Authors/Year	Mineral used for luminescence measurements	Measurement protocol used to obtain the loess/paleosol ages	Intrinsic rigor tests
Bălescu, S., Lamothe, M., Panaiotu, C., Panaiotu, C. (2010)	alkali feldspars (60-80μm)	<u>Multiple aliquot additive dose method (MAAD)</u> o γ irradiation at room temperature o Preheat at 160°C for 10 hours o Measurement (8 to 12 months after γ irradiation) o Preheat at 220°C for 10 minutes o IR stimulation for 30 s o Beta irradiation o Preheat at 220°C for 10 minutes o IR stimulation for 30 s	
Timar,A., Vandenberghe, D., Panaiotu, E.C., Panaiotu, C.G., Necula, C., Cosma, C., van den haute, P., (2010)	quartz (4-11 μm)	<u>SAR (CW-OSL)</u> o Preheat at 220°C for 10s o OSL at 125°C for 40s o Test dose (17.1 Gy) o Cutheat at 180°C for 0s o OSL at 125°C for 40s o OSL at 280°C for 40s o Beta irradiation Net signal o Initial 0.32s of the decay curve o Background integrated between 1.6 and 2.24s Water content assumed to be 20 ± 5% α value adopted: 0.04 ± 0.02 Contribution of cosmic rays: Prescott and Hutton, 1994 Fitting equation: single saturation exponential plus a linear term	<u>OSL signal assessment - SAR (LM-OSL)</u> o Preheat at 220°C for 10s o OSL at 125°C from 0 to 100% in 3000s o Test dose (17.1 Gy) o Cutheat at 180°C for 0s o OSL at 125°C from 0 to 100% in 3000s o OSL at 280°C for 40s o Beta irradiation <u>Dependency of ED on the preheat temperature (CW-OSL)</u> o 200-280°C <u>Dose recovery test (CW-OSL)</u> o Using different preheat temperatures (dose used – 420 Gy) o Using a preheat of 220°C and a cutheat of 180°C

Timar-Gabor, A., Vandenberghe, D.A.G., Vasiliniuc, Ş., Panaiotu, E.C., Panaiotu, C.G., Dimofte, D., Cosma, C. (2011)	quartz (63-90 μm)	<u>SAR (CW-OSL)</u> o Preheat at 220°C for 10s o OSL at 125°C for 40s o Test dose (17.1 Gy) o Cutheat at 180°C for 0s o OSL at 125°C for 40s o OSL at 280°C for 40s o Beta irradiation Net signal o Initial 0.32s of the decay curve o Background integrated between 1.6 and 2.24s Water content assumed to be 20 ± 5% Beta attenuation factor: 0.94 ± 0.045 Internal dose rate: 0.010 ± 0.002 Gy/ka (Vandenberghe et al., 2008) Fitting equation: single saturation exponential plus a linear term Contribution of cosmic rays: Prescott and Hutton, 1994	<u>Dependency of ED on the preheat temperature (LM-OSL)</u> o Preheat (180-340°C) for 2 s <u>Dose recovery test (CW-OSL)</u> o Using a preheat of 220°C and a cutheat of 180°C <u>Thermal stability - pulse annealing (CW-OSL)</u> o OSL at 20°C for 250s o 10ks pause o OSL at 20°C for 250s o Beta irradiation (D=ED) o Preheat (175-450°C) for 10s o OSL at 125°C for 40s o Test dose (17 Gy) o Cutheat at 180°C for 0s o OSL at 125°C for 40s o OSL at 280°C for 40s <u>Dose response (CW-OSL)</u> o Preheat at 220°C for 10s o OSL at 125°C for 40s o Test dose (17 Gy) o Cutheat at 180°C for 0s o OSL at 125°C for 40s o OSL at 280°C for 40s o Beta irradiation up to ~700 Gy Net signal o Initial 0.32s of the decay curve o Background integrated between 1.6 and 2.24s Fitting equations: single saturation exponential plus a linear term and a single saturating exponential

Timar-Gabor, A., Vasiliniuc, S., Vandenberghe, D.A.G., Cosma, C., Wintle, A.G., (2012)	quartz (4-11 and 63-90 μm)		<u>Dose response (CW-OSL)</u> o Preheat at 220°C for 10s o OSL at 125°C for 40s o Test dose (17 Gy) o Cutheat at 180°C for 0s o OSL at 125°C for 40s o OSL at 280°C for 40s o Beta irradiation up to 10kGy Net signal o Initial 0.3s of the decay curve o Background integrated between 2.3 and 3.1s Fitting equations: single saturation exponential or a double saturating exponential
Vasiliniuc, Ș., Vandenberghe, D.A.G., Timar-Gabor, A., Panaiotu, C., Cosma, C., van den Haute, P. (2012)	polymineral grains (4-11 μm)	<u>Modified SAR (CW-OSL)</u> o Dose o Preheat at 250°C or 325°C for 60s o IRSL at 50°C for 100s o IRSL at 225°C or 300°C for 100s o Test dose (10 Gy) o Preheat at 250°C or 325°C for 60s o IRSL at 50°C for 100s o IRSL at 225°C or 300°C for 100s o IRSL at 290°C or 340°C for 40s Water content assumed to be 20 ± 5% Mean α-value: 0.08 ± 0.002 Fitting equation: single saturation exponential plus a linear term and sum of two saturating exponential functions	<u>Dose response</u> o Doses up to 4 and 12 ka <u>Dose recovery – modified SAR (CW-OSL)</u> o 1h bleach in Hönle SOL2 solar simulator o 1h pause o Dose (first one close to the equivalent dose obtained) o Preheat at 250°C or 325°C for 60s o IRSL at 50°C for 100s o IRSL at 225°C or 300°C for 100s o Test dose (10 Gy) o Preheat at 250°C or 325°C for 60s o IRSL at 50°C for 100s o IRSL at 225°C or 300°C for 100s o IRSL at 290°C or 340°C for 40s Fading test o IR bleach at 50°C for 100s o IRSL at 250°C or 325°C for 100s

			o 1h pause o IR bleach at 50°C for 100s o IRSL at 250°C or 325°C for 100s o Dose (50 Gy) o Preheat at 250°C or 325°C for 60s o IRSL at 50°C for 0.2h to few tens of hours o IRSL at 225°C or 300°C for 0.2h to few tens of hours o Test dose (20 Gy) o Preheat at 250°C or 325°C for 60s o IRSL at 50°C for 100s o IRSL at 225°C or 300°C for 100s o IRSL at 290°C or 340°C for 40s g-value calculated using Huntley and Lamothe (2001); normalized to a measurement delay time of 2 days after irradiation
Vasiliniuc, Ş., Vandenberghe, D.A.G., Timar-Gabor, A., Cosma, C., Van Den haute, P. (2013a)	polymineral grains (4-11 μm)	<u>Double SAR (CW-OSL)</u> o Dose o Preheat at 240°C for 10s o IRSL at 125°C for 100s o OSL at 125°C for 100s o Test dose (10 Gy) o Cutheat at 180°C for 0s o IRSL at 125°C for 100s o OSL at 125°C for 100s o OSL at 280°C for 40s Water content assumed to be 20 ± 5% Mean α-value: 0.08 ± 0.002 and 0.06 ± 0.02 Fitting equation: single saturation exponential function and sum of two saturating exponential functions	<u>Dose recovery - double SAR (CW-OSL)</u> o 1h bleach in Hönle SOL2 solar simulator, followed by 1h pause. Preheat at 240°C and at different temperatures (200-260°C) for 10s. <u>Dependency of D_e on the preheat temperature - double SAR (CW-OSL)</u> o Preheat (200-260°C) for 10s Fading test o IRSL bleach at 125°C for 250s o OSL bleach at 125°C for 250s o 1h pause o IRSL bleach at 125°C for 250s o OSL bleach at 125°C for 250s o Dose (25 or 50 Gy) o Preheat at 240°C for 10s o IRSL at 125°C for 0.2h to few tens of

			hours o OSL at 125°C for 0.2h to few tens of hours o Test dose (10 or 25 Gy) o Cutheat at 180°C for 0s o IRSL at 125°C for 100s o OSL at 125°C for 100s o OSL at 280°C for 40s g-value calculated using Huntley and Lamothe (2001); normalized to a measurement delay time of 2 days after irradiation
Vasiliniuc, Ș., Vandenberghe, D.A.G., Timar-Gabor, A., van den Haute, P. (2013b)	polymineral grains (4-11 μm)	<u>Modified SAR (CW-OSL)</u> o Dose o Preheat at 250°C for 60s o IRSL at 115°C or 250°C for 100s o Test dose (10 Gy) o Preheat at 250°C for 60s o IRSL at 115°C or 250°C for 100s o IRSL at 290°C for 40s Water content assumed to be 20 ± 5% Mean α-value: 0.08 ± 0.002 Fitting equation: sum of two saturating exponential functions Net signal o Initial 1.2s of the decay curve o Background from the last 10s	<u>Dose recovery - modified SAR (CW-OSL)</u> ➢ Samples bleached in the solar simulator o 1h bleach in Hönle SOL2 solar simulator o 1h pause o Dose (close to the equivalent dose obtained or close to the natural dose using a preheat of 250°C for 60s) o Preheat at different temperatures (80-325°C) for 60s o IRSL at 115°C or 250°C for 100s o Test dose (10 Gy) o Preheat (80-325° C) for 60s o IRSL at 115°C or 250°C for 100s o IRSL at 290°C for 40s ➢ Samples bleached using infrared light o IRSL bleach at 20°C for 250s o IRSL bleach at 20°C for 250s o 1h pause o IRSL bleach at 20°C for 250s o IRSL bleach at 20°C for 250s o Dose (close to the equivalent dose

obtained or close to the natural dose using a preheat of 250°C for 60s)

- Preheat (80-325° C) for 60s
- IRSL at 115°C or 250°C for 100s
- Test dose (10 Gy)
- Preheat (80-325° C) for 60s
- IRSL at 115°C or 250°C for 100s
- IRSL at 290°C for 40s

➢ Unbleached samples

- Dose (500 Gy on top of natural)
- Preheat at 115°C or 250°C for 60s
- IRSL at 115°C or 250°C for 100s
- Test dose (10 Gy)
- Preheat at 115°C or 250°C for 60s
- IRSL at 115°C or 250°C for 100s
- IRSL at 290°C for 40s

➢ Dose recovery as a function of given dose

- 1h bleach in Hönle SOL2 solar simulator or 4h unfiltered sunlight
- Dose
- Preheat at 250°C for 60s
- IRSL at 115°C or 250°C for 100s
- Test dose (10 Gy)
- Preheat at 250°C for 60s
- IRSL at 115°C or 250°C for 100s
- IRSL at 290°C for 40s

<u>Dependency of D_e on the preheat temperature</u>

- Preheat at different temperatures (80-325°C) for 60s

<u>Fading test</u>

- IRSL at 115°C or 250°C for 100s
- 1h pause
- IRSL at 115°C or 250°C for 100s

		○ Dose (25 Gy) ○ Preheat at 250°C for 60s ○ IRSL at 225°C or 300°C for 0.14h to ~21h ○ Test dose (20 Gy) ○ Preheat at 250°C for 60s ○ IRSL at 115°C or 250°C for 100s ○ IRSL at 290°C or 340°C for 40s g-value calculated using Huntley and Lamothe (2001); normalized to a measurement delay time of 2 days after irradiation <u>Thermal stability</u> ○ Thermoluminescence (TL) glow curves ○ Multiple-aliquot pulse annealing
Timar-Gabor, A., Constantin, D., Buylaert, J.P., Jain, M., Murray, A.S., Wintle, A.G., (2015)	quartz (63-90 μm)	<u>Dose response (CW-OSL)</u> ○ Preheat at 220°C for 10s ○ OSL at 125°C for 40s ○ Test dose (17 Gy) ○ Cutheat at 180°C for 0s ○ OSL at 125°C for 40s ○ OSL at 280°C for 40s ○ Beta irradiations up to 15kGy ○ Preheat at 220°C for 10s ○ OSL at 125°C for 40s ○ Test dose (17 Gy) ○ Cutheat at 180°C for 0s ○ OSL at 125°C for 40s ○ OSL at 280°C for 40s ○ OSL bleach at 20°C for 100 s ○ Pause for 10 000 s ○ OSL bleach at 20°C for 100 s ○ Beta irradiation of 170 Gy ○ OSL at 125°C for 40s

- Test dose (17 Gy)
- Cutheat at 180°C for 0s
- OSL at 125°C for 40s
- OSL at 280°C for 40s
- Beta irradiations up to 15kGy
- Preheat at 220°C for 10s
- OSL at 125°C for 40s
- Test dose (17 Gy)
- Cutheat at 180°C for 0s
- OSL at 125°C for 40s
- OSL at 280°C for 40s
- OSL bleach at 20°C for 100 s

Net signal

- Initial 0.3s of the decay curve
- Background integrated between 2.3 and 3.1s

Fitting equation: double saturating exponential

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