



## **Estimating methane surface fluxes using GOSAT XCH<sub>4</sub> measurements**

A. Fraser (1), P. Palmer (1), L. Feng (1), R. Parker (2), H. Boesch (2), and A. Cogan (2)

(1) University of Edinburgh, School of GeoSciences, Edinburgh, United Kingdom (ac.fraser@ed.ac.uk), (2) Space Research Centre, University of Leicester, Leicester, United Kingdom

Large uncertainties associated with individual surface methane (CH<sub>4</sub>) sources hamper the interpretation of observed regional and global scale variations of CH<sub>4</sub> concentration. Top-down estimates of surface sources have been limited by sparse data coverage. With the launch of SCIAMACHY (2002), IASI (2006), and GOSAT (2009), space-borne measurements of CH<sub>4</sub> now routinely provide global-coverage. First, we will interpret differences between GOSAT measurements of CH<sub>4</sub> and the GEOS-Chem global 3D transport model. We will also present surface flux estimates of CH<sub>4</sub> inferred from GOSAT and from surface concentration data in conjunction with GEOS-Chem and an ensemble Kalman filter. We use the prior and posterior fluxes in the model and evaluate the agreement with independent surface measurements and total column measurements from the TCCON instruments.