
PART 5: RUNUP2

for transect: CM-142

Station locations shifted by: -6.91 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-142

Incident significant wave height: 13.20 feet

Peak wave period: 14.06 seconds

Mean wave height: 8.26 feet

Local Depth below SWEL: 39.24 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, $D = 39.24$

Period, $T = 11.95$

Waveheight, $H = 8.26$

Deep water wavelength, $L0$ (ft)

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

$L0 = 32.17 \cdot 11.95^2 / 6.28 = 731.14$

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

$C0 = L0 / T$

$C0 = 731.14 / 11.95 = 61.19$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 11.95 = 0.53$

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

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

$y = 0.53 \cdot 0.53 \cdot 39.24 / 32.17 = 0.34$

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

$C1H = 33.54$

Shoaling Coefficient KsH

$KsH = \sqrt{C0 / C1H}$

$KsH = \sqrt{61.19 / 33.54} = 1.35$

Deepwater Wave Height $H0_H$ (ft)

$H0_H = H / KsH$

$H0_H = 8.26 / 1.35 = 6.12$

Deepwater mean wave height: 6.12 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-142

RUNUP2 SWEL:

8.80

8.80

8.80

8.80

8.80
8.80
8.80
8.80
8.80

RUNUP2 deepwater mean wave heights:

5.81
5.81
5.81
6.12
6.12
6.12
6.42
6.42
6.42

RUNUP2 mean wave periods:

11.35
11.95
12.55
11.35
11.95
12.55
11.35
11.95
12.55

RUNUP2 runup above SWEL:

13.69
13.90
14.25
13.64
13.66
13.78
12.94
12.99
13.05

RUNUP2 Mean runup height above SWEL: 13.54 feet

RUNUP2 2-percent runup height above SWEL: 29.80 feet

RUNUP2 2-percent runup elevation: 38.60 feet-NAVD88

RUNUP2 Messages:

No Messages

END RUNUP2 RESULTS

ACES BEACH RUNUP

Incident significant wave height: 13.20 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 8.56 feet

Peak wave period: 14.06 seconds

Average beach Slope: 1:13.58 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 13.60 feet

ACES Beach 2-percent runup elevation: 22.40 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____