
PART 5: RUNUP2

for transect: CM-134-1

Station locations shifted by: 163.76 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-134-1

Incident significant wave height: 2.21 feet

Peak wave period: 3.30 seconds

Mean wave height: 1.39 feet

Local Depth below SWEL: 22.43 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, $D = 22.43$

Period, $T = 2.80$

Waveheight, $H = 1.39$

Deep water wavelength, $L0$ (ft)

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

$L0 = 32.17 \cdot 2.80^2 / 6.28 = 40.29$

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

$C0 = L0 / T$

$C0 = 40.29 / 2.80 = 14.36$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 2.80 = 2.24$

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

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

$y = 2.24 \cdot 2.24 \cdot 22.43 / 32.17 = 3.50$

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

$C1H = 14.33$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{14.36 / 14.33} = 1.00$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 1.39 / 1.00 = 1.38$

Deepwater mean wave height: 1.38 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-134-1

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:

1.32
1.32
1.32
1.38
1.38
1.38
1.45
1.45
1.45

RUNUP2 mean wave periods:

2.66
2.80
2.95
2.66
2.80
2.95
2.66
2.80
2.95

RUNUP2 runup above SWEL:

0.72
0.76
0.79
0.73
0.77
0.81
0.76
0.79
0.83

RUNUP2 Mean runup height above SWEL: 0.77 feet

RUNUP2 2-percent runup height above SWEL: 1.70 feet

RUNUP2 2-percent runup elevation: 10.60 feet-NAVD88

RUNUP2 Messages:

No Messages

END RUNUP2 RESULTS

ACES BEACH RUNUP

Incident significant wave height: 2.21 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 1.94 feet

Peak wave period: 3.30 seconds

Average beach Slope: 1:28.27 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 1.11 feet

ACES Beach 2-percent runup elevation: 10.01 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____