
PART 5: RUNUP2

for transect: CM-130

Station locations shifted by: 0.32 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-130

Incident significant wave height: 7.43 feet

Peak wave period: 13.59 seconds

Mean wave height: 4.65 feet

Local Depth below SWEL: 31.75 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, $D = 31.75$

Period, $T = 11.55$

Waveheight, $H = 4.65$

Deep water wavelength, $L0$ (ft)

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

$L0 = 32.17 \cdot 11.55^2 / 6.28 = 683.49$

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

$C0 = L0 / T$

$C0 = 683.49 / 11.55 = 59.16$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 11.55 = 0.54$

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

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

$y = 0.54 \cdot 0.54 \cdot 31.75 / 32.17 = 0.29$

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

$C1H = 30.41$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{59.16 / 30.41} = 1.39$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 4.65 / 1.39 = 3.34$

Deepwater mean wave height: 3.34 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-130

RUNUP2 SWEL:

8.81

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: 7.43 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 4.67 feet

Peak wave period: 13.59 seconds

Average beach Slope: 1:13.99 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 8.79 feet

ACES Beach 2-percent runup elevation: 17.61 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____