

UNIVERSITY OF MIAMI RADIOCARBON DATES XV

D S INTRONE and J J STIPP

Department of Geology, University of Miami, Coral Gables, Florida 33124

Radiocarbon measurements have been continued on a variety of projects and materials. Chemical and counting procedures remain the same as indicated in R, v 20, p 274-282. Dates are calculated using the Libby ^{14}C half-life of 5568 years; errors are reported as one-standard deviation (1σ) based only on statistical counting uncertainties in background, modern standard, and sample activities. All samples for which $^{13}\text{C}/^{12}\text{C}$ ratios are available are corrected for isotopic fractionation by normalizing to -25% . A 400 year reservoir age correction has been applied to marine carbonates.

SAMPLE DESCRIPTIONS

I. GEOLOGIC SAMPLES

A. United States

UM-1463. HGR-1 **7410 ± 110**

Wood obtained from auger type water well borehole along N fork of Gualala R near Elk Prairie, Mendocino Co, California ($38^{\circ} 47' 29''$ N, $123^{\circ} 30' 34''$ W). Age estimates drowning of Gualala R by minor rise in sea level and rate of vertical tectonics along Mendocino Co coastline. Coll 1978 by T Hall; subm Oct 1978 by K R Lajoie, USGS.

Contra Costa Co series

Charcoal samples coll from natural stream exposures near S entrance to Briones Regional Park in NW corner of Contra Costa Co, California. Coll Aug 1978 by D Pape, Univ California, Berkeley; Subm Oct 1978 by K R Lajoie and S A Mathieson, US Geol Survey, Menlo Park, California. *Comment* (SAM): Samples provide temporal framework for interpreting filling and cutting sequences in and around headwaters of Bear Creek and its tributaries. Reason(s) for change from filling to cutting in this region may be climatic and/or tectonic.

UM-1459. A-1 **7760 ± 200**
 $\delta^{13}\text{C} = -24.11\%$

Charcoal 7m above paleochannel marking start of Holocene alluviation in NW Contra Costa Co implying start of alluviation sequence precedes this date. Sample taken along Cascade Creek, a tributary to Bear Creek ($37^{\circ} 55' 56''$ N, $122^{\circ} 09' 25''$ W).

UM-1460. A-2 **4760**
+ 280
- 270
 $\delta^{13}\text{C} = -25.82\%$

Charcoal 23m below surface of alluvium implying sequence mentioned above continues through and probably beyond this date. Coll along Bear Creek ($37^{\circ} 55' 30''$ N, $122^{\circ} 09' 38''$ W).

UM-1461. A-3**1200 ± 100** $\delta^{13}C = -24.72\%$

Charcoal (37° 55' 30" N, 122° 09' 38" W) limiting age of initiation of degradation of fill sequence shown by incised channel 27m deep along Bear Creek. Degradation continues today.

South Carolina Continental Shelf series

Three cores from South Carolina Continental shelf contain various shell types and oolitic sand. Carbonate material was dated to document shelf sedimentation and paleosea-level. Cores 4613 (32° 43.8' N, 78° 45.0' W), 4618 (32° 41.1' N, 78° 52.5' W) and 4620 (31° 0.5' N, 80° 07.9' W) are vibracores and samples were obtained by wet sieving. Coll Oct 1976 by O H Pilkey, Duke Univ; subm July 1978 by B Blackwelder, US Natl Mus.

UM-1439. Core 4613, 160 to 200 cm **30,210**
+ 480
- 440

Anadara transversa, *Ensis*, *Crepidula*, *Atrina*, *Spisula*, *Mulinia* and fragmental *Glycymeris americana*.

UM-1440. Core 4618(A), 100 to 160cm **11,050 ± 140**

Crassostrea virginica, one elongate flat specimen, and some small fragments, all blackened and slightly worn.

UM-1441. Core 4618(B), 100 to 120cm **4870 ± 80**

Glycymeris americana.

UM-1442. Core 4620, 540 to 560cm **27,640**
+ 590
- 550

Oolitic sand exterior fraction.

UM-1443. Core 4620, 540 to 560cm **24,160**
+ 340
- 330

Oolitic sand.

UM-1444. Core 4620, 540 to 560cm **34,570**
+ 720
- 660

Oolitic sand.

UM-1445. Core 4620, 540 to 560cm **>44,660**

Oolitic sand interior fraction.

General Comment: UM-1442-1445 are 4 fractions of same oolitic sand sample from exterior to interior carbonate material. A 5th insoluble interior fraction comprising ca 18% of total sample was apparently quartz. Older age of exterior fraction could be due to replacement with older carbon. Sample received no pretreatment.

Southeastern Sarasota series

Fine sand and organic sediment from piston-tripod core taken in shallow seasonal pond with max water depth ca 1m in Southeastern Sarasota Co, Florida, 1.9km SSE of Little Salt Springs (27° 03' 33" N, 82° 13' 31" W). Dated to determine age of pond and for correlation to sea level fluctuation, as well as sediment accumulation rate. Coll Oct 1978 and subm Oct 1978 by J Coleman, Environmental Quality Lab, Inc, Pt Charlotte, Florida.

UM-1497.	JMC 24, 30cm	990 ± 70
UM-1496.	JMC 17, 50cm	2390 ± 100
UM-1495.	JMC 10, 70cm	2720 ± 90
UM-1494.	JMC 1, ca 80cm	4570 ± 120

Sediment-sandy loam interface.

Little Salt Springs series

Peat and marl samples from core taken in vicinity of Little Salt Springs, Florida (27° 04' 29" N, 82° 13' 59" W). Coll by C Clausen, A Cohen, and P Stone; subm by C Clausen and R Johnson, Univ Miami.

General Comment (RJ): marl deposition correlates to dry period in history of area. Peat layers above marl indicate vegetation changes in response to succession and/or environmental changes. Coll at 5.2m above MSL.

UM-1508.	Core: GDF-141-I (45 to 50cm)	1410 ± 60 $\delta^{13}C = -27.38\%$
UM-1509.	Core: GDF-141-I (70 to 75cm)	6450 ± 80 $\delta^{13}C = -27.27\%$
UM-1510.	Core: GDF-141-II (120 to 125cm)	9160 ± 120 $\delta^{13}C = -27.00\%$
UM-1511.	Core: GDF-141-II (120 to 125cm)	8680 ± 120 $\delta^{13}C = -24.63\%$
UM-1512.	Core: GDF-141-II (125 to 130cm)	8500 ± 210 $\delta^{13}C = -27.88\%$

First peat layer above latest marl layer.

UM-1513.	Core: GDF-141-III (296cm)	8020 ± 160 $\delta^{13}C = -25.99\%$
-----------------	----------------------------------	--

Wood taken from marl layer.

Grecian Rocks Reef series

Sample of Holocene *Diploria strigosa* and Pleistocene grainstone from 2 of 5 cores transecting Grecian Rocks reef 3km E of Key Largo, Florida (25° 6' 40" N, 80° 18' 18" W). Samples were dated to determine

direction and rate of reef growth. Coll by E A Shinn, USGS, Fisher I Sta; subm by E A Shinn and P C Bianchi, Univ Miami.

UM-1500.	<i>D strigosa</i> #4, 3 to 3.3m	4740 ± 100 $\delta^{13}C = -0.03\%$
UM-1501.	<i>D strigosa</i> #4, 4.4 to 4.6m	4490 ± 120 $\delta^{13}C = +0.10\%$
UM-1502.	<i>D strigosa</i> #4, 7m	5620 ± 90 $\delta^{13}C = -2.53\%$
UM-1503.	<i>D strigosa</i> #4, 7.3 to 7.5m	5640 ± 110 $\delta^{13}C = +1.02\%$
UM-1504.	<i>D strigosa</i> #4, 7.3 to 7.5m	5950 ± 100 $\delta^{13}C = -1.02\%$
UM-1505.	<i>D strigosa</i> #3, 3.0 to 7.6m	7540 ± 150 $\delta^{13}C = -0.66\%$
UM-1506.	<i>D strigosa</i> #4, 3.0 to 7.6m	7500 ± 120 $\delta^{13}C = -0.66\%$
UM-1507.	Grainstone #3, 7.6m	22,740 + 300 - 296 $\delta^{13}C = +1.15\%$

Comment: UM-1507 agrees with common S Florida calculated ages for grainstone. UM-1505 and 1506 are interpreted as max ages and their exact point of recovery within core is unknown.

B. Caribbean

Lesser Antilles series

Shell and charcoal samples dated to reconstruct volcanic stratigraphy of Lesser Antilles. Coll Aug 1978 and subm Oct 1978 by A L Smith and M J Roobol.

UM-1478.	S-85	3150 ± 70
	<i>Strombus</i> artifact from Saba dating min age of no volcanism.	
UM-1487.	SK-1	3000 ± 200
	Charcoal in topmost bed in sec from St Kitts dating age of nuée ardente deposit on Mt Misery (17° 24' 40" N, 62° 49' 50" W).	
UM-1490.	SK-2	2720 ± 90
	Charcoal dating pyroclastic surge deposit on Mt Misery, St Kitts I (17° 24' 20" N, 62° 47' 25" W).	
UM-1489.	SK-15	>41,730
	Charcoal from St Kitts I (17° 24' 40" N, 62° 49' 50" W).	

- UM-1482. SK-17** **1750 ± 90**
Charcoal from St Kitts I (17° 23' 00" N, 62° 45' 30" W) dating pumice-ash surge of pyroclastic sequence.
- UM-1480. SK-18** **>41,420**
Helix dating lower part of St Kitts I (17° 23' 00" N, 62° 45' 30" W) pyroclastic sequence.
- UM-1481. SK-19** **28,460**
+ 400
– 380
Succinea dating lower part of pyroclastic sequence on St Kitts I (17° 23' 00" N, 62° 45' 30" W).
- UM-1479. SK-20** **27,000**
+ 1100
– 970
Succinea dating lower part of pyroclastic sequence on St Kitts I (17° 23' 00" N, 62° 45' 30" W).
- UM-1486. SK-21** **>41,140**
Charcoal dating lower part of pyroclastic surge deposit on St Kitts I (17° 23' 00" N, 62° 45' 30" W).
- UM-1484. SK-25** **2280 ± 130**
Charcoal dating Pelean nuée ardente from Mt Misery, St Kitts I (17° 22' 30" N, 62° 50' 15" W).
- UM-1483. MO 1R** **19,970**
+ 340
– 330
Charcoal from cliffs above Plymouth, Montserrat (16° 42' 35" N, 62° 12' 55" W) dating volcanism of Soufriere hills.
- UM-1488. MO-10** **17,670**
+ 1350
– 1150
Charcoal dating volcanism of Soufriere Hills, Montserrat (16° 43' 45" N, 62° 11' 50" W).
- UM-1485. MO-13** **18,450 ± 450**
Charcoal dating pyroclastic surge deposit taken from roadcut near White's Estate, Montserrat (16° 43' 50" N, 62° 09' 45" W).
- UM-1492. MO-15** **20,800 ± 650**
Charcoal dating volcanism of Soufriere Hills, Montserrat (16° 41' 40" N, 62° 11' 00" W).
- UM-1491. MO-17** **18,600 ± 550**
Charcoal from basal part of sec dating volcanism of Soufriere Hills, Montserrat. Sample location is Fort Ghut (16° 42' 35" N, 62° 12' 55" W).

UM-1493. MP-167 **5770 ± 100**

Charcoal from Martinique, Riviere Prechems hilltop sec (14° 48' 18" N, 61° 13' 26" W) dating major ash-flow episode.

C. South America

Surinam series

Two cores, P-1X (05° 54' N, 55° 12' W) and K-11X (05° 53' N, 55° 02' W) from young coastal plain in Surinam, S America yielded 4 peaty samples. These samples were dated to determine approx age of deposition, whether deposits were laid down synchronously and for comparison with accepted sea-level data to determine depth of water at time of deposition. Coll Aug 1977 and subm Nov 1978 by J Rine, Univ Miami, Fisher I Sta, Miami Beach, Florida.

UM-1520. P-1X, 22.3 to 22.6m **8240 ± 100**

$\delta^{13}C = -27.61\text{‰}$

Ca 22m below sea level and 3m above Pleistocene/Holocene contact.

UM-1521. P-1X, 24.8 to 25.0m **8650 ± 110**

$\delta^{13}C = -23.37\text{‰}$

Peat at Pleistocene/Holocene contact buried by ca 25m of sediment.

UM-1522. K-11X, 19.8 to 20.25m **8380 ± 130**

$\delta^{13}C = -28.12\text{‰}$

Ca 20m below sea level within sediments accumulated and deposited in marine environment. Zone is 5m above Pleistocene/Holocene contact.

UM-1523. K-11X, 24.3 to 24.95m **9240 ± 110**

$\delta^{13}C = -28.12\text{‰}$

Ca 25m below mean sea level just above Pleistocene/Holocene contact.

D. Indian Ocean

UM-1498. **+ 840**
33,490
- 760

Carbonate ooze from Amirante Trench in Indian Ocean (09° 26.5' S, 51° 57.7' E) coll from deep-sea standard piston core. Coll May 1976 and subm Nov 1978 by D A Johnson, Woods Hole Oceanog Inst, Woods Hole, Massachusetts.

II. ARCHAEOLOGIC SAMPLES

A. United States

Patrician Site series

Peat and charcoal from Indian shell midden mound at Patrician site, Palm Beach, Florida (26° 36' 15" N, 80° 02' 17" W). Dated for report to Div Archives. History & Records Management, Tallahassee, Florida, concerning habitation and pottery age correlation of this site. Coll by C Morrison; subm by F Morrison, Palm Beach Co Archeological Society.

UM-1437. P CM 1, peat **3969 ± 100**
 $\delta^{13}C = -25.43\text{‰}$

+ 4.9m alt.

UM-1438. P CM 3, charcoal **1960 ± 90**
 $\delta^{13}C = -24.98\text{‰}$

+ 3.05m alt.

Dugout Canoe series

Pine wood fragments from aboriginal dugout canoes were dated to correlate canoe styles with aboriginal culture periods. Coll and subm by R F Willis, Univ Florida, Gainesville.

UM-1449. A-8377 **990 ± 50**

From S shore of Lake Galilee, Putnam Co, Florida (29° 37' 06" N, 82° 56' 24" W).

UM-1450. A-8378 **1160 ± 60**

Embedded in peat at edge of grassy island in Cowpen Lake, Putnam Co, Florida (29° 36' N, 82° 00' W).

UM-1451. A-8383 **570 ± 50**

From 3km N of Grandin, Clay Co, Florida on S shore of Hall Lake.

Arch Creek Shell Midden series

Shell and charcoal samples recovered from Arch Creek site (8Da23), prehistoric midden in Dale Co, Florida (25° 08' 17" N, 80° 10' 55" W) coll to date occupation of site as well as to interpret geochemical problems assoc with sampling and dating method in relation to archaeol sites. UM-617-620, appeared in R, v 18, p 210 and are assoc with this group of samples. Coll and subm Aug 1978 by D Introne, J J Stipp, C Hodges, and S Messer.

UM-1454. 1592-1 **3750 ± 60**

UM-1455. 1592-2 **1250 ± 50**

UM-1456. 1593-1 **2420 ± 60**

UM-1457. 1593-2 **1700 ± 50**

UM-1458. 1593-3 **1280 ± 60**

REFERENCES

- Calvert, M, Rudolph, Kim, and Stipp, J J, 1978, University of Miami radiocarbon dates XII: Radiocarbon, v 20, p 274-282.
 Stipp, J J, Eldridge K L, and Cadwell, R, 1976, University of Miami radiocarbon dates VI: Radiocarbon, v 18 p 210.