
PART 5: RUNUP2

for transect: CM-123-1

Station locations shifted by: -0.59 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-123-1

Incident significant wave height: 3.52 feet

Peak wave period: 5.02 seconds

Mean wave height: 2.20 feet

Local Depth below SWEL: 27.63 feet

Mean wave height deshoaled using Hunt approximation for
celerity assuming constant wave energy flux.

References: R.G. Dean and R.A. Dalrymple. 2000. Water

Wave Mechanics for Engineers and Scientists. World
Scientific Publishing Company, River Edge New Jersey

USACE (1985), Direct Methods for Calculating Wavelength, CETN-1-17
US Army Engineer Waterways Experiment Station Coastal Engineering
Research Center, Vicksburg, MS

also see Coastal Engineering Manual Part II-3
for discussion of shoaling coefficient

Depth, $D = 27.63$

Period, $T = 4.27$

Waveheight, $H = 2.20$

Deep water wavelength, $L0$ (ft)

$L0 = g \cdot T^2 / 2\pi$

$L0 = 32.17 \cdot 4.27^2 / 6.28 = 93.26$

Deep water wave celerity, $C0$ (ft/s)

$C0 = L0 / T$

$C0 = 93.26 / 4.27 = 21.85$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 4.27 = 1.47$

Hunts (1979) approximation for Celerity $C1H$ (ft/s) at Depth D (ft)

$y = \sigma \cdot \sigma \cdot D / g$

$y = 1.47 \cdot 1.47 \cdot 27.63 / 32.17 = 1.86$

$C1H = \sqrt{g \cdot D / (y + 1. / (1 + 0.6522 \cdot y + 0.4622 \cdot y^2 + 0.0864 \cdot y^4 + 0.0675 \cdot y^5))}$)

$C1H = 20.98$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{21.85 / 20.98} = 1.02$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 2.20 / 1.02 = 2.16$

Deepwater mean wave height: 2.16 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-123-1

RUNUP2 SWEL:

9.00

9.00

9.00

9.00

9.00
9.00
9.00
9.00
9.00

RUNUP2 deepwater mean wave heights:

2.05
2.05
2.05
2.16
2.16
2.16
2.27
2.27
2.27

RUNUP2 mean wave periods:

4.05
4.27
4.48
4.05
4.27
4.48
4.05
4.27
4.48

RUNUP2 runup above SWEL:

0.19
0.22
0.22
0.19
0.23
0.25
0.20
0.24
0.25

RUNUP2 Mean runup height above SWEL: 0.22 feet

RUNUP2 2-percent runup height above SWEL: 0.49 feet

RUNUP2 2-percent runup elevation: 9.49 feet-NAVD88

RUNUP2 Messages:

No Messages

END RUNUP2 RESULTS

ACES BEACH RUNUP

Incident significant wave height: 3.52 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 3.02 feet

Peak wave period: 5.02 seconds

Average beach Slope: 1:18.39 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 2.70 feet

ACES Beach 2-percent runup elevation: 11.70 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____