
PART 5: RUNUP2

for transect: CM-132

Station locations shifted by: 0.07 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-132

Incident significant wave height: 3.35 feet

Peak wave period: 4.76 seconds

Mean wave height: 2.10 feet

Local Depth below SWEL: 24.84 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, $D = 24.84$

Period, $T = 4.05$

Waveheight, $H = 2.10$

Deep water wavelength, $L0$ (ft)

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

$L0 = 32.17 \cdot 4.05^2 / 6.28 = 83.84$

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

$C0 = L0 / T$

$C0 = 83.84 / 4.05 = 20.72$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 4.05 = 1.55$

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

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

$y = 1.55 \cdot 1.55 \cdot 24.84 / 32.17 = 1.86$

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

$C1H = 19.90$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{20.72 / 19.90} = 1.02$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 2.10 / 1.02 = 2.06$

Deepwater mean wave height: 2.06 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-132

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:

1.95
1.95
1.95
2.06
2.06
2.06
2.16
2.16
2.16

RUNUP2 mean wave periods:

3.84
4.05
4.25
3.84
4.05
4.25
3.84
4.05
4.25

RUNUP2 runup above SWEL:

1.15
1.12
1.10
0.92
0.87
0.84
0.71
0.66
0.63

RUNUP2 Mean runup height above SWEL: 0.89 feet

RUNUP2 2-percent runup height above SWEL: 1.96 feet

RUNUP2 2-percent runup elevation: 10.86 feet-NAVD88

RUNUP2 Messages:

No Messages

END RUNUP2 RESULTS

ACES BEACH RUNUP

Incident significant wave height: 3.35 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 2.88 feet

Peak wave period: 4.76 seconds

Average beach Slope: 1:30.39 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 1.76 feet

ACES Beach 2-percent runup elevation: 10.66 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____