

## UNIVERSITY OF MIAMI RADIOCARBON DATES XIII

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The following radiocarbon dates are a partial list of samples measured since Sept 1977. The chemical and counting procedures are the same as indicated previously (R, 1978, v 20, p 134-138).

Dates are conventional calculations based on the 5568-year Libby half-life, uncorrected for isotopic fractionation in nature.  $\delta^{13}\text{C}$  is reported, however, for all samples analyzed for stable C isotope ratios. Errors are reported as one-standard deviation which include only the uncertainties of measurement of the modern NBS standard, background, and sample.

### ACKNOWLEDGMENTS

Kim Rudolph instituted and carried out procedures for calcite-aragonite measurements in carbonate samples.

### SAMPLE DESCRIPTIONS

#### I. ARCHAEOLOGIC SAMPLES

##### *United States*

##### **Western Columbia County series**

Charred wood from posts of Weeden Island ceremonial structure which date time of construction. Structure was razed and covered with Mound B cap after interment of an individual. Coll and subm Oct 1977 by J Milanich, Florida State Mus, Gainesville, Florida.

**UM-1234. Charred Post II** **1580 ± 80**

**UM-1235. Charred Post I** **1490 ± 80**

**UM-1260. Pinellas Co, Florida** **4050 ± 80**

$\delta^{13}\text{C} = -26.01\text{‰}$

Charcoal from 50cm deep in shell midden found under overturned whelk shell, used to date habitation of site on Boca Ciega Bay (27° 49' N, 82° 50' W). Coll and subm 1977 by C Braley, Florida State Univ, Tallahassee.

##### **Newcomb Hearth series**

Charcoal from 4 hearth sites in Newcomb, New Mexico (36° 16' 39" N, 108° 42' 22" W) were studied to correlate and define prehistoric agricultural activities in area. Coll 1977 and subm 1978 by S Koczan, Mus New Mexico, Santa Fe.

**UM-1292. Grid 81** **1510 ± 80**

$$\delta^{13}C = -12.64\text{‰}$$

Charcoal from circular hearth, 65cm diam, containing 4 round stones with no diagnostic artifacts or assoc architecture.

**UM-1293. Feature 11** **1520 ± 140**

$$\delta^{13}C = -15.80\text{‰}$$

Charcoal from hearth assoc with small habitation structure and ceramic assemblage of 800 BP.

**UM-1294. Feature 14** **1090 ± 90**

$$\delta^{13}C = -11.82\text{‰}$$

Charcoal from circular hearth, 30cm diam, with no assoc architecture.

**UM-1295. Feature 10** **1240 ± 60**

$$\delta^{13}C = -12.39\text{‰}$$

Charcoal from rectangular hearth definable by 4 upright sandstone slabs; no assoc architecture.

#### **Hardee Co Firepit series**

Charcoal from 2 aboriginal firepits in Baird Quad in NW Hardee Co, Florida (27° 38' 45" N, 81° 57' 0" W). Coll June 1977 by B Wharton, Univ South Florida and subm Sept 1977 by R Williams, Univ South Florida, Tampa. *Comment* (RW): useful in interpreting portion of Central Gulf Coast and Manatee archaeol regions.

**UM-1198. 8Hr11/B59/2** **2070 ± 70**

Charcoal from top layer of firepit found 20cm below ground surface. Assoc potsherds of ceramic vessel.

**UM-1199. 8Hr11/B59/3** **1730 ± 80**

From same zone as UM-1198.

$$\delta^{13}C = -25\text{‰}$$

**UM-1200. 8Hr11/B59/1** **1710 ± 130**

$$\delta^{13}C = -26.58\text{‰}$$

Charcoal from 28cm below surface in same firepit as UM-1198 and -1199.

**UM-1201. 8Hr11/B1/1** **1270 ± 70**

$$\delta^{13}C = -26.36\text{‰}$$

Charred wood from 15cm below surface in firepit containing chipped stone and pottery fragments.

**UM-1202. 8Hr11/B1/2** **1170 ± 90**

From same zone as UM-1201.

$$\delta^{13}C = -26.50\text{‰}$$

## II. GEOLOGIC SAMPLES

### *A. Iran*

#### **Makran Coast series**

Studies using shell samples from sites on Makran coast indicate amount Quaternary deformation varies greatly geographically. Degree

of movement as well as rates of movement are being studied from age/height values (Vita-Finzi, 1975; 1978). Coll and subm 1976 by C Vita-Finzi, Univ College, London, England.

**UM-1256. PP(a)** **20,560 ± 250**  
 $\delta^{13}C = -1.45\text{‰}$

*Anadara uropigmelana* from fossil beach (25° 09' N, 61° 13' E) ca +50m for comparison to UM-1145 at similar height.

**UM-1145. Beris 1A** **+980**  
**27,990**  
**-880**  
 $\delta^{13}C = +1.40\text{‰}$

*Anadara uropigmelana* from coquina layer, 1m thick (25° 11' N, 61° 11' E) ca +50m.

**UM-1160. Beris 1G** **+560**  
**28,560**  
**-530**  
 $\delta^{13}C = -0.59\text{‰}$

Gastropods from coquina layer, 1m thick (25° 11' N, 61° 11' E) ca 25m above high water exposed by narrow gullies.

**UM-1148. CB1 L** **+730**  
**27,850**  
**-670**  
 $\delta^{13}C = 0.00\text{‰}$

Oyster shell from beach deposit (25° 16' N, 60° 37' E) 10cm thick and 16.65m above high water.

**UM-1149. K76C (G)** **5720 ± 80**  
 $\delta^{13}C = +1.13\text{‰}$

Gastropod fragments from fossil beach (25° 19' N, 60° 23' E) in 25cm thick layer on exposed cliff face 17.75m above high water.

**UM-1146. K76C (B)** **+850**  
**24,590**  
**-770**  
 $\delta^{13}C = -0.59\text{‰}$

*Balanus* from fossil beach (25° 19' N, 60° 23' E) in pebble layer, 25cm thick, under 3.6m cross-bedded sand 17.75m above high water.

**UM-1147. K76 (O)** **22,090 ± 400**  
 $\delta^{13}C = -1.52\text{‰}$

Oyster shell from fossil beach (25° 19' N, 60° 23' E) in pebble layer, 25cm thick, in cliff face 17.75m above high water.

**UM-1150. E Jask (I)** **6620 ± 130**

*Anadara uropigmelana* from fossil beach (25° 39' N, 57° 46' E) 1m above high water that grades upward into alluvial terrace.

**UM-1151. E Jask (2) 4870 ± 100**

*Oliva* sp from same site as UM-1150.  $\delta^{13}C = +0.09\text{‰}$

**UM-1159. Jask 1G 19,170 ± 380**

$\delta^{13}C = +0.12\text{‰}$

Gastropods from coquina and sand, 10cm thick, surface layer in fossil beach (25° 39' N, 57° 48' E) 6m above high water.

**UM-1255. Tujak III(x) 6160 ± 160**

$\delta^{13}C = -0.48\text{‰}$

*Asaphis deflorata* from pebbly marl layer, 1m thick (26° 01' N, 57° 14' E) +28.6m.

**UM-1268. Tujak II(b) 3310 ± 90**

$\delta^{13}C = +0.79\text{‰}$

*Anadara uropigmelana* in pebbly marl (26° 01' N, 57° 14' E) +11.8m.

**UM-1269. Tujak III(b) 6110 ± 100**

$\delta^{13}C = +0.46\text{‰}$

*Anadara uropigmelana* from pebbly marl layer (26° 01' N, 57° 14' E) +28.6m.

#### B. Mexico

##### Laguna Inferior series

Marine shells from barrier dune of Laguna Inferior (16° 15' 30" N, 94° 36' 40" W) coll Sept 1977 and subm Dec 1977 by A Carranza-Edwards, Univ Naci Autonoma Mexico, Mexico 20, DF, to study past sea level at site 20m E of Laguna Inferior and +7m. One sample was divided into 3 parts.

**UM-1262. A 1150 ± 80**

$\delta^{13}C = -2.19\text{‰}$

**UM-1263. C 1340 ± 90**

$\delta^{13}C = -1.82\text{‰}$

**UM-1264. D 1030 ± 70**

$\delta^{13}C = -2.72\text{‰}$

##### Laguna Mar Tileme series

Marine shells from barrier dune of Laguna Mar Tileme (16° 14' 10" N, 94° 50' 50" W) coll Sept 1977 and subm Dec 1977 by A Carranza-Edwards to study past sea level. Sample taken S of Laguna Mar Tileme, at +7m; divided into 3 parts.

**UM-1265. B 2090 ± 100**

$\delta^{13}C = -2.37\text{‰}$

**UM-1266. E 2100 ± 90**

$\delta^{13}C = -1.21\text{‰}$

**UM-1267. F 2380 ± 80**

$\delta^{13}C = -0.50\text{‰}$

*C. Algerian Slope*

Calcareous sediments from Algerian Slope for correlation of carbonate and temperature curves in Western Mediterranean Basin. Coll Sept 1976 and subm Oct 1977 by P Loubere, Oregon State Univ, Corvallis, Oregon.

**UM-1187. TR 173-7P** **26,300 ± 700**  
From core (36° 56' N, 2° 25' E) 484cm long, -1719m.

**UM-1212. TR 173-10P** **38,450**  
From core (37° 34.9' N, 00° 09.4' E) 736cm long, -1108m.

**UM-1213. TR 173-16P** **22,060 ± 360**  
From core (36° 10.1' N, 1° 51.4' W) 710cm long, -1904m.

*D. Belize***Carrie Bow Cay series**

Four cores containing peat, marine and, terrigenous sediments coll on Belize shelf. Peat, predominantly Rhizophora, was dated to determine submergence curve for Belize shelf. Cores CB7 (16° 54' 15" N, 88° 15' 50" W), CB6 (16° 54' 15" N, 88° 15' 15" W), CB5 (16° 50' 10" N, 88° 8' 40" W) and CB2 (16° 47' 50" N, 88° 06' 30" W) are piston cores obtained with scuba. Coll 1977 by E Shinn; subm 1977 by D S Introne, Univ Miami, Miami, Florida. Depths given are below present day mean sea-level.

*General Comment (DSI):* acid washing only due to nature and size of samples.

**UM-1248. CB7-B-A** **2860 ± 100**  
5.19m.  $\delta^{13}C = 29.16\text{‰}$

**UM-1249. CB5-B-A** **7640 ± 160**  
13.97m.  $\delta^{13}C = -27.90\text{‰}$

**UM-1250. CB5-C-B** **8240 ± 140**  
14.86m.  $\delta^{13}C = -29.62\text{‰}$

**UM-1251. CB6-A-B** **8850 ± 350**  
NaOH pretreatment, -7.33m.  $\delta^{13}C = -27.52\text{‰}$

**UM-1252. CB6-A-A** **6810 ± 80**  
7.01m.  $\delta^{13}C = -27.23\text{‰}$

**UM-1310. CB2-A** **6430 ± 70**  
9.61m.  $\delta^{13}C = -26.11\text{‰}$

**UM-1311. CB2-B** **7520 ± 70**  
10m.  $\delta^{13}C = -27.42\%$

**UM-1312. CB2-C** **7340 ± 80**  
10.12m.  $\delta^{13}C = -27.94\%$

**UM-1313. CB2-A** **5010 ± 70**  
Shell material incorporated within UM-1310. *Comment* (DSI): younger age implies shell material to be of burrowing variety.

**UM-1314. CB2-C** **4250 ± 60**  
Shell material. *Comment* (DSI): younger age implies shell material to be of burrowing variety since it is assoc with UM-1312.

#### *E. Bahamas*

#### **Orange Cay series**

Peloid sand cored from Orange Cay (24° 56' 45" N, 79° 8' 03" W) studied to determine if sand in marine shoal under aeolian origin is Holocene of late Pleistocene sea level high. Coll Aug 1977 and subm Sept 1977 by D Beach and R Ginsburg, Univ Miami, Fisher Island Sta, Miami Beach, Florida.

**UM-1188. OJ-3-45** **34,830 ± 680**  
14m from core surface.

**UM-1189. OJ-3-60** **38,650 ± 1120**  
18m from core surface. **-980**

#### **Joulters Cay Bryozoan series**

Several samples of bryozoan rock, lithothamnoid rock, and consolidated ooid rock hand-picked from submerged reef in Joulters Cay, Bahamas (25° N, 78° W). Samples coll to determine regional history, development, and diagenesis of bryozoan reefs. Coll by R J Cuffey, Penn State Univ; subm 1977 by M Yukon, Univ Miami, Florida.

**UM-1214. OCR-D-4** **1740 ± 110**  
Consolidated ooid, 5m depth.

**UM-1215. NWN-A-1** **2590 ± 100**  
Bryozoan rock encrusted upon consolidated ooid, 5m depth.

**UM-1216. OCR-D-2** **2990 ± 100**  
Bryozoan encrusting trepostomes and cyclostomes infilled with ooids. Coll 4m below high water.

**UM-1217. OCR-A-1** **2120 ± 130**  
Lithothamnoid rock coll 3m below high water.

<b>UM-1218. OCR-D-1</b>	<b>2060 ± 80</b>
Bryozoan knob coll 4m below high water. Lithothamnoid rock coll from reef mass 3m below surface.	
<b>UM-1219. CMM-A-1</b>	<b>1730 ± 90</b>

*F. United States***Cluett Key series**

Carbonate cores from Cluett Key (25° 01' 54" N, 80° 51' 42" W) in Florida Bay studied to determine sedimentation rate on island and to ascertain that proto-dolomite in sediments is Holocene (R, 1977, v 19, p 455-456). Coll June 1975 by R Halley, USGS, Miami Beach, R Steinen, Univ Connecticut, Storrs, and subm Mar 1978 by M Calvert.

<b>UM-1296. C1-3-1-0</b>	<b>1580 ± 90</b>
Top of core to 2cm; no dolomite.	
<b>UM-1297. C1-3-29-0</b>	<b>2620 ± 100</b>
28 to 30cm; no dolomite.	
<b>UM-1298. C1-3-52-0</b>	<b>2475 ± 80</b>
51 to 53cm; no dolomite.	
<b>UM-1299. C1-3-89</b>	<b>3100 ± 100</b>
88 to 90cm; dolomite content not known.	
<b>UM-1300. C1-3-119</b>	<b>2540 ± 70</b>
118 to 120cm; dolomite content not known.	
<b>UM-1301. C1-3-160</b>	<b>3420 ± 100</b>
159 to 161cm; dolomite content not known.	
<b>UM-1302. C1-3-204-41</b>	<b>3500 ± 90</b>
203 to 205cm; sediment contains 41% dolomite.	
<b>UM-1303. C1-3-212</b>	<b>3810 ± 130</b>
211 to 213cm; dolomite content not known.	
<b>UM-1304. C1-3-214-32</b>	<b>4020 ± 90</b>
213 to 215cm; sediment contains 32% dolomite.	
<b>UM-1305. C1-3-260</b>	<b>4310 ± 90</b>
259 to 261cm; dolomite content not known.	
<b>UM-1306. C1-3-279-0</b>	<b>6000 ± 260</b>
278 to 280cm; no dolomite found in sediments which were laced with mangrove peat.	

**Portsmouth Island series**

Peat and wood fragments for stratigraphic correlation of Back Bar-

rier I., Diamond City and Core Creek sand formations, coll and subm 1977 by J Herbert, Duke Univ, Durham, North Carolina.

*General Comment (PC):* tops of cores are +1 to +1.5m. Depth measurements are from top of core.

**UM-1191. PB-6 (9.5m) 7780 ± 370**

Wood chips in clay layer of Diamond City formation from site N of Isa Morris Camp (34° 54' 30" N, 76° 14' 30" W).

**UM-1192. PB-13 (19.8 to 21.3m) 12,720 ± 470**

Fibrous organics in clayey sand of Diamond City formation (35° 3' 7" N, 76° 3' 22" W).

**UM-1193. PB-4 (15.2m) >33,950**

Peat in silty sand layer of Core Creek sand formation from site N of Drum Inlet (34° 53' 45" N, 76° 15' 45" W).

**UM-1194. PB-2 (6.5m) 6500 ± 160**

Wood in silty sand layer of Back Barrier I. formation from site N of Drum Inlet (34° 52' 15" N, 76° 17' 30" W).

**UM-1195. PB-26 (1m) 530 ± 80**

Peat in fine sand layer from site near Merkle Hammock (34° 59' 45" N, 76° 8' 15" W).

**UM-1196. PB-13 (14 to 15m) 7230 ± 160**

Wood chips in silty, clayey sand layer of Back Barrier I. formation (35° 3' 7" N, 76° 3' 22" W).

**UM-1197. PB-38 (17.7m) 25,220 ± 480**

Wood fragments in peaty layer of Diamond City formation (35° 2' 30" N, 76° 3' 45" W).

**UM-1282. PB-11 (18.3m) +800**

**30,470**

**-730**

$\delta^{13}C = -29.88\%$

Wet peaty sand layer of Diamond City formation (35° 2' 6" N, 76° 4' 50" W).

**UM-1283. PB-12 (12.5m) 6560 ± 260**

$\delta^{13}C = -29.05\%$

Wood chips in sandy layer of Back Barrier I. formation. Site (35° 3' 8" N, 76° 3' 30" W) is 1.37km from UM-1197 and 1.08km from UM-1196 and -1192.



**UM-1284. PB-8 (19.8 to 21.3m)** **22,760** **+2890**  
**-2120**  
 $\delta^{13}C = -28.16\text{‰}$

Wood chips in sandy layer of Diamond City formation (34° 58' 42" N, 76° 09' 45" W).

**UM-1285. PB-21 (6.7 to 7.0m)** **4830 ± 170**  
 Wood in silty sand layer 1.13km from UM-1194.

### Carolina Shoreline series

Peat, shell, and wood, coll 1977 and subm 1978 by W J Cleary, Univ North Carolina, Wilmington, for sea-level curve and shoreline studies.

**UM-1261. Caswell Pond 1** **3870 ± 60**  
 $\delta^{13}C = -18.14\text{‰}$

Freshwater peat, 4.9m into core taken in pond at Caswell Beach (33° 54' 35" N, 78° 04' 35" W) in Pleistocene dune fields.

**UM-1274. Long Beach Motel** **1510 ± 90**  
 $\delta^{13}C = -20.96\text{‰}$

Freshwater peat outcropping on beach face at low tide at Long Beach (33° 53' 30" N, 78° 07' 00" W).

**UM-1275. Sample #4 Wood** **2710 ± 80**  
 $\delta^{13}C = -27.10\text{‰}$

Bay/Magnolia, id by R Thomas, removed from stump forest on Yaupon Beach (33° 53' 30" N, 78° 07' 00" W) at low tide.

**UM-1286.** **2530 ± 70**  
 $\delta^{13}C = -26.99\text{‰}$

Duplicate run of UM-1275.

**UM-1276. Sample #6 Wood** **4060 ± 90**  
 $\delta^{13}C = -26.67\text{‰}$

Southern Yellow Pine, id by R Thomas, removed from stump forest on Yaupon Beach (33° 53' 30" N, 78° 07' 00" W) at low tide.

**UM-1287.** **3820 ± 80**  
 $\delta^{13}C = -26.18\text{‰}$

Duplicate run of UM-1276.

**UM-1288. Onslow Beach So Peat** **380 ± 50**

Salt-water peat (*Spartina alterniflora*), id by P Hosier, outcropping on Onslow Beach (34° 32' 55" N, 77° 19' 28" W) at low tide.

**UM-1289. CBSB Line 3-1-160cm** **2720 ± 70**  
 $\delta^{13}C = -0.51\text{‰}$

Oyster shells cored from below peat outcropping on beach face of Carolina Beach (34° 03' N, 77° 53' W).

**UM-1290. CBSB 5-7 (145 to 150cm) 1930 ± 70**

$\delta^{13}C = -0.37\text{‰}$

Bulk carbonate shells from below present marsh surface at Carolina Beach (34° 03' N, 77° 53' W).

#### Safety Valve series

Several shell and *Porites divasticata* samples taken from hand push-piston Core E of Soldier Key, Biscayne Bay, Florida (25° 35' N, 80° 10' W), to determine beginning of formation of safety valve tidal bar belt (UM-V, R, 1976, v 18, p 119-120). Coll and subm by J Sloan, RSMAS, Miami, Florida.

**UM-1236. JLS-2:218 to 205cm 2050 ± 120**

**UM-1237. JLS-2:205 to 185cm 2380 ± 90**

$\delta^{13}C = +2.02\text{‰}$

**UM-1238. JLS-2:125 to 141cm 1220 ± 80**

$\delta^{13}C = +2.10\text{‰}$

**UM-1239. JLS-1:340 to 350cm 1900 ± 70**

$\delta^{13}C = -0.67\text{‰}$

**UM-1240. JLS-1:275 to 290cm 1470 ± 100**

**UM-1241. JLS-1:155 to 165cm 1540 ± 90**

$\delta^{13}C = +2.09\text{‰}$

**UM-1242. JLS-1:40 to 50cm 560 ± 60**

*Porites divasticata.*

#### Card Sound series

Red mangrove peat taken from hand push-piston core just S of Turkey Point canal ca 10km W of Biscayne Bay (25° 20' 35" N, 80° 20' W). Samples obtained for initial study to determine if peat accumulation destroys bedrock by physical and chemical processes. Coll and subm 1977 by J F Meeder, RSMAS, Miami, Florida.

*General Comment (JMF):* implications of study show that Red Mangrove peat overlying carbonate bedrock may not be used as paleo-sea-level indicator without rate of bedrock destruction; also, mangrove hammocks seem to cause depressions found beneath them rather than being caused by them.

**UM-1226. JFM 3-1:220 to 222cm 1390 ± 80**

Basal peat layer.

$\delta^{13}C = -26.51\text{‰}$

**UM-1227. JFM 3-1A:210 to 217cm 2620 ± 270**

$\delta^{13}C = -26.04\text{‰}$

**UM-1228. JFM 3-2:187 to 195cm 4050 ± 70**

$\delta^{13}C = -26.36\text{‰}$

<b>UM-1229.</b>	<b>JFM 3-3:175 to 183cm</b>	<b>3170 ± 90</b> $\delta^{13}C = -26.67\text{‰}$
<b>UM-1230.</b>	<b>JFM 3-7:39 to 47cm</b>	<b>1330 ± 70</b> $\delta^{13}C = -27.17\text{‰}$
<b>UM-1231.</b>	<b>JFM 3-8:3 to 11cm</b>	<b>4030 ± 160</b>

**La Costa I series**

Sub-soil shell hash from La Costa I., Florida (26° 41' 30" N, 82° 14' 30" W). Coll to determine relative sea-level changes in Florida and barrier island formation. Coll and subm by T Barron, Univ Miami, Florida.

<b>UM-1220.</b>	<b>SAM 1</b>	<b>760 ± 80</b> $\delta^{13}C = -0.26\text{‰}$
<b>UM-1221.</b>	<b>SAM 2</b>	<b>1140 ± 90</b> $\delta^{13}C = -0.52\text{‰}$
<b>UM-1222.</b>	<b>SAM 5</b>	<b>1880 ± 90</b> $\delta^{13}C = +0.03\text{‰}$
<b>UM-1223.</b>	<b>SAM 4</b>	<b>2310 ± 80</b> $\delta^{13}C = -0.02\text{‰}$
<b>UM-1224.</b>	<b>SAM 3</b>	<b>2230 ± 90</b> $\delta^{13}C = -0.17\text{‰}$
<b>UM-1225.</b>	<b>SAM 6</b>	<b>1200 ± 110</b> $\delta^{13}C = -0.33\text{‰}$

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