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PART 5: RUNUP2

for transect: CM-138

Station locations shifted by: 0.06 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

_____RUNUP2 INPUT CONVERSIONS_____
for transect: CM-138

Incident significant wave height: 9.91 feet

Peak wave period: 11.77 seconds

Mean wave height: 6.20 feet

Local Depth below SWEL: 52.12 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 Jersy

USACE (1985), Direct Methods for Calculating Wavelength, CETN-1-17
US Army Engineer Waterways Experiment Station Coastel Engineering
Research Center, Vicksburg, MS

also see Coastal Engineering Manual Part II-3
for discussion of shoaling coefficient

Depth, D = 52.12
Period, T = 10.00
Waveheight, H = 6.20
Deep water wavelength, L0 (ft)
L0 = g*T*T/twopi
L0 = 32.17*10.00*10.00/6.28 = 512.42
Deep water wave celerity, C0 (ft/s)
C0 = L0/T
C0 = 512.42/10.00 = 51.22
Angular frequency, sigma (rad/s)
sigma = twopi/T
sigma = 6.28/10.00 = 0.63
Hunts (1979) approximation for Celerity C1H (ft/s) at Depth D (ft)
y = sigma.*sigma.*D./g
y = 0.63*0.63*52.12/32.17 = 0.64
C1H = sqrt(g.*D./(y+1./(1 + 0.6522.*y + 0.4622.*y.^2 + 0.0864.*y.^4 +0.0675.*y.^5)))
C1H = 36.57
Shoaling Coefficient KsH
KsH = sqrt(C0/C1H)
KsH = sqrt(51.22/36.57) = 1.18
Deepwater Wave Height H0_H (ft)
H0_H = H/KsH
H0_H = 6.20/1.18 = 5.24

Deepwater mean wave height: 5.24 feet

_____END RUNUP2 CONVERSIONS_____

_____RUNUP2 RESULTS_____
for transect: CM-138

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:
4.98
4.98
4.98
5.24
5.24
5.24
5.50
5.50
5.50

RUNUP2 mean wave periods:
9.50
10.00
10.50
9.50
10.00
10.50
9.50
10.00
10.50

RUNUP2 runup above SWEL:
2.91
3.19
3.47
3.12
3.48
3.81
3.41
3.74
4.07

RUNUP2 Mean runup height above SWEL: 3.47 feet

RUNUP2 2-percent runup height above SWEL: 7.63 feet

RUNUP2 2-percent runup elevation: 16.43 feet-NAVD88

RUNUP2 Messages:
Nonfatal Error, Check Output

_____END RUNUP2 RESULTS_____

_____ACES BEACH RUNUP_____

Incident significant wave height: 9.91 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 7.34 feet

Peak wave period: 11.77 seconds

Average beach Slope: 1:7.84 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 16.03 feet

ACES Beach 2-percent runup elevation: 24.83 feet-NAVD88

ACES BEACH RUNUP is valid

_____________END ACES BEACH RESULTS____________________

PART 5 COMPLETE____