Global Methane Budget
Media

All materials are embargoed until Monday, 12 December 2016, at 1:00 am Central European Time.

Methane budget – Key messages

Global methane budget and recent trends

- Unlike CO_2, atmospheric methane concentrations are now rising faster than at any time in the past two decades and, since 2014, are approaching the most greenhouse-gas-intensive scenarios. The reasons for this increase are still debated.

- Our new analysis suggests that a likely explanation of the recent rapid rise in global methane concentrations is in large part driven by increased biogenic emissions mostly from agriculture, rather than increases from fossil fuels or wetlands

- A possible slower destruction of methane in the atmosphere (sinks) could also be a contributor of the observed atmospheric increase.

- Methane global emissions are estimated at 559 $TgCH_4/yr$ [540-570] for 2003-2012 as inferred by an ensemble of 'top-down' approaches.

- Methane is a potent greenhouse gas 28 times more powerful than carbon dioxide on a 100 year time horizon, and is concentration in the atmosphere has increased by 150% since 1750

Major sources of methane

- Anthropogenic emissions represent about 60% of total methane emissions.

- Emissions from agriculture activities and waste management (enteric fermentation, manure management, rice cultivation, landfills and waste-water handling) represent about 60% of the anthropogenic emissions. Livestock (enteric fermentation and manure management) contribute one third of anthropogenic emissions. Rice cultivation about 10% of anthropogenic emissions.

- Fossil fuel (coal, oil and gas) production and use have increased over the past decade and contributed about one third of anthropogenic methane emissions

Dominant regional and national-scale sources of methane

- Please take your own picks from the bar regional figure in paper.

Policy relevance

- Methane mitigation offers rapid climate benefits and economic, health and agricultural co-benefits that are highly complementary to CO_2 mitigation.

This media release is part of the Global Methane Budget 2016, a regular update by a consortium of international group of scientists under the umbrella of the Global Carbon Project. It is based on the analyses published here:

- Marielle Saunois, Philippe Bousquet, Ben Poulter, Anna Peregon, Philippe Ciais, Josep G.

Canadell, Edward J. Dlugokencky, Giuseppe Etiope, David Bastviken, Sander Houweling, Greet Janssens-Maenhout, Francesco N. Tubiello, Simona Castaldi, Robert B. Jackson, Mihai Alexe, Vivek K. Arora, David J. Beerling, Peter Bergamaschi, Donald R. Blake, Gordon Brailsford, Victor Brovkin, Lori Bruhwiler, Cyril Crevoisier, Patrick Crill, Kristofer Covey, Charles Curry, Christian Frankenberg, Nicola Gedney, Lena Höglund-Isaksson, Misa Ishizawa, Akihiko Ito, Fortunat Joos, Heon-Sook Kim, Thomas Kleinen, Paul Krummel, Jean-François Lamarque, Ray Langenfelds, Robin Locatelli, Toshinobu Machida, Shamil Maksyutov, Kyle C. McDonald, Julia Marshall, Joe R. Melton, Isamu Morino, Vaishali Naik, Simon O'Doherty, Frans-Jan W. Parmentier, Prabir K. Patra, Changhui Peng, Shushi Peng, Glen P. Peters, Isabelle Pison, Catherine Prigent, Ronald Prinn, Michel Ramonet, William J. Riley, Makoto Saito, Monia Santini, Ronny Schroeder, Isobel J. Simpson, Renato Spahni, Paul Steele, Atsushi Takizawa, Brett F. Thornton, Hanqin Tian, Yasunori Tohjima, Nicolas Viovy, Apostolos Voulgarakis, Michiel van Weele, Guido R. van der Werf, RayWeiss, Christine Wiedinmyer, David J. Wilton, Andy Wiltshire, Doug Worthy, Debra Wunch, Xiyan Xu, Yukio Yoshida, Bowen Zhang, Zhen Zhang, Qiuan Zhu (2016), Global Methane budget 2000-2012. **Earth System Science Data**.

- Saunois M, RB Jackson, P Bousquet, B Poulter, JG Canadell 2016 The growing role of methane in anthropogenic climate change. **Environmental Research Letters** 11, 120207, doi: 10.1088/1748-9326/11/12/120207. http://iopscience.iop.org/article/10.1088/1748-9326/11/12/120207

Access:

- Data and figures: http://www.globalcarbonproject.org/methanebudget
- Data at CDIAC: http://cdiac.ornl.gov/GCP/methanebudget/2016/

Social media:

- Facebook https://www.facebook.com/globalcarbonproject
- Twitter: @gcarbonproject
- Infographics: http://www.globalcarbonatlas.org

Funding disclosure:

- Contributors to the Global Carbon Budget 2016 are funded by research organisations and government departments in multiple countries and supported by their organisations.
- The Global Carbon Atlas is funded by the BNP Paribas Foundation