

Supplement

Table S1

A summary of 29 published occurrences in the Gzhelian wildfire record.

Wildfire evidence type	Paleogeography	Present location	Latitude (N°)	Longitude (E°)	Paleolatitude (N°)	Paleolongitude (E°)	Unit	Rock type	References
Charcoal type I/Charcoal type II	S Laurasia	US(Carrizo Arroyo, New Mexico)	34.36	-107	-0.16	-37.41	Bursum Fm	LS&C	Dimichele et al., 2016
Charcoal type I/Charcoal type II	S Laurasia	Germany(Saar-Nahe Basin)	49.53	7.31	2.01	17.78	Heusweiler Fm & Meisenheim Fm	CL&C	Uhl et al., 2004; Uhl and Jasper, 2021
Charcoal type I/Pyrogenic PAHs	E Laurasia	China(Yuzhou Coalfield, North China Basin)	34.27	113.44	16.53	82.87	Taiyuan Fm	C	Shen et al., 2023
Charcoal type I	S Laurasia	Germany(Zwickau Subbasin)	50.71	12.46	4.1	20.6	Zwickau Fm	C	Schneider and Rößler, 2023
Charcoal type II	S Laurasia	US(Texas)	33.31	-98.78	-5.02	-32.5	Markley Fm	CL	Looy and Hotton, 2014
Charcoal type I	E Laurasia	China(Ordos Basin)	35.78	112.16	18.36	82.66	Taiyuan Fm	C	Dai et al., 2006; Dai et al., 2008; Driesel, 2010
Charcoal type I	E Laurasia	China(Feicheng Coalfield)	36.21	116.57	17.06	86.17	Taiyuan Fm	C	Querol et al., 1999; Driesel, 2010
Charcoal type I	E Laurasia	China(Shandong mining)	35.35	116.42	16.35	85.65	Taiyuan Fm	C	Querol et al., 1999; Liu et al., 2004; Driesel, 2010
Charcoal type I	E Laurasia	China(Pingsdingshan Coalfield)	33.8	113.25	16.19	82.49	Taiyuan Fm	C	Zhou et al., 1990 (In Chinese); Driesel, 2010
Charcoal type I	E Laurasia	China(Xingtai Coalfield)	37	114.48	18.54	85	Taiyuan Fm	C	Sun et al., 2002; Driesel, 2010
Charcoal type I	S Laurasia	US(Appalachian Basin)	40.74	-79.86	-5.36	-15.65	Monogahela Gp	C	Ehle et al., 2003; Driesel, 2010
Charcoal type I	S Laurasia	Czech Republic(Kladno-Rakovnik Basin)	50.21	14.09	4.39	22.86	Slaný Fm	C	Lojka et al., 2009; Lojka et al., 2010
Pyrogenic PAHs	S Laurasia	Ukraine(Donets Basin)	48.69	39.45	10.6	36.96	unknow	C	Izart et al., 2006; Izart et al., 2012
Charcoal type I	S Laurasia	Czech Republic(Intra-Sudetic Basin)	50.51	15.94	4.67	22.75	Chvale'c Fm & Odolov Fm	C	Sýkorová et al., 2016; Kříbek et al., 2021
Charcoal type II	E Laurasia	China(Yuzhou Coalfield, North China Basin)	34.27	113.44	16.53	82.87	Benxi Fm	MS	Lu et al., 2021
Charcoal type I	S Laurasia	US(Jefferson County, Ohio)	40.08	-104.93	3.35	-32.6	Conemaugh Gp	C	Dimichele et al., 1996
Charcoal type I	S Laurasia	Poland(Lublin Coal Basin)	51.3	23	7.2	26.52	Lublin Fm	C	Parzentny et al., 2018
Charcoal type I	S Laurasia	UK(Yorkshire)	53.7	-1.45	4.97	11.6	Low Bamsley Seam	C	Scott, 2022
Charcoal type I	S Laurasia	US(Appalachian Basin)	37.65	-80.6	-8.04	-17.3	Conemaugh Fm	C	Glasspool and Scott, 2010; Glasspool et al., 2015
Charcoal type I	S Laurasia	US(Appalachian Coalfield, Ohio)	36.98	-81.14	-8.51	-17.96	Washington Fm & Dunkard Gp	C	Glasspool and Scott, 2010; Glasspool et al., 2015
Charcoal type I	S Laurasia	US(Appalachian Coalfield, Ohio)	39.42	-76.83	-7.3	-13.21	Glenshaw Fm & Conemaugh Gp	C	Glasspool and Scott, 2010; Glasspool et al., 2015
Charcoal type I	S Laurasia	US(Eastern Coalfield, Illinois Basin)	41.72	-88.29	-1.93	-21.08	Mattoon Fm	C	Glasspool and Scott, 2010; Glasspool et al., 2015
Charcoal type I	S Laurasia	Germany(Saar Coalfield)	49.5	6.79	1.89	17.46	Stephanian A Coals	C	Prange, 1989
Charcoal type I	S Laurasia	France(Massif Central, Ales Basin)	48.49	2.67	0.3	15.06	Samples A30-36 (one seam)	C	Copard et al., 2002
Charcoal type I	S Laurasia	US(Somerset County, Pennsylvania)	40.04	-79.05	-6.23	-15.32	Monongahela Gp	C	Hower et al., 2022
Charcoal type I	S Laurasia	US(West Virginia)	39.51	-80.16	-6.43	-16.31	Monongahela Gp	C	Hower et al., 2022
Charcoal type I	S Laurasia	US(Belmont County, Ohio)	40.33	-82.78	-4.92	-17.88	Monongahela Gp	C	Hower et al., 2022
Charcoal type I	S Laurasia	US(New Era Mine, Illinois Basin)	37.81	-88.62	-5.31	-23.07	unknow	C	Presswood et al., 2016
Charcoal type I	E Laurasia	China(Yaogou mine)	39.53	111.19	19.22	83.9	Taiyuan Fm	C	This study
Charcoal type I - pyrogenic inertinite from coals								CL:clay	
Charcoal type II - fossil charcoal from elastic sediments								LS:limestone	
Pyrogenic PAHs - Pyrogenic polycyclic aromatic hydrocarbons								C:coal	
								MS:mudstone	