

FORTALEZA RADIOCARBON MEASUREMENTS I

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INTRODUCTION

This date list covers a selection of ^{14}C results of hydrologic samples investigated from January 1978 until August 1979. According to convention, the ages were calculated with a ^{14}C half-life of 5568 yr and 0.95% of the activity of NBS oxalic acid standard and are quoted in years before 1950. The recent activity of water is assumed to be 90% modern (Geyh and Kreysing, 1973) and corrections for $^{12}\text{C}/^{13}\text{C}$ isotopic fractionation have not been made.

The chemical procedure of the sample preparation is to precipitate the carbon already in the field as barium carbonate and then to convert this in the lab to carbon dioxide by treatment with phosphoric acid. The CO_2 is converted to lithium carbide in a reaction with lithium metal (Barker, 1953) and, in a subsequent hydrolysis step, the carbide is transformed to acetylene (Crathorn, 1953).

Acetylene is counted at a pressure of 760 Torr using a copper proportional counter (Geyh, 1967) of an active volume of 690ml, yielding background and standard counting rates of 1.10cpm, respectively, 5.03 cpm.

SAMPLE DESCRIPTIONS

WATER SAMPLES

Picos area series, Piauí, Brazil

Samples described in this section were coll in deep wells in sandstones of Serra Grande aquifer which belongs to basal part of Parnaíba Basin. Exact depth of wells is not known in all cases.

Fixed and free carbonic acid was precipitated by $\text{Ba}(\text{OH})_2$. Coll 1978.

FZ-14. Angico Torto **37.1 ± 0.7 % modern**

Well water from 130m depth ($07^\circ 06' 55''$ S, $41^\circ 09' 26''$ W); apparent age: 7100 yr.

FZ-34. Barroca **23.1 ± 0.7 % modern**

Well water from ($07^\circ 00' 36''$ S, $41^\circ 13' 50''$ W); apparent age: 11,000 yr.

FZ-35. Santo Antonio de Russas **23.9 ± 0.7 % modern**

Well water from 164m depth ($06^\circ 59' 00''$ S, $41^\circ 13' 50''$ W); apparent age: 10,650 yr.

- FZ-36. Jaicos** **37.8 ± 0.3 ‰ modern**
Well water from 89.5m depth (07° 21' 09" S, 41° 11' 01" W);
apparent age: 7000 yr.
- FZ-37. Picos-Junco** **4.9 ± 0.3 ‰ modern**
Well water from 210m depth (07° 24' 36" S, 41° 28' 06" W);
apparent age: 23,400 yr.
- FZ-38. Campestre** **9.7 ± 0.4 ‰ modern**
Well water from 77m depth (07° 08' 36" S, 41° 27' 26" W);
apparent age: 18,000 yr.
- FZ-40. Itainópolis** **27.1 ± 0.7 ‰ modern**
Well water from 120m depth (07° 26' 54" S, 41° 28' 51" W);
apparent age: 9650 yr.
- FZ-41. Varzea Grande** **10.6 ± 0.8 ‰ modern**
Well water from 141m depth (07° 09' 00" S, 41° 29' 44" W);
apparent age: 17,200 yr.
- FZ-43. Pajeu** **4.1 ± 0.5 ‰ modern**
Well water from 240m depth (07° 11' 24" S, 41° 39' 12" W);
apparent age: 24,800 yr.
- FZ-44. Gameleira** **0.7 ± 0.5 ‰ modern**
Well water from 277m depth (07° 09' 05" S, 41° 40' 20" W);
apparent age: 39,000 yr.
- FZ-45. Gentil** **5.7 ± 1.1 ‰ modern**
Water from artesian well (07° 11' 52" S, 41° 41' 38" W); apparent
age: 22,200 yr.
- FZ-53. Curralinho** **2.5 ± 0.8 ‰ modern**
Water from artesian well (07° 11' 18" S, 41° 45' 06" W); apparent
age: 28,800 yr.

Iguatú area series, Ceará, Brazil

Samples described in this section were coll in deep wells in meta-
morphitic rock of the Iguatú Basin.

Fixed and free carbonic acid was precipitated by Ba(OH)₂. Coll
Jan 1978.

- FZ-64. Iguatú** **11.7 ± 0.3 ‰ modern**
Well water (06° 21' 05" S, 39° 17' 20" W); apparent age: 16,400 yr.
- FZ-65. Quixelô** **88.0 ± 0.9 ‰ modern**
Sample from 1st aquifer below surface (06° 15' 13" S, 39° 12' 39" W);
apparent age: 180 yr.

- FZ-66. Quixelô** **32.8 ± 0.6 ‰ modern**
 Sample from 2nd aquifer below surface (06° 15' 13" S, 39° 12' 39" W); apparent age 9000 yr.
- FZ-67. Vila Penha** **19.1 ± 0.7 ‰ modern**
 Well water from 32m depth (06° 24' 34" S, 39° 17' 53" W); apparent age: 12,450 yr.
- FZ-68. Barro Alto** **79.9 ± 0.8 ‰ modern**
 Well water from 68m depth (06° 26' 44" S, 39° 22' 43" W); apparent age: 950 yr.
- FZ-77. Varzinha** **25.6 ± 0.7 ‰ modern**
 Well water from 36m depth (06° 19' 27" S, 39° 23' 52" W); apparent age: 10,100 yr.
- FZ-78. Estrada** **40.0 ± 0.6 ‰ modern**
 Well water from 142m depth (06° 21' 51" S, 39° 19' 14" W); apparent age: 6500 yr.
- FZ-79. Cajazeiras** **77.2 ± 1.1 ‰ modern**
 Well water from 110m depth (06° 22' 57" S, 39° 16' 15" W); apparent age: 1230 yr.
- Frecheirinha area series, Ceará, Brazil**
 Samples described in this section were coll in deep wells in metasedimentary rocks of Bambuí and Jaibaras Basins.
 Fixed and free carbonic acid was precipitated by Ba(OH)₂. Coll Feb 1978.
- FZ-69. Cipauba** **55.4 ± 0.6 ‰ modern**
 Well water (03° 47' 12" S, 40° 33' 10" W); apparent age: 3900 yr.
- FZ-70. Coreau** **83.6 ± 1.4 ‰ modern**
 Well water (03° 33' 06" S, 40° 39' 21" W); apparent age: 590 yr.
- FZ-71. Aprazível** **53.9 ± 0.7 ‰ modern**
 Well water from 60m depth (03° 45' 02" S, 40° 33' 57" W); apparent age: 4120 yr.
- FZ-72. Posto F Anastácio** **71.5 ± 0.9 ‰ modern**
 Well water (03° 45' 06" S, 40° 49' 17" W); apparent age: 1650 yr.
- FZ-73. Ibiapina** **72.1 ± 1.0 ‰ modern**
 Well water (03° 54' 10" S, 40° 53' 36" W); apparent age: 1780 yr.

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