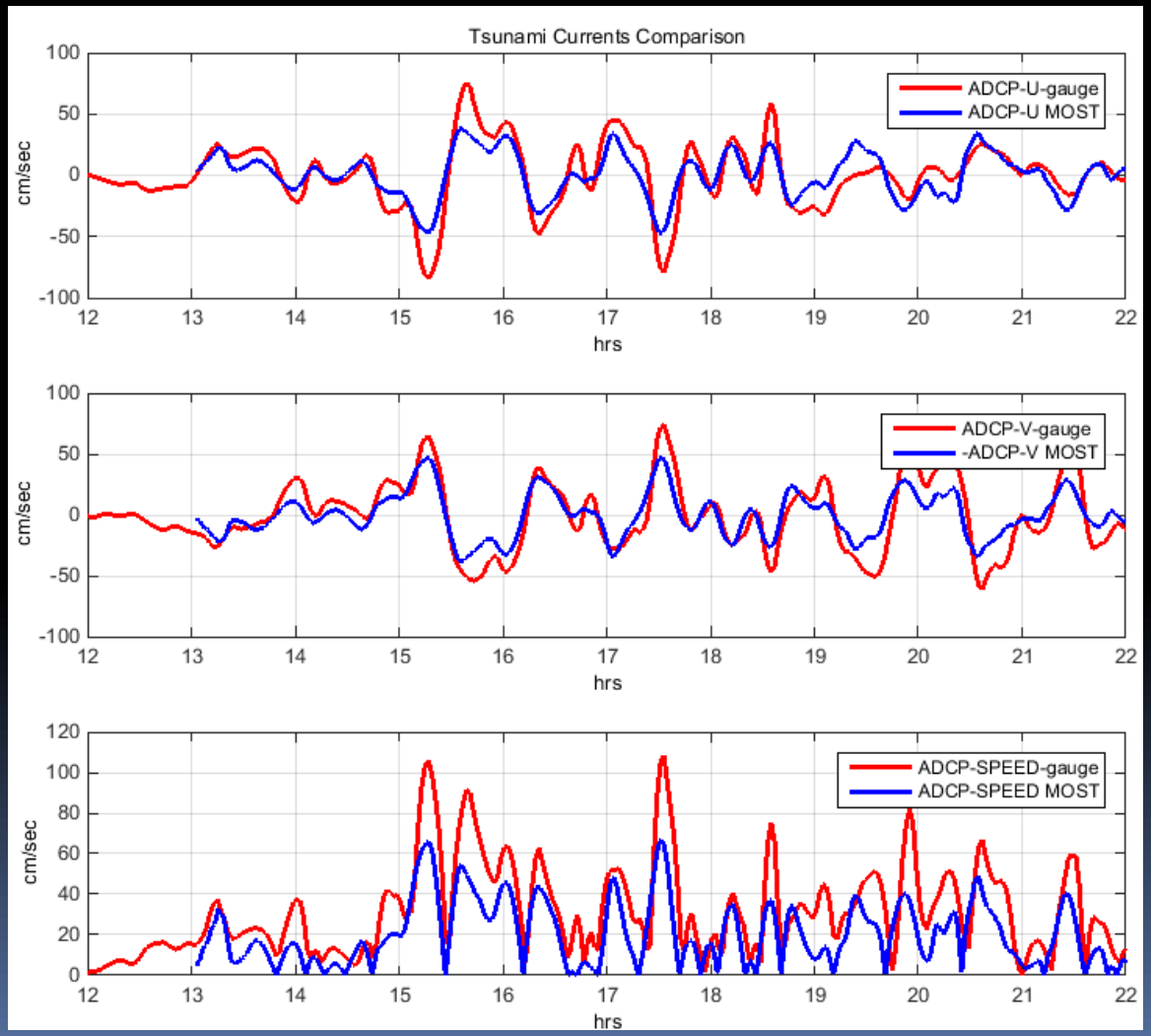
BENCHMARK Problem #3

Tsunami Only (Velocity/Speed Level Elevation)

Grid Orientation: Unrotated

Manning Friction Coefficient = 0.02

Grid Resolution=20m



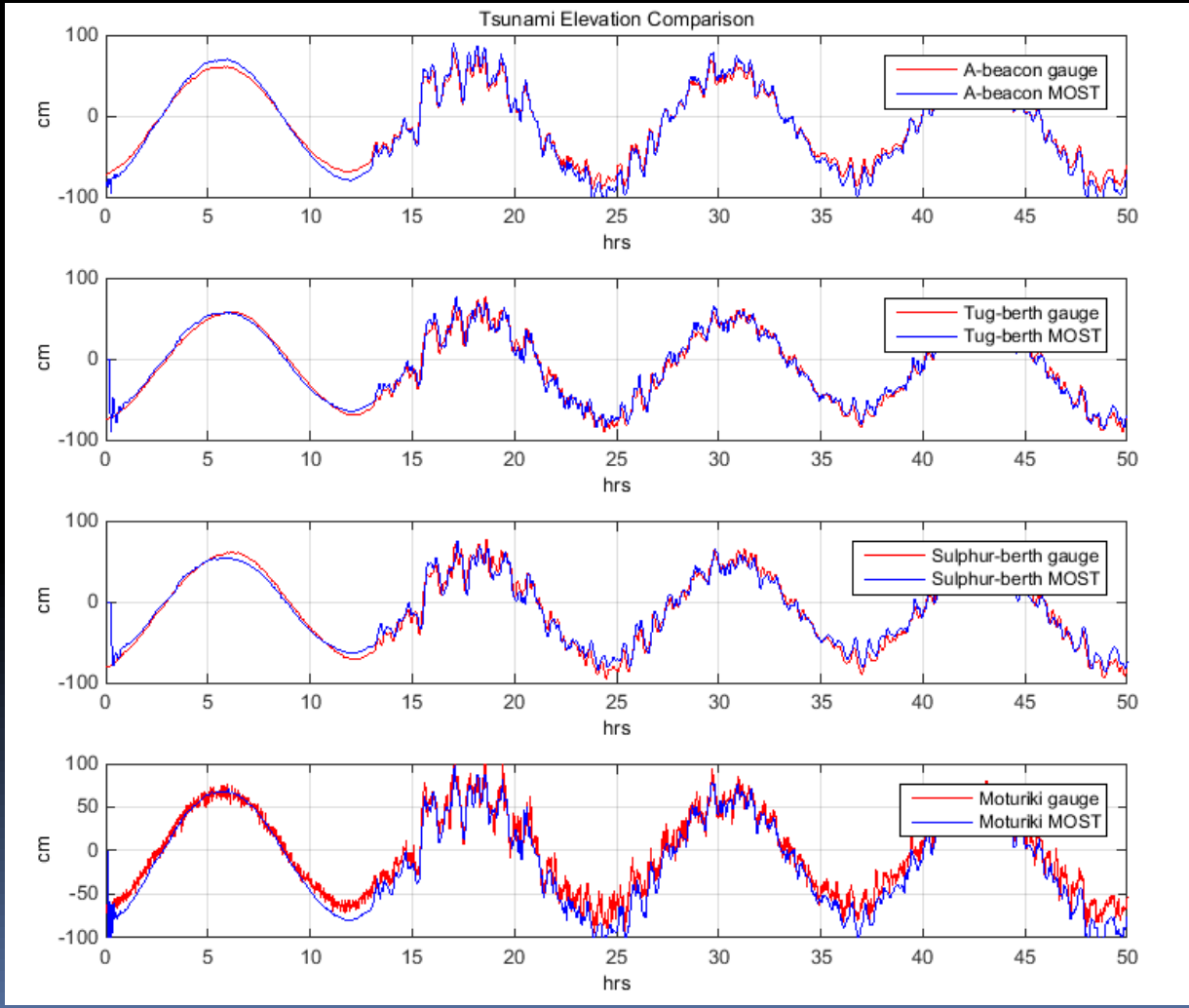
BENCHMARK Problem #3

Total (Sea Level Elevation)

Grid Orientation: Unrotated

Manning Friction Coefficient = 0.02

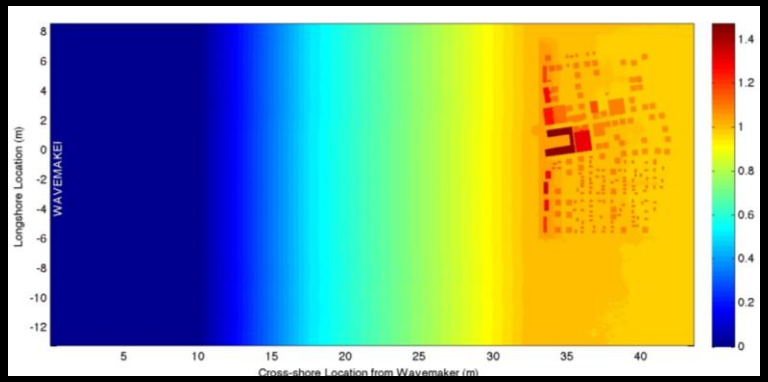
Grid Resolution=20m

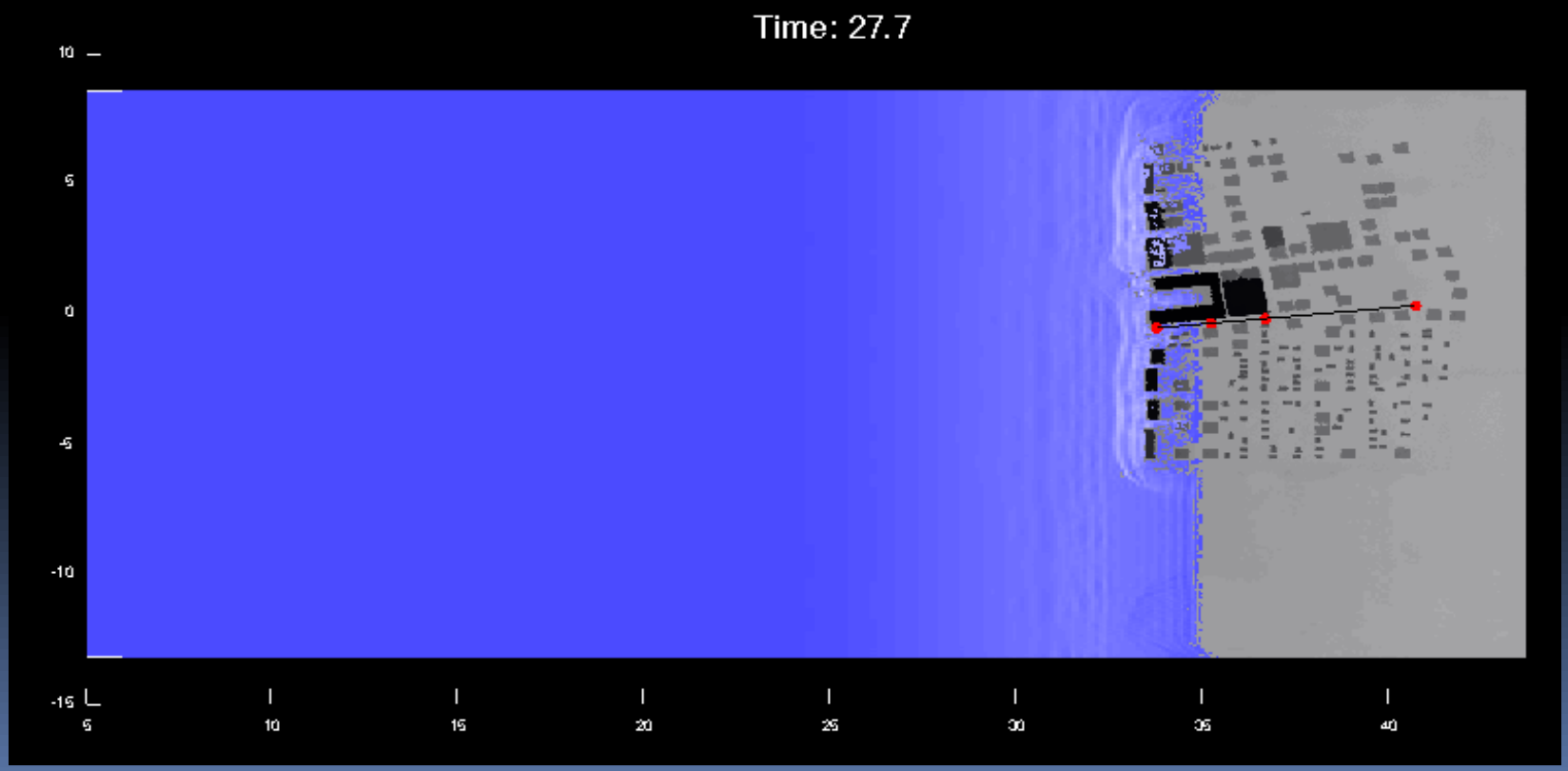


BENCHMARK Problem #4

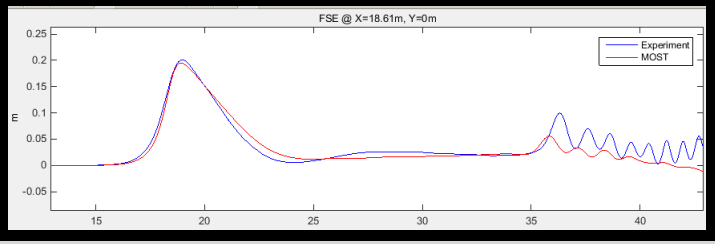
Manning Friction Coefficient = 0.025

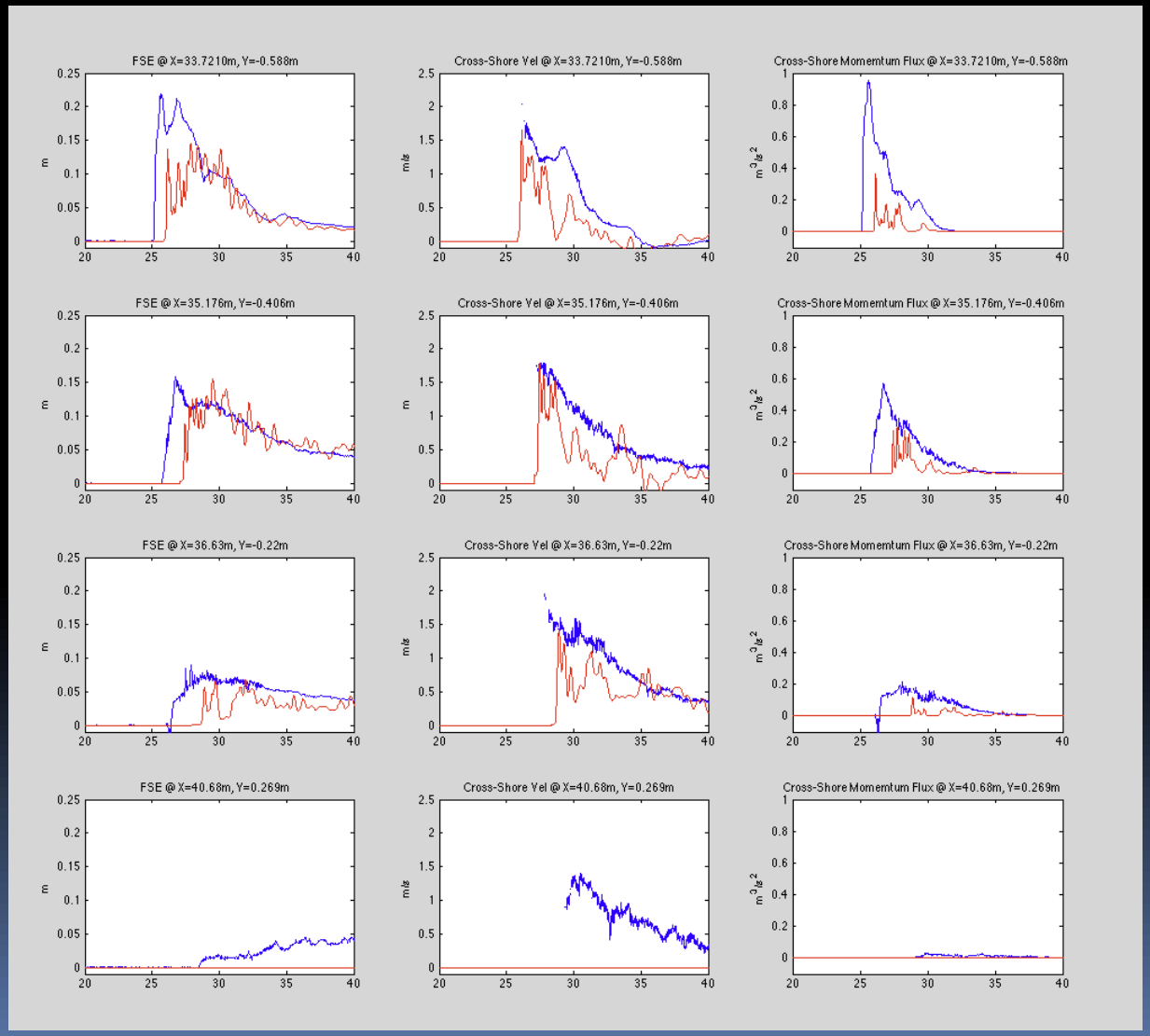
Grid Resolution=Variable (Linear Dispersion Approx.)





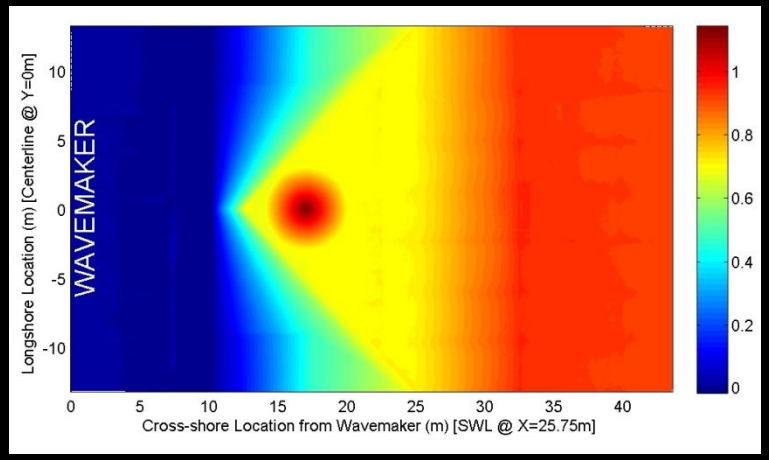
BENCHMARK Problem #4



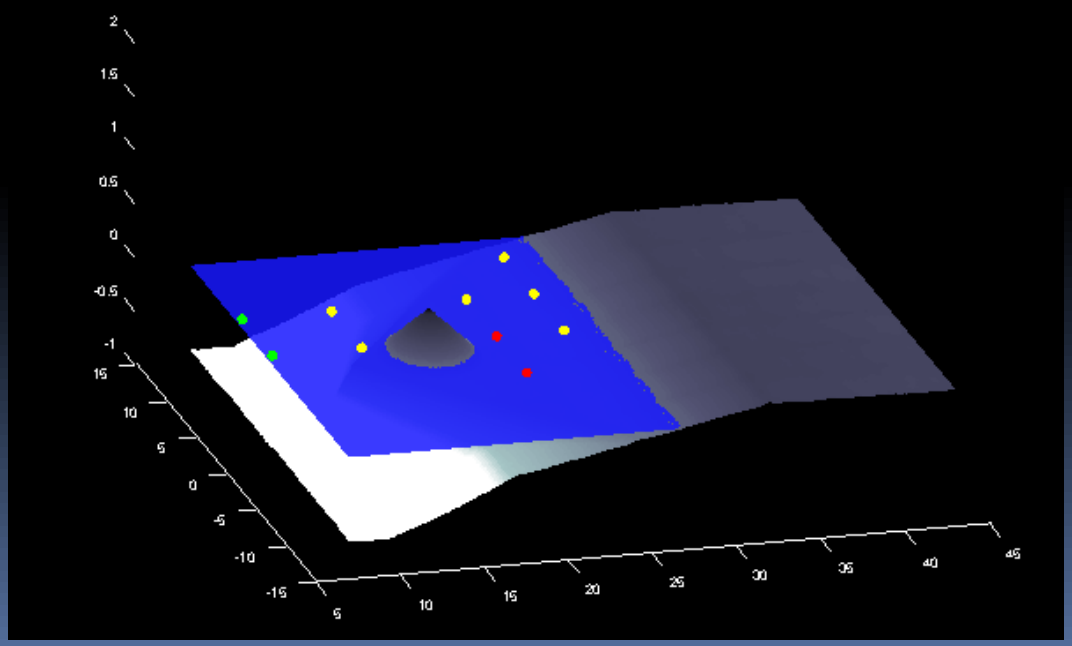


BENCHMARK Problem #5

Manning Friction Coefficient = 0.025
Grid Resolution=823 x 603

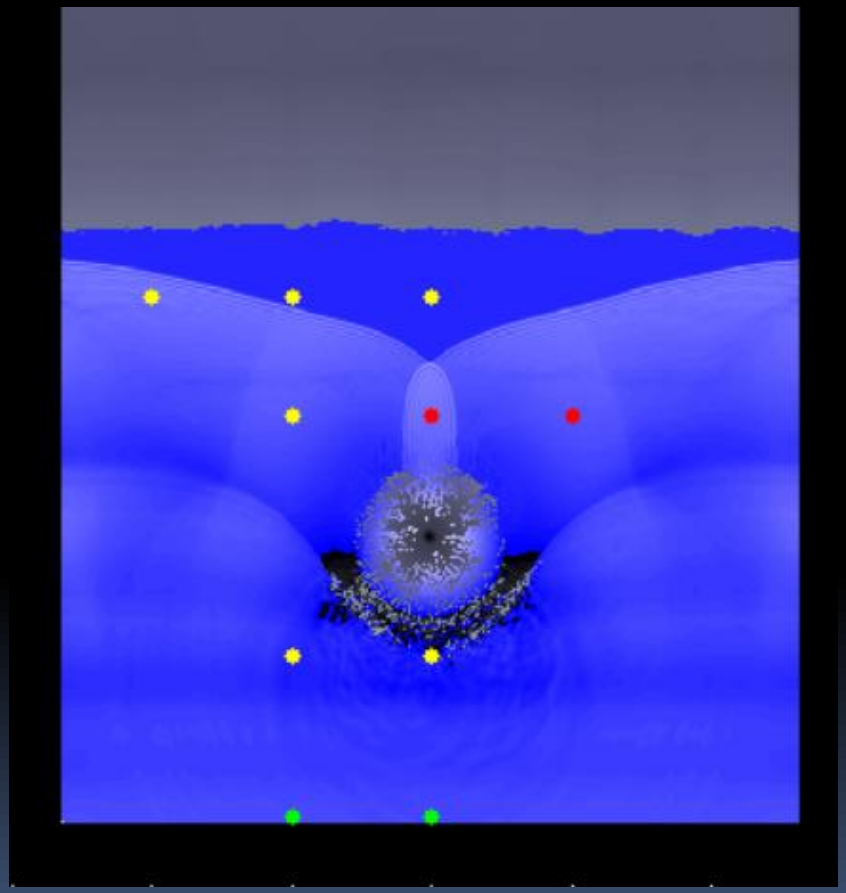


BENCHMARK # 5 Time: 00.1



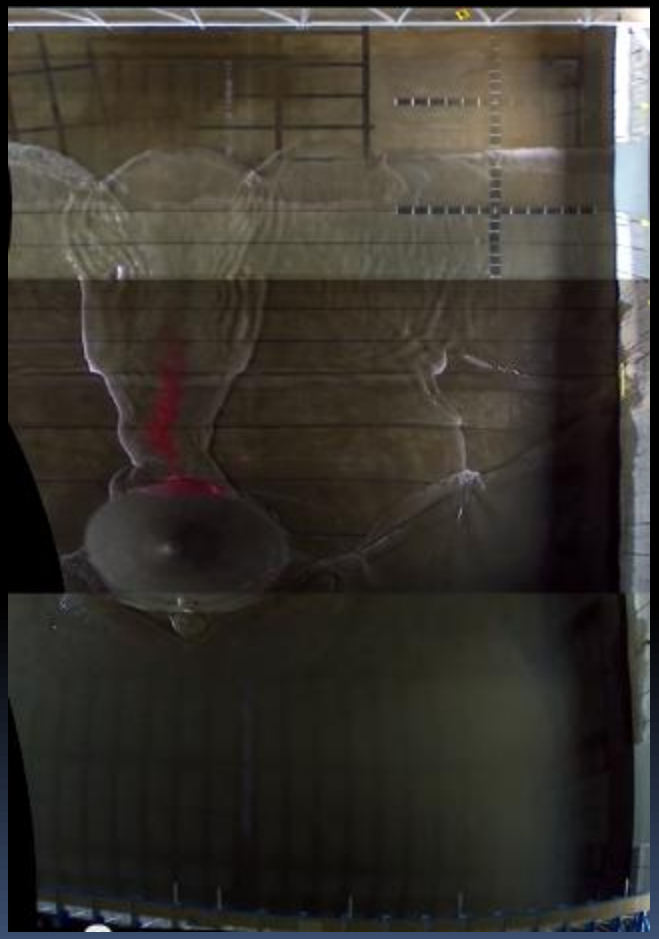
BENCHMARK Problem #5

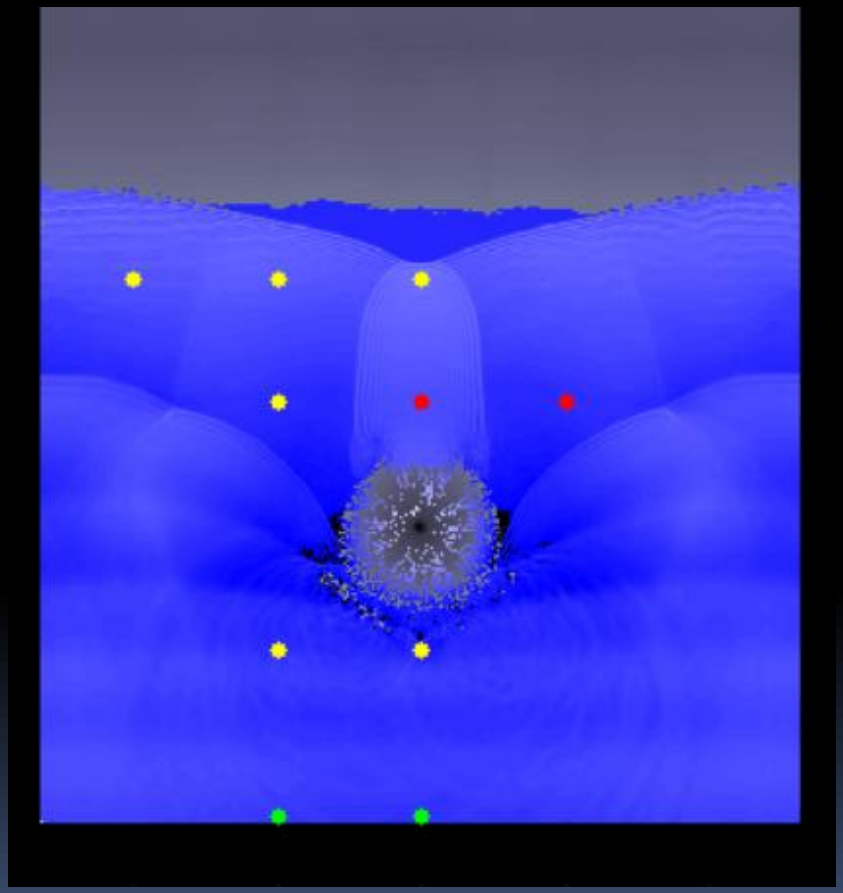
Manning Friction Coefficient = 0.025
Grid Resolution=823 x 603



BENCHMARK Problem #5

Manning Friction Coefficient = 0.025
Grid Resolution=823 x 603

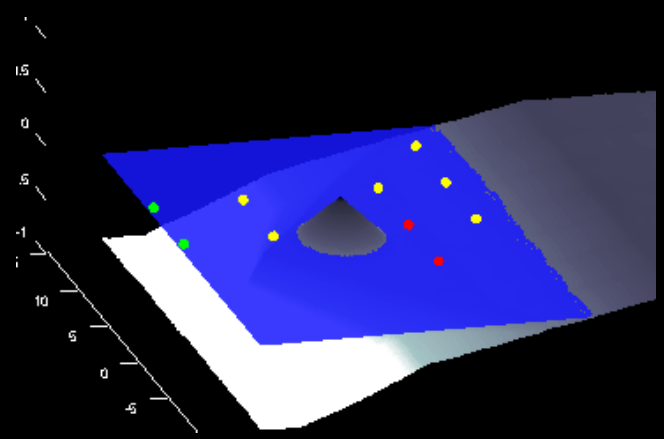


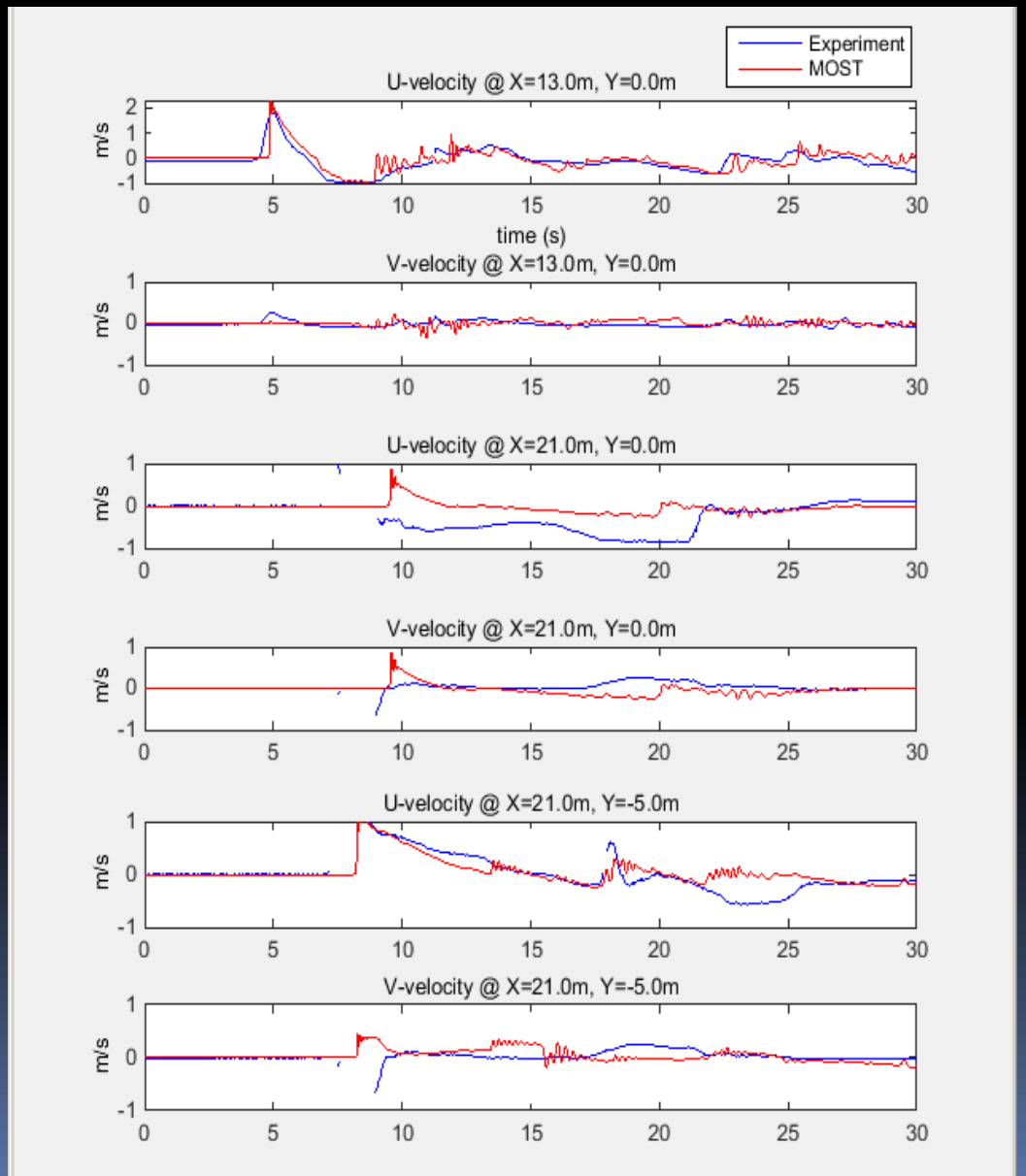


BENCHMARK Problem #5

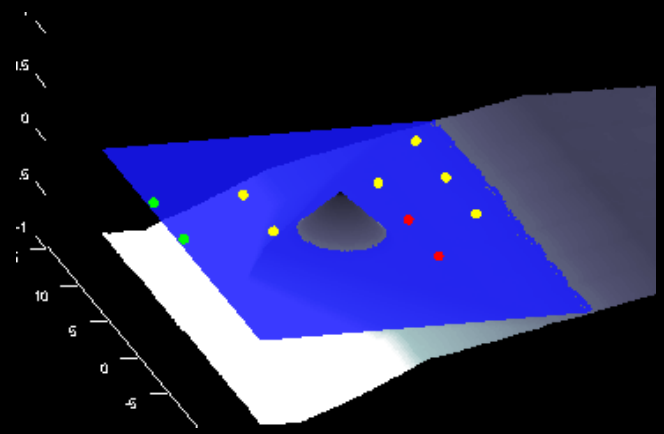
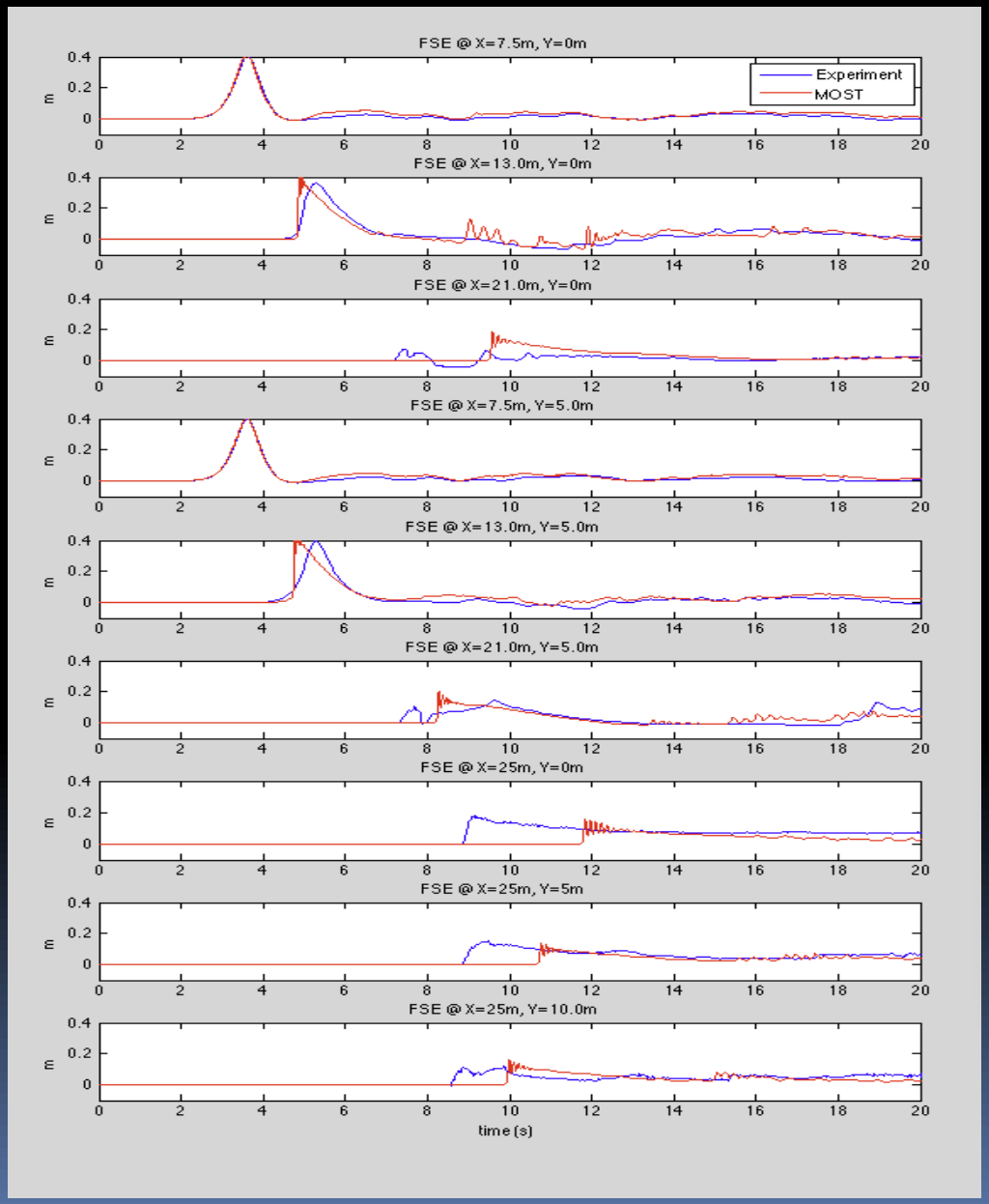
Manning Friction Coefficient = 0.025

Grid Resolution=823 x 603





BENCHMARK Problem #5

Manning Friction Coefficient = 0.025

Grid Resolution=823 x 603