

---

PART 5: RUNUP2

for transect: CM-124-1

Station locations shifted by: -0.59 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: CM-124-1

Incident significant wave height: 2.61 feet

Peak wave period: 3.40 seconds

Mean wave height: 1.64 feet

Local Depth below SWEL: 30.55 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,  $D = 30.55$

Period,  $T = 2.89$

Waveheight,  $H = 1.64$

Deep water wavelength,  $L_0$  (ft)

$L_0 = g \cdot T^2 / 2\pi$

$L_0 = 32.17 \cdot 2.89^2 / 6.28 = 42.77$

Deep water wave celerity,  $C_0$  (ft/s)

$C_0 = L_0 / T$

$C_0 = 42.77 / 2.89 = 14.80$

Angular frequency,  $\sigma$  (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 2.89 = 2.17$

Hunts (1979) approximation for Celerity  $C_{1H}$  (ft/s) at Depth  $D$  (ft)

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

$y = 2.17 \cdot 2.17 \cdot 30.55 / 32.17 = 4.49$

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

$C_{1H} = 14.79$

Shoaling Coefficient  $K_{sH}$

$K_{sH} = \sqrt{C_0 / C_{1H}}$

$K_{sH} = \sqrt{14.80 / 14.79} = 1.00$

Deepwater Wave Height  $H_{0_H}$  (ft)

$H_{0_H} = H / K_{sH}$

$H_{0_H} = 1.64 / 1.00 = 1.64$

Deepwater mean wave height: 1.64 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: CM-124-1

RUNUP2 SWEL:

9.00

9.00

9.00

9.00

9.00  
9.00  
9.00  
9.00  
9.00

RUNUP2 deepwater mean wave heights:

1.55  
1.55  
1.55  
1.64  
1.64  
1.64  
1.72  
1.72  
1.72

RUNUP2 mean wave periods:

2.75  
2.89  
3.03  
2.75  
2.89  
3.03  
2.75  
2.89  
3.03

RUNUP2 runup above SWEL:

1.13  
1.19  
1.25  
1.00  
1.04  
1.09  
0.91  
0.93  
0.96

RUNUP2 Mean runup height above SWEL: 1.06 feet

RUNUP2 2-percent runup height above SWEL: 2.32 feet

RUNUP2 2-percent runup elevation: 11.32 feet-NAVD88

RUNUP2 Messages:

No Messages

---

END RUNUP2 RESULTS

---

ACES BEACH RUNUP

Incident significant wave height: 2.61 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 2.29 feet

Peak wave period: 3.40 seconds

Average beach Slope: 1:24.45 (H:V)

ACES RUNUP CALCULATED USING 'Aces\_Beach\_Runup.m'

ACES Beach 2-percent runup height above SWEL: 1.40 feet

ACES Beach 2-percent runup elevation: 10.40 feet-NAVD88

ACES BEACH RUNUP is valid

\_\_\_\_\_END ACES BEACH RESULTS\_\_\_\_\_

PART 5 COMPLETE\_\_\_\_\_