

Reconstructing Late Glacial–Early Holocene dune formation and wildfire dynamics using radiocarbon and OSL dating: Łaskarzew, Poland

SUPPLEMENTARY MATERIALS

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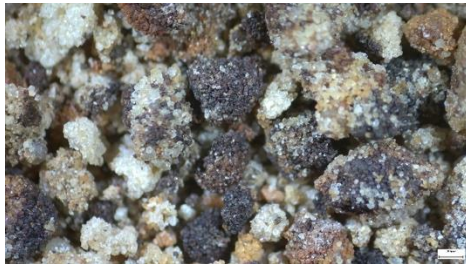
Województwo
Śląskie



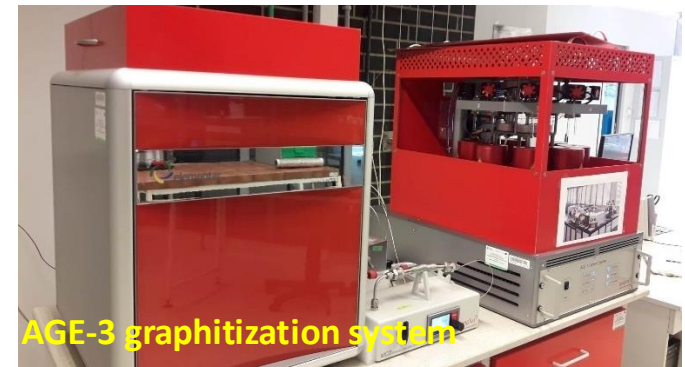
Sample processing for ^{14}C dating

Gliwice Radiocarbon and Mass Spectrometry Laboratory

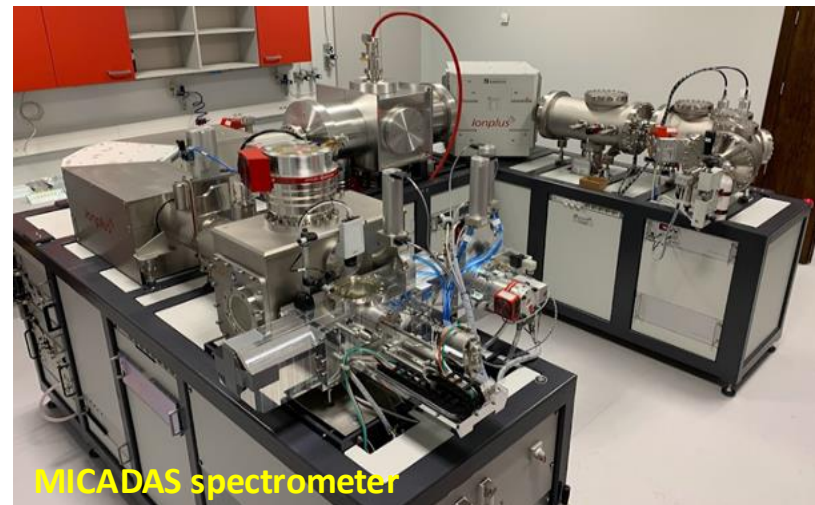
- Hand-picking under the microscope
- ABA treatment
- EA&AGE-3 combustion and graphitisation
- MICADAS for ^{14}C age determination



ABA treatment



AGE-3 graphitization system



MICADAS spectrometer

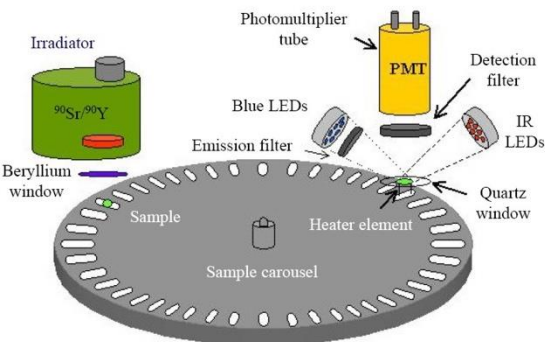
Sample processing for OSL dating

OSL age:

$$\text{Age} = D_e / D_r,$$

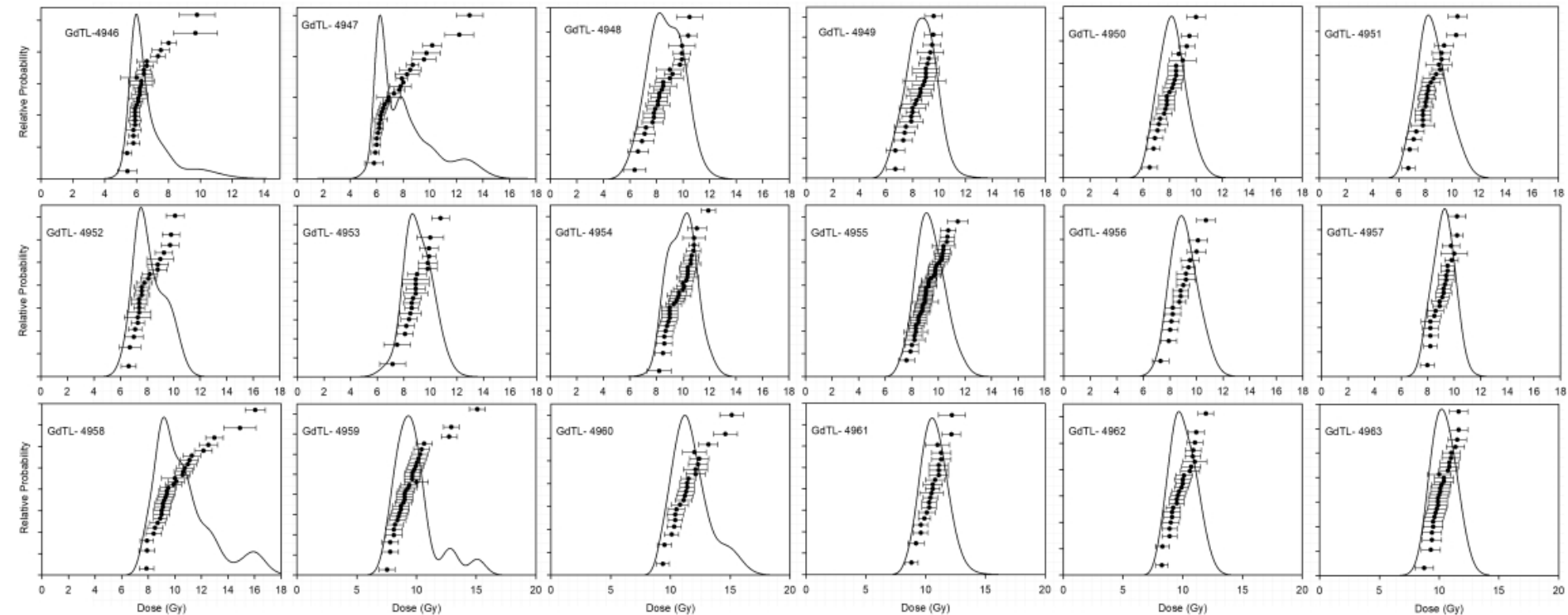
D_e – equivalent dose (luminescence readers),

D_r – dose rate (gamma spectrometer).



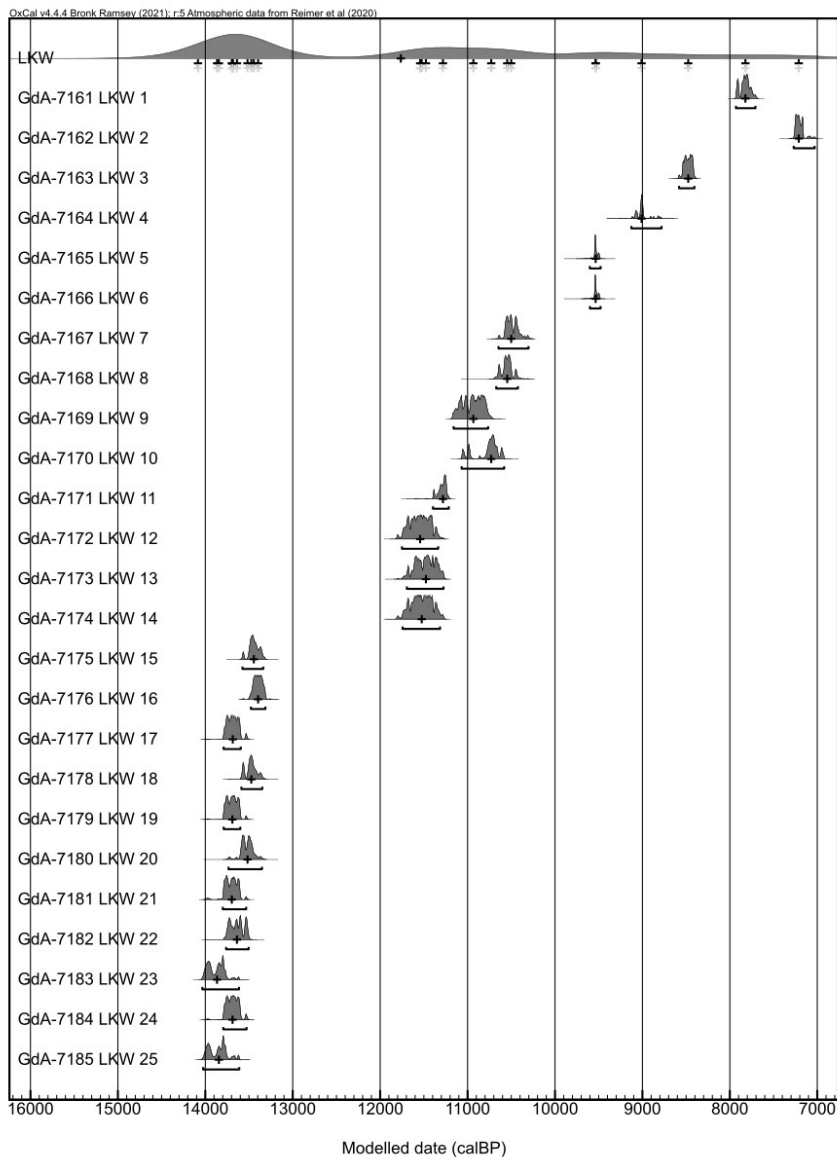
- Sieving – fraction 125-200 μm
- Chemical preparation (HCl , H_2O_2 , density separation, HF)
- OSL SAR protocol

OSL dates for Łaskarzew



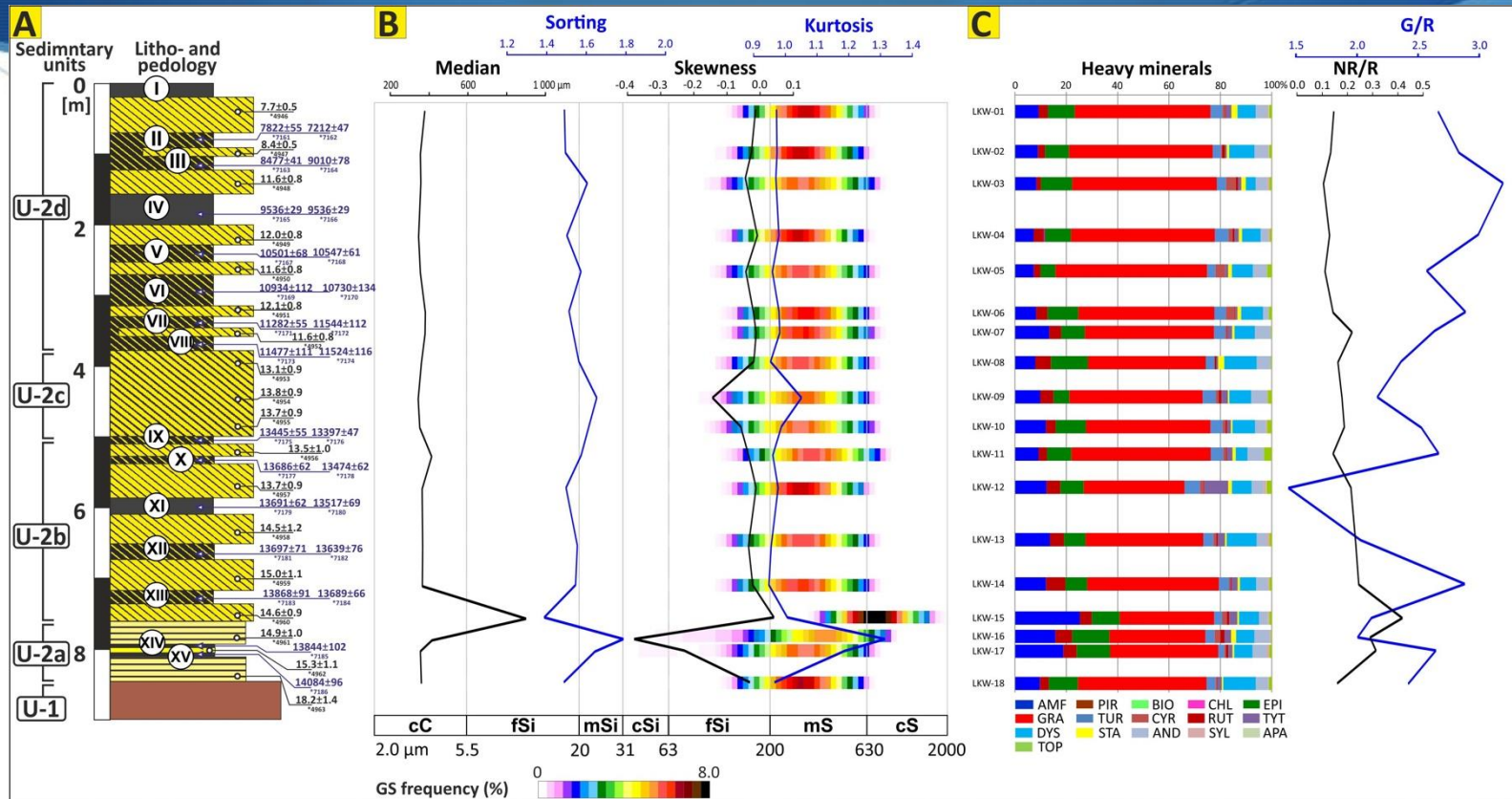
Distribution of the relative probability density function for luminescence dating results of all investigated samples

^{14}C dates for Łaskarzew



Calibrated radiocarbon ages of charcoal
from Łaskarzew dune profile

Sedimentological analysis results in Łaskarzew site



Sedimentological analysis results in Łaskarzew site: A – litho- and pedological characteristic; B – grain size variability and indicators according to Folk and Ward (1957); the background of the grain size curves includes a heatmap reflecting the percentage distribution of particles divided into 100 size classes. The heatmap provides a detailed visualisation of the proportions of individual grain size fractions: C – clay, Si – silt, S – sand, as well as subfractions: f – fine, m – medium, and c – coarse; C – heavy mineral distribution, along with NR/R (non-resistant to resistant) and G/R (garnets to resistant) indices