



## Estimating methane surface fluxes using GOSAT XCH4 measurements

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Large uncertainties associated with individual surface methane (CH4) sources hamper the interpretation of observed regional and global scale variations of CH4 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 CH4 now routinely provide global-coverage. First, we will interpret differences between GOSAT measurements of CH4 and the GEOS-Chem global 3D transport model. We will also present surface flux estimates of CH4 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.