



Supplement of

The International Soil Radiocarbon Database (ISRaD) version 2: synthesis, data gaps, and future directions of soil radiocarbon data

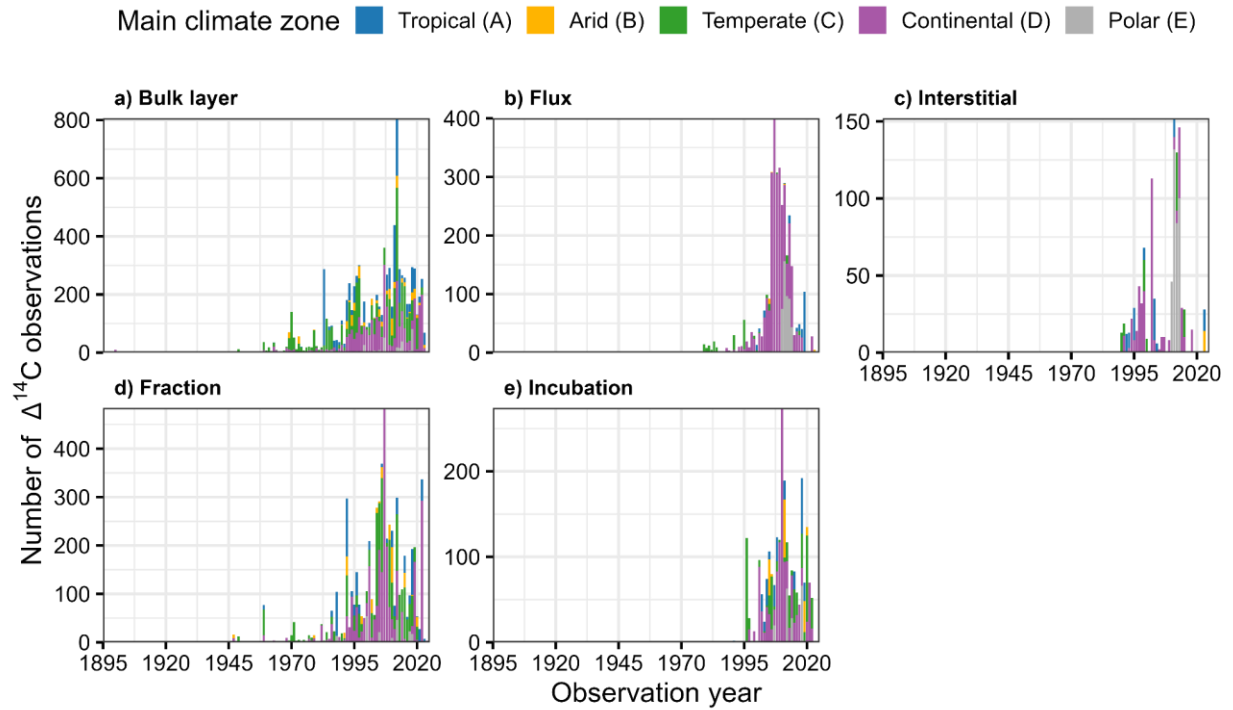
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Table S1: Key for each Koeppen-Geiger Climate Zone after Beck et al. 2023

1 st	2 nd	3 rd	Description
A	Tropical		
	f		- Rainforest
	m		- Monsoon
	w		- Savannah
B	Arid		
	W		- Desert
	S		- Steppe
		h	- Hot
		k	- Cold
C	Temperate		
	s		- Dry summer
	w		- Dry winter
	f		- Without dry season
		a	- Hot summer
		b	- Warm summer
		c	- Cold summer
D	Cold		
	s		- Dry summer
	w		- Dry winter
	f		- Without dry season
		a	- Hot summer
		b	- Warm summer
		c	- Cold summer
		d	- Very cold winter
E	Polar		
	T		- Tundra
	F		- Frost



5 **Figure S1:** Number of $\Delta^{14}\text{C}$ observations per year colored by the main climate zones (Beck et al. 2023) for a) bulk layer, b) flux, c) interstitial, d) fraction, and e) incubation data. Note that the y-axes are on different scales

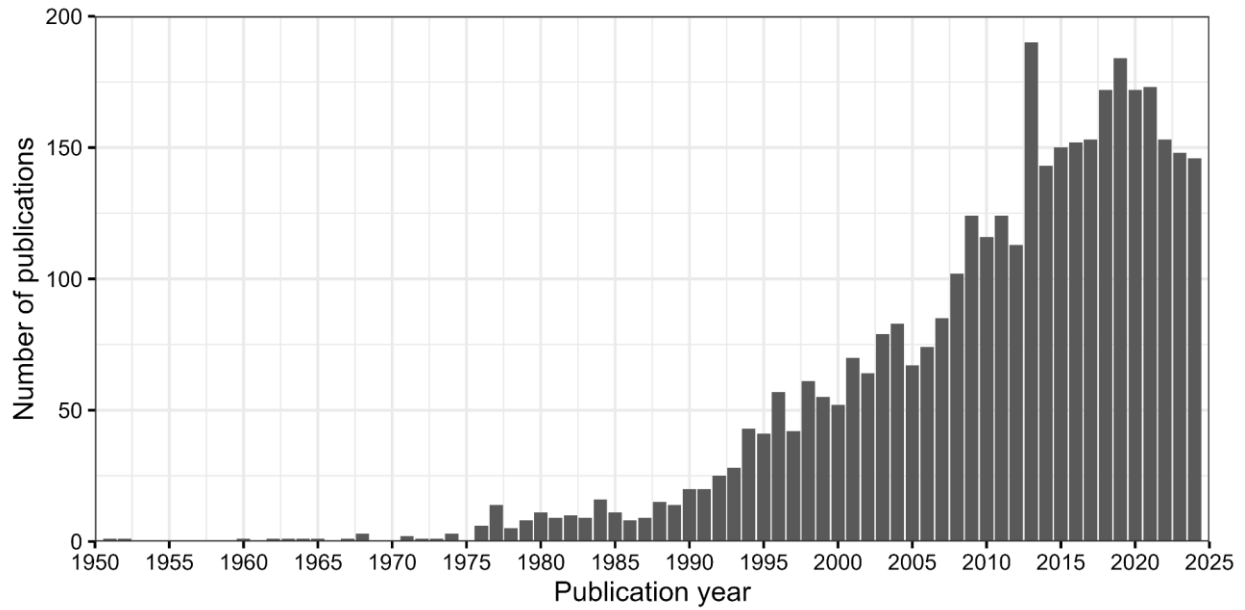


Figure S2: Number of studies based on search terms “soil” and “radiocarbon” in web of science (*accessed August 8, 2025*).

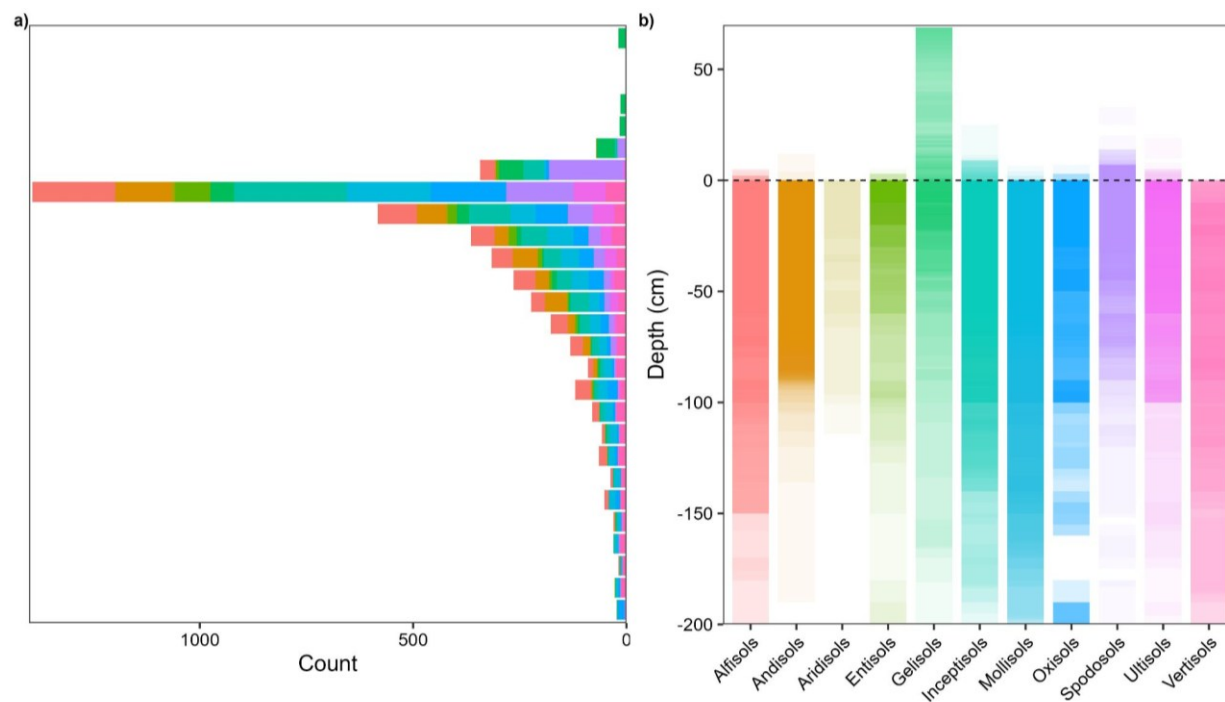


Figure S3: a) Number of bulk soil radiocarbon measurements for each 0.1 m depth interval colored by soil order (USDA); **b)** Data distribution of bulk soil radiocarbon measurements with depth (limited to 200 cm and excluding Histosols; positive depth values refer to organic layers) across each soil order. The darker the color, the more data points are present in a given depth range. Note that 1,050 soil profiles used for this analysis did not have the soil order reported and were excluded.

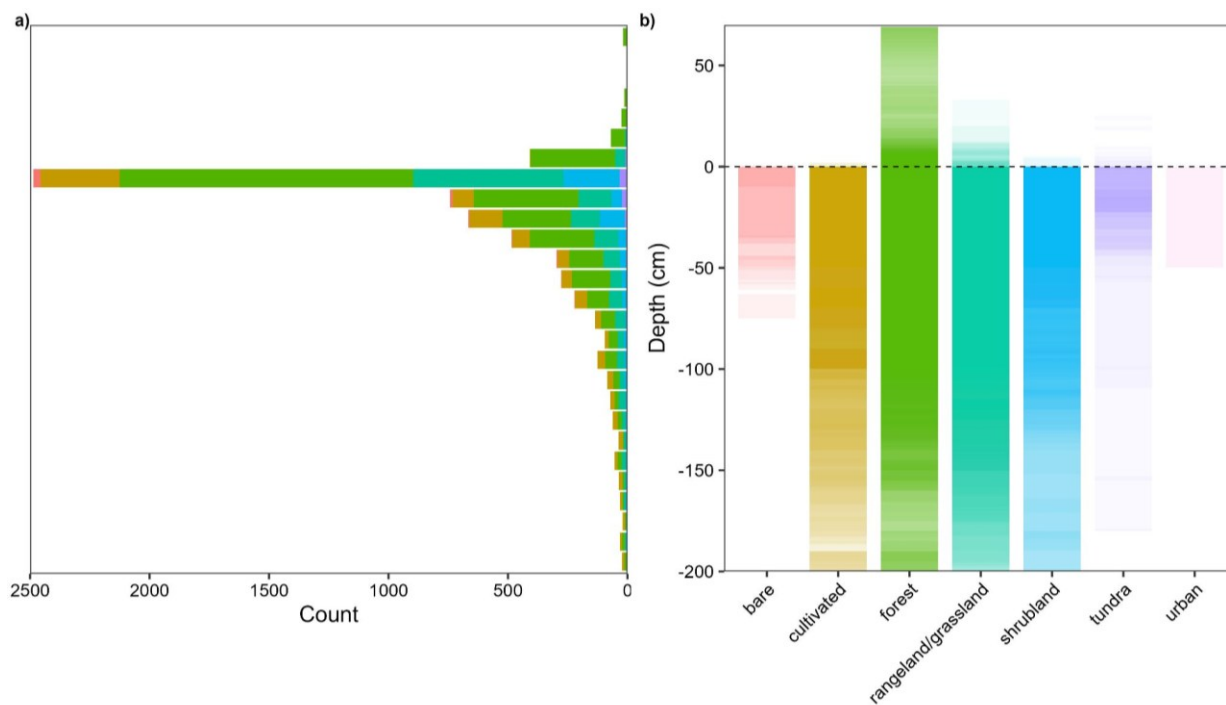


Figure S4: a) Number of bulk soil radiocarbon measurements for each 0.1 m depth interval colored by land cover; b) Data distribution of bulk soil radiocarbon measurements with depth (limited to 200 cm and excluding wetlands; positive depth values refer to organic layers) across each land cover. The darker the color, the more data points are present in a given depth range. Note that 113 soil profiles used for this analysis did not have the land cover reported and were excluded.