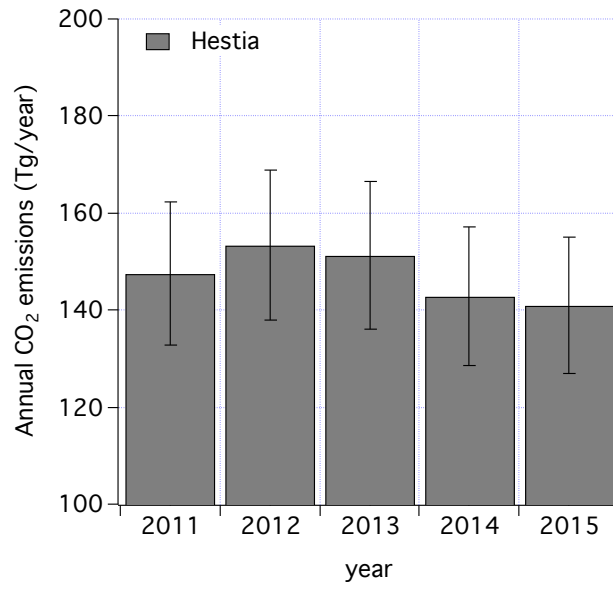
1   **Supplemental material**

2   Table S1. Lists of $XCH_{4(XS)}$—$XCO_{2(XS)}$ regression slopes (R), uncertainties (R_err), Hestia CO_2

3   emissions (ECO_2), inferred CH_4 emissions (ECH_4), and uncertainties (ECH_4_err) for the South

4   Coast Air Basin from September 2011 to August 2015.

Month	R (ppb/ppm)	R_err (ppb/ppm)	Hestia ECO_2 (Tg/month)	ECH_4 (Gg/month)	ECH_4_err (Gg/month)
Sep-11	5.9	0.3	11.9	25.4	2.8
Oct-11	6.7	0.2	11.8	29.0	3.1
Nov-11	6.3	0.2	12.2	27.9	3.0
Dec-11	6.8	0.3	13.8	33.8	3.6
Jan-12	6.3	0.1	14.1	32.3	3.2
Feb-12	6.4	0.2	12.7	29.7	3.1
Mar-12	5.9	0.2	13.0	27.9	3.0
Apr-12	6.3	0.1	12.3	28.2	2.9
May-12	5.8	0.2	12.4	26.1	2.7
Jun-12	5.9	0.2	12.1	25.8	2.7
Jul-12	6.0	0.2	12.2	26.6	2.8
Aug-12	7.4	0.3	13.1	35.2	3.8
Sep-12	6.7	0.2	12.5	30.6	3.1
Oct-12	6.2	0.1	12.7	28.5	2.9
Nov-12	5.8	0.1	12.6	26.4	2.7
Dec-12	7.8	1.0	13.7	38.7	6.4
Jan-13	6.5	0.2	14.1	33.7	3.5
Feb-13	6.8	0.1	12.6	31.2	3.2
Mar-13	6.4	0.1	12.9	29.9	3.0
Apr-13	6.2	0.1	12.1	27.2	2.8
May-13	6.1	0.2	12.0	26.7	2.9
Jun-13	5.6	0.2	11.7	24.1	2.5
Jul-13	6.3	0.2	12.1	27.8	2.9
Aug-13	6.4	0.1	12.8	29.7	3.0
Sep-13	6.9	0.1	12.3	30.6	3.1
Oct-13	6.6	0.1	12.3	29.7	3.0
Nov-13	7.2	0.3	12.5	32.4	3.5
Dec-13	6.5	0.1	13.8	32.5	3.3
Jan-14	6.8	0.1	13.4	33.2	3.4
Feb-14	6.5	0.2	11.9	28.4	2.9
Mar-14	5.4	0.4	12.2	23.9	3.0
Apr-14	6.3	0.1	11.5	26.3	2.7
May-14	6.1	0.1	11.4	25.2	2.5
Jun-14	6.5	0.1	11.1	26.1	2.7
Jul-14	6.6	0.2	11.4	27.3	2.8
Aug-14	7.1	0.2	12.1	31.1	3.2
Sep-14	7.3	0.2	11.6	30.6	3.2
Oct-14	6.6	0.2	11.6	28.1	3.0
Nov-14	7.3	0.2	11.8	31.2	3.2
Dec-14	6.3	0.3	13.0	29.9	3.3

Jan-15	6.7	0.2	13.2	32.0	3.3
Feb-15	6.5	0.2	11.8	27.8	2.9
Mar-15	6.3	0.1	12.0	27.6	2.8
Apr-15	6.0	0.1	11.3	24.7	2.5
May-15	6.6	0.2	11.2	27.0	2.8
Jun-15	5.9	0.2	10.9	23.4	2.4
Jul-15	6.1	0.3	11.3	24.9	2.8
Aug-15	7.1	0.3	11.9	30.5	3.3

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3   Figure S1. Hestia annual CO_2 emissions (in units of Tg per year) from the South Coast Air Basin
4   from 2011 to 2015 (http://hestia.project.asu.edu). Emissions from 2013 to 2015 were
5   extrapolated using statewide fuel consumption data provided by the Energy Information
6   Administration.
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