
PART 5: RUNUP2

for transect: CM-123

Station locations shifted by: 0.49 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-123

Incident significant wave height: 3.86 feet

Peak wave period: 5.16 seconds

Mean wave height: 2.42 feet

Local Depth below SWEL: 28.30 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, $D = 28.30$

Period, $T = 4.38$

Waveheight, $H = 2.42$

Deep water wavelength, $L0$ (ft)

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

$L0 = 32.17 \cdot 4.38^2 / 6.28 = 98.45$

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

$C0 = L0 / T$

$C0 = 98.45 / 4.38 = 22.45$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 4.38 = 1.43$

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

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

$y = 1.43 \cdot 1.43 \cdot 28.30 / 32.17 = 1.81$

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

$C1H = 21.47$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{22.45 / 21.47} = 1.02$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 2.42 / 1.02 = 2.36$

Deepwater mean wave height: 2.36 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-123

RUNUP2 SWEL:

9.04

RUNUP2 deepwater mean wave heights:

-9999.00

RUNUP2 mean wave periods:
-9999.00

RUNUP2 runup above SWEL:
-9999.00

RUNUP2 Mean runup height above SWEL: -9999.00 feet

RUNUP2 2-percent runup height above SWEL: -9999.00 feet

RUNUP2 2-percent runup elevation: -9999.00 feet-NAVD88

RUNUP2 Messages:
RUNUP2 Failed

_____END RUNUP2 RESULTS_____

_____ACES BEACH RUNUP_____

Incident significant wave height: 3.86 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 3.31 feet

Peak wave period: 5.16 seconds

Average beach Slope: 1:17.90 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 2.97 feet

ACES Beach 2-percent runup elevation: 12.01 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____