

# **CALPUFF Results for Indiana's non-EGU sources - Number of Days over 0.5 deciview impacts at surrounding Class 1 Areas**

Nox/SO2 modeling

Class 1 Areas	ALCOA			BP Products - Whiting			Carmeuse			Eli Lilly - Clinton			Essroc - Logansport			Essroc - Speed			GE Plastics		
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Boundary Waters - MN		3		0	0	1	0	0	0	0	0	0				0	0	0	0	0	0
Brigantine Wild. - NJ		10		0	0	0	0	0	0	0	0	0				1	1	0	0	0	0
Dolly Sods - WV		13		0	0	0	0	0	0	0	0	0				0	0	1	0	0	0
Great Gulf Wild - NH		6		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
Great Smokey Mount - TN		35		0	0	0	0	0	0	0	0	0				0	1	2	0	0	0
Hercules - Glades Wild. - MO		10		0	0	0	0	0	0	0	0	0				0	0	0	0	0	1
Isle Royale - MI		8		0	0	0	0	0	0	0	0	0				0	1	0	0	0	0
James River Face - VA		9		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
Linville Gorge - NC		18		0	0	0	0	0	0	0	0	0				0	0	0	0	0	1
Lye Brook Wild. - VT		12		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
Mammoth Caves - KY		109		0	0	0	0	0	0	0	0	1				22	27	21	6	9	4
Mingo Wild. - MO		29		0	0	0	0	0	0	0	1	1				3	6	3	2	3	1
Seney Wild. - MI		10		0	2	3	0	0	0	0	0	1				0	0	0	0	0	0
Shenandoah N.P. - VA		16		0	0	0	0	0	0	0	0	0				0	1	0	0	0	0
Sipsey Wild. - AL		29		0	0	0	0	0	0	0	0	0				3	0	4	1	0	0
Voyageurs N.P. - MN		2		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
Days per year > 0.5	0	319	0	0	2	4	0	0	0	0	1	3				29	37	31	9	12	7
Total Days ('02-'04) > 0.5		319			6			0			4						97			28	

Class 1 Areas	ISG Burns Harbor			ISG Indiana Harbor			ISPAT Inland			Lehigh			Lonestar			Purdue			US Steel		
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Boundary Waters - MN	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brigantine Wild. - NJ	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dolly Sods - WV	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Gulf Wild - NH	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Smokey Mount - TN	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hercules - Glades Wild. - MO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isle Royale - MI	2	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
James River Face - VA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Linville Gorge - NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lye Brook Wild. - VT	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mammoth Caves - KY	7	1	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Mingo Wild. - MO	5	3	5	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0
Seney Wild. - MI	12	17	16	0	0	0	0	2	1	0	0	0	0	0	0	0	1	1	0	0	1
Shenandoah N.P. - VA	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sipsey Wild. - AL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Voyageurs N.P. - MN	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days per year > 0.5 deciviews	37	41	44	0	0	0	0	2	1	1	0	0	0	1	0	1	1	2	0	0	1
Total Days ('02-'04) > 0.5 deciviews		122			0			3			1			1			4			1	

- Receptors are Class 1 areas only

- States compare 98th percentile of CALPUFF results against contribution threshold of 0.5 deciviews.

- Sources that contributes greater than 0.5 deciviews more than 7 days per year at any Class 1 area would likely contribute to visibility impairment.

## PM10 modeling

PM10 modeling	ALCOA			BP Products - Whiting			Carmeuse			Eli Lilly - Clinton			Essroc - Logansport			Essroc - Speed			GE Plastics		
	AGC Div. - Alcoa																				
Class 1 Areas	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Boundary Waters - MN																					
Brigantine Wild. - NJ																					
Dolly Sods - WV																					
Great Gulf Wild - NH																					
Great Smokey Mount - TN																					
Hercules - Glades Wild. - MO																					
Isle Royale - MI																					
James River Face - VA																					
Linville Gorge - NC																					
Lye Brook Wild. - VT																					
Mammoth Caves - KY																					
Mingo Wild. - MO																					
Seney Wild. - MI																					
Shenandoah N.P. - VA																					
Sipsey Wild. - AL																					
Voyageurs N.P. - MN																					
Days per year > 0.5	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
Total Days ('02-'04) > 0.5	0			0			0			0						0			0		

[illegible]

- Receptors are Class 1 areas only

- States compare 98th percentile of CALPUFF results against contribution threshold of 0.5 deciviews.

- Sources that contributes greater than 0.5 deciviews more than 7 days per year at any Class 1 area would likely contribute to visibility impairment.

**CALPUFF Results for Indiana's non-EGU sources - Number of Days over 0.5 deciview impacts at surrounding Class 1 Areas**

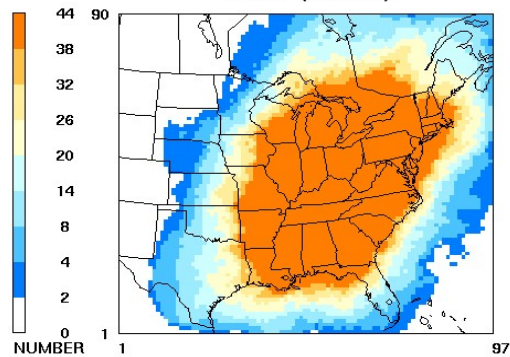
PM2.5 modeling	ALCOA			BP Products - Whiting			Carmeuse			Eli Lilly - Clinton			Essroc - Logansport			Essroc - Speed			GE Plastics		
	AGC Div. - Alcoa																				
Class 1 Areas	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Boundary Waters - MN																					
Brigantine Wild. - NJ																					
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Seney Wild. - MI																					
Shenandoah N.P. - VA																					
Sipsey Wild. - AL																					
Voyageurs N.P. - MN																					
Days per year > 0.5	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
Total Days ('02-'04) > 0.5	0			0			0			0						0			0		

[illegible]

- Receptors are Class 1 areas only
- States compare 98th percentile of CALPUFF results against contribution threshold of 0.5 deciviews.
- Sources that contributes greater than 0.5 deciviews more than 7 days per year at any Class 1 area would likely contribute to visibility impairment.

### agcalcoain

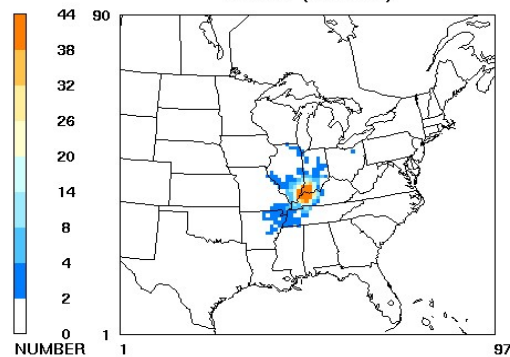
Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



December 30, 2002 0:00:00  
Min= 0 at (1,1), Max= 2733 at (49,43)

### alcoawarin

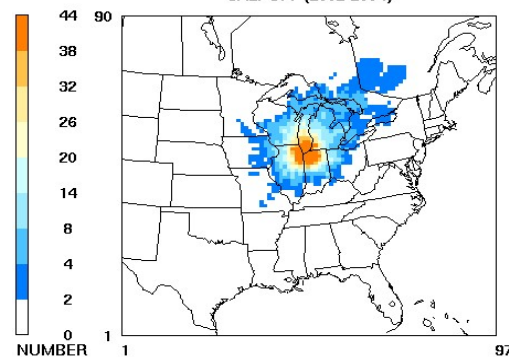
Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



December 30, 2002 0:00:00  
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### bpproductsin

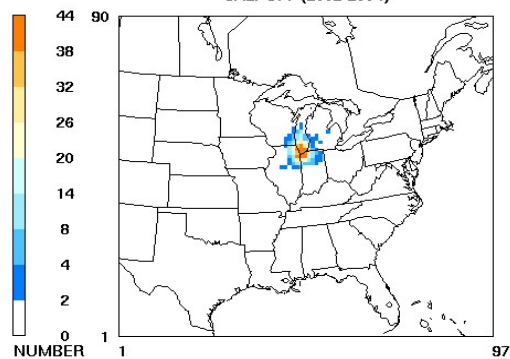
Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



December 30, 2002 0:00:00  
Min= 0 at (1,1), Max= 141 at (48,52)

### carmeusein

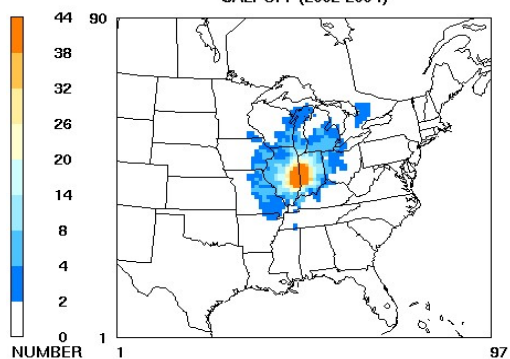
Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



December 30, 2002 0:00:00  
Min= 0 at (1,1), Max= 143 at (48,52)

### elilillyin

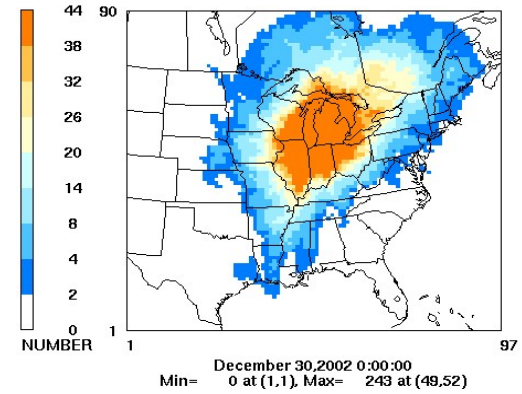
Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



December 30, 2002 0:00:00  
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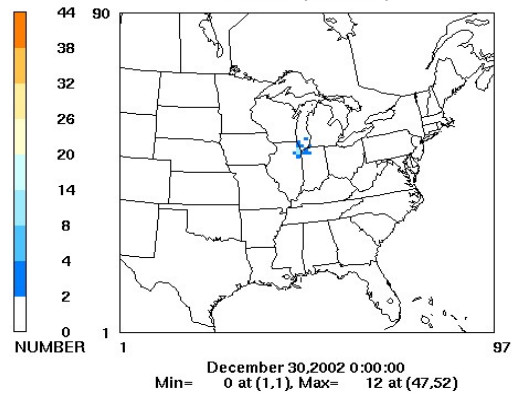
### isgburnin

Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



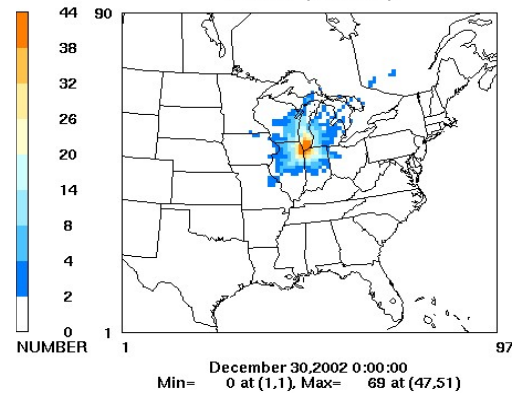
### isgindharin

Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



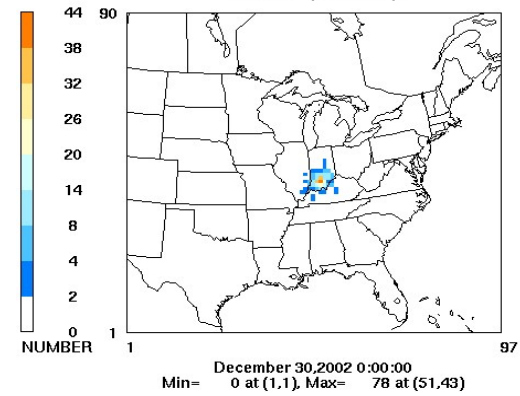
### ispatinlandin

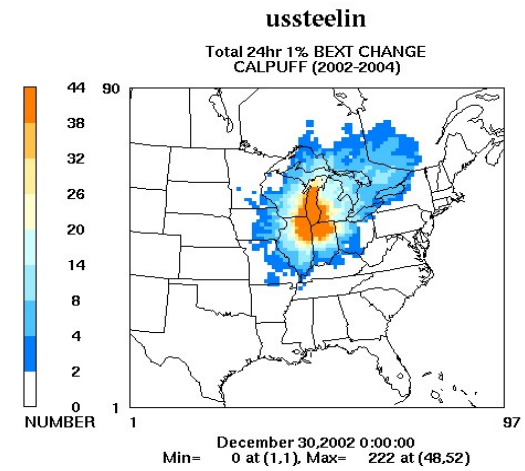
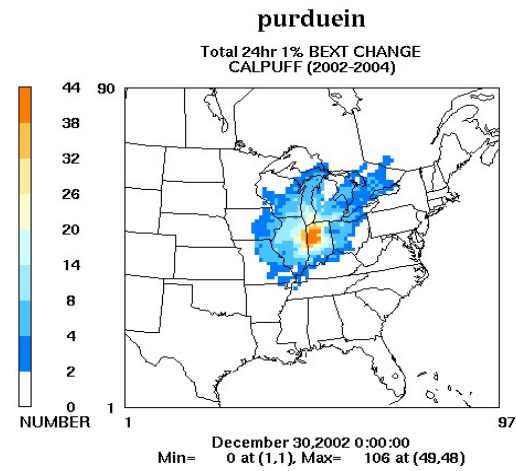
Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)



### lehighin

Total 24hr 1% BEXT CHANGE  
CALPUFF (2002-2004)





- Plots are a combination of modeling results for 2002 - 2004
- Receptors are MRPO grid
- Plots represent the light extinction coefficient, higher number represents greater extinction

Emissions for BART eligible non-EGU sources in Indiana (taken from surveys)

	X	Y	Base Elevation	NOx				SO2				Stack Height	Stack Diameter	Stack Gas Temperature	Velocity
				Pot. g/sec	Act. Max g/sec	Act. Avg g/sec	24 hr g/sec	Pot. g/sec	Act. Max g/sec	Act. Avg g/sec	24 hr g/sec				
AGC-ALCOA #2-#3	844.09	-185.30	121.40	294.98	188.69	134.21	295.09	2259.87	1312.50	1179.71	2261.20	132.07	5	425	19.00
ALCOA-Warrick	844.24	-184.90	119.15	5.97	2.66	1.85	N/A	136.61	99.63	93.83	N/A	28.07	1.13	464.67	3.05
BP-Whiting	787.83	225.64	177.00	183.31	32.31	25.70	183.44	15.70	3.51	1.74	17.69	50.18	2.03	849.86	6.69
Carmeuse	817.00	225.95	177.00	N/A	29.87	27.48	N/A	48.30	16.36	15.05	50.40	26	2	471.8	3.4
Eli Lilly-Clinton	817.40	13.77	185.41	9.44	21.79	19.85	39.07	158.52	48.93	46.37	158.64	26.82	1.30	444.83	11.02
ESSROC-5															
ESSROC-8	974.63	-114.71	191.49	103.51	N/A	N/A	N/A	367.197	N/A	N/A	N/A	50.76	2.71	467.88	19.24
GE Plastics (revised)	793.80	-187.17	116.37	69.37	17.24	15.15	69.41	162.24	112.15	83.72	162.33	45.23	1.76	574.17	23.52
GE Plastics	793.80	-187.17	116.37	69.37	17.24	15.15	69.41	337.82	112.15	83.72	338.02	45.23	1.76	574.17	23.52
ISG-Burns Harbor	816.60	225.21	177.00	0.38	161.29	130.64	192.28	97.69	540.68	487.70	604.82	46.75	4.21	597.55	11.90
ISG-Indiana Harbor	790.14	225.8	177.00	0.75	22.22	19.09	30.19	N/A	25.50	19.69	25.58	53.96	6.15	626	10.36
Ispat Inland	791.56	225.83	177.00	N/A	77.56	77.56	85.52	N/A	44.59	37.16	57.41	36.87	3.25	560.54	15.29
Lehigh Cement	909.58	-86.8	210.24	42.24	25.91	25.27	44.93	29.89	2.09	2.04	29.91	30.48	1.68	430.78	20.36
LoneStar	862.23	5.67	230.01	77.625	61.78	51.33	87.192	33.6375	7.79	5.99	31.50	68.58	3.51	458	30.48
Purdue	850.05	93.32	195.72	31.51	10.34	9.36	31.53	187.85	32.81	32.37	187.96	76.17	2.59	430.78	22.40
U.S. Steel (revised)	803.96	220.28	177.00	78.04	48.15	44.21	7.80	43.17	48.55	45.58	4.88	48.9	3.1	402.3	10.1
U.S. Steel	803.96	220.28	177.00	144.66	93.26	86.36	14.51	114.66	165.64	140.42	12.02	48.9	3.1	402.3	10.1

	X	Y	Base Elevation	PM10				PM2.5				Stack Height	Stack Diameter	Stack Gas Temp	Velocity
				Pot. g/sec	Act. Max g/sec	Act. Avg g/sec	24 hr g/sec	Pot. g/sec	Act. Max g/sec	Act. Avg g/sec	24 hr g/sec				
AGC-ALCOA	844.09	-185.30	121.40									132.07	5	425	19.00
ALCOA-Warrick	844.24	-184.90	119.15									28.07	1.13	464.67	3.05
BP-Whiting	787.83	225.64	177.00									50.18	2.03	849.86	6.69
Carmeuse	817.00	225.95	177.00									26	2	471.8	3.4
Eli Lilly-Clinton	817.40	13.77	185.41									26.82	1.30	444.83	11.02
ESSROC-5															
ESSROC-8	974.63	-114.71	191.49									50.76	2.71	467.88	19.24
GE Plastics (revised)	793.80	-187.17	116.37									45.23	1.76	574.17	23.52
ISG-Burns Harbor	816.60	225.21	177.00									46.75	4.21	597.55	11.90
ISG-Indiana Harbor	790.14	225.8	177.00									53.96	6.15	626	10.36
Ispat Inland	791.56	225.83	177.00									36.87	3.25	560.54	15.29
Lehigh Cement	909.58	-86.8	210.24									30.48	1.68	430.78	20.36
LoneStar	862.23	5.67	230.01									68.58	3.51	458	30.48
Purdue	850.05	93.32	195.72									76.17	2.59	430.78	22.40
U.S. Steel (revised)	803.96	220.28	177.00									48.9	3.1	402.3	10.1