
PART 5: RUNUP2

for transect: CM-133-1

Station locations shifted by: -0.97 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-133-1

Incident significant wave height: 1.76 feet

Peak wave period: 2.70 seconds

Mean wave height: 1.10 feet

Local Depth below SWEL: 17.15 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, $D = 17.15$

Period, $T = 2.30$

Waveheight, $H = 1.10$

Deep water wavelength, $L0$ (ft)

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

$L0 = 32.17 \cdot 2.30^2 / 6.28 = 27.02$

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

$C0 = L0 / T$

$C0 = 27.02 / 2.30 = 11.76$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 2.30 = 2.74$

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

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

$y = 2.74 \cdot 2.74 \cdot 17.15 / 32.17 = 3.99$

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

$C1H = 11.75$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{11.76 / 11.75} = 1.00$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 1.10 / 1.00 = 1.10$

Deepwater mean wave height: 1.10 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-133-1

RUNUP2 SWEL:

8.90

8.90

8.90

8.90

8.90
8.90
8.90
8.90
8.90

RUNUP2 deepwater mean wave heights:

1.04
1.04
1.04
1.10
1.10
1.10
1.15
1.15
1.15

RUNUP2 mean wave periods:

2.18
2.30
2.41
2.18
2.30
2.41
2.18
2.30
2.41

RUNUP2 runup above SWEL:

1.22
1.22
1.23
1.31
1.31
1.31
1.38
1.38
1.38

RUNUP2 Mean runup height above SWEL: 1.30 feet

RUNUP2 2-percent runup height above SWEL: 2.87 feet

RUNUP2 2-percent runup elevation: 11.77 feet-NAVD88

RUNUP2 Messages:

No Messages

END RUNUP2 RESULTS

ACES BEACH RUNUP

Incident significant wave height: 1.76 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 1.54 feet

Peak wave period: 2.70 seconds

Average beach Slope: 1:30.69 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 0.78 feet

ACES Beach 2-percent runup elevation: 9.68 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____