

The Hopewell Comet Airburst Event

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Yorktown Earthwork,
 Delaware Co., Indiana

Depth (cm)	Pt (ppb)	Ir (ppb)
9-15	0.27	BD*
25-30	0.21	BD*
38-53	0.31	BD*

Miami Fort,
 Hamilton Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
20-36	1.88	0.35
36-45	1.41	0.38
60-65	1.33	0.36

Jennison Guard,
 Dearborn Co., Indiana

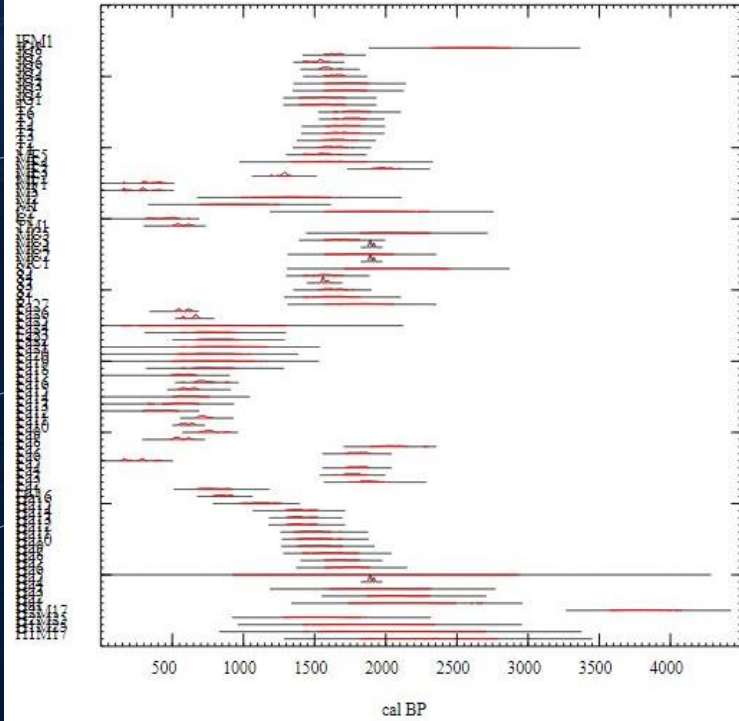
Turner,
 Hamilton Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
0-25	1.03	0.14
25-32	0.96	0.19
32-57	6.23	1.08

Moundview,
 Hamilton Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
0-12	1.46	0.14
12-20	1.14	0.19
20-32	3.70	1.08

Posterior Probability Distribution of Calibrated Radiocarbon Dates Indicative of Area Occupation - Calib 7.1



Beech Tree,
 Clermont Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
0-14	0.33	0.04
40-60	1.40	0.26
70-75	1.60	0.34

Junction Earthworks and
 Steel Earthworks,
 Ross Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
0-27	0.28	0.06
27-38	0.44	0.08
38-50	0.70	0.10

Indian Fort Mountain,
 Madison Co., Kentucky

Depth (cm)	Pt (ppb)	Ir (ppb)
0-7	0.30	0.04
7-9	0.71	0.15
9-12	0.89	0.21
12-22	0.73	0.30

Joe Thatcher Hilltop
 Enclosure and K Site,
 Hocking Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
0-10	0.39	0.10
10-24	0.43	0.07
24-33	0.53	0.11

Conus Mound and
 Quadranaou Mound,
 Washington Co., Ohio

Depth (cm)	Pt (ppb)	Ir (ppb)
21	1.05	0.08
33	0.48	0.10
68	0.27	0.06

Around CE 550, we know the Hopewell Culture suffered a significant decline, but never what specifically caused the loss. We were aware of an extreme weather event but wanted to know if something significant had caused it. Other theories included a powerful volcanic eruption in Iceland, but my team had another theory. Using inductively coupled plasma mass spectrometry (ICP-MS) elemental analysis, scanning electron microscopy (SEM), and energy dispersive analysis of X-rays (EDAX), we found positive Pt and Ir anomalies, micro-meteorites, micro-tekites, and macro-meteorites in archaeological strata from across the northern Western Hemisphere, which date just prior to the CE 535-536 extreme weather event. These independent proxies suggest a time-correlative atmospheric deposition of meteoric debris. The greatest concentration of Pt, Ir, and meteoric debris occur in the Ohio River valley and likely resulted from a high altitude (i.e., > 5 km) airburst.