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25 february 2021

Rif.CEDAD: 2021_0032

Results of Radiocarbon Dating

Dear sir, please find enclosed the results of the radiocarbon dating of the samples you submitted to CEDAD (AMS and radiocarbon dating facility, University of Lecce, Italy) and listed in Table 1.

Sample ID	*CEDAD Code*	*Proveneance*
20-00161	LTL21000	
20-00163	LTL21002	
20-00162	LTL21001	
20-00164	LTL21003	
20-00165	LTL21004	
20-00166	LTL21005	
20-00167	LTL21006	
20-00168	LTL21007	

TABLE 1. SUMMARY OF THE DATED SAMPLES.

Macro contaminants were removed from the samples by mechanical handpicking under optical microscope. The selected portion of the samples was treated in order to chemically remove any possible source of contamination.

The purified sample material was then converted to carbon dioxide by combustion in sealed quartz tubes. The obtained carbon dioxide was converted at 550°C into graphite by using ultrahigh purity Hydrogen as reducing medium and 2 mg iron powder as catalyst. The sample yielded enough graphite to allow an accurate determination of the radiocarbon age by the accelerator mass spectrometer.

The radiocarbon concentrations have been determined in the accelerator mass spectrometer by comparing the ^{12}C, ^{13}C currents and the ^{14}C counts obtained from the samples with those obtained from standard materials supplied by IAEA (International Atomic Energy Agency) and NIST (National Institute of Standard and Technology).

The "conventional radiocarbon age" was calculated with a $\delta^{13}C$ correction based on the $^{13}C/^{12}C$ ratio measured directly with the accelerator. For the estimation of the measurement uncertainty (standard deviation) both the radioisotope counting statistics and the scattering of the data have been taken into account. The larger of the two is given as final error in Table 2.

Sample	*Radiocarbon Age (BP)*	*$\delta^{13}C$ (‰)*(**)	*Note*
LTL21000	**1699 ± 45**	**-28.1 ± 0.7**	
LTL21001	**2023 ± 45**	**-28.0 ± 0.5**	
LTL21002	**1933 ± 45**	**-23.9 ± 0.3**	
LTL21003	**2324 ± 45**	**-25.4 ± 0.5**	
LTL21004	**6889 ± 45**	**-30.1 ± 0.6**	
LTL21005	**2641 ± 45**	**-19.5 ± 0.3**	
LTL21006	**6921 ± 45**	**-25.2 ± 0.7**	
LTL21007	**2110 ± 45**	**-23.6 ± 0.3**	

TABLE 2. MEASURED VALUES.

(**) The listed values of the carbon stable isotopes fractionation term ($\delta^{13}C$) are measured by AMS. These values can differ from the natural fractionation and from those measured by IRMS.

The conventional radiocarbon ages of the samples were converted into calendar years by using the software OxCal Ver. 3.5 based on the last atmospheric dataset [Reimer PJ, et al.

2013 *Radiocarbon* 55 No. 4-1869-1887]. The results of the calibration are reported in the following figures.

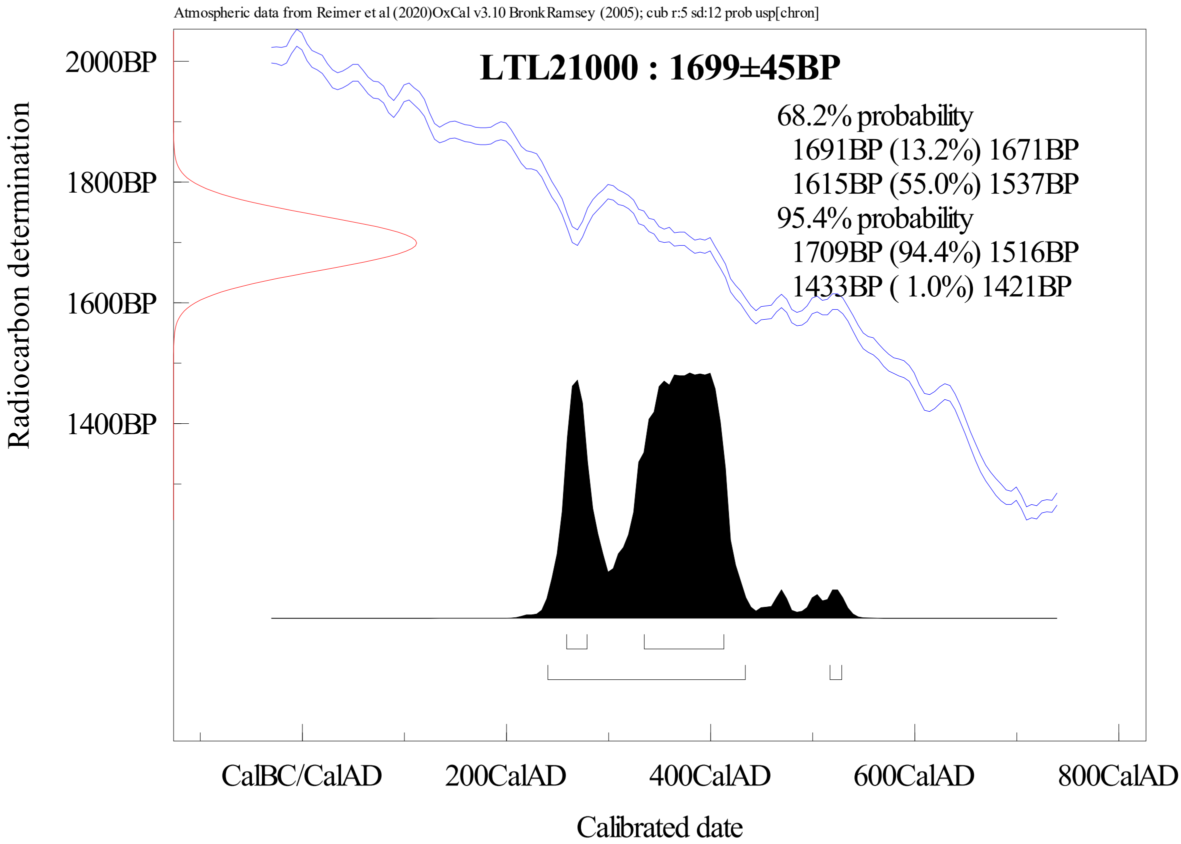

Figure 1. Calibration of the radiocarbon age of the sample LTL21000.

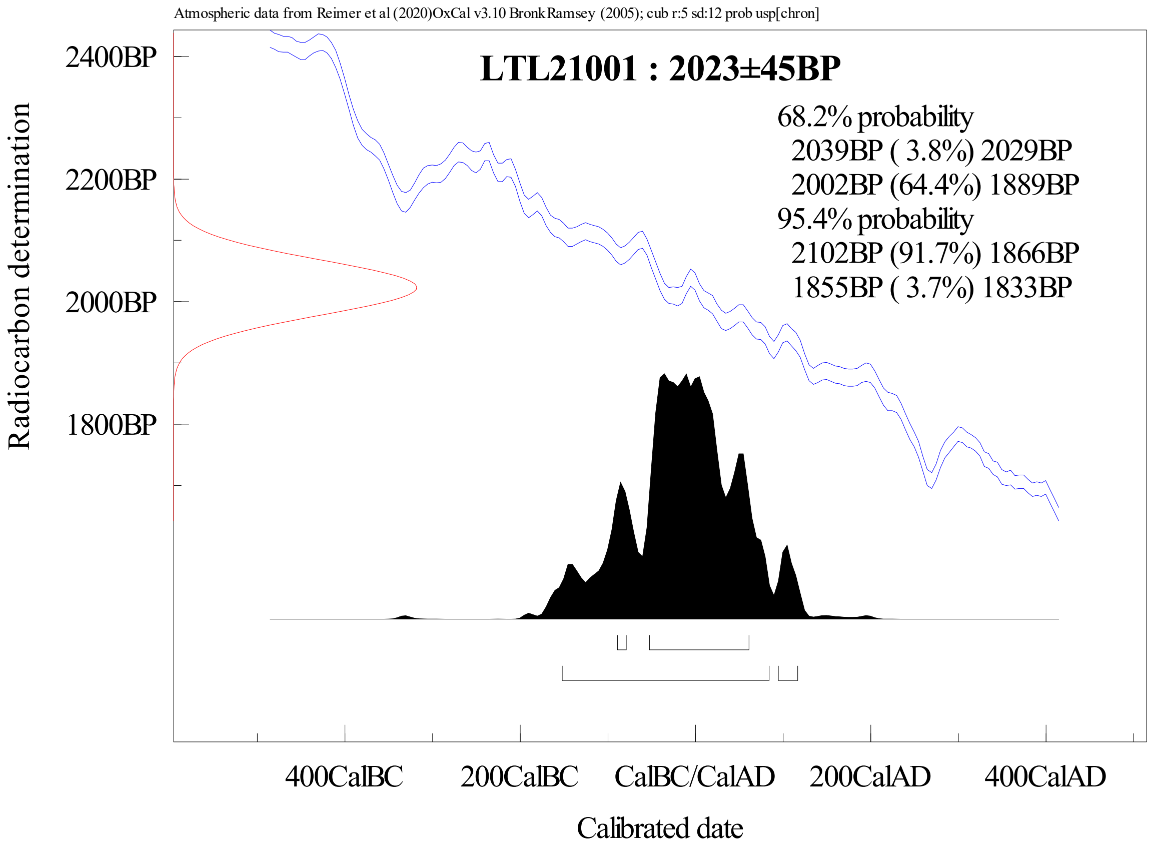

Figure 2. Calibration of the radiocarbon age of the sample LTL21001.

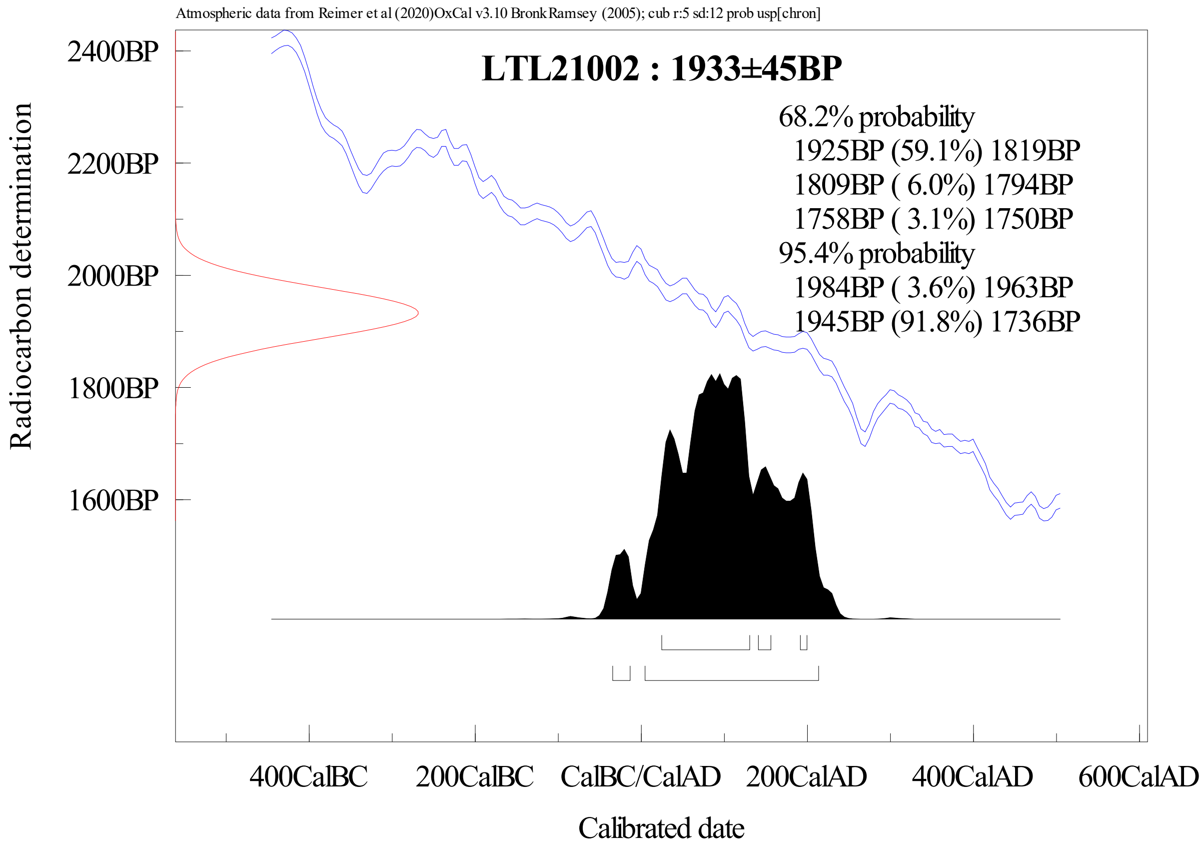

Figure 3. Calibration of the radiocarbon age of the sample LTL21002.

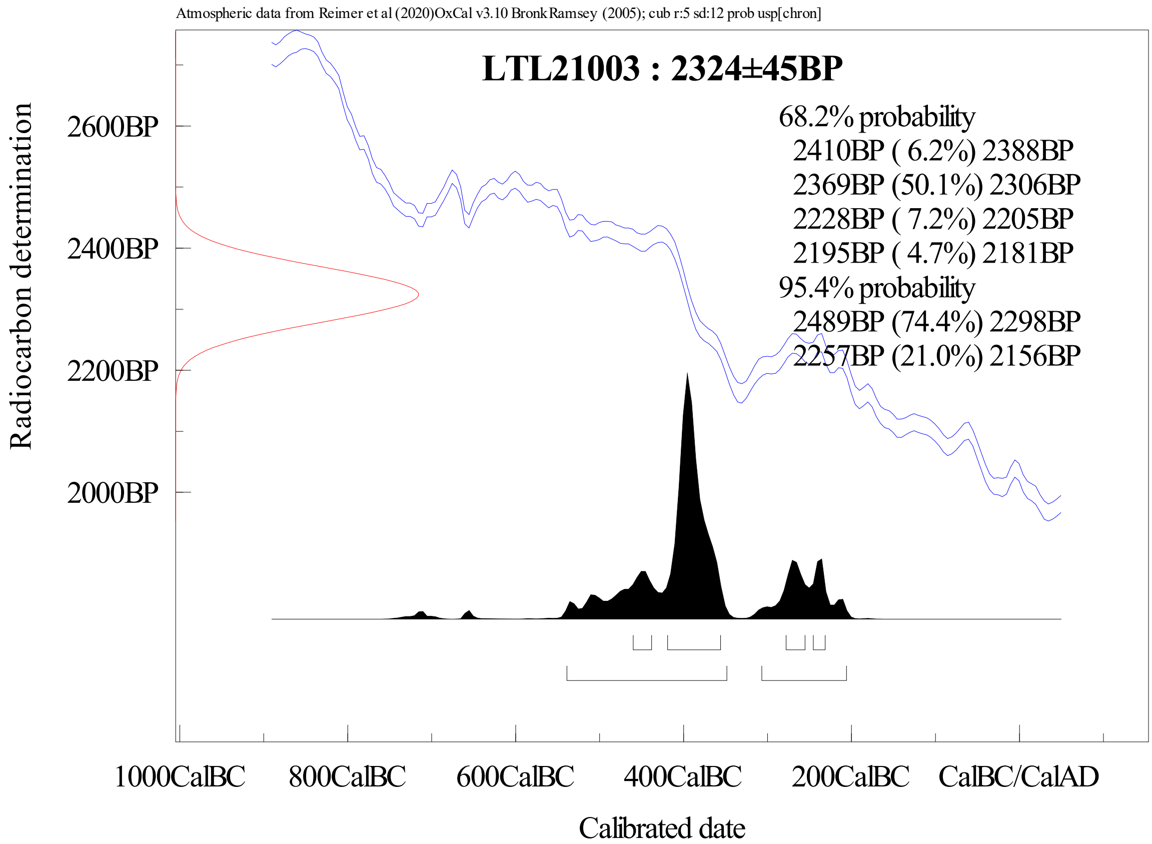

Figure 4. Calibration of the radiocarbon age of the sample LTL21003.

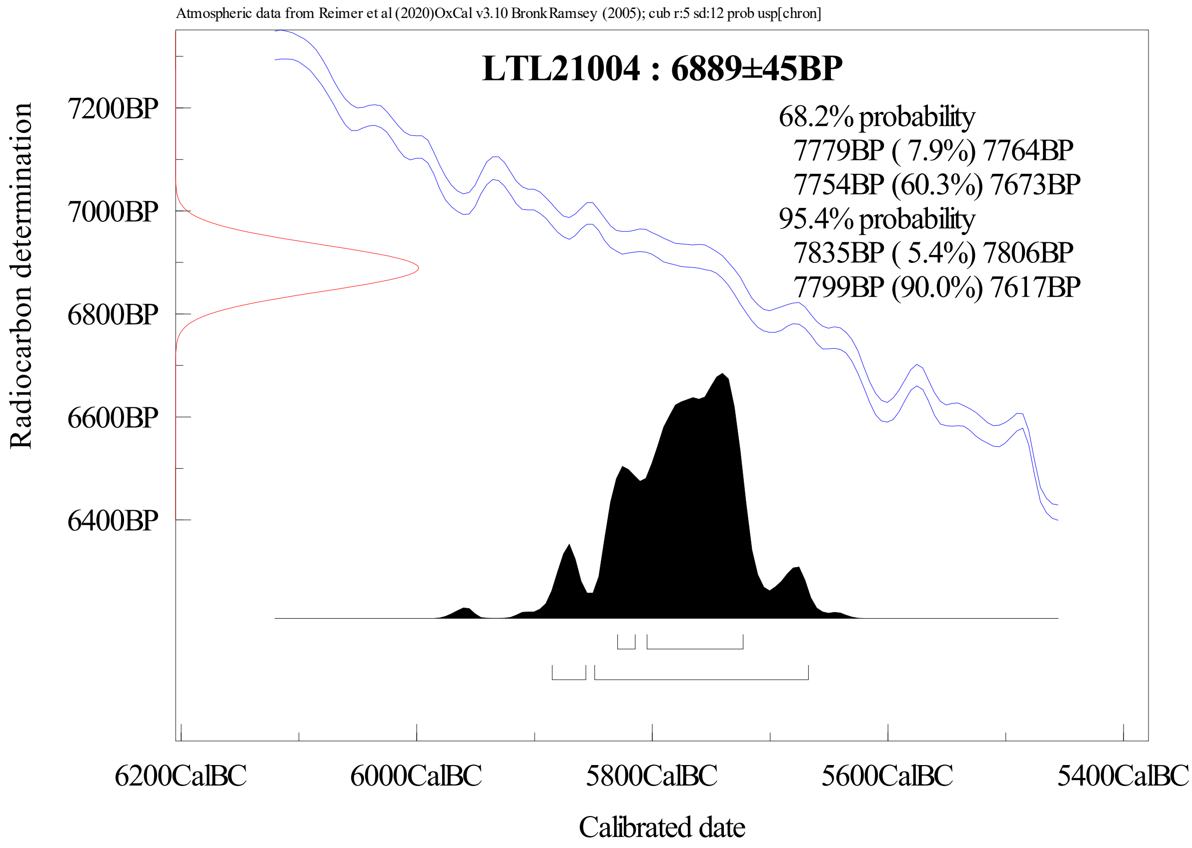

Figure 5. Calibration of the radiocarbon age of the sample LTL21004.

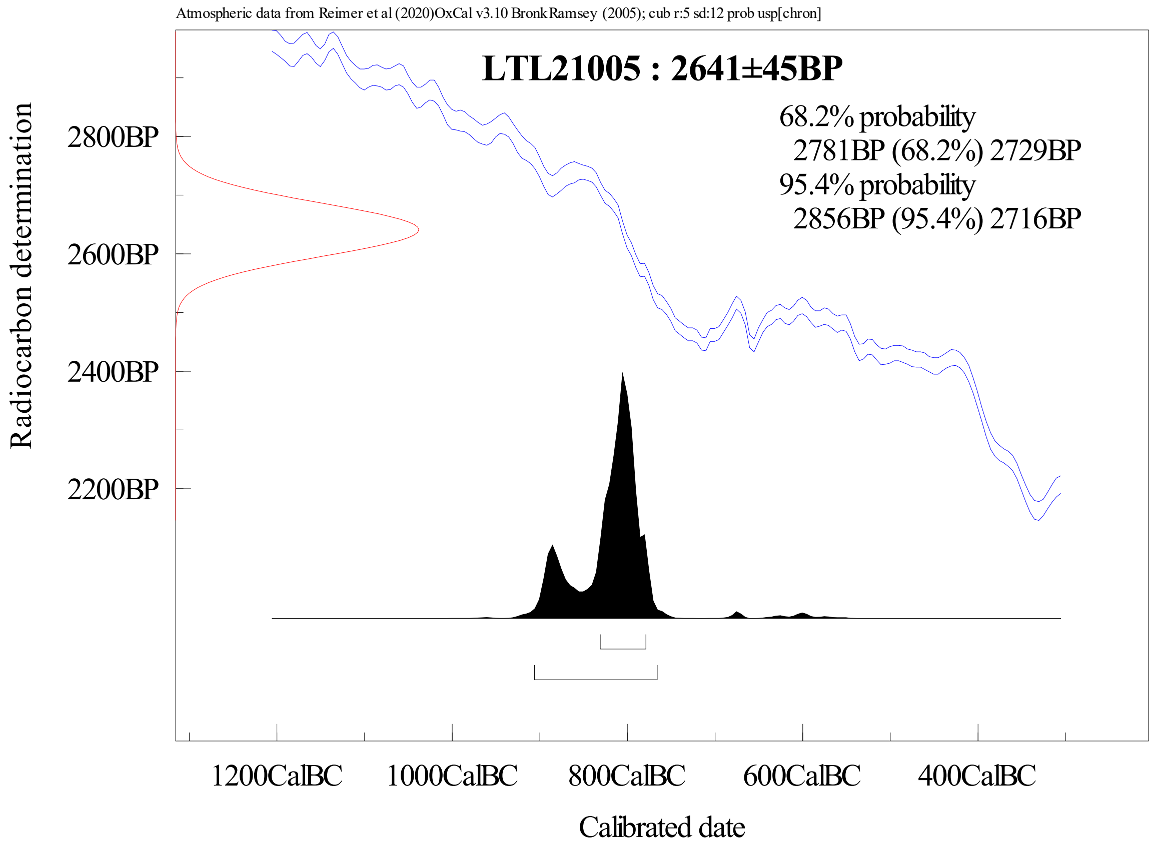

Figure 6. Calibration of the radiocarbon age of the sample LTL21005.

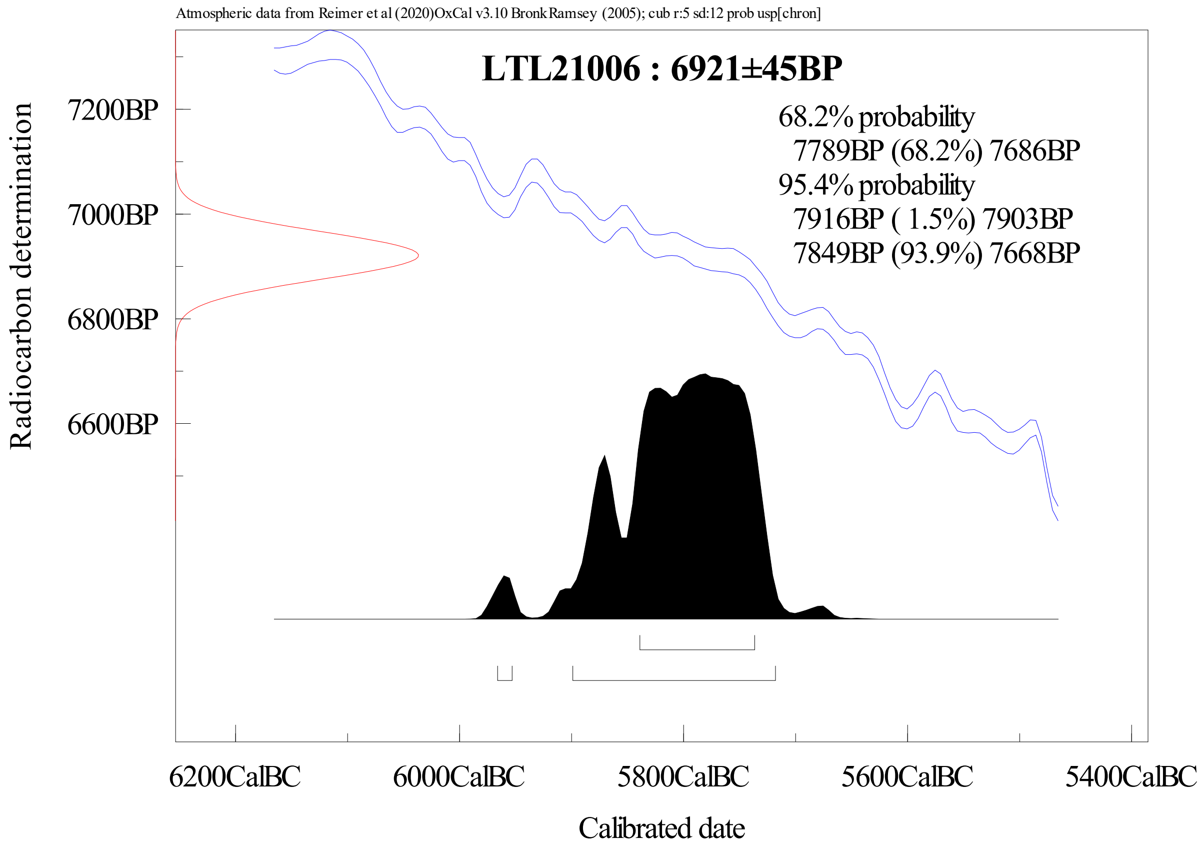

Figure 7. Calibration of the radiocarbon age of the sample LTL21006.

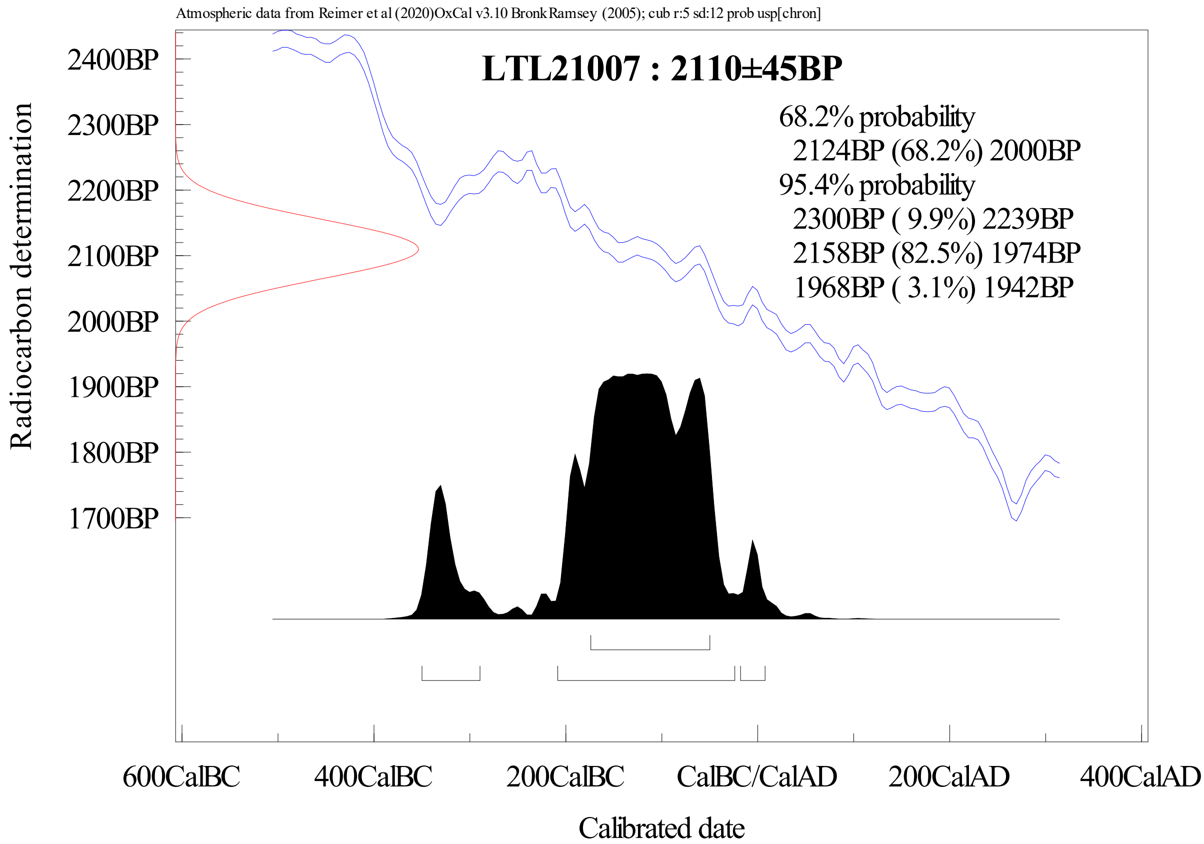

Figure 8. Calibration of the radiocarbon age of the sample LTL21007.

Best Regards,

Prof. Dr. Lucio Calcagnile

Director, Centro di Datazione e Diagnostica dell'Università del Salento