Supporting Information for

**A methodology to constrain carbon dioxide emissions from coal-fired power plants using
satellite observations of co-emitted nitrogen dioxide**

Fei Liu^{1,2}, Bryan N. Duncan², Nickolay A. Krotkov², Lok N. Lamsal^{1,2}, Steffen Beirle³, Debora Griffin⁴, Chris A. McLinden⁴, Daniel L. Goldberg⁵, and Zifeng Lu⁵

¹Universities Space Research Association (USRA), Goddard Earth Sciences Technology and Research (GESTAR),
Columbia, MD, USA

²Goddard Space Flight Center, Greenbelt, MD, USA

³Max-Planck-Institut für Chemie, Mainz, Germany

⁴Air Quality Research Division, Environment and Climate Change Canada, Toronto, ON, Canada

⁵Energy Systems Division, Argonne National Laboratory, Lemont, IL, USA

Contents of this file

Table S1

Name	Lat	Lon	NO _x Lifetime (h)			NO ₂ Mass (10 ²⁸ molec)										
			Value	Num ^a	SD ^a	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
						*	*	*	*	*	*	*	*	*	*	*
Big Stone	45.3	-96.5	3.2	3	1.0	3.4	4.0	-999	5.1	-999	-999	2.1	-999	2.4	1.8	-999
Colstrip	45.9	-106.6	-999	0	0.0	5.7	5.1	3.9	3.5	2.4	2.4	1.9	2.6	2.7	-999	-999
Craig	40.5	-107.6	-999	0	0.0	5.6	5.7	4.4	4.6	4.6	4.7	3.7	4.3	4.0	-999	-999
Crystal River	29.0	-82.7	2.1	3	0.4	11.1	10.2	-999	7.9	5.9	4.7	3.9	3.7	8.2	9.0	10.0
Four Corners & San Juan	36.7	-108.5	2.7	2	0.1	28.1	26.7	25.2	19.3	18.3	17.4	16.7	14.9	11.7	10.1	9.4
George Neal Gerald Gentleman Station	42.3	-96.4	3.4	1	0.0	6.6	4.4	3.6	2.5	2.5	-999	-999	-999	2.3	3.4	-999
Harrington	41.1	-101.1	2.2	1	0.0	2.9	3.6	3.5	4.1	3.9	3.8	4.1	2.5	2.4	-999	-999
Independence	35.3	-101.7	1.9	2	0.4	2.5	2.3	2.4	2.3	2.4	2.8	2.6	2.0	-999	-999	1.1
Intermountain	39.2	-111.0	2.5	5	0.5	12.2	12.4	11.7	11.2	11.5	9.8	6.4	5.9	5.8	5.6	5.5
James H Miller Jr	35.7	-91.4	2.2	2	0.6	5.1	4.3	3.9	2.9	2.4	2.4	2.4	2.1	1.7	1.9	3.0
Jeffrey Energy Center	39.5	-112.6	2.3	2	0.3	8.8	8.9	8.2	8.6	9.6	8.0	7.4	7.6	7.7	6.6	3.7
Jim Bridger	33.6	-87.1	2.0	5	0.5	7.8	7.7	6.4	5.8	7.3	6.1	5.9	5.0	5.5	-999	4.8
Joppa Steam	39.3	-96.1	-999	0	0.0	3.8	5.0	6.2	5.1	2.9	-999	-999	-999	-999	2.9	1.9
Laramie River	41.7	-108.8	2.0	5	0.6	6.5	4.9	4.3	3.6	3.5	2.4	2.6	2.8	-999	2.3	-999
Martin Lake	42.1	-104.9	1.9	2	0.1	6.2	5.9	4.9	4.3	4.7	3.9	3.7	-999	2.1	2.5	2.9
Monticello	32.3	-94.6	2.3	4	0.5	9.6	9.6	8.5	6.6	6.5	-999	9.7	7.2	2.9	-999	-999
Navajo	33.1	-95.0	3.2	4	0.8	5.5	5.2	4.7	4.8	4.8	4.1	3.7	4.3	4.0	3.3	2.8
Powerton	36.9	-111.4	2.3	1	0.0	3.4	3.4	2.6	2.2	1.9	2.1	2.0	1.7	2.5	2.1	1.8
Rockport	40.5	-89.7	2.4	6	0.8	10.2	9.9	10.0	8.7	8.1	5.5	5.1	4.3	5.0	4.8	5.5
White Bluff	37.9	-87.0	2.4	3	1.7	6.1	6.3	5.8	5.0	3.4	2.4	1.9	2.3	-999	-999	2.1
	34.4	-92.1	4.3	4	0.6	6.9	7.1	6.2	6.4	5.9	5.9	6.5	6.0	5.5	3.4	3.5

^aNum: the number of fits for wind direction sectors with a good fit performance; SD: the standard deviation of fits for wind direction sectors with a good fit performance. The fit results without a good fit performance (see criteria in Section 2.1) are recorded as -999.

Table S1. Summary of power plants investigated in this study.