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_____
PART 5: RUNUP2

        for transect: YK-100

Station locations shifted by: -1.80 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input


_____RUNUP2 INPUT CONVERSIONS_____
        for transect: YK-100

Incident significant wave height: 4.01 feet

Peak wave period: 11.25 seconds

Mean wave height: 2.51 feet

Local Depth below SWEL: 24.62 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 = 24.62
    Period, T = 9.56
    Waveheight, H = 2.51
Deep water wavelength, L0 (ft)
    L0 = g*T*T/twopi
    L0 = 32.17*9.56*9.56/6.28 = 468.32
Deep water wave celerity, C0 (ft/s)
    C0 = L0/T
    C0 = 468.32/9.56 = 48.97
Angular frequency, sigma (rad/s)
    sigma = twopi/T
    sigma = 6.28/9.56 = 0.66
Hunts (1979) approximation for Celerity C1H (ft/s) at Depth D (ft)
    y = sigma.*sigma.*D./g
    y = 0.66*0.66*24.62/32.17 = 0.33
    C1H = sqrt( g.*D./(y+1./(1 + 0.6522.*y + 0.4622.*y.^2 + 0.0864.*y.^4 +0.0675.*y.^5)) )
    C1H = 26.60
Shoaling Coefficient KsH
    KsH = sqrt(C0/C1H)
    KsH = sqrt(48.97/26.60) = 1.36
Deepwater Wave Height H0_H (ft)
    H0_H = H/KsH
    H0_H = 2.51/1.36 = 1.85

Deepwater mean wave height: 1.85 feet

_____END RUNUP2 CONVERSIONS_____

_____RUNUP2 RESULTS_____
        for transect: YK-100

RUNUP2 SWEL:
9.32

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: 4.01 feet

Significant wave height is mean wave height divided by 0.626
Reference: D.2.8.1.2.1 Atlanic and Gulf of Mexico G&S Feb. 2007

Deepwater significant wave height: 2.95 feet

Peak wave period: 11.25 seconds

Average beach Slope: 1:15.37 (H:V)

ACES IRREGULAR WAVE RUNUP ON BEACHES

Reference:
Leenknecht, David A., Andre Szuwaiski, and Ann Sherlock. 1992.
"Automated Coastal Engineering System Technical Reference",
Coastal Engineering Research Center, Department of the Army
Waterways Experiments Station, Corps of Eniggneers, 3909 Halls
Ferry Road, Vicksburg, Mississippi 39180-6199.

INPUTS:

Acceleration Due to Gravity,   g =   32.174
Deepwater Significant Wave height, Hs =   2.95
Wave Period,   T =   11.25
Beach Slope,   S =   0.065

EQUATIONS:

Runup,   R   = Hs * a * Irb^b
Iribarren,   Irb = S/sqrt(Hs/L0)
Wavelength,   L0 = g * T^2 / 2 / pi

COEFFICIENTS:
(Mase, H. 1989, "Random Wave Runup Height on Gentle Slopes,"
j. Waterway, Port, Coastal and Ocean Engineering Division,
ASCE, Vol 115, No. 5, pp 649-661.)

            [Rmax, R2%, R-1/3, R-1/10, R-mean]
        a = [2.32, 1.86, 1.70,   1.38,   0.88]
        b = [0.77, 0.71, 0.71,   0.70,   0.69]

RESULTS:

        RUNUP = [6.7, 5.4,   4.9,   4.0,   2.5]

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 5.35 feet

ACES Beach 2-percent runup elevation: 14.67 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____