



*Supplement of*

## **Monthly trends of methane emissions in Los Angeles from 2011 to 2015 inferred by CLARS-FTS observations**

**Clare K. Wong et al.**

*Correspondence to:* Clare K. Wong (wclare@gmail.com, clare.wong@csun.edu)

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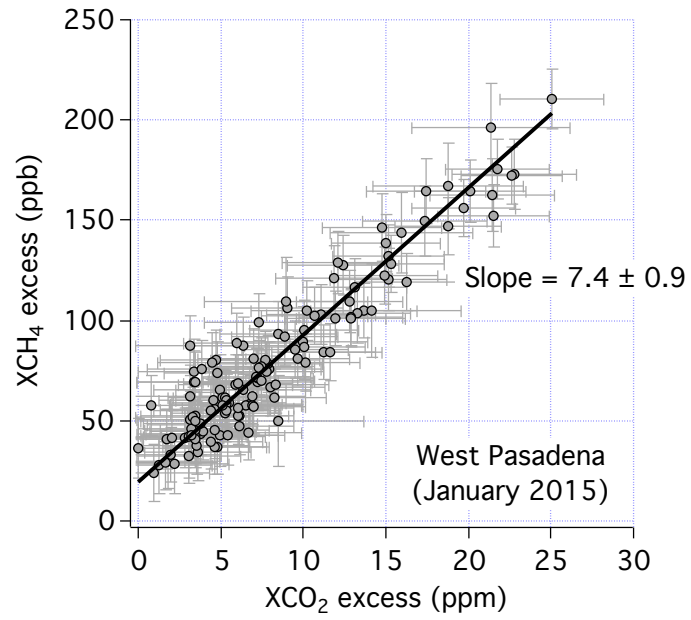
1 **Supplemental material**

2 Table S1. Lists of  $XCH_{4(XS)} - XCO_{2(XS)}$  regression slopes (R), uncertainties (R\_err), Hestia CO<sub>2</sub>  
 3 emissions (ECO<sub>2</sub>), inferred CH<sub>4</sub> emissions (ECH<sub>4</sub>), and uncertainties (ECH<sub>4\_err</sub>) for the South  
 4 Coast Air Basin from September 2011 to August 2015.

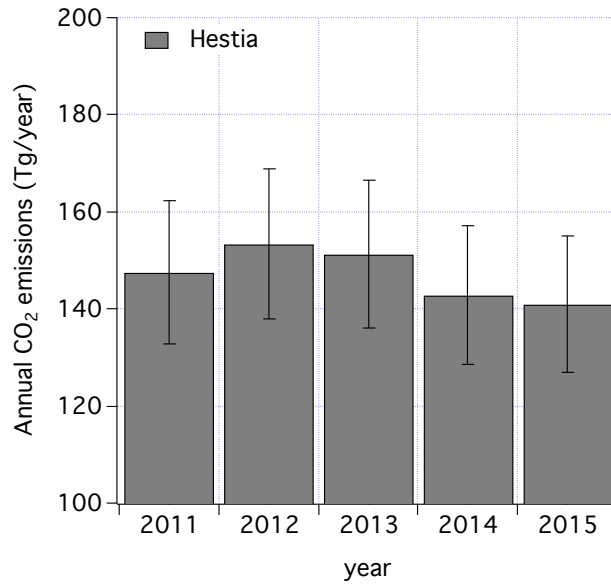
Month	R (ppb/ppm)	R_err (ppb/ppm)	Hestia ECO <sub>2</sub> (Tg/month)	ECH <sub>4</sub> (Gg/month)	ECH <sub>4_err</sub> (Gg/month)
Sep-11	5.9	0.3	11.9	25.4	2.8
Oct-11	6.7	0.2	11.8	29.0	3.1
Nov-11	6.3	0.2	12.2	27.9	3.0
Dec-11	6.8	0.3	13.8	33.8	3.6
Jan-12	6.3	0.1	14.1	32.3	3.2
Feb-12	6.4	0.2	12.7	29.7	3.1
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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2 Figure S1. Scatter plot showing an example of correlation between XCH<sub>4</sub> excess and XCO<sub>2</sub>  
3 excess for CLARS-FTS west Pasadena target in January 2015. Regression slope of 7.4±0.9 was  
4 observed during this period.



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Figure S2. Hestia annual CO<sub>2</sub> emissions (in units of Tg per year) from the South Coast Air Basin from 2011 to 2015 (<http://hestia.project.asu.edu>). Emissions from 2013 to 2015 were extrapolated using statewide fuel consumption data provided by the Energy Information Administration.