

ICDC9 Detailed Program (As of 18 April, 2013)

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ICDC9 Plenary Program

Hall No.3 , 1st Floor, BICC

Plenary, Monday, 3 June

0830-1900

Theme 1: Past and present changes and variabilities

Chairperson:

- 0830 **[invited]** From "ICDC1" in Bern 1981 to ICDC9 in Beijing 2013 a review of global carbon cycle research during the past three decades
M. Heimann
- 0900 Inverse modeling of the ice age carbon cycle through a combination of simulated and real sediment cores worldwide
C. Heinze, B. Hoogakker
- 0920 Peatland Carbon Dynamics in Warm Climates: Past and Future
Z. Yu
- 0940 A revised atmospheric $\delta^{13}\text{C}$ - CO_2 record covering the last 1000 years from Law Dome and South Pole, Antarctica
M. Rubino

1000 Tea Break

- 1030 Global Ocean Carbon Uptake: Magnitude, Variability and Trends
R. Wanninkhof, G. Park, T. Takahashi, et al.
- 1050 Sea-air CO_2 fluxes in the Southern Ocean: 1990–2009
A. Lenton, B. Tilbrook, R. Law, D. Bakker, et al.
- 1110 Seasonal to interannual variability of the global ocean carbon sink (1998-2007)
P. Landschützer, U. Schuster, D. Bakker, et al.
- 1130 Decadal trends of CO_2 fluxes from a global joint ocean-atmosphere inversion
K. Steinkamp, N. Gruber

1150 Meeting logistics

1200 Lunch Break

- 1330 **[invited]** Inter-annual variability of the global land carbon sinks
S.L. Piao, P.Ciais, Corinne Le Quéré, et al.
- 1400 Global land-atmosphere exchanges of CH_4 and N_2O in the past three decades: Toward a full GHG budget of the terrestrial biosphere
H.Q. Tian, C. Lu, G. Chen, et al.
- 1420 20 years land carbon fluxes and stocks reanalysis from a Carbon Cycle Multi-Data Assimilation System using in-situ FluxNet, satellite NDVI, and atmospheric CO_2 observations to optimize a process-based model
P. Peylin, N. MacBean, C. Bacour, et al.
- 1440 First net annual carbon balances of the Amazon basin from in-situ vertical profile sampling
L. Gatti, M. Gloor, J. Miller, et al.

1500 Tea Break

- 1530 **[invited]** Highlights and reflections on the Global Carbon Budget
C. Le Quéré, P. Canadell
- 1600 Recent changes in the inter-hemispheric CO_2 difference in relation with fossil fuel emissions and sinks
P. Ciais
- 1620 Large-scale increase in the seasonal cycle of CO_2 in the Northern Hemisphere since 1960
H. Graven, S. Piper, P. Patra, et al.
- 1640 Explaining recent anomalies in the growth of atmospheric CO_2
P. Rayner, A. Stavert, M. Scholze, et al.

1700 Poster Viewing

1900 Conference Banquet

Plenary, Tuesday, 4 June

0830-1900

Theme 2: Carbon sources and sinks, their changes and trends

Chairperson:

- 0830 **[invited]** Ocean Carbon Sequestration: Controlling Mechanisms and Responses to Global Changes
N.Z. Jiao
- 0900 The oceanic accumulation of anthropogenic CO_2 since the mid 1990s
N. Gruber, D. Clement, T. Tanhua, et al.
- 0920 Anthropogenic and Climate impacts on the total CO_2 increase observed in the South Indian Ocean
C. Lo Monaco, N. Metzl, A. Lenton, et al.
- 0940 Global trends in surface ocean pCO_2 from in-situ data
A. Fay and G. McKinley

1000 Tea Break

1030 Global Stream and River CO_2 Evasion

P. Raymond

1050 Fluxes and Controls of CO_2 in the Coastal Ocean: River Dominated Margins vs Ocean Dominated Margins?
M.H. Dai

1110 Coupled Terrestrial-Coastal Ocean Modeling of Carbon-Cycle Processes in the Mississippi-Atchafalaya Basin and Northern Gulf of Mexico
S. Lohrenz, W. Cai, H. Tian, et al.

1130 Carbon Budget and its Anthropogenic Perturbation in the Land-Ocean Aquatic Continuum
P. Regnier, P. Ciais, F. Mackenzie, et al.

1150 Lunch side event: SOCAT

1330 **[invited]** Recent Progresses of the Program "Carbon Budget and Relevant Issues in Response to Climate Change"—A Strategic Priority Research Program of the Chinese Academy of Sciences
D.R. Lu

1400 Increased precipitation modifies plant and ecosystem responses to warming in the High Arctic
U. Seibt, K. Maseyk, C. Lett, et al.

1420 Global Terrestrial Carbon Budget in Recent 30 Years Simulated Using the BEPS Model Driven by MODIS and AVHRR Data
W.M. Ju

1440 Trends and drivers of regional sources and sinks of carbon dioxide over the past two decades
G. Murray-Tortarolo, S. Sitch, et al.

1500 Tea Break

1530 **[invited]** Global Greenhouse Gas Observation by GOSAT and Its Contribution to Carbon Flux Estimation
T. Yokota and Members of GOSAT Project National Institute for Environmental Studies

1600 Global CO_2 flux estimation using GOSAT: An inter-comparison of inversion results
S. Houweling, S. Basu, F. Chevallier, et al.

1620 Space-based Carbon Monitoring by GOSAT and GOSAT-2: Lessons Learned from GOSAT in-orbit operation and towards better accuracy of XCO_2 observation
H. Suto, A. Kuze, K. Shiomi, M. Nakajima

1640 A joint inversion of CO_2 and $\delta^{13}\text{C}$ in CO_2 observations with CarbonTracker
W. Peters, I. vanderVelde, J. Miller, et al.

1700 **Poster Viewing**
1900 **Side event: GCP**

Parallel, Wednesday, 5 June 0830-1200

Morning: Please refer to Parallel Program on page 4.
Afternoon: City Tours

Plenary, Thursday, 6 June 0830-1900

Theme 2: Carbon sources and sinks, their changes and trends

Chairperson:

0830 **[invited]** China's Economic Growth and the Global Carbon Budget
Y. Qi

0900 Refined Estimate of China's CO₂ Emissions: Provincial Inventory and Spatiotemporal Distributions
H.K. Wang, M. Liu, H. Wang, T. Oda

0920 An approach to assessing benefits of advanced global carbon observation system
S. Fuss, **M.Gusti**, M. Tavoni, et al.

0940 Using atmospheric radiocarbon (14CO₂) to constrain fossil and biogenic CO₂ fluxes
J. Miller, S. Lehman, A. Andrews, C. Sweeney

1000 Tea Break

1030 Predictability of the terrestrial carbon cycle

Y.Q. Luo, T. Keenan, M. Smith

1050 Atmospheric inversion of the European CO₂ ecosystem fluxes: evaluation of the uncertainty estimates

G. Broquet, N. Kadygrov, F. Chevallier, et al.

1110 Reconciling global and regional trends in LULUCF fluxes

J. House, R. Houghton, A. Jain, et al.

1130 Terrestrial Ecosystems Full Carbon Account as a Fuzzy System: an Attempt to Understand Uncertainties

A. Shvidenko, D. Schepaschenko, et al.

1150 Lunch Break

Parallel, Thursday, 6 June 1330-1700

Please refer to Parallel Program on page 5.

1900 **Side event: Shaping tomorrow's carbon cycle research: Knowledge gaps, international collaboration, and funding priorities**

Plenary, Friday, 7 June 0830-2100

Theme 3: Future of the carbon cycle: drivers, vulnerabilities, feedbacks and management options

Chairperson:

0830 **[invited]** Cumulative responses, progressive effects and feedbacks in ecosystem responses to rising atmospheric CO₂

B. Hungate

0900 Regulatory mechanisms on climate-carbon cycle feedback

S.L. Niu

0920 The impact of nitrogen and phosphorous limitation on the estimated terrestrial carbon balance and warming of land use change over the last 150 years

Y.P. Wang, Q. Zhang, A. Pitman, D. Dai

0940 Using a coupled regional climate and vegetation model to assess the future of Arctic terrestrial ecosystem carbon exchange

W.X. Zhang, C. Jansson, P. Miller, et al.

1000 Tea Break

1030 Emissions of CH₄ from natural gas production in the United States using aircraft-based observations

C. Sweeney

1050 On network design for the detection of urban greenhouse gas emissions: Results from the Indianapolis Flux Experiment (INFLUX)

N. Miles, M. Cambaliza, K. Davis, et al.

1110 Atmospheric verification of point source fossil fuel CO₂ emissions

J. Turnbull, L. Keller, G. Gordon, et al.

1130 An Update on the Total Carbon Column Observing Network

N. Deutscher, D. Griffith, J. Notholt, et al.

1150 Lunch **Side event: Carbon Monitoring System**

1330 **[invited]** Transformational pathways toward mitigating anthropogenic climate change and the future of the carbon cycle: From decarbonization to "negative" emissions

N. Nakicenovic

1400 The combined impacts of ocean acidification, upwelling and respiration processes on aragonite saturation state along the Washington-Oregon-California Continental Shelf Margin during the late summer months of 2011 and 2012

R. Feely, S. Alin, B. Hales, J. Mathis, D. Greeley

1420 Large changes in seasonality of the surface ocean carbon cycle under anthropogenic climate change

K. Rodgers

1440 Impact of rapid sea-ice reduction in the Arctic Ocean on the rate of ocean acidification

A. Yamamoto, **M. Kawamiya**, A. Ishida, et al.

1500 Tea Break

1530 **[invited]** Fossil Fuel Energy Resources: An Uncertainty of Climate Change

J. Murray

1600 Climate change mitigation as opportunities for low-carbonised and sustainable development, the case study of urban mobility in China

Q. Jiang

1620 Analysis of the Climate Change Mitigation Potential of Canada's Forest Sector

W. Kurz, C. Smyth, T. Lempriere, et al.

1640 Ocean and land climate-carbon cycle feedbacks at the regional scale: analysis based on CMIP5 models

L. Bopp and C. Jones

1700 Open Discussion

1730 End of Conference

ICDC9 Parallel Program

Parallel, Wednesday, 5 June 0830-1200

Room 305AB, 3rd floor: Atmosphere

- 0830 Three-dimensional behaviors of atmospheric CO₂ revealed by the CONTRAIL project and their significance in inverse flux estimates
T. Machida, Y. Sawa, Y. Niwa, H. Matsueda
- 0845 Carbon balance of China constrained by CONTRAIL aircraft CO₂ measurements and an updated CO₂ emission inventory of China
F. Jiang, T. Machida,
- 0900 Quantifying CO₂ emissions from Canada's oil sands developments-results from a multi-tracer atmospheric observational/modeling approach
M. Kim, **J. Lin**, L. Huang, D. Worthy
- 0915 On the detection of trends in arctic carbon emissions
L. Bruweiler, E. Dlugokencky, P. Tans, K. Masarie
- 0930 Isotope- and tracer- based measurements of fossil fuel and biospheric carbon dioxide in Paris during winter 2010
M. Lopez, M. Schmidt, M. Delmotte, et al.
- 0945 The Macquarie Island in situ CO₂ record: instrumentation, calibration, baseline selection and climatology
A. Stavert, M. van der Schoot, R. Law, S. Chambers

1000 Tea Break

- 1030 Interannual variability in the Northern Hemispheric seasonal cycle of CO₂ as observed by GOSAT
S. Basu, S. Guerlet, A. Butz, M. Krol, et al.
- 1045 33 years of CO₂ surface fluxes as seen from the atmosphere
C. Chevallier
- 1100 Strong Observational Constraints on Seasonal Northern Extratropical CO₂ Exchange
B. Stephens, S. Wofsy, J. Bent, et al.
- 1115 Fingerprints of climate variability on atmospheric CO₂
G. Keppel-Aleks, J. Randerson
- 1130 Unraveling the role of volcanic eruptions and interdecadal modulation of El Niño-Southern Oscillation amplitudes in recent changes of the global carbon cycle
T. Froelicher, F. Joos, K. Rodgers, et al.
- 1145 Variations in atmospheric Carbon Dioxide and its association with rainfall and vegetation over India
Y. Tiwari, J.V. Revadekar, Ravi Kumar

1200 Lunch Break

Room 305CD, 3rd floor: Land

- 0830 On the effect of climate extremes on the carbon cycle from ecosystem to globe
M. Reichstein, M. Bahn, P. Ciais, et al.
- 0845 Investigating an abrupt change in the land uptake of carbon in 1989
W. Buermann, C. Beaulieu, D. Medvigy etc.
- 0900 Impacts of drought-induced forest mortality on global forest carbon sinks: recent progress and future challenges
C.H. Peng
- 0915 Evaluations of the spatial and temporal variations of biomass burning emissions in Southeast Asia during 2001-2010
Y. Shi, T. Sasai

- 0930 Vulnerability of carbon cycle in various ecosystems of Central Russia to heat waves and droughts
I. Kurganova, V. L. de Gerenyu, I. Savin
- 0945 Effects of drought on forest ecosystems carbon cycle in China during 2001-2010
S. Wang, L. Zhou, W. Ju, R. Liu

1000 Tea Break

- 1030 High soil organic carbon losses from peaty croplands
A. Friebauer
- 1045 14C evidence of enhanced permafrost carbon export in response to Arctic climate variations
X.J. Feng, J.E. Vonk, B. van Dongen, et al.
- 1100 The process attribution and model predictability of North American biospheric CO₂ flux as informed by atmospheric measurements
Y.Y. Fang, Y. Shiga, V. Yadav
- 1115 On the use of Carbonyl Sulfide (COS) as a tracer for estimates of Gross Primary Production (GPP)
H.L. Chen, S. Montzka, A. Andrews, et al.
- 1130 Priming Effects on Forest-Carbon Storage
D. Schaefer, N. Qiao, X.L. Xu
- 1145 Change of terrestrial carbon storage since the Last Glacial Maximum in China and its effect on atmospheric CO₂ concentration
H.B. Wu, Z. Guo, J. Guiot

1200 Lunch Break

Room 307, 3rd floor: Ocean and other aquatic systems

- 0830 Regional distribution and seasonal mechanisms of carbon uptake in the global oceans
G. Mckinley, S. Doney, R. Feely, et al.
- 0845 Variability of the northern hemisphere air-sea CO₂ flux over the last decade
U. Schuster, A. Watson, S. Nakaoka, Y. Nojiri
- 0900 Detecting the anthropogenic influence on recent changes in ocean carbon uptake
R. Séférian, A. Ribes, L. Bopp
- 0915 The Non-Steady-State oceanic CO₂ signal: its importance, magnitude and a novel way to detect it
B. McNeil, R. Matear
- 0930 Carbon 13, an additional constraint to reveal anthropogenic carbon uptake in the Southern Indian Ocean
V. Racape, V. Racape, C. Lo Monaco, C. Brunet
- 0945 GLODAPv2 – a global and quality controlled ocean biogeochemical data product
S.K. Lauvset, R.M. Key, A. Olsen, et al.

1000 Tea Break

- 1030 Carbon dioxide (CO₂) distribution and air-sea flux in the Mississippi River dominated continental shelf, northern Gulf of Mexico
W. Cai, W. Huang, S. Lohrenz, et al.
- 1045 Spatial and seasonal variability of CO₂ evasion from rivers
R. Lauerwald, G. Laruelle, J. Hartmann, P. Regnier
- 1100 Quantifying the air-sea CO₂ exchange of continental shelf seas at the global scale: a regionalized data driven approach
G. Laruelle, R. Lauerwald, J. Rotschi, et al.

- 1115 Carbon transfers between ocean surface and interior: physical pathways
M. Levy
- 1130 Interaction of ocean acidification and deoxygenation in the Northeast Pacific Ocean
Z. A. Wang, S. Chu, K. Hoering
- 1145 Ocean acidification in the tropical Pacific from below
M. Ishii, D. Sasano, N. Kosugi, et al.
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- 1200 Lunch Break

Parallel, Thursday, 6 June 1330-1700

Room 305AB, 3rd floor: Atmosphere

- 1330 Atmospheric inversion of the surface CO₂ flux with 13CO₂ constraint
J. Chen, G. Mo, F. Deng
- 1345 Simultaneous optimisation of process parameters in a terrestrial and marine carbon cycle model using atmospheric CO₂ concentrations
M. Scholze
- 1400 A Chinese joint-assimilation system (Tan-Tracker) to simultaneously estimate surface CO₂ fluxes and 3-D atmospheric CO₂ concentrations from observations: formulation and OSSEs for insitu-observations
X.J. Tian
- 1415 A new data assimilation approach for estimating surface carbon flux distribution
X.G. Zheng, S. Zhang, B. Dan, et al.
- 1430 Comparison of carbon Tracker-Asia CO₂ flux with Asia flux tower measurement and CASA biogeochemical model data
S.-J. Lee, **J. Kim**, C.H. Cho
- 1445 Estimation of European Methane emissions using a regional-scale atmospheric inversion system
U. Karstens, C. Rödenbeck, C. Gerbig, et al.

1500 Tea Break

- 1530 Revisiting the rectifier: covariance of mixing & metabolism derived from spaceborne LIDAR
S. Denning, E. McGrath-Spangler
- 1545 Atmospheric 14CO₂ at Point Barrow, Alaska, from 2003 to 2013
X.M. Xu, S. Trumbore
- 1600 Estimation of surface fluxes of carbon from atmospheric data assimilation
J.-S. Kang, E. Kalnay, J. Liu, I. Fung, and T. Miyoshi
- 1615 Atmospheric inversion with CONTRAIL exposing CO₂ dynamics in the Asian tropics
Y. Niwa, T. Machida, Y. Sawa, et al.
- 1630 Monitoring carbon emissions at the regional scale: first of its kind reconciliation of inventory and atmospheric inversion methods
T. Lauvaux, A. Schuh, Stephen Ogle, et al.
- 1645 Joint inverse modeling of surface CO₂ fluxes using satellite and surface observations of CO₂ mixing ratio
F. Deng, N. Bousseres, K. Bowman, et al.

Room 305CD, 3rd floor: Land

- 1330 The GHG balance of a country with substantial land management, the Netherlands
H. Dolman

- 1345 Role of large trees in sequestering carbon
P. Kauppi, Y. Pan, R. Birdsey, P. Nöjd
- 1400 Management effects on GHG exchanges in a boreal forest
A. Lindroth, P. Vestin, M. Mölder, et al.
- 1415 Modelling organic carbon stocks in croplands of China under different agricultural management and climate change scenarios
Y.Q. Yu
- 1430 The global carbon cycle simulated by a climate system model-BCC_CSM
W.P. Li, X. Shi, T. Wu, et al.
- 1445 The causes and implications of persistent atmospheric carbon dioxide biases in Earth system models
F. Hoffman, J. Randerson

1500 Tea Break

- 1530 Investigating the urban CO₂ excess of the Greater Toronto Area using two sister sites
F. Vogel, E. Chan, L. Huang, et al.
- 1545 Carbon Balance of peatlands at south taiga of west Siberia
E. Golovatskaya, E. Golovatskaya, E. Duykarev, E. Veretennikova
- 1600 Atmospheric CO₂ exchange in urban neighborhoods measured by eddy covariance
E. Velasco, M. Roth, L. Norford
- 1615 Model-data synthesis of terrestrial carbon cycles in Asia: from CarboEastAsia perspective
K. Ichii, K. Masayuki, Y. Okabe, et al.
- 1630 Using Earth Observation (EO) data to constrain leaf phenology of the terrestrial biosphere model ORCHIDEE
N. MacBean, F. Maignan, P. Peylin, C. Bacour
- 1645 Soil abiotic CO₂ exchange over alkaline areas
W. Wang, **X. Chen**

Room 307, 3rd floor: Ocean, aquatic systems, and CO₂ monitoring

- 1330 The direct effects of increasing CO₂ concentration in seawater on net primary production of charophytes in the shallow coastal brackish water ecosystem
L. Pajusalu, G. Martin, A. Põllumäe, K. Torn
- 1345 Uptake, storage and transport of CO₂ in an ocean biogeochemistry general circulation model
Y.C. Li, Y.F. Xu
- 1400 Growing future north-south difference in atmospheric CO₂
J. Orr, P. Cadule, L. Bopp, et al.
- 1415 Decreasing North Atlantic CO₂ uptake: a robust feature of future model simulations
I. Totterdell, P. Halloran, C. Voelker
- 1430 Climate carbon-cycle feedbacks over Southern Ocean Water masses: a CMIP5 multimodel diagnosis
T. Roy, J.-B. Sallee, N. Metzl, et al.
- 1445 CO₂ fluxes from boreal aquatic ecosystems based on eddy covariance measurements
A. Ojala, **J. Huotari**, **J. Heiskanen**

1500 Tea Break

- 1530 Preliminary estimates of carbon emissions constrained by GOSAT from the NASA Carbon Monitoring Study Flux Pilot Project (withdrawn)
K. Bowman
- 1545 Detecting the fossil fuel emissions signal from atmospheric CO₂ measurements using inverse methods
Y. Shiga, A. M. Michalak, V. Yadav, et al.

- 1600 Detecting power plant emissions signatures from space
T. Oda, S. Maksyutov, H. Boesch, et al.
- 1615 Orbiting carbon observatory – 2 (OCO-2) status and plans
A. Eldering, M. Gunson, D. Crisp, OCO-2 Team
- 1630 Towards disentangling natural and anthropogenic GHG emissions by space-based atmospheric concentration imaging - CarbonSat ESA Earth Explorer 8 Candidate Mission
H. Bovensman

- 1645 Active sensing of CO₂ emissions over nights, days, and seasons (ASCENDS)
B. Moore

ICDC9 Poster Program

All posters are on display for the whole conference period.

Poster Theme 1: Past and present changes and variabilities

- P1 A new real-time global atmospheric CO₂ forecast product: evaluation and sensitivity to model resolution
A. Agusti-Panareda, S. Massart, F.Cevallier
- P2 Can we use δ¹³C of CO₂ to understand the links between the water and carbon cycles and climate?
C. Alden, J. White, J. Miller, et al
- P3 Could global carbon cycle models explain the seasonal cycle of the atmospheric carbon storage?
G. Alexandrov
- P4 Vertical Distributions of Greenhouse Gases in the Stratosphere over the Eastern Equatorial Pacific
S. Aoki
- P5 Impact of two typhoon cases on meteorological elements and CO₂ concentration over East Asia region by the regional model WRF-CO₂
S. Ballav, P. K. Patra, M. Takigawa, S. Marayama, et al
- P6 Sixteen Years of Carbon Flux Measurements Above a Mixed Forest at Borden Ontario Canada
N.Froelich, R.Staebler, A. Barr, **P. Bartlett**
- P7 Patterns and Controls on Soil Respiration in a Deciduous Mixed Forest near Borden, Ontario
P. Bartlett
- P8 Global patterns of ecosystem carbon turnover rates – contrasting data and models
N. Carvalhais, M.Forkel, M.Khomik, et al.
- P9 SST phases in the open-ocean and margins of the tropical Pacific: implication on tropical climate dynamics and greenhouse emission
M.-T. Chen, L.-J.Shiau
- P10 Surface water fCO₂ algorithms for the high-latitude Pacific sector of the Southern Ocean
M. Chierici, S. R Signorini, A.Fransson, A. Olsen
- P11 Observation and modeling of annual course of soil respiration at urban area
E. Dyukarev
- P12 A study of the South Atlantic Ocean: Circulation and Carbon Variability
G. Evans, E.McDonagh, B. King, et al.
- P13 Temporal monitoring of the air-water CO₂ exchange in a Mediterranean Wetland
S. Flecha, E. P. Morris, G. Navarro, I. E. Huertas
- P14 Carbon monitoring in the Strait of Gibraltar: tracking the Mediterranean CO₂ content
S. Flecha, G. Navarro, ... and **I.E. Huertas**
- P15 Antarctic sea ice CO₂ system and controls
A. Fransson, M.Chierici, W. O Smith Jr.
- P16 Carry over effects of warming-induced earlier leaf flushing on next year's leaf phenology in two temperate tree species
Y.S. Fu, M.Campioli, Y.Vitasse, et al.
- P17 Application of the ensemble meteorology for CO₂ concentration simulations at continuous observation sites
A. Ganshin, R. Zhuravlev, H. Mukai, et al.
- P18 Continuous measurements of the atmospheric O₂/N₂ ratio at suburban and coastal sites in the northeastern part of Japan
D. Goto, S. Morimoto, S. Ishidoy, et al.
- P19 High-precision continuous measurements of the atmospheric O₂/N₂ ratio initiated at Ny-Ålesund, Svalbard
D. Goto, S. Morimoto, S. Aoki, T. Nakazawa
- P20 Surface atmosphere and ocean CO₂ dataset obtained by NIES volunteer observation ship program in the Pacific
S. Harasawa
- P21 The ocean biogeochemistry at the onset of the Paleocene-Eocene Thermal Maximum – an Earth System Model study
M. Heinze and T. Ilyina
- P22 Inverse modeling of the ice age carbon cycle through a combination of simulated and real sediment cores worldwide
C. Heinz and B. Hoogakker
- P23 The effect of agricultural ecosystems on the regional carbon flux of the five countries in Central Asia in the past 25 years
Y. Hui
- P24 Long-term variability of sea-air CO₂ flux distribution over the global ocean analyzed by JMA
Y. Iida, A. Kojima, K. Enyo, et al.
- P25 Gravitational separation of major atmospheric components in the stratosphere and its application as an indicator of atmospheric circulation
S. Ishidoya, S. Sugawara, S. Morimoto, et al.
- P26 A decadal inversion of carbon dioxide using the Global Eulerian-Lagrangian Coupled Atmospheric model (GELCA)
M. Ishizawa, T. Shirai, R. Zhuravlev, A. Ganshin, et al.
- P27 Impact of high resolution meteorological fields on simulation of high frequency variability of CO₂ concentration using FLEXPART with 1km flux maps
R. Janardanan, Y. Niwa, A. Ganshin, et al.
- P28 Ocean Acidification and CO₂ Fluxes in the Pacific-Arctic Region
M. Jeremy, W. Evans, C. Hauri, et al.
- P29 Temperature response of soil CO₂ efflux in a Chinese pine plantation: temporal hysteresis and spatial variability
X. Jia, T. Zha, B. Wu, et al.
- P30 Air-sea CO₂ flux interannual variability correlated with climate indices
S. Jones, C. Le Quééré, C.Rödenbeck, A. Manning
- P31 Consistency between top-down and bottom-up estimates of the CO₂ budget of Europe
T. Kata, P. Ciais, P. Peylin, et al.
- P32 Seasonal changes of CO₂, CH₄ and N₂O in the upper troposphere/lower stratosphere over the Eurasian continent observed by commercial airliner
T. Kazuhiro, T. Machida, Y. Sawa, et al.
- P33 Atmospheric O₂ measurements since 1990
R. Keeling, A. Manning
- P34 Temporal variation on soil carbon storage following thinning treatments in red pine stands
C. Kim, K. Lee, Y. Son, S. Lee, S. Kim
- P35 Intra- and Inter-annual Variation of Stem Respiration of Black Spruce (Piceamariana), Interior Alaska
Y. Kim, S. Kim
- P36 Larval and post-larval stages of Pacific oyster (Crassostreagigas) are resistant to elevated CO₂
G. Ko
- P37 Atmospheric signatures of air-sea exchanges of CO₂, O₂/N₂, CH₄, CO, and N₂O recorded at the Cape Verde

- Atmospheric Observatory (CVAO)
E. Kozlova, R. Leppert and M. Heimann
- P38 Trends in anthropogenic carbon in water masses of the Subtropical North Atlantic Ocean along 24.5 degrees North
O. Legge, N. Fajar, E. Guallart, P. Brown, et al.
- P39 Comparison of continuous in-situ CO₂ observations at Jungfraujoch, Switzerland using two different measurement techniques
M. Leuenberger, M. Steinbacher, B. Buchmann, et al.
- P40 First tall tower installation in Switzerland for greenhouse gas concentration monitoring within CarboCount-CH
M. Leuenberger, D. Brunner, B. Oney, W. Eugster, et al.
- P41 Ecosystem Carbon Exchange of Two Subtropical Mangrove Ecosystems in China under Influences of Mariculture, Typhoons and Insect Outbreaks
G. Lin, H. Chen, W. Liu, S. Yang
- P42 Retrospective retrieval of long-term consistent global leaf area index since 1981 for carbon cycles research
R. Liu, Y. Liu, J. Chen
- P43 Sensitivity of regional energy, water, and carbon cycles to historical land-cover changes in the Eastern United States since European Settlement
L. Lu and R. Pielke
- P44 The flux of carbon from land-use over 1979-2011 in Central Asia
G. Luo, H. Ye, Q. Han, Y. Wang, X. Chen
- P45 Assessing the new generation of Earth System Models with satellite and atmospheric observations: a carbon and oxygen cycle perspective
M. Manizza, C. Nevison, R. Keeling, M. Kahru
- P46 Southern Ocean processes and variability from a 13 year record of in situ atmospheric O₂ and CO₂ measurements made at Baring Head, New Zealand
A. Manning, G. Brailsford, B. Stephens, et al.
- P47 South Atlantic CO₂ and CH₄ growth and dynamics observed by continuous high-precision measurement at Ascension Island, East Falkland Island and onboard RRS JC Ross
A. Lowry, R. Fisher, ..., **A. Manning**, et al.
- P48 Long-term change of the CO₂ latitudinal gradient in the upper troposphere
H. Matsueda, T. Machida, Y. Sawa, Y. Niwa
- P49 Ocean dynamical and biological controls of variability in the latitudinal gradient of CO₂ and O₂/N₂ across the Pacific Ocean
S. Mikaloff Fletcher, K. Rodgers, O. Aumont, et al.
- P50 Temporal variations of concentration and isotope ratios of atmospheric methane observed at Ny-Ålesund, Svalbard
S. Morimoto, T. Umezawa, S. Aoki, et al.
- P51 Trends of long-term changes of CO₂ and other related gases concentrations in the atmosphere at Hateruma and Ochi-ishi stations in Japan - influence of Asian emissions
H. Mukai, S. Hashimoto, Y. Terao, et al.
- P52 Decadal changes in dissolved inorganic carbon in the ocean
A. Murata, S. Kouketsu, T. Doi
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