



Supplement of

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

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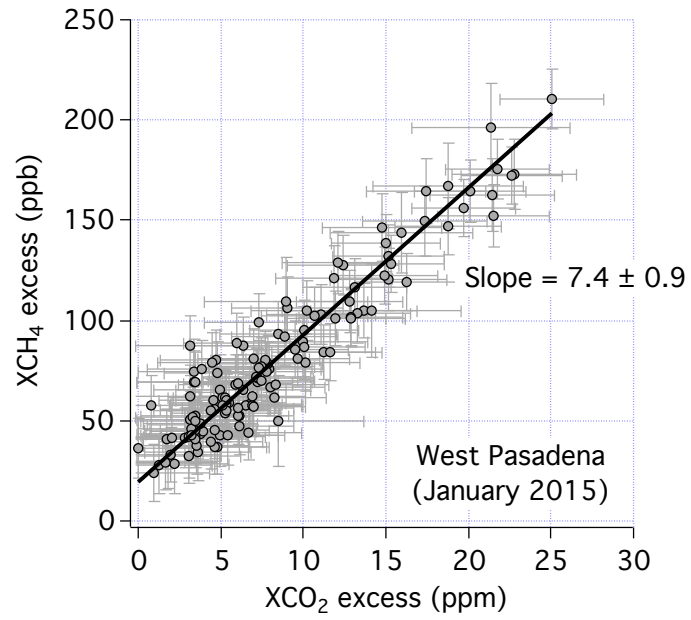
1 **Supplemental material**

2 Table S1. Lists of $XCH_{4(XS)} - XCO_{2(XS)}$ regression slopes (R), uncertainties (R_err), Hestia CO₂
 3 emissions (ECO₂), inferred CH₄ emissions (ECH₄), and uncertainties (ECH_{4_err}) for the South
 4 Coast Air Basin from September 2011 to August 2015.

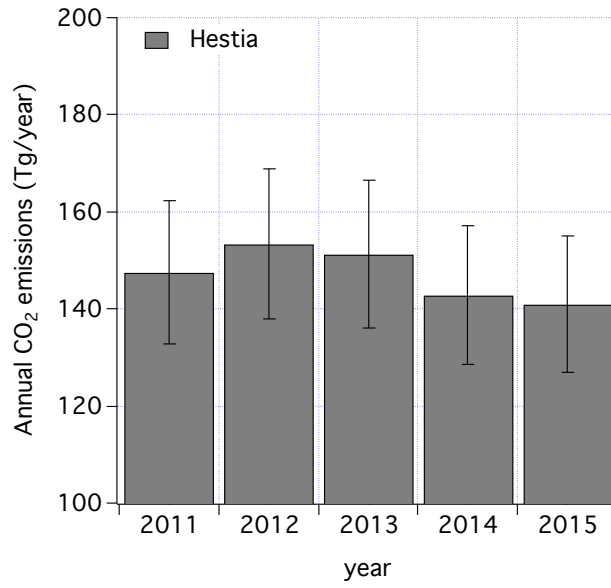
| Month | R (ppb/ppm) | R_err (ppb/ppm) | Hestia ECO ₂ (Tg/month) | ECH ₄ (Gg/month) | ECH _{4_err} (Gg/month) |
|--------|----------------|--------------------|---------------------------------------|--------------------------------|------------------------------------|
| Sep-11 | 5.9 | 0.3 | 11.9 | 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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2 Figure S1. Scatter plot showing an example of correlation between XCH₄ excess and XCO₂
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 CO₂ 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.