

RADIOCARBON DATES OF RIGA I

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INTRODUCTION

The Riga Radiocarbon Laboratory began its serial measurements in 1971. Radiocarbon activity is measured by solution scintillation counters. Benzol, obtained by acetylene trimerization on vanadium pentoxide activated silicagel, is used as ^{14}C activity carrier. The dates refer to 1950 according to the 5568-year half-life of ^{14}C . The statistical error is 1σ (Veksler, Putans & Savvaitov, 1971).

We present data here of samples from coastal regions of the USSR, which reflect their geologic-geomorphologic development (Veksler *et al*, 1975; Veksler, Putans & Stelle, 1977; Veksler & Prede, 1986).

East Siberian Sea

Rautan Island series

Samples were taken from coastal outcrop clearing in NW part of island. Subm by M E Voschilko.

Riga-97. **10,980 \pm 540**

Birch branch fragment from 6m depth.

Riga-98. **9340 \pm 250**

Wood from 3.60 to 3.70m depth.

Riga-99. **8750 \pm 180**

Wood from 2.7 to 2.8m depth.

Riga-100. **8650 \pm 150**

Plant fragments from silty sand layer.

Riga-101. **8280 \pm 200**

Peat from 1.8 to 1.9m depth.

Riga-102. **8210 \pm 120**

Wood from 0.30 to 0.40m depth.

Riga-60. **900 \pm 80**

Wood from coastal arch of modern stage sea, from mouth of Puchuveem R near Ust-Chaun. Subm by I G Veinberg.

Riga-70. **4300 \pm 140**

Wood from 1.5m depth in peat horizon foundation on bank of Puchuveem R. Subm by A P Valpeter.

Riga-92. 9490 ± 130

Wood from abrasion ledge composed of alluvial and coastal-marine sediments 1.7m below earth layer at 40cm from surface. Taken from W part of Chaun inlet, Nagleinytsky site.

Ion Island series**Riga-177. 2100 ± 180**

Peat rich in humus from second riverflat terrace of Uglovoye Lake, in SE part of island.

Riga-141. 4680 ± 150

Weakly decomposed silty peat from upper part of thermokarst valley.

Riga-142. 6770 ± 160

Weakly decomposed peat from lower part of thermokarst valley.

Riga-187. 9270 ± 120

Herbaceous plants and peat fragments from seashore washout ledge in SE part of island.

Riga-184. 10,450 ± 210

Herbaceous plants and peat fragments from washout ledge of lake in S part of island. Samples subm by F Kovalenko.

Riga-137a. 9500 ± 160

Peat rich in humus from S part of Chaun inlet water area from 12.0 to 13.0cm depth below modern sea level. Subm by F Ya Kovalenko.

Riga-108. 11,340 ± 120

Wood fragments in peat laminae from 12m depth below sea level. Subm by V A Vorobiev.

Riga-112. 38,500 ± 750

Gray wood from 7m depth below sea level. Subm by V A Vorobiev.

Cape Kiberia series

Samples Riga-273, -274, -285, -291 were taken from sea terrace. All samples subm by V P Bezrodnykh.

Riga-274. 470 ± 60

Wood from terrace 5m level sediments of sea terrace. Assumed date: Holocene (Q_{IV}) or Karga interglacial.

Riga-273. 8620 ± 120

Peat from thermokarst depression. Assumed date: Q_{IV}.

- Riga-290.** **38,740 ± 360**
 Peat taken from cane break sediments. Assumed date: Q₃.
- Riga-291.** **≥44,570**
 Peat from section of shelf zone loose cover. Assumed date: Q₃²⁻³.
- Riga-286.** **≥31,810**
 Peat from boring 16m deep from seabed level in coastal part of cape.
- Riga-287.** **8490 ± 300**
 Peat from section of loose cover of long strait shelf. Assumed date: Q₃².

*Pechora Sea***Konstantinovka Section series**

Section is 1km W of Konstantinovka on Pechora inlet. Thermokarst depression is stripped by coastal outcrop in section. Palynologic data are available. Samples subm by I G Veinberg.

- Riga-234.** **4810 ± 60**
 Strongly decomposed peat from 0.5 to 0.6m depth.
- Riga-233.** **5030 ± 80**
 Weakly decomposed peat from 2.2 to 2.3m depth.
- Riga-232.** **7650 ± 120**
 Peat with sand from 2.7 to 2.8m depth.
- Riga-231.** **7640 ± 100**
 Weakly decomposed peat from 2.8 to 2.9m depth.
- Riga-239.** **7680 ± 100**
 Weakly decomposed peat from 2.9 to 2.95m depth.

Dresvyanka Section series

Section is 6km SW of Dresvyanka on Pechora inlet. Palynologic data are available. Samples were subm by I G Veinberg.

- Riga-239a.** **4860 ± 100**
 Strongly decomposed peat from 0.2 to 0.3m depth.
- Riga-238.** **7980 ± 80**
 Strongly decomposed peat from 0.5 to 0.6m depth.
- Riga-237.** **8540 ± 100**
 Moderately decomposed peat from 0.8 to 0.9m depth.

Riga-236. **8640 ± 80**

Weakly decomposed peat. Sample interval from 1.3 to 1.4m.

Riga-235. **8790 ± 90**

Weakly decomposed peat from 1.4 to 1.45m.

Riga-267. **7840 ± 240**

Wood from 1km to the N of Farikha on the Pechora inlet. Subm by I G Veinberg.

Riga-294. **5950 ± 150**

Well-preserved brown peat from 0.8m depth in inlet coastline of Pechora R near Kashen I., W coast of Pechora inlet. Subm by O G Epshtein.

Riga-298. **4250 ± 130**

Same as Riga-294, from 0.2m above top.

Riga-293. **4690 ± 250**

Peat from Upper Quaternary moraine of Vastyansky kon' outcrop in Lower Pechora region. Subm by O G Epshtein.

Riga-277. **5050 ± 300**

Carbonized black peat 30 to 40cm thick from Level I of marine terraces on N coast of Korovin inlet. Subm by O G Epshtein.

Riga-313. **31,000 ± 240**

Peat from E coast, 15km S of Kolokolova inlet. Subm by O G Epshtein.

Riga-288. **9250 ± 310**

Small plant fragments from boring in W part of Yamal Peninsula. Subm by O G Okuneva.

Western Coast of Kara Sea series

Riga-283. **7540 ± 140**

Dark-brown peat lamina with herbaceous and shrub fragments. Sample was taken from upper part of outcrop, 7km S of Tinteyakhi R.

Riga-279. **≥10,590**

Peat, clayey in upper part, from outcrop 200m from mouth of Navotlovskaya R.

Riga-287. **35,400 ± 340**

Sample from 2.5m layer of thin laminae sequence of brown peat, 0.5 to 1cm thick, and fine-grained gray sands. Sample taken from middle of outcrop 8.5km S of Tinteyakhi R.

Riga-280. **≥31,640**

Same as Riga-284, slightly lower.

Riga-285. **≥14,590**

Peat with clay and sand, from middle of sand horizon in sandy loam lamina in thermokarst scarp of marine terrace near mouth of Harasavei R.

Riga-281. **≥31,520**

Washout peat laminae from loamy layers in outcrop 1100m N of Cherny Bereg lighthouse.

Riga-299. **35,970 ± 370**

Wood fragment from clayey horizon in foundation of marine terrace section (II), 2250m N of Harasavei lighthouse.

Riga-302. **38,240 ± 400**

Washout peak laminae from 1.75m depth in outcrop on W coast of Yamal Peninsula 2km S of Harasavei.

Riga-324. **11,200 ± 240**

Separate lenses of brown peat of 3.5m depth in fine-grained sands in same loc as sample.

Riga-325. **8840 ± 120**

Peat from 1m depth from brown lamina with large quantity of mineral components from outcrop on W coast of Yamal Peninsula, 2.6km N of Harasavei lighthouse. Samples subm by V G Miller and V M Gataulin.

Coast of Kadym Lowland series

Riga-253. **9310 ± 180**

Wood from bank of upper part of Bolshaya Kuropatochiya R from 7.5m depth. Assumed date: Q_4^1 .

Riga-250. **9420 ± 250**

Wood fragments from 5m depth on bank of middle stream of Chuckochiya R. Assumed date: Q_4^1 .

Riga-251. **10,320 ± 350**

Wood from 0.5m depth, on Cape Chuckochiya. Assumed date: Q_3^2 .

Riga-259. **21,670 ± 370**

Wood from 5m depth, on bank of lower stream of Konkovaya R. Assumed date: Q_2 – Q_3 .

Riga-262. **13,850 ± 450**

Plant fragments from 12.5 depth, on Cape Chuckochiya. Assumed date: Q_3^2 .

Riga-254. **25,680 ± 350**

Wood from 8.5m depth from Antokhinskiy Yar on bank of Bolshoi Anny R. Assumed date: Q₂–Q₃.

Riga-252. **≥42,000**

Wood from 5.5m depth on left bank of Kamenushki R. Assumed date: Q₃²⁻³. All samples subm by V G Miller.

*Kamchatka Coast***Mitoga River Basin series**

These samples were taken from peat bog of coast ledge 3km S of Mitoga R mouth, 20km from Ust-Bolsheretsk. Peat bog dates to Holocene. Peat layer, 2.3m thick is overlain by volcanic ash layer at 30cm from top. Palynologic data are available. Samples subm by M E Voschilko. Table 1 shows stratigraphy of site. Samples are of peat from coastal sediments and marine borings. Sections were studied palynologically. Samples subm by R B Krapivner. Sea coastline 4.7km N of Mitoga R mouth; peat, 2m thick.

Riga-146. **27,600 ± 350**

Peat from upper section.

Riga-147. **29,200 ± 380**

Peat from middle part of section.

Riga-148a. **≥40,000**

Peat from lower part of section.

Riga-148b. **≥41,000**

Peat from lower part of section, 4.5km N of Mitoga R mouth; peat, 0.4m thick.

Riga-163. **39,400 ± 440**

Peat from upper part of section.

TABLE 1
Radiocarbon dates of Mitoga River peat

Lab no.	Sample interval (cm)	Date (yr BP)
Riga-160	145–150	4560 ± 180
-161	150–160	5750 ± 150
-164	165–170	6330 ± 130
-183	170–175	6680 ± 180
-182	175–180	7000 ± 190
-179	190–195	7500 ± 170
-154	225–230	10,200 ± 280

- Riga-169.** **≥42,000**
 Peat from lower part of section 4.0km N of Mitoga R mouth; peat, 2.7m thick.
- Riga-158.** **30,970 ± 240**
 Peat from upper part of section.
- Riga-152.** **31,000 ± 460**
 Peat from middle part of section.
- Riga-162.** **39,300 ± 420**
 Peat from lower part of section, 1km S of Mitoga R. Peat is up to 1m thick.
- Riga-129.** **25,300 ± 280**
 Peat from upper part of section.
- Riga-129a.** **34,800 ± 410**
 Humic acids of sample Riga-129. Outcrop is 3.1km S of Mitoga R. Peat is 0.1 to 0.2m thick.
- Riga-132.** **37,100 ± 300**
 Brown peat lenses in silty sediments.
- Riga-131.** **≥37,800**
 Horizon of dense, strongly decomposed peat. Outcrop is 3km S of Mitoga R. Peat is 1.5m thick.
- Riga-130.** **29,600 ± 310**
 Autochthonous peat taken from middle part of outcrop.
- Riga-130a.** **35,700 ± 340**
 Humic acids of sample.
- Riga-155.** **30,500 ± 390**
 Repeatedly taken sample from same locus as Riga-130. Outcrop on bank of Mitoga R, 8 to 10km from its mouth.
- Riga-149.** **31,200 ± 410**
 Buried peat from upper part of outcrop.
- Riga-170.** **≥43,000**
 Buried peat from power part of outcrop, on bank of Mitoga R, 100m from its flooded mouth.
- Riga-172.** **4660 ± 130**
 Modern peat from Utka outcrop.

- Riga-86.** **10,850 ± 70**
Washout peat with small branches from 1.4 to 1.8m depth.
- Riga-89.** **≥39,000**
Washout laminated peat with small branches from 2.95 to 3.35m depth.
- Riga-85.** **11,400 ± 70**
Washout dark-brown peat from upper part of outcrop with small branches from 1.5 to 2.3m depth.
- Riga-87.** **≥34,000**
Carbonized peat with no visible macroscopic plant fragments, from 3.05 to 3.35m depth.
- Riga-88.** **≥39,000**
Strongly decomposed grass-mossy peat with small branches from 5.1 to 6.6m depth.

Western coast of Sakhalin Bay

Petrovskaya Bar series

Samples were taken from abrasion ledge clearing 150m below distal end of Petrovskaya bar in clearing III. Samples subm by V Ya Stelle and M F Voschilko.

- Riga-83.** **8280 ± 130**
Sedgewood peat with small branches from 2.55 to 2.45m depth.
- Riga-90.** **6920 ± 140**
Sedgewood peat from 2.35 to 2.30m depth.
- Riga-82.** **6630 ± 100**
Sedgewood peat from 2.00 to 2.05m depth.
- Riga-84.** **5540 ± 140**
Sedgewood peat from 1.90 to 1.85m depth.
- Riga-79.** **5140 ± 100**
Hypnous peat from 1.45 to 1.40m depth.
- Riga-81.** **4570 ± 130**
Hypnous-sphagnous peat from 1.15 to 1.10m depth.
- Riga-78.** **1340 ± 110**
Sphagnous peat from 0.15 to 0.10m depth.

Riga-80.**6560 ± 120**

Small branches from lower part of horizon clearing II 50 km NW of former section. Samples subm by S V Denisov.

Riga-95.**8240 ± 300**

Peat with wood fragments on contact between peat horizon 2m thick and clay horizon.

Riga-94.**19,950 ± 450**

Wood branch piece from gravel sediments at 4.6 to 6.1m depth.

Riga-93.**≥23,400**

Wood from fine-grained and sand layer 4.9 to 5.1m depth.

*Japan Sea Coastline***B, Tikhangou Bay series****Riga-45.****23,490 ± 440**

Peat from 3.3 to 3.5m depth of coast scarp on 5 to 6m terrace of Bolotnaya R. Subm by R B Krapivner.

Riga-41.**40,650 ± 580**

Peat from sea bed boring from Tikhangou site. Subm by R B Krapivner.

*Chukchi Sea***Riga-278.****10,040 ± 370**

Peat laminae from 5.35 to 5.80m depth of boring in center of Nehkan settlement, near Magadan.

Riga-276.**95,160 ± 430**

Lacustrine peat from lens foundation on upper part of 6 to 8m terrace section on W bank of Neskyn-Pilkhin lagoon. Samples subm by O Bogdevich.

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