

UDINE RADIOCARBON LABORATORY DATE LIST III

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INTRODUCTION

This list includes some significant measurements carried out by CRAD Radiocarbon Laboratory from 1979 to 1985. The dates were obtained by liquid scintillation counting of benzene using the laboratory procedures described in previous lists (Barbina *et al* 1982: 214–216; Barbina, Calligaris & Ciuti 1979). Samples were pretreated according to generally applied methods, depending on type of material and particular archaeological and geologic features.

GEOLOGIC SAMPLES

Italy

The results reported here are part of a study of the paleogeography of the lagoon of Venice made by Istituto Studio della Dinamica delle Grandi Masse CNR, Venice, as previously described (Barbina *et al* 1982; Gatto 1980). The list contains dates of samples selected from the same core at different depths in the stratigraphic sequence, in order to verify the sedimentation rate. In all cases, samples were prepared from the most suitable materials, *ie*, peat or, if not available, mollusk shells.

Laguna di Venezia

Ca' Bianca series

Peat from lagoon of Venice Ca' Bianca (45°25'33"N, 12°21'18"E). Coll 1973 by P Da Roit, Lab Geol Appl CNR Padova, and subm by P Gatto, Ist Studio Dinamica Grandi Masse, CNR Venice.

UD-82. Ca' Bianca **21,700 ± 500**

Peat from Core 8 at depth 17.40m.

UD-87. Ca' Bianca **> 30,000**

Peat from Core 8 at depth 26.00m.

Forte di S Andrea series

Peat and shells from lagoon of Venice Forte di S Andrea (45°26'01"N, 12°22'53"E). Coll 1974 by P Da Roit and subm by P Gatto.

UD-79. Forte di S Andrea **19,500 ± 200**

Peat from Core 13 at depth 15.03m.

UD-80.	Forte di S Andrea	23,500 ± 1000
Peat from Core 9 at depth 27.83m.		
UD-81.	Forte di S Andrea	22,200 ± 1000
Peat from Core 13 at depth 18.00m.		
UD-86.	Forte di S Andrea	23,600 ± 1000
Peat from Core 12 at depth 16.50m.		
UD-89.	Forte di S Andrea	3900 ± 60
Shells from Core 9 at depth 7.15m.		

Cavallino Punta Sabbioni series

Peat from lagoon of Venice Cavallino Punta Sabbioni (45°26'00"N, 12°25'52"E). Coll 1974 by P Da Roit and subm by P Gatto.

UD-83.	Cavallino Punta Sabbioni	21,600 ± 650
Peat from Core 15 at depth 15.32m.		

Cavallino Ca' Pasquali series

Carbonate (mollusk shells) from lagoon of Venice Cavallino Ca' Pasquali (45°27'14"N, 12°29'01"E). Coll 1974 by P Da Roit and subm by P Gatto.

UD-88.	Cavallino Ca' Pasquali	7950 ± 50
Carbonate (mollusk shells) from Core 17 at depth 15.40m.		
UD-90.	Cavallino Ca' Pasquali	5340 ± 80
Carbonate (mollusk shells) from Core 17 at depth 13.05m.		

Alberoni series

Peat and carbonate (mollusk shells) from Alberoni Golf 1 (45°20'49"N, 12°19'20"E) and Golf 2 (45°20'46"N, 12°29'33"E). Coll 1976 by P Da Roit and subm by P Gatto.

Golf 1

UD-136.	Alberoni Golf 1	2940 ± 50
Carbonate at depth 2.40–2.48m.		
UD-137.	Alberoni Golf 1	3590 ± 50
Carbonate at depth 2.84–2.91m.		
UD-138.	Alberoni Golf 1	3980 ± 50
Carbonate at depth 4.35–4.47m.		

UD-139.	Alberoni Golf 1	3350 ± 60
	Carbonate at depth 5.76–5.92m.	
UD-140.	Alberoni Golf 1	2970 ± 50
	Carbonate at depth 6.78–6.97m.	
UD-141.	Alberoni Golf 1	4490 ± 50
	Carbonate at depth 7.70–7.80m.	
UD-142.	Alberoni Golf 1	2970 ± 50
	Carbonate at depth 8.85–9.05m.	
UD-143.	Alberoni Golf 1	4950 ± 150
	Peat at depth 9.10–9.60m.	
UD-144.	Alberoni Golf 1	4260 ± 60
	Carbonate at depth 10.93–11.07m.	
UD-145.	Alberoni Golf 1	3250 ± 50
	Peat at depth 12.25–12.70m.	
UD-146.	Alberoni Golf 1	3760 ± 50
	Carbonate at depth 12.60–12.70m.	
UD-147.	Alberoni Golf 1	3090 ± 50
	Peat at depth 13.25–13.70m.	

Golf 2

UD-148.	Alberoni Golf 2	3250 ± 50
	Peat at depth 7.50–8.00m.	

Fiume Brenta Series 1

Peat and clay from Rubano, Padova (46°26'30"N, 11°47'10"E) at different depths in Brenta area. Radiocarbon dating has been carried out in the frame of a general paleogeographic study of the alluvial plane between Vicenza and Padova (Castiglioni *et al* 1987).

UD-127.	Rubano 1	16,000 ± 500
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Peat from Rubano 1 at depth 5–7m. Coll and subm 1981 by GB Castiglioni, Dept Geography, Univ Padova.

UD-209. Rubano 4 **10,190 ± 150**

Silty clay from Rubano 4, Sample L, at depth 2.40–2.70m. Coll and subm 1985 by GB Castiglioni.

UD-210. Rubano 4 **18,100 ± 700**

Black clay from Rubano 4, Sample N, at depth 7.94–8.00m. Coll and subm 1985 by GB Castiglioni.

UD-211. Rubano 5 **19,200 ± 250**

Black clay from Rubano 5, Sample P, at depth 7.80–7.86m. Coll and subm 1985 by GB Castiglioni.

UD-212. Via Po **4650 ± 220**

Peat from Via Po, Sample Q, at depth 2.63–2.72m. Coll and subm 1985 by GB Castiglioni.

Verona series

Radiocarbon dating of different stratigraphic samples has been carried out to solve some sedimentologic problems in the area of Verona (Sorbini *et al* 1984). Dates range from 470 ± 40 BP to 35,000 ± 2500 BP. In particular, Avesa and S Felice wells indicate that the great fan of the Adige River has to be located in the Würmian period, whereas sediments SE of Verona (Zevio) evidence most recent flood episodes. In this connection, a radiocarbon date (470 ± 40 BP, tree trunk, *Quercus farnia*) fits with archaeological findings.

UD-149. S Felice **30,000 ± 2500**

Peat from S Felice, Verona (45°15'00"N, 11°46'20"E) at depth 35–39.5m. Coll and subm 1982 by L Sorbini, Mus Nat Hist, Verona.

UD-150. Basso Acquar **18,800 ± 2000**

Peat from Basso Acquar, Verona (45°15'00"N, 11°46'20"E) at depth 16–21m. Coll and subm 1982 by L Sorbini.

UD-151. Avesa **25,000 ± 2000**

Peat from Avesa Well no. 2, Verona (45°28'00"N, 11°48'12"E) at depth 20.1–20.2m. Coll and subm 1982 by L Sorbini.

UD-204. Basso Acquar **> 31,000**

Clayey peat from Basso Acquar Well no. 34, Verona (45°15'00"N, 11°46'20"E) at depth 70–72m. Coll and subm 1984 by L Sorbini.

UD-205. Basso Acquar **24,600 ± 800**

Clayey peat from Basso Acquar Well no. 34, Verona (45°15'00"N, 11°46'20"E) at depth 16–21m. Coll and subm 1984 by L Sorbini.

Cordevole Valley series

These determinations are part of a study made by GB Pellegrini, Dept Geography, Univ Padova, to verify the Quaternary evolution of Cordevole Valley, Piave River basin, Belluno (46°09'00"N, 12°06'03"E). All samples coll and subm 1985 by GB Pellegrini, Dept Geography, Univ Padova (Pellegrini & Zambrano 1979).

UD-230. Vallone Bellunese 1 **1230 ± 80**

Fragment of tree trunk found at depth 1m in Mas, Sedico, Belluno (46°08'20"N, 12°06'56"E).

UD-231. Vallone Bellunese 2 **850 ± 80**

Same as UD-230, above.

UD-232. Valle del Cordevole 3 **> 43,000**

Fragment of wood found at depth 2m in Mas.

UD-233. Valle del Cordevole 4 **38,000 ± 2000**

Fragment of wood found at depth 1m in Mas.

UD-234. Valle del Cordevole 5 **42,300 ± 3100**

Fragment of wood found at depth 3m in Mas.

UD-235. Valle del Cordevole 6 **430 ± 80**

Peat found at depth 2m in Mas.

UD-238. Fadalto **640 ± 60**

Fragment of wood found at depth 1m in Fadalto, Belluno (46°04'34"N, 12°20'38"E).

Wood samples

UD-95. Val Belluna **11,180 ± 100**

Wood found during geomorphologic and geophysical research near Levego, Belluno (46°09'09"N, 12°15'30"E) at depth 3.5m to verify morphologic evolution of Val Belluna in Quaternary, with particular regard to Ponte nelle Alpi zone and nearby Valle di S Croce. Coll and subm 1979 by GB Pellegrini.

UD-119. Garda **10,570 ± 200**

Wood found during geomorphologic research near Garda, Verona (45°34'47"N, 10°42'57"E). Fragment from uprooted tree trunk at depth 2.2m. Coll and subm 1981 by U Sauro, Dept Geography, Univ Padova.

UD-164. Levico Lake **1730 ± 100**

Fragment from uprooted tree trunk (*Quercus petraea* Liebl) at depth 16m in Levico Lake, Trento (46°00'35"N, 11°10'25"E). Coll by Sub Club "Trento" and subm by G Tomasi, Tridentine Mus Nat Hist, Trento. Result is part of study of paleoclimate of Valsugana area.

UD-180. Zevio 35,000 ± 2500

Fragment from tree trunk found near S Maria di Zevio Verona (45°24'28"N, 11°45'10"E) at depth 58–66m. Result is part of study of sedimentation rate in Verona plain. Coll and subm 1984 by L Sorbini.

Fiume Brenta Series 2

Wood from various locations at different depths in Brenta area around Padova (45°25'54"N, 11°52'16"E). These results are part of study of courses of ancient River Brenta that passed through center of the city in Roman time and, more specifically, of one branch of river that may have entered city from Monta'-Arcella area.

UD-162. Saonara 1 2620 ± 90

Fragment of tree trunk (*Quercus petraea* Liebl) from Saonara, Padova, found at depth 7.7–9m during excavations of Padova-Venezia channel. Coll and subm 1983 by A Paganelli, Dept Biology, Univ Padova.

UD-167. Carturo 2520 ± 100

Fragment of tree trunk, same species as above, found in Carturo area, Padova (46°27'29"N, 11°28'09"E) at depth 3–5m. Coll and subm 1983 by GB Castiglioni.

UD-206. Saonara 2 1380 ± 100

Fragment of tree trunk, same species as above, from Saonara, found at depth 4–5m during excavations of Padova-Venezia channel. Coll and subm 1985 by GB Castiglioni.

UD-216. Via Po, S1 5020 ± 200

Fragment of tree trunk, unknown species, from Via Po, Padova found at depth 4.70m. This survey provided information on Quaternary palynology of NE Italy. Coll and subm 1985 by A Paganelli.

UD-217. Via Po, S2 5650 ± 200

Same as UD-216, above.

Bangkok, Thailand

Dating of fossil oysters discovered 3m below surface level (which is 2m asl) in alluvial plain of Pathum Thani, 45km N of Bangkok, shows regional rise in last thousand years, at least of same range as eustatic rise of sea (Piccoli & Robba 1983).

UD-163. 5500 ± 50

Carbonate, oyster shells (*Crassostrea gigas*) from Wat Hoi, Phatum Thani (14°02'30"N, 100°25'30"E) at depth 3m. Coll and subm by G Piccoli, Ist Geol, Univ Padova, Italy.

*Somalia, Africa***Mogadiscio series**

Results reported here are part of study in Benadir on coast line between Mogadiscio and Danane to verify sequence of Quaternary sediments.

UD-185. **24,300 ± 500**

Carbonate, shells (*Goniastreaa retiformis*) from Ceel Baqal (02°10'30"N, 45°17'20"E) at surface level. Coll and subm 1984 by E Robba, Dept Earth Sciences, Univ Milano, Italy.

UD-186. **3750 ± 100**

Carbonate, shells (*Achatina lactea*) from Ceel Baqal at surface level. Coll and subm 1984 by E Robba.

UD-187. **4250 ± 200**

Carbonate, shells (*Terebralia palustris*) from Ceel Baqal at surface level. Coll and subm 1984 by E Robba.

UD-188. **4990 ± 80**

Carbonate, shells (*Anadara antiquata*) from Ceel Baqal at surface level. Coll and subm 1984 by E Robba.

ARCHAEOLOGIC AND HISTORIC SAMPLES

Italy

Survey made by G Bernardi to verify first appearance period of playing cards. Coll and subm 1979 by G Bernardi, Trieste.

UD-85. **925 ± 100**

Tissue paper used for producing playing cards found in printshop in Modena (45°12'13"N, 12°00'12"E).

Comment: radiocarbon date does not fit with age suggested by historic research (ca AD 1400), probably because tissue was produced long before it was used for paper production.

Torcello series

In northern part of Lagoon of Venice (Upper Adriatic Sea), sequence of Holocene sediments reveals evolution from subaerial sedimentary environment to marsh formation (Favero & Barbero 1983). Evidence of sea transgression is present in third stage. Archaeologic findings place this event between Roman imperial epoch and 5th century AD. Samples coll 1980 by P Da Roit and subm by V Favero, Ist Studio Dinamica Grandi Masse, CNR, Venice.

UD-100. Scanello 5 D **810 ± 70**

Fragment of tree trunk (*Carpinus betulus*) from the Scanello Channel (45°29'20"N, 12°00'50"E) at depth 1m.

Comment: sample is from brick kiln archaeologically dated to ca 1st century BC. Radiocarbon age does not agree with archaeological findings, dated about 1st century BC.

UD-101. Scanello 5 **260 ± 60**

Fragment of tree trunk (*Salix viminalis*) from the Scanello Channel at depth 3m.

Comment: sample is from medieval building historically dated to ca end of 17th century.

UD-102. Canale di S Lorenzo **1900 ± 200**

Fragment from valve used for diverting water from San Lorenzo Channel at ground level.

Comment: channel is archaeologically dated to ca 1st–2nd century BC.

Venice series

Samples found in various locations of Lagoon of Venice during archaeological survey to verify reliability of estimated ages and radiocarbon dating of origins of Venice (Dorigo 1983). All samples coll and subm 1981 by W Dorigo, Dept Letters, Univ Venice.

UD-109. 7 SOL 2, Sample 1 **2280 ± 60**

Fragment of lower part of wooden column from Barena del Vigno (45°31'00"N, 12°00'42"E).

UD-110. 7 SOL 2A **2350 ± 60**

Fragment of pole from Barena del Vigno.

UD-111. 7 SOL 2A **2810 ± 60**

Adhesive oysters (*Ostrea* sp) on pottery fragments from Barena del Vigno.

UD-112. 7 SOL 2A **2480 ± 60**

Wooden fragment with some nails, perhaps part of boat keel from Barena del Vigno.

UD-114. S M di Gaia **770 ± 80**

Fragment of pile at depth 2.70m in Motta di S Maria Mad di Gaia (45°29'50"N, 12°00'42"E).

UD-115. Salina Vetere **1360 ± 50**

Fragment of pole at depth 3.10m in S Erasmo (45°28'10"N, 12°02'00"E).

UD-116. Torcello **610 ± 80**

Fragment of lower part of pole from Torcello (45°29'50"N, 12°01'54"E).

UD-117. Scanello **1080 ± 80**

Fragment of plank with some nails, perhaps part of boat, from Scanello channel (45°29'20"N, 12°00'50"E).

UD-118. Arsenale **900 ± 100**

Fragment of lower part of pole from Arsenale (45°26'06"N, 12°06'20"E).

UD-165. Uzzo cave **6720 ± 80**

Charcoal from Holocene levels in Uzzo cave on E slope of Cape S Vito, Trapani (38°06'36"N, 12°46'53"E) at depth 1.20m. Coll 1983 by M Piperno and subm by F Zevi, Mus Prehist Etn "L Pigorini," Rome.

Comment: research was carried out 1975–1983 in Uzzo cave to understand Neolithic process in W Sicily as well as use of cave as necropolis in Mesolithic period (Piperno 1985).

La Vela series

Results are part of study of La Vela cave to understand Neolithic sequence in different stages.

UD-175. La Vela, Gruppo Gaban **4850 ± 200**

Charcoal from Neolithic layers of La Vela cave, Trento (46°04'55"N, 13°21'05"E) at depth 2.50m. Coll and subm by G Tomasi, Tridentine Mus Nat Hist, Trento.

UD-176. La Vela, Vasi a bocca quadrata **5370 ± 180**

Same as UD-175, above.

S Daniele del Friuli series

Charcoal samples were found during archaeological surveys of Castello church in San Daniele del Friuli (46°13'18"N, 12°06'23"E). Coll and subm 1985 by F Piuze, Dept Antiquities, Udine. Charcoal was assoc with two furnaces, probably used to fuse metal and glass.

UD-213. Carboni I forno **1170 ± 120**

Charcoal coll at depth 1.43m.

UD-214. Carboni II forno **790 ± 50**

Charcoal coll at depth 0.95m.

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