

IWGGMS-12

June 7 (Tue) p.m. - 9 (Thu), 2016
Kyoto University, Kyoto, Japan

~ Agenda ~

DAY 1: June 7 (Tue), 2016 (Core session time: 13:00 – 18:00)

12:00 Open

12:00-13:00 Registration *(Poster board ready in Hall I, poster setup available from 12:00)

13:00-13:15 Plenary session– Opening

Chairperson: T. Yokota (NIES, Japan)

Logistics

Tatsuya Yokota, NIES (2 min.)

Welcome speech

Gen Inoue, GOSAT Science Team Chief Scientist (5 min.)

Welcome speech

Ministry of the Environment, Japan (5 min.)

IWGGMS history

Tatsuya Yokota, NIES, IWGGMS-12 Local Organizer (3 min.)

Session I: Past/Present Satellite GHG mission [13:15-14:15]

Chairperson: H. Shimoda (Tokai U., Japan)

1. 13:15-13:30

SCIAMACHY and GOSAT XCO₂ and XCH₄ retrievals: The GHG-CCI CRDP3 data set

Michael Buchwitz, et al. (U. Bremen, Germany)

2. 13:30-13:45

Summary of NIES GOSAT Project: Activities Over the Past Seven Years and Plans for the Next Five Years

Tatsuya Yokota, et al. (NIES, Japan)

3. 13:45-14:00

The Orbiting Carbon Observatory-2 (OCO-2) Version 7 Data Product

David Crisp, et al. (JPL/Caltech, USA)

4. 14:00-14:15

Building capacity to access and use greenhouse gas observations

Takuya Nomoto, et al. (START, Japan)

Session II: SWIR Spectroscopy & Retrieval Algorithms (1) [14:15-15:30]

Chairperson: S. Hayashida (Nara W. U., Japan)

5. 14:15-14:30

How GOSAT has provided uniform-quality spectra and optimized global sampling patterns for seven years

Akihiko Kuze, et al. (JAXA, Japan)

6. 14:30-14:45

Updates to Spectroscopy for the OCO-2 mission

Vivienne Payne, et al. (JPL/Caltech, USA)

7. 14:45-15:00

A New BRDF Model to Reduce Biases in Orbiting Carbon Observatory-2 (OCO-2) Retrievals

Vijay Natraj, et al. (JPL/Caltech, USA)

8. 15:00-15:15

Reprocessed Wavenumbers and their Influence on Bias Correction for OCO-2 v7

Lukas Mandrake, et al. (JPL, USA)

9. 15:15-15:30

FTS methane profile retrieval using dimension reduction method

Johanna Tamminen, et al. (FMI, Finland)

15:30-16:00 Group photo & Coffee & tea break (30 min.)

Session III: SWIR Retrieval Algorithms (2) [16:00-17:30]

Chairperson: A. Kuze (JAXA, Japan)

10. 16:00-16:15

EOF-based regression algorithm for the fast retrievals of XCO₂ from the GOSAT observations

Andrey Bril, et al. (IPNASB, Belarus)

11. 16:15-16:30

Application of TanSat retrieval algorithm on GOSAT Observation (ATANGO): global retrieval and product application

Dongxu Yang, et al. (IAP/CAS, China)

12. 16:30-16:45

Improvement of CO₂ retrieval algorithm with modified aerosol information using GOSAT measurements over East-Asia

Yeonjin Jung, et al. (Yonsei U., Korea)

13. 16:45-17:00

Lower-tropospheric CO₂ from near infrared ACOS-GOSAT observations

Susan Kulawik, et al. (BAERI/NASA, USA)

14. 17:00-17:15

Amazon Column CO₂ and CO Observations from Ground and Space to Evaluate Tropical Ecosystem Models

Manvendra Dubey, et al. (LANL, USA)

15. 17:15-17:30

East Asia Regional CO₂ Concentrations Observed by GOSAT – Spatial and Seasonal Variations

Ke-Sheng Cheng, et al. (Taiwan U., Taiwan)

Session IV: Validation & Intercomparison (1) [17:30-18:00]

Chairperson: I. Morino (NIES, Japan)

16. 17:30-17:45

An intercomparison of retrieved X_{CO₂} based on the H and M gain GOSAT and OCO-2 spectra over the central Australia

Hiroshi Suto, et al. (JAXA, Japan)

17. 17:45-18:00

Update on Validation of OCO-2 Observations of Column-Averaged Mole Fractions of Carbon Dioxide (XCO₂)

Gregory Osterman, et al. (JPL, USA)

- Day 1 Adjourn -

18:30 -20:30 Reception

DAY 2: June 8 (Wed), 2016 (Core session time: 9:30– 18:45)

9:00 Open

Session V: Airborne Measurements & Validation (2) [9:30-11:00]

Chairperson: K. Shiomi (JAXA, Japan)

18. 9:30-9:45

Processes inferred from CH₄ and CO₂ observed during the airborne GLAM campaign above the Mediterranean Basin

Philippe Ricaud, et al. (CNRS, France)

19. 9:45-10:00

Surface Modelling of CO₂ Concentrations based on Flight Test of TanSat Instruments

TianXiang Yue, et al. (IGSNRR/CAS, China)

20. 10:00-10:15

Distinguishing small scale CO₂ emission structures using OCO-2

Florian Schwandner, et al. (JPL, USA)

21. 10:15-10:30

A Preliminary Result on Characteristics of Temporal Column Abundances of CO₂ and CH₄ from the Ground-based FTS at Anmyeondo, Korea during 2014-2015

Tae-Young Goo, et al. (NIMS, Korea)

22. 10:30-10:45

Validation of GOSAT SWIR XCO₂ and XCH₄ retrieved by PPDF-S method

Chisa Iwasaki, et al. (U. Tokyo, Japan)

23. 10:45-11:00

Continuous in-situ measurements of CO and CO₂ concentrations and CO₂ isotope ratios (¹³C, ¹⁸O) in Nagoya city: Towards CO and CO₂ simultaneous measurements by GOSAT-2

Akie Yuba, et al. (ACAP, Japan)

11:00-12:30 Poster Session (1) with coffee & tea – Odd number posters –

Chairperson: Y. Yoshida (NIES, Japan)

12:30-14:00 Lunch break (90 min.)

Session VI: Thermal Infrared [14:00-15:30]

Chairperson: R. Imasu (U. Tokyo, Japan)

24. 14:00-14:15

Are thermal infrared measurements of CO₂ from GOSAT and IASI over the Arctic Ocean in summer able to detect climatic change?

Claude Camy-Peyret, et al. (IPSL, France)

25. 14:15-14:30

Verification of CH₄ Profile Retrievals from GOSAT Thermal Infrared Measurements

Arno de Lange, et al. (SRON, The Netherlands)

26. 14:30-14:45

Global Concentrations of CH₄: Retrieval and validation of Metop-A/IASI CH₄ columns

Evelyn De Wachter, et al. (BIRA-IASB, Belgium)

27. 14:45-15:00

Quantifying Lower Tropospheric Methane Concentrations Using GOSAT near-IR and TES thermal IR measurements.

John Worden, et al. (JPL/Caltech, USA)

28. 15:00-15:15

Validation of the GOSAT TANSO-FTS TIR CH₄ vertical profile data product using CH₄ vertical profiles from MIPAS (ESA and IMK) and ACE-FTS

Kevin Olsen, et al. (U. Toronto, Canada)

29. 15:15-15:30

Global Methane Distributions Retrieved from IASI Observations in the Thermal and Short-Wave Infrared

Diane Knappett, et al. (STFC/RAL, UK)

15:30 -16:00 Coffee & tea break (30 min.)

Session VII: Methane & Biomass Burning [16:00-17:15]

Chairperson: S. Maksyutov (NIES, Japan)

30. 16:00-16:15

Continuous in-situ observation of methane at a paddy field in India

Yutaka Matsumi, et al. (Nagoya U., Japan)

31. 16:15-16:30

Comparison of GOSAT CH₄ measurements with in-situ measurements and model simulations

Sachiko Hayashida, et al. (Nara W. U., Japan)

32. 16:30-16:45

Atmospheric CH₄ and CO₂ enhancements and biomass burning emission ratios derived from GOSAT observations of the 2015 Indonesian fire plumes

Rob Parker, et al. (U. Leicester, UK)

33. 16:45-17:00

Mitigating model biases and constraining North American methane emissions using weak constraint 4D-Var

Ilya Stanevich, et al. (U. Toronto, Canada)

34. 17:00-17:15

The GOSAT COMEX Experiment: Validation of GOSAT-directly derived fluxes

Ira Leifer, et al. (Bubbleology Res. Intl, USA)

Session VIII: Carbon Dioxide Fluxes [17:15-18:45]

Chairperson: Y. Niwa (MRI, Japan)

35. 17:15-17:30

Surface CO₂ and CH₄ fluxes simultaneously inferred from proxy GOSAT XCH₄:XCO₂ retrievals: Trend and Inter-annual variations

Liang Feng, et al. (U. Edinburgh, UK)

36. 17:30-17:45

Quantifying Regional CO₂ Flux Estimates Using OCO-2 Data

Dylan Jones, et al. (U. Toronto, Canada)

37. 17:45-18:00

Estimating 2015 CO₂ fluxes with OCO-2 observations

Junjie Liu, et al. (JPL/Caltech, USA)

38. 18:00-18:15

Orbiting carbon observatory (OCO-2) tracks 2 Giga tons of carbon release to the atmosphere during the El Nino 2015

Prabir Patra, et al. (JAMSTEC, Japan)

39. 18:15-18:30

Multi-model Flux Inversion Comparison using OCO-2 Data

Sean Crowell, et al. (U. Oklahoma, USA)

40. 18:30-18:45

Influence of El Nino on Atmospheric CO₂: Findings from the Orbiting Carbon Observatory-2 (OCO-2) Mission

Abhishek Chatterjee, et al. (NASA GMAO/USRA, USA)

- Day 2 Adjourn -

DAY 3: June 9 (Thu), 2016 (Core session time: 9:30– 17:00)

9:00 Open

Session IX: Future Mission (1) [9:30-10:30]

Chairperson: A. Löscher (ESA, The Netherlands)

41. 9:30-9:45

TROPOMI is ready for launch: Pre-flight performance and calibration measurements

Robert Voors, et al. (Airbus D. S., The Netherlands)

42. 9:45-10:00

The Pre-Launch Status of TanSat Mission

Yi Liu, et al. (IAP/CAS, China)

43. 10:00-10:15

The Status of NIES GOSAT-2 Project and NIES Satellite Observation Center

Tsuneo Matsunaga, et al. (NIES, Japan)

44. 10:15-10:30

The OCO-3 Mission: Overview of Science Objectives and Status

Annmarie Eldering, et al. (JPL/Caltech, USA)

10:30-12:00 Poster Session (2) with coffee & tea – Even number posters –

Chairperson: H. Noda (NIES, Japan)

12:00-13:30 Lunch break (90 min.)

Session X: Future Mission (2) [13:30-15:00]

Chairperson: T. Matsunaga (NIES, Japan)

45. 13:30-13:45

An introduction to MicroCarb, first European program for CO₂ monitoring

Francois Buisson, et al. (CNES, France)

46. 13:45-14:00

Technical insight into MicroCarb, first European program for CO₂ monitoring

Didier Pradines, et al. (CNES, France)

47. 14:00-14:15

Advances in Pulsed Lidar Measurements of CO₂ Column Concentrations in Airborne Campaigns and for Space

James Abshire, et al. (NASA/GSFC, USA)

48. 14:15-14:30

Updated Performance Simulations for a Space-Based CO₂ Lidar Mission

Stephan Kawa, et al. (NASA, USA)

49. 14:30-14:45

Optical Depth Distribution and Surface Elevation Variability Derived from CALIPSO Lidar Measurements

Zhaoyan Liu, et al. (NASA/LaRC, USA)

50. 14:45-15:00

GreenLITE over Paris: A New Approach to Urban Scale Monitoring of Greenhouse Gas

Jeremy Dobler, et al. (Harris Co., USA)

15:00 -15:30 Coffee & tea break (30 min.) (*Poster removal by 15:30)

Session XI: Future Mission (3) and Survey [15:30-16:45]

Chairperson: D. Crisp (JPL/Caltech, USA)

51. 15:30-15:45

Radiometric and spectral sizing for future CO₂ observing space missions

Bernd Sierk, et al. (ESA/ESTEC, The Netherlands)

52. 15:45-16:00

The GeoCarb Mission

Berrien Moore, et al. (U. Oklahoma, USA)

53. 16:00-16:15

Plans and progress on greenhouse gas observations in the Arctic and boreal regions from a highly elliptical orbit (HEO) mission

Ray Nassar, et al. (Environment and Climate Change Canada, Canada)

54. 16:15-16:30

NASA, Greenhouse Gases, and the Decadal Survey

Ken Jucks, et al. (NASA HQ, USA)

55. 16:30-16:45

Towards an operational observing system to monitor fossil CO₂ emissions

Armin Löscher, et al. (for Yasjka Meijer) (ESA, The Netherlands)

16:45-17:00 Closing Session & Future Plan

Chairperson: T. Yokota (NIES, Japan)

Next IWGGMS-13 Plan

Closing address

Closing remarks

IWGGMS-12 International Committee (6 min)

Ryoichi Imasu (GOSAT-2 Science Team Chief Scientist) (6 min.)

IWGGMS-12 Local Organizer (3 min.)

- Day 3 Adjourn -

Poster Presentations

Core Time: Day 2, June 8 (Wed) for Odd number posters during 11:00-12:30,
and Day 3, June 9 (Thu) for Even number posters during 10:30-12:00
(Poster board: 2100mm(H) x 900mm(W) for A0 Portrait size)

- 1 Kei Shiomi, et al. (JAXA, Japan)
GOSAT CO₂ and CH₄ calibration and validation activities with portable FTS measurements
- 2 Fumie Kataoka, et al. (RESTEC, Japan)
Inter-comparison between GOSAT and OCO2 SWIR-band Spectral Radiance over Railroad Valley
- 3 Jun Yoshida, et al. (NEC, Japan)
Optimizing observation geometry using the agile GOSAT pointing mechanism for more precise and accurate X_{CO2} retrieval
- 4 Yongxiang Hu, et al. (NASA/LaRC, USA)
Assessing potential applications of collocated OCO2 Oxygen-A band and CALIPSO lidar measurements
- 5 Nicholas Deutscher, et al. (U. Wollongong, Australia)
TCCON H₂O retrievals for satellite validation
- 6 Makiko Hashimoto, et al. (JAXA, Japan)
Aerosol retrieval algorithm and aerosol properties retrieved from GOSAT/TANSO-CAI
- 7 Makiko Nakata, et al. (Kinki U., Japan)
An observational study of urban air pollution with GOSAT/CAI
- 8 Yu Someya, et al. (AORI/U. Tokyo, Japan)
The CO₂ slicing algorithm for the TIR cloud/aerosol products of TANSO-FTS2/GOSAT-2
- 9 Yu Oishi, et al. (Tokai U., Japan)
Primary verification of new cloud discrimination algorithm used with GOSAT TANSO-CAI in Borneo Island
- 10 Christopher O'Dell, et al. (CSU, USA)
Are the OCO-2 XCO₂ observations good enough for science?
- 11 Brad Weir, et al. (NASA/GSFC, USA)
Accounting for systematic differences between OCO-2 retrievals and model values of XCO₂ in an assimilation system
- 12 Michael Gunson, et al. (JPL, USA)
Using a surrogate model to estimate patterns of bias in retrieved X_{CO2} for OCO-2 observations
- 13 Lianghai Wu, et al. (SRON, The Netherlands)
Retrieving CO₂ from the NASA OCO-2 observations using RemoTeC
- 14 Johanna Tamminen, et al. (FMI, Finland)
Using OCO-2 Data to Analyze Anthropogenic CO₂ Hotspots: First Preliminary Results
- 15 Abhishek Chatterjee, et al. (NASA GMAO/USRA, USA)
Investigating Regional Carbon Flux Estimates from the GEOS-Carb system using OCO-2 total column CO₂ observations
- 16 Woogyung Kim, et al. (Yonsei U., Korea)
CO₂ Retrieval over East Asia using CAI aerosol information
- 17 Changsub Shim, et al. (Korea Env. Inst., Korea)
Applying GOSAT and other satellite retrievals to understand spatiotemporal variabilities and emissions of GHG's over East Asia
- 18 Koki Kasai, et al. (Hokkaido U., Japan)
A Study of Extraction and Analysis of Emission and Absorption Events of Greenhouse Gases with GOSAT
- 19 Rajesh Janardanan, et al. (NIES, Japan)
Towards assessing CO₂ emissions from fossil fuel combustion by GOSAT observations of localized CO₂ enhancements

- 20 Robert Nelson, et al. (CSU, USA)
Total Column Water Vapor from OCO-2
- 21 Hibiki Noda, et al. (NIES, Japan)
Simultaneous observations of solar-induced chlorophyll fluorescence and atmospheric CO₂ dynamics by GOSAT
- 22 Andrew Schuh, et al. (CSU, USA)
Global Atmospheric Inversions of CO₂ and Solar-Induced Fluorescence (SIF)
- 23 Tomomichi Kato, et al. (Hokkaido U., Japan)
Ground-based network of Long-term measurement of Sun-Induced Chlorophyll Fluorescence
- 24 Hartmut Boesch, et al. (UoL, UK)
An improved Aerosol Scheme for the GHG Retrieval from GOSAT
- 25 Hartmut Boesch, et al. (UoL, UK)
Latest results from the GreenHouse gas Observations of the Stratosphere and Troposphere (GHOST) airborne shortwave infrared spectrometer
- 26 Thomas P. Kurosu, et al. (JPL, USA)
Four Years of CARVE-FTS Observations of CO₂, CH₄, and CO in the Alaskan Arctic – Comparison with Satellite Measurements
- 27 Bing Lin, et al. (NASA/LaRC, USA)
Atmospheric CO₂ Variations Observed during Recent ASCENDS Airborne Flight Campaigns
- 28 Kenji Numata, et al. (NASA/GSFC, USA)
Airborne measurements of atmospheric methane using pulsed laser transmitters
- 29 Voltaire V. Velazco, et al. (U. Wollongong, Australia)
Validation of GOSAT Products in the Southern Hemisphere: Alice Springs Desert Site Study
- 30 Isamu Morino, et al. (NIES, Japan)
Towards TCCON in the Philippines: The importance of monitoring atmospheric carbon in tropical Southeast Asia
- 31 Rigel Kivi, et al. (Finnish Meteorological Institute, Finland)
TCCON and AirCore measurements of greenhouse gases over Sodankylä: comparisons with satellite borne observations
- 32 Nikita Rokotyan, et al. (Ural Federal U., Russia)
Intercomparison between GOSAT and ground-based FTIR data on CO₂ and CH₄ atmospheric concentrations over Western Siberia during 2011-2015
- 33 Robert Knuteson, et al. (U. Wisconsin, USA)
Simultaneous Nadir Overpass (SNO) Matchups GOSAT/TANSO-FTS and AQUA/AIRS: TIR Band April 2009 –December 2015
- 34 Masahiro Kawasaki, et al. (Nagoya U., Japan)
Measurements of atmospheric CH₄ and CO₂ column averaged concentrations in Sichuan Basin, China using a desktop optical spectrum analyzer
- 35 Yusheng Shi, et al. (NIES, Japan)
Temporal characteristics of atmospheric CO₂ over fire affected regions based on GOSAT data
- 36 Liping Lei, et al. (CAS/IRSDE, China)
Spatio-Temporal Variations Analysis of CH₄ Concentration over East Asia Based on Geostatistics
- 37 Yutaka Matsumi, et al. (Nagoya U., Japan)
Preliminary Assessment of Methane Concentration Variation Observed over Sichuan Basin by GOSAT in China
- 38 Akinori Yamada, et al. (Chiba U., Japan)
Impact of differences in line parameter databases on GOSAT TIR methane retrieval

- 39 Cecilia Tirelli, et al. (IFAC-CNR, Italy)
Results of the comparison among IASI/METOP-A, GOSAT/TANSO-FTS Band 4 and HIPPO 3 Carbon Dioxide products
- 40 Dejian Fu, et al. (JPL, USA)
High Resolution Tropospheric CH₄ and CO Profiles Retrieved from CrIS and TROPOMI
- 41 Tomohiro Oda, et al. (USRA/GSFC, USA)
Prescribing fossil fuel emissions in CO₂ source/sink analysis
- 42 Yosuke Niwa, et al. (MRI, Japan)
A 4D-Var inversion system based on the icosahedral grid model (NICAM-TM 4D-Var)
- 43 Julia Marshall, et al. (MPI, Germany)
Potential clear-sky bias in flux inversions of carbon dioxide based on satellite measurements
- 44 Hiroshi Takagi, et al. (NIES, Japan)
GOSAT CO₂ Inversion Inter-comparison Experiment Phase-II
- 45 Misa Ishizawa, et al. (NIES, Japan)
Analysis on Uncertainties in Regional CO₂ inversions from GOSAT XCO₂ Retrievals
- 46 Kazutaka Murakami, et al. (NIES, Japan)
Evaluations of 1km grid Global Terrestrial Carbon fluxes
- 47 Jing Wang, et al. (KLMA/CAS, China)
The simulation of TanSat measurements in terrestrial CO₂ flux estimation
- 48 Kazuo Mabuchi, et al. (NIES, Japan)
Relationships between CO₂ flux estimated by inverse analysis and land surface elements in South America and Africa
- 49 Dmitry Belikov, et al. (NIPR, Japan)
Study of the footprints of short-term variation in XCO₂ observed by TCCON sites using NIES and FLEXPART atmospheric transport models
- 50 Shamil Maksyutov, et al. (NIES, Japan)
Inverse modeling of CO₂ and CH₄ surface fluxes using GOSAT observations – Level 4 product updates and developments
- 51 Zakia Bourakkadi, et al. (LATMOS/IPSL/CNRS, France)
Quantifying global and regional methane budget by inverse modeling
- 52 Makoto Saito, et al. (NIES, Japan)
Enhanced methane emissions from Amazonian drought
- 53 Denis Jougllet, et al. (CNES, France)
MicroCarb performances assessment
- 54 Yukio Yoshida, et al. (NIES, Japan)
Plan of the GOSAT-2 FTS SWIR products and its preliminary sensitivity study
- 55 Ronald Glumb, et al. (Harris Space & Intell. Sys., USA)
An Update on the TANSO-FTS-2 Instrument for GOSAT-2
- 56 Anand Ramanathan, et al. (ESSIC/NASA GSFC, USA)
CO₂ Sounder lidar multi-wavelength approach: Retrievals for airborne and space measurements, column water vapor measurements
- 57 Jianping Mao, et al. (U. Maryland, USA)
Airborne Lidar Measurements of Atmospheric Column CO₂ Concentration to Cloud Tops during ASCENDS Science Campaigns