

ANU RADIOCARBON DATE LIST IX

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AGE STRUCTURE OF HOLOCENE COASTAL SEDIMENTS: GULF OF CARPENTARIA

During the last seven years, there has been a concerted effort in eastern Australia to obtain ^{14}C ages from detrital shell samples of prograded sand barriers composed of beach ridges and chenier deposits (Cook and Polach, 1973; Cook and Mayo, 1977; Thom, Polach, and Bowman, 1978; Thom *et al*, 1981). These ages were used to establish the age sequence of deposition and rates of progradation. This date list is the result of work in two areas of the Gulf of Carpentaria, Queensland, Australia, where 57 shell samples were collected for ^{14}C dating. For details of this research, see Rhodes *et al* (1980).

Ages are reported as ^{14}C yr BP, *ie*, corrected for isotopic fractionation and based on the Libby half-life of 5568 yr. The modern reference standard was ANU sucrose, secondary international calibration standard, correlated with 95% of ^{14}C activity of NBS oxalic acid, normalized to $\delta^{13}\text{C} = -19\text{‰}$ wrt PDB (Polach, 1979; Currie and Polach, 1980). For purposes of interpretation, ^{14}C results based on marine shell samples are adjusted for oceanic reservoir environmental effect established by Gillespie and Polach (1979) to be 450 ± 35 yr for the south and east coasts of Australia. Adjusted results are annotated BP*.

The outer surface of the shells was removed, either by dentist's drill or dilute HCl and the 'unaltered' core dated. Except where noted: $\delta^{13}\text{C}$ PDB of shell is estimated to be $0.0 \pm 2.0\text{‰}$ and peat $-24.0 \pm 2.0\text{‰}$; all samples coll by E G Rhodes, Dept Biogeog and Geomorph, Australian National University.

SAMPLE DESCRIPTIONS

MODERN CONTROL SAMPLES

ANU-1828. $\text{D}^{14}\text{C} = -71.0 \pm 6.6\text{‰}$ **640 \pm 60**

Shell (*Anadara*) coll live from 15m water in 1903, offshore Mapoon, Queensland, ca 80km N Weipa, by C Hedley, Australian Mus, Sydney. Australian Mus No. C14195.

ANU-2092. $\text{D}^{14}\text{C} = -46.3 \pm 6.5\text{‰}$ **380 \pm 60**

Shell (*Telescopium*) coll as for ANU-1828. Australian Mus No. C14280.

ANU-2099. $\text{D}^{14}\text{C} = +196.7 \pm 8.6\text{‰}$ **119.7 \pm 0.9% modern**

Shell (*Volachlamys* sp) coll 1978 live from 25m depth offshore Edward R. Meat removed from shells, shells boiled in distilled water,

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scrubbed with stiff brush, dried, and crushed. *Comment:* to test applicability of correction factor for the Gulf (Gillespie and Polach, 1979), samples were corrected for isotopic fraction and AD 1903 samples age-corrected for difference in time of colln and ^{14}C ref yr, AD 1950, ANU-1828 corrected value of 530 ± 60 and ANU-2092 corrected value of 390 ± 60 give mean corrected value of 460 ± 45 yr BP*. ANU-2099 is deemed to have same correction factor, 450 ± 35 yr BP, as used for E and S Australia.

Chenier ridge formation series

- ANU-1999.** $\text{D}^{14}\text{C} = -59.8 \pm 7.6\text{‰}$ **500 \pm 70**
 Marine bioclastic from coastal plain 50km W Karumba ($17^\circ 39'$ S, $140^\circ 25'$ E). Develop into summer berm seaward of vegetated chenier ridge by wave action. Corrected age: 50 ± 80 yr BP*.
- ANU-1924.** $\text{D}^{14}\text{C} = -64.2 \pm 7.4\text{‰}$ **530 \pm 70**
 Shell (*Mactra*) from Inverleigh transect ($17^\circ 39'$ S, $140^\circ 26'$ E). Whole bivalves develop into strandline by wave action. Bagged directly from shallow pit. Corrected age: 80 ± 75 yr BP*.
- ANU-1998.** $\text{D}^{14}\text{C} = -65.5 \pm 8.7\text{‰}$ **550 \pm 80**
 Shell (*Mactra* and *Saccostrea*) from ca Disaster Inlet ($17^\circ 45'$ S, $139^\circ 50'$ E). Bioclasts deposited in strandline material shortly after death. Coll in bulk from active summer berm. Corrected age: 100 ± 90 yr BP*.
- ANU-1997.** $\text{D}^{14}\text{C} = -80.7 \pm 7.4\text{‰}$ **680 \pm 70**
 Shell (*Mactra*) from ca Disaster Inlet. Coll from pit, 0.5m deep, in ridge. Corrected age: 230 ± 80 yr BP*.
- ANU-1745.** $\text{D}^{14}\text{C} = -126.0 \pm 7.6\text{‰}$ **1080 \pm 60**
 $\delta^{13}\text{C} = 0.0 \pm 0.2\text{‰}$
 Shell (*Anadara* and *Mactra*) from Burketown transect I ($17^\circ 28'$ S, $140^\circ 47'$ E). From drill hole 5221 on active storm berm of present beach, ca 1m depth. Corrected age: 630 ± 70 yr BP*.
- ANU-1923.** $\text{D}^{14}\text{C} = -133.3 \pm 7.3\text{‰}$ **1150 \pm 70**
 Shell (*Anadara* and *Mactra*) from Inverleigh transect ($17^\circ 39'$ S, $140^\circ 25'$ E). Whole bivalves develop into strandline by wave action. Bagged directly from shallow pit. Corrected age: 700 ± 80 yr BP*.
- ANU-1927.** $\text{D}^{14}\text{C} = -197.5 \pm 6.7\text{‰}$ **1770 \pm 70**
 Shell (*Anadara*) from breach in modern ridge 5km W Karumba ($17^\circ 29'$ S, $140^\circ 47'$ E). Whole bivalves develop into strandline by wave action. Bagged from cut bank. Corrected age: 1320 ± 80 yr BP*. This sample completes group forming Episode IV.
- ANU-1929.** $\text{D}^{14}\text{C} = -241.3 \pm 8.0\text{‰}$ **2200 \pm 90**
 Shell (*Mactra*) from N ridge, Port Norman complex ($17^\circ 35'$ S, $140^\circ 46'$ E). Whole bivalves develop into strandline by wave action. Bagged directly from shallow pit. Corrected age: 1750 ± 90 yr BP*.

ANU-2070. $D^{14}C = -240.6 \pm 6.8\text{‰}$ **2210 ± 70**

Shell (*Mactra*) 50km W Karumba (17° 45' S, 140° 24' E). Bivalves develop into strandline by wave action. Bagged from shallow pit. Corrected age: 1760 ± 80 yr BP*.

ANU-1921. $D^{14}C = -244.5 \pm 7.4\text{‰}$ **2250 ± 80**

Shell (*Anadara*), loc as for ANU-2070. Corrected age: 1800 ± 85 yr BP*.

ANU-1900. $D^{14}C = -247.8 \pm 6.6\text{‰}$ **2290 ± 70**

Shell (*Anadara* and *Mactra*) from Bynoe R, Karumba (17° 35' S, 140° 43' E). Molluscan bivalves deposited in beach ridge ca MHW. Bagged directly from pit in bank. Corrected age: 1840 ± 80 yr BP*.

ANU-1928. $D^{14}C = -258.6 \pm 6.2\text{‰}$ **2400 ± 70**

Shell (*Mactra*) from S ridge, Port Norman complex (17° 35' S, 140° 46' E). Whole bivalves develop into strandline by wave action. Bagged directly from pit. Corrected age: 1950 ± 80 yr BP*.

ANU-1743. $D^{14}C = -380.7 \pm 11.1\text{‰}$ **3840 ± 140**

$$\delta^{13}C = -0.5 \pm 0.2\text{‰}$$

Shell (*Anadara* and *Mactra*) from ca base of beach face near active swash zone, Burketown transect I (17° 33' S, 140° 37' E). Coll from drill hole 5220. Dilution, 32% sample. Corrected age: 3390 ± 150 yr BP*.

ANU-1744. $D^{14}C = -431.7 \pm 5.3\text{‰}$ **4540 ± 80**

Shell (*Mactra*) coll from drill hole 5220 just below facies change separating it from ANU-1743. Corrected age: 4090 ± 90 yr BP*. *Comment:* downhole dating of secs shows vertical accretion is slow in contrast to rapid horizontal progradation; illustrated by ANU-1928, -1743, and-1744, showing vertical accretion rate in 1 to 2mm/yr range.

ANU-1827. $D^{14}C = -270.4 \pm 6.6\text{‰}$ **2520 ± 60**

$$\delta^{13}C = -0.7 \pm 0.2\text{‰}$$

Shell (*Mactra*) from ca Pandanus Yard (17° 45' S, 139° 50' E). Bioclasts deposited in strandline material shortly after death. Coll from pit, 0.5m deep. Corrected age: 2070 ± 70 yr BP*. Sample completes Episode III group.

ANU-1742. $D^{14}C = -348.0 \pm 5.6\text{‰}$ **3430 ± 60**

$$\delta^{13}C = -0.6 \pm 0.2\text{‰}$$

Shell (*Mactra*) from Burketown transect I (17° 35' S, 140° 46' E). Coll from pit, 0.5m pit, deep in ridge remnant on deltaic marine plain. Corrected age: 2980 ± 70 yr BP*.

ANU-1746. $D^{14}C = -358.3 \pm 5.6\text{‰}$ **3560 ± 70**

Shell (*Mactra*) from ca Karumba (17° 28' S, 140° 47' E). Shell and fragments deposited in nearshore environs in matrix of fine blue-green clay; coll from drill hole 5221. Corrected age: 3110 ± 80 yr BP*.

ANU-1926. $D^{14}C = -375.7 \pm 6.9\text{‰}$ **3780 ± 90**

Shell (*Mactra* and *Anadara*) from coastal plain 8km S Karumba (17° 35' S, 140° 51' E). Whole bivalves develop into strandline by wave action. Bagged directly from shallow pit. Corrected age: 3330 ± 100 yr BP*.

ANU-1741. $D^{14}C = -412.4 \pm 7.9\text{‰}$ **4260 ± 100**
 $\delta^{13}C = -0.8 \pm 0.2\text{‰}$

Shell (*Anadara* and *Mactra*) from ca Karumba (17° 37' S, 140° 48' E). Coll from small bank cut near drill hole 5219. Corrected age: 3810 ± 110 yr BP*.

ANU-2071. $D^{14}C = -415.0 \pm 5.8\text{‰}$ **4310 ± 80**

Shell (*Mactra*) from coastal plain 50km W Karumba (17° 40' S, 140° 24' E). Whole bivalves develop into strandline by wave action. Bagged directly from shallow pit. Corrected age: 3860 ± 90 yr BP*.

ANU-1922. $D^{14}C = -423.7 \pm 6.4\text{‰}$ **4430 ± 90**

Shell (*Anadara*), loc as for ANU-2071. Corrected age: 3980 ± 100 yr BP*.

ANU-1925. $D^{14}C = -440.3 \pm 6.3\text{‰}$ **4660 ± 90**

Shell (*Anadara* and *Mactra*) from 8km S Karumba. Whole bivalves develop into strandline by wave action. Bagged directly from pit. Corrected age: 4210 ± 100 yr BP*. Sample completes Episode II group.

ANU-2000. $D^{14}C = -498.1 \pm 8.1\text{‰}$ **5540 ± 140**

Shell (*Mactra* and *Anadara*) from 2km E Flinders R, ca upland surface (17° 42' S, 140° 40' E). Slightly recrystallized bioclastic material deposited in strandline, a chenier remnant perched above unvegetated flat. Dilution, 47% sample. Corrected age: 5090 ± 150 yr BP*.

ANU-1740C. $D^{14}C = -514.1 \pm 5.6\text{‰}$ **5780 ± 90**
 $\delta^{13}C = -1.1 \pm 0.2\text{‰}$

Shell (*Anadara* sp) from ca Karumba (17° 37' S, 140° 48' E). Outer fraction 24% calcite, 76% aragonite. Corrected age: 5330 ± 100 yr BP*.

ANU-1691. $D^{14}C = -516.0 \pm 5.9\text{‰}$ **5830 ± 100**

Shell hash in sand, separated by sieving, from Pandanus Yard (17° 45' S, 139° 50' E). Corrected age: 5380 ± 110 yr BP*.

ANU-1896. $D^{14}C = -520.6 \pm 5.6\text{‰}$ **5900 ± 90**

Shell (*Anadara*) from ca Karumba (17° 37' S, 140° 47' E). Bivalves deposited in beach ca mean high water. Bagged from pit, 0.5m deep. Corrected age: 5450 ± 100 yr BP*.

ANU-1740A. $D^{14}C = -526.7 \pm 5.8\text{‰}$ **5990 ± 90**
 $\delta^{13}C = -1.1 \pm 0.2\text{‰}$

Shell (*Anadara*) from ca Karumba (17° 37' S, 140° 48' E). Shells deposited in crest of beach berm in well-drained beach ridge perched

on marine mudflat, crest within storm tide range. Coll from pit near drill hole 5217. Corrected age: 5540 ± 100 yr BP*.

ANU-1920. $D^{14}C = -528.0 \pm 5.3\%$ **6030 \pm 90**

Shell (*Andara*) from coastal plain 50km W Karumba ($17^{\circ} 48' S$, $140^{\circ} 24' E$). Whole bivalves develop into strandline by wave action. Bagged directly from shallow pit. Corrected age: 5580 ± 100 yr BP*. This sample completes Episode I group.

ANU-1869. $D^{14}C = -986.9 \pm 2.9\%$ **34,900**
+ 2000
- 1600

Shell (*Saccostrea cucullata*) from ca Norman R ($17^{\circ} 34' S$, $140^{\circ} 52' E$), Karumba area. Sample *in situ* from oyster reef in growth position on bedrock bench in excellent state of preservation. *Comment*: 100% calcite level and absence of stable isotope measurement ($\delta^{13}C = 0.0 \pm 2.0\%$) suggests questionable age.

ANU-1895. $D^{14}C = -994.3 \pm 7.7\%$ **>28,000**
Est $\delta^{13}C = -5.0 \pm 2.0\%$

Carbonate nodules from ca Karumba ($17^{\circ} 30' S$, $140^{\circ} 45' E$), preserved in buried soil horizon. Dilution, 40% sample.

General Comment: groupings of ^{14}C determinations based on *modified* Wilson-Ward (1981) approach suggest four distinct episodes of strandline formation in chenier plain. Episode I began postglacial sea-level max ca 5800 ^{14}C yr ago in Gulf. This brief period continued for ca 350 yr until hiatus of ca 750 yr separated it from Episode II, a longer period of ca 1600 yr, centered ca 3700 ^{14}C yr ago. Another hiatus of strandline formation separates Episode II from III, ca 350 yr centered ca 1900 ^{14}C yr ago. Finally, there is evidence of recent Episode IV, possibly begun 1200 ^{14}C yr ago and still active.

Beach ridge series

ANU-1898. $D^{14}C = -72.8 \pm 7.8\%$ **610 \pm 70**

Shell (*Anadara* sp) from ca Edward R settlement ($14^{\circ} 46' S$, $141^{\circ} 35' E$). Coll below ridge base in intertidal muds, bagged from excavated sec. Sample 98% aragonite. Corrected age: 160 ± 80 yr BP*.

ANU-1899. $D^{14}C = -82.6 \pm 8.7\%$ **690 \pm 80**

Shell (*Anadara* sp) from same loc. Coll from ridge crest. Sample 100% aragonite. Corrected age: 240 ± 90 yr BP*. These 2 samples belong to still active Episode IV.

ANU-2057. $D^{14}C = -143.2 \pm 7.3\%$ **1240 \pm 70**

Shell (*Anadara*) from ca Edward R settlement ($14^{\circ} 46' S$, $141^{\circ} 36' E$) deposited after death in beach deposit ca MSL. Coll from Well #1. Corrected age: 790 ± 80 yr BP*.

ANU-2103. $D^{14}C = -208.8 \pm 9.1\text{‰}$ **1880 ± 90**

Shell (*Anadara*) from ca Edward R settlement (14° 46' S, 141° 35' E), deposited shortly after death in beach deposit ca MSL. Shells in sandy matrix with alternating clay layers, coll from 1.8m in Well #2 in small swale between two major ridges Corrected age: 1430 ± 100 yr BP*.

ANU-1728. $D^{14}C = -212.1 \pm 12.5\text{‰}$ **1920 ± 120**
 $\delta^{13}C = +0.2 \pm 0.2\text{‰}$

Shell hash from ca Edward R Mission (15° 35' S, 141° 33' E). Coll from relict beach berm subjected to variable freshwater table. Dilution, 27% of sample. Corrected age: 1470 ± 130 yr BP*.

ANU-2058. $D^{14}C = -267.1 \pm 6.8\text{‰}$ **2500 ± 80**

Shell (*Anadara*) from ca Edward R (14° 46' S, 141° 35' E), deposited shortly after death in beach ca MSL. Coll from Well #4. Corrected age: 2050 ± 90 yr BP*. This group completes Episode III.

ANU-1735. $D^{14}C = -325.1 \pm 6.1\text{‰}$ **3110 ± 70**
 $\delta^{13}C = -2.9 \pm 0.2\text{‰}$

Granulated carbonate and shell fragments (predom *Turritella*) from ca Edward R Mission (15° 35' S, 141° 34' E). *Comment:* abnormal negative $^{18}O/^{16}O$ values, ($\delta^{18}O = -8.4 \pm 0.2\text{‰}$), depleted $^{13}C/^{12}C$ ratios and 100% calcite replacement of original aragonite suggest questionable age. Corrected age: 2660 ± 80 yr BP*.

ANU-1736. $D^{14}C = -322.6 \pm 6.2\text{‰}$ **3130 ± 70**
 $\delta^{13}C = 0.0 \pm 0.2\text{‰}$

Shell hash from ca Edward R Mission (15° 35' S, 141° 33' E). *Comment:* highly recrystallized granular carbonate from beach-ridge facies has stable isotope ratios suggesting calcite recrystallization proceeded without contamination. Corrected age: 2680 ± 80 yr BP*.

ANU-2060. $D^{14}C = -326.4 \pm 8.5\text{‰}$ **(?)3170 ± 110**

Shell hash from ca Edward R (14° 46' S, 141° 35' E). Sample 100% calcite coll from beneath swale near ANU-2059, subject to freshwater ponding during wet season. Corrected age: (?)2720 ± 120 yr BP*.

ANU-1737. $D^{14}C = -330.1 \pm 6.3\text{‰}$ **3220 ± 70**
 $\delta^{13}C = 0.0 \pm 0.2\text{‰}$

Shell hash from ca Edward R Mission (15° 35' S, 141° 33' E). Sample in sandy matrix from low-tide mud below sand facies. Corrected age: 2770 ± 80 yr BP*.

ANU-2102. $D^{14}C = -347.3 \pm 7.6\text{‰}$ **3430 ± 100**

Shell hash from ca Edward R (14° 46' S, 141° 35' E) deposited shortly after death in beach deposit ca MSL. Shells in sandy matrix with alternating clay layer beneath. Coll from Well #3. Corrected age: 2980 ± 110 yr BP*.

ANU-1734. $D^{14}C = -366.6 \pm 5.9\%$ **3610 \pm 70**
 $\delta^{13}C = -3.2 \pm 0.2\%$

Shell hash from ca Edward R Mission (15° 35' S, 141° 34' E).
Comment: abnormal negative $^{18}O/^{16}O$ values ($\delta^{18}O = -11.4 \pm 0.2\%$), depleted $^{13}C/^{12}C$ ratios and 100% calcite replacement of original aragonite suggest questionable age. Corrected age: 3160 \pm 80 yr BP*.

ANU-2059. $D^{14}C = -373.2 \pm 6.0\%$ **3750 \pm 80**

Shell hash from ca Edward R (14° 46' S, 141° 35' E), deposited shortly after death in beach deposit ca MSL. Coll from 2.5m in Well #10. Corrected age: 3300 \pm 90 yr BP*. This sample completes Episode II.

ANU-1732. $D^{14}C = -487.3 \pm 9.6\%$ **5370 \pm 60**

Shell hash of recrystallized shell material, granular carbonate sand and clay from ca Edward R Mission (15° 35' S, 141° 34' E). Dilution, 30% of sample. Corrected age: 4920 \pm 70 yr BP*.

ANU-1733. $D^{14}C = -500.6 \pm 8.1\%$ **5570 \pm 120**
 $\delta^{13}C = -0.4 \pm 0.2\%$

Shells and shell fragments mixed with sand from ca Edward R Mission (15° 35' S, 141° 34' E). Dilution, 42% of sample. Corrected age: 5120 \pm 130 yr BP*.

ANU-1730. $D^{14}C = -501.3 \pm 15.2\%$ **5590 \pm 250**

Shells and shell fragments in reddish sandy clay, ca Edward R Mission (15° 35' S, 141° 35' E). Coll from drill hole through intertidal marine facies. Dilution, 17% of sample. Corrected age: 5140 \pm 250 yr BP*.

ANU-2101. $D^{14}C = -510.6 \pm 6.1\%$ **5760 \pm 110**

Shell (*Anadara* and *Maetra*) from ca Edward R (14° 46' S, 141° 35' E) deposited shortly after death in beach deposit ca MSL. Sample in sandy matrix (lens) with sandy layers under. Coll at 0.9m depth, Well #5. Corrected age: 5310 \pm 120 yr BP*.

ANU-2100. $D^{14}C = -525.9 \pm 5.6\%$ **6000 \pm 100**

Shell hash from ca Edward R (14° 46' S, 141° 35' E) deposited shortly after death in beach deposit ca MSL. Coll at 2m depth from Well #7, 75m E of largest ridge in Edward R complex. Corrected age: 5550 \pm 110 yr BP*.

ANU-1739A. $D^{14}C = -533.9 \pm 5.5\%$ **6060 \pm 90**
 $\delta^{13}C = -4.1 \pm 0.2\%$

Shell (*Anadara* and *Turritella*) from ca Edward R Mission (15° 44' S, 141° 34' E). Corrected age: 5610 \pm 100 yr BP*. *Comment:* sample has abnormal negative $^{18}O/^{16}O$ values ($\delta^{18}O = -9.8 \pm 0.2\%$), depleted $^{13}C/^{12}C$ ratios and 95% calcite replacement of original aragonite suggesting questionable age. Aerial photo indicates that paleo-strandline is approx correlated to Episode I on Holroyd transect II, ca 15km to N. Date should be and is close to ANU-1730.

ANU-1729. $D^{14}C = -536.7 \pm 10.3\%$ **6160 \pm 180**
 $\delta^{13}C = -1.1 \pm 0.2\%$

Shell hash in silty clay ca Edward R Mission (15° 35' S, 141° 35' E). Coll from shallow water facies, presently below freshwater table. Dilution, 30% of sample. Corrected age: 5710 \pm 190 yr BP*.

ANU-1690. $D^{14}C = -551.4 \pm 5.2\%$ **6400 \pm 90**
 $\delta^{13}C = -2.2 \pm 0.2\%$

Shell hash of partially degraded fragments, mud and rock pebbles from ca Edward R. Corrected age: 5950 \pm 100 yr BP*.

ANU-1738. $D^{14}C = -552.2 \pm 5.3\%$ **6450 \pm 100**

Peat from ca Edward R Mission (15° 44' S, 141° 34' E). Woody material mixed with clay; coarse 10# fraction boiled in 2N HCl to eliminate carbonate contamination.

ANU-1739B. $D^{14}C = -502.6 \pm 5.5\%$ **5530 \pm 90**
 $Est \delta^{13}C = -5.0 \pm 2.0\%$

Carbonate cement from shells of ANU-1739A. *Comment:* slightly younger age than 1739A (6130 \pm 100) should not be affected by possible contamination from cement.

ANU-1897. $D^{14}C = -403.3 \pm 5.9\%$ **4150 \pm 80**
 $Est \delta^{13}C = -5.0 \pm 2.0\%$

Carbonate nodules from Edward R (14° 46' S, 141° 36' E). Sample in buried soil zone in heavy compact clay.

ANU-2093. $D^{14}C = -187.8 \pm 9.4\%$ **1670 \pm 90**

Peat from ca Edward R (14° 46' S, 141° 55' E). Bagged directly from pit; compare with ANU-1898 and -1899 from overlying facies.

General Comment: numerical procedure also shows that strandline development on beach-ridge plain followed episodic history. Episode I continued for ca 1200 yr after max postglacial marine transgression in Gulf of Carpentaria. No beach ridges appear in period 4700 to 3500 ^{14}C yr ago. Episode II of moderate duration (ca 1000 yr) produced beach ridges 3500 to 2500 yr ago. Episode III is centered ca 1400 ^{14}C yr ago and present deposition appears to have been active since 400 yr ago (Episode IV).

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ERRATUM

MARINE RESOURCES RESEARCH INSTITUTE RADIOCARBON DATES IV

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(R, 1981, v 23, p 222-226). Due to an error in the value for NBS oxalic acid (as entered into the MRRI computer program for age and standard deviation calculations) the dates reported in this date list and repeated in the index are all incorrect. Each date should be younger by 2960 years, resulting in finite ages for most of the samples. The exceptions are MRRI -223, -239, -249, -263, -264, -267, -269, and -274-277, which are all modern in age or in the future. We interpret these future dates as indications of contamination with bomb ^{14}C . No other dates were affected in any way since the dates in this list were calculated as a group.