

9th International Carbon Dioxide Conference

3-7 June, 2013






Beijing, China

<http://icdc9.lasg.ac.cn>



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AOSL is an international journal for the publication (in English) of original Letters related to all aspects of the atmospheric sciences and physical oceanography. The journal provides a rigorous peer-review process, rapid publication speeds (final decision in three months, and publication in six months), and maintains high standards in the quality of accepted manuscripts.

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9th International Carbon Dioxide Conference
3-7 June 2013, Beijing, China

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Secretariat:

Ms. Jenny Lin, mobile phone: 86+13671063035, secretariat@lasg.iap.ac.cn

Ms. Tracy Jin, mobile phone: 86+13810930802, lasg@lasg.iap.ac.cn

Ms. Jiaxin Han

Ms. Chen Chen

Mr. Kangjun Chen (technical support)

State Key Laboratory of Numerical Modelling for Atmospheric Sciences and Geophysical Fluid Dynamics (LASG), Institute of Atmospheric Physics, Chinese Academy of Sciences
No. 40 Huayanli, Beichen West Road, Chaoyang District, Beijing, 100029, China

GENERAL INFORMATION

Venue

Beijing International Convention Center (BICC)
Add: No.8 Beichen Dong Road, Chaoyang
District, Beijing, P. R. China 100101
Website: www.bicc.com.cn

A map of BICC and its neighborhood including location of hotels can be found at the back of this handbook.

Registration

The registration desk is located in the Ground Floor Foyer of the BICC, right next to the Plenary Hall (Hall 3) and Exhibition Hall (Hall 4) and will be open at the following times:

Saturday 1 June 2013	1700 - 1900
Sunday 2 June 2013	0730 - 2000
Monday 3 June 2013	0730 - 1000

Presentation Preparation

Presenters must upload presentations during coffee breaks before, preferably one day prior to the start of their session to ensure their presentations are loaded successfully.
Poster presenters must put up the posters on Sunday 2 June or in the morning of 3 June. They may leave their posters with secretariat.

Registration Entitlements:

For general participants the registration fee entitles you to the following:

- ✦ attendance to all scientific sessions;
- ✦ admission to the exhibitions;
- ✦ Icebreaker on 2 June and banquet on 3 June;
- ✦ coffee breaks and lunches on weekdays;
- ✦ a hard copy and a memory stick of the meeting program and the abstract volume;
- ✦ a city tour on the afternoon of 5 June.

Accompanying persons officially registered through the conference website are entitled to the following:

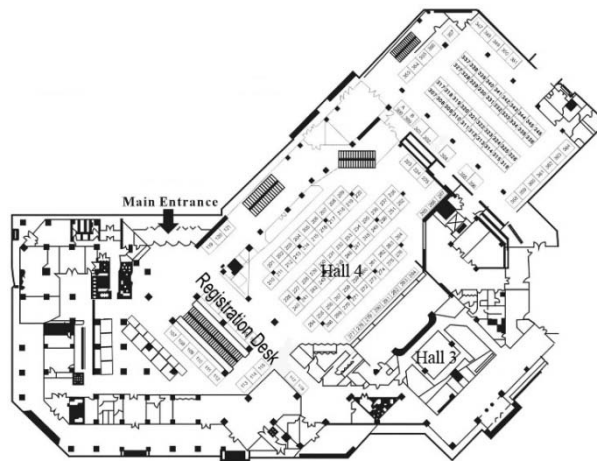
- ✦ Icebreaker on 2 June and banquet on 3 June;
- ✦ a city tour on the afternoon of 5 June

Please note: Registration fee cannot be returned if participants choose not to attend some of the activities mentioned above.

ICDC9 volunteers will be at the podium and the secretariat desk to assist you.

Internet- wireless

All delegates have access to the BICC free wireless Internet service. To connect to this free service, choose the wireless network called "CMCC-GJHY" from the wireless networks list.



Web Broadcasting

Registered delegates are entitled to viewing web broadcasting of the plenary sessions. Please go to ICDC9 website <http://icdc9.lasg.ac.cn>, click “webcasting” on the left menu, log in and choose the plenary sessions that you want to watch.

Catering

Morning and Afternoon Tea Breaks

Tea breaks will be served in the Exhibition Hall 4 (where the posters and booths are).

Lunch

Lunch is included in the registration fee of general participants. Lunch coupons are inside the envelope given to you when you register. You must present your coupon in order to obtain lunch.

- Lunch buffet, Lijiang Hall of Beijing Continental Grand Hotel, Mon. 3 June
- Lunch box, Hall 4, BICC, Tue. 4 June
- Lunch box, Hall 4, BICC, Wed. 5 June
- Lunch buffet, Lijiang Hall of Beijing Continental Grand Hotel, Thurs. 6 June
- Lunch box, Hall 4, BICC, Fri. 5 June

Icebreaker and Banquet

- Icebreaker, 1700-1900, Lijiang Hall of Beijing Continental Grand Hotel, Sunday 2 June 2013 (**coupon required**)
- Welcome Banquet, 1900 (buses departure at 18:30 from BICC square), Dazhaimen Restaurant, Monday 3 June 2013 (**invitation card required**)

Nearby Cafes and Restaurants

There are many cafes and restaurants near BICC and Beichen Times. There's a supermarket and a shopping mall (Beichen Times) near Yayuncun Hotel. Have fun with Chinese food and language!

Social Program

City tours on Wednesday afternoon are included in the registration fee of general participants and accompanying persons. Please pick up your ticket at the registration desk not later than Monday if you want to join the tour. Passport info is needed to purchase insurance for you.

All city tours will depart at 1330 on 5 June 2013 from BICC. The tour guide will collect your ticket when you get on the bus.

ICDC9 PLENARY PROGRAM

Hall No.3, 1st Floor, BICC

Plenary, Monday, 3 June

0830-1900

Theme 1: Past and present changes and variabilities

T1-1 Chair: N. Zeng

- 0820 **Opening**
- 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

T1-2 Chair: G. McKinley

- 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

T1-3 Chair: A. Jain

- 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

T1-4 Chair: S. Denning

- 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 (buses depart at 1830 from BICC)**

Plenary, Tuesday, 4 June

0830-1900

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

T2-1 Chair: K. Caldeira

- 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

T2-2 Chair: R. Wanninkhof

- 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. Friedlingstein, **P. Ciais**, et al.

1150 ICDC9 Special Issue Announcement

1200 Lunch

Side event: Surface Ocean CO_2 Atlas (SOCAT): Release of Version 2 and Science Highlights (Room 307)

T2-3 Chair: J. Chen

- 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

T2-4 Chair: A. Michalak

- 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 CO₂ 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 XCO₂ observation
H. Suto, A. Kuze, K. Shiomi, M. Nakajima
- 1640 Joint inversion of CO₂ and δ¹³C in CO₂ observations with CarbonTracker
W. Peters, I. vanderVelde, J. Miller, et al.

1700 **Poster Viewing**

- 1830 **Side event: Global Carbon Project: Open discussion on future research** (Room 307)

Parallel, Wednesday, 5 June 0830-1200

Morning: Please refer to Parallel Program on page 9.
Afternoon: City Tours

Plenary, Thursday, 6 June 0830-1900

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

T2-5/T3-1 Chair: C. Le Quere

- 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

T2-6 Chair: P. Ciais

- 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. Kadyrov, 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 10.

- 1830 **Side event: Shaping tomorrow's carbon cycle research: Knowledge gaps, international collaboration, and funding priorities** (Room 307)

Plenary, Friday, 7 June 0830-2100

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

T3-1 Chair: Y. Luo

- 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

T2-7 Chair: R. Keeling

- 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
1200 **Side event: Carbon Monitoring System(Hall 3)**

T3-2 Chair: P. Canadell

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

T3-3 Chair: M. Heimann

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: a 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

Chair: B. Stephens

- 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 C O₂ measurements and an updated C O₂ emission inventory of China
F. Jiang, H.M. Wang, J.M. Chen, T. Machida, et al.
- 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. Bruhwiler, 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

Chair: W. Buermann

- 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
F. 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

Chair: G. Zhou

- 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 et al.
- 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

Chair: M. Scholze

- 1030 High soil organic carbon losses from peaty croplands
A. Freibauer
- 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

Chair: N. Gruber

- 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. Racapé, N. Metzl, C. Pierre, et al.
- 0945 GLODAPv2 – a global and quality controlled ocean biogeochemical data product
S.K. Lauvset, R.M. Key, A. Olsen, et al.

1000 Tea Break

Chair: K. Rodgers

- 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.

1200 Lunch Break

Parallel, Thursday, 6 June 1330-1700

Room 305AB, 3rd floor: Atmosphere

Chair: D. Baker

- 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

Chair: C. Roedenbeck

- 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. Bousserrez, K. Bowman, et al.

Room 305CD, 3rd floor: Land

Chair: C. Peng

- 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

Chair: Y. Huang

- 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: CarboEastAsia perspective
K. Ichii, M. Kondo, 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

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- 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

Chair: A. Michalak

- 1530 An update to the Surface Ocean CO₂ Atlas (SOCAT)
D.C.E. Bakker, S. Hankin, A. Olsen, et al.
- 1545 The U.S. Carbon Cycle Science Program: Overview and Highlights
Z. Zhu, J. Whetstone, D. Wickland, et al.
- 1600 Detecting the fossil fuel emissions signal from atmospheric CO₂ measurements using inverse methods
Y. Shiga, A. M. Michalak, V. Yadav, et al.
- 1615 Detecting power plant emissions signatures from space
T. Oda, S. Maksyutov, H. Boesch, et al.
- 1630 Towards disentangling natural and anthropogenic GHG emissions by space-based atmospheric concentration imaging - CarbonSat ESA Earth Explorer 8 Candidate Mission
H. Bovensman
- 1645 The carbon sequestration of Chinese cement consumption and cement kiln dust (CKD) treatment in past 110 years
F.M. Xi, R. Wu, Z. Liu

POSTER LISTING

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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 an annual course of soil respiration at urban area
E. Dyukarev
- P12 A study of the South Atlantic Ocean: Circulation and Carbon Variability
G.R. Evans, E.L. McDonagh, B.A. 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.
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- 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
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- 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
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C. Kim, K. Lee, Y. Son, S. Lee, S. Kim
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- P40 First tall tower installation in Switzerland for greenhouse gas concentration monitoring within CarboCount-CH
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- P45 Assessing the new generation of Earth System Models with satellite and atmospheric observations: a carbon and oxygen cycle perspective
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- P49 Ocean dynamical and biological controls of variability in the latitudinal gradient of CO₂ and O₂/N₂ across the Pacific Ocean
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- P50 Temporal variations of concentration and isotope ratios of atmospheric methane observed at Ny-Ålesund, Svalbard
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- 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
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B. Badawy, C. Rödenbeck, M. Heimann
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- P137 Earth Networks' dense atmospheric GHG observing system C. Sloop, E. Novakovskaia...**H. Graven**
- P138 Estimating CH₄ Emissions Across California with Multi-site Observations
S. Jeong, E. Novakovskaia, A. Andrews, L. Bianco, **H. Graven**, et al.
- P139 Grassland carbon cycling: relationships between C source/sink strength, net primary productivity and grazing
Q. Han
- P140 The Surface Ocean CO₂ Atlas (SOCAT): "automating" community-wide data synthesis
S. Hankin, K. Smith, S. Jones, R. Schweitzer, et al.
- P141 CARBOCHANGE – Changes in Carbon Uptake and Emissions by Oceans in a Changing Climate
F. Hoffmann, C. Heinze, B. Pfeil, the CARBOCHANGE consortium
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- P162 Belowground carbon status in vegetation restoration areas following landslide
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- P163 Belowground carbon stocks of restored, un-restored and unburned forests in a fire-damaged landscape

- P164 **C. Kim**, J. Park, H. Ma, N. Ju
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- P165 **Y. Kim**, N. Chae, S. Park, Y. Yoon
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Potential CO₂ efflux of CWD decomposition caused by tree species change under the climate change in Japan
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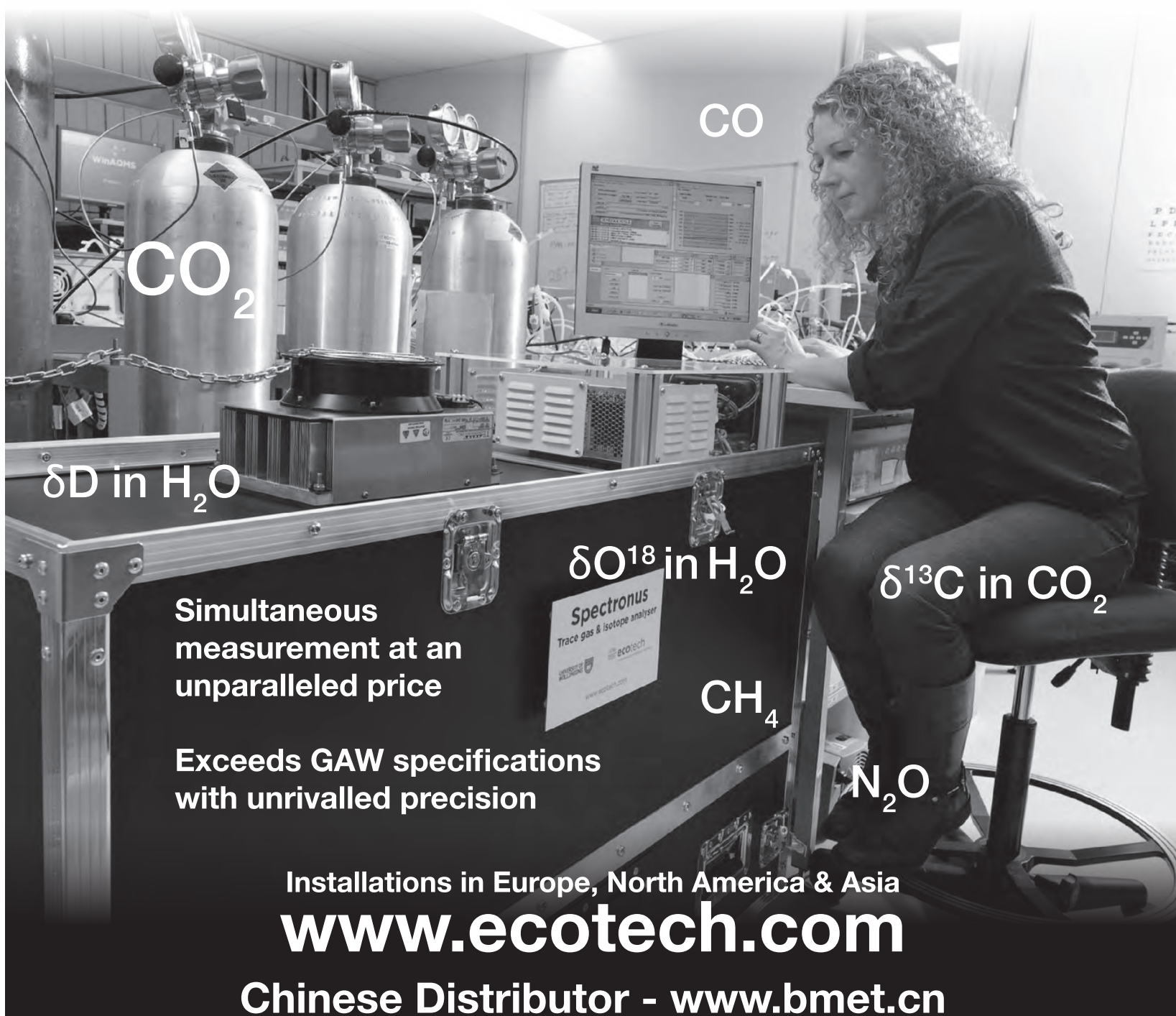
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邮编: 100035

电话: 010-51665551

传真: 010-66001652

网址: <http://www.ecotek.com.cn>

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Head Office – Victoria

1492 Ferntree Gully Road, Knoxfield, Vic 3180

Ph: (03) 9730 7800 Fax: (03) 9730 7899 Ext: 1300

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contact person: Pao-hui Wang
email: paohui@focusventures.com
Tel: 13488629642, 010-65815186
Fax: 010-65815186

由于全球碳，水和氮循环混乱的原因，一个全球性的经济和环境转变正在进行中--基本上对地球上所有生命造成了影响。Picarro 的客户通过使用精密的科学仪器理解这些复杂的环境变化进行极其精确的科学测量，他们遍布在全球 60 多个国家和七大洲，在世界上最恶

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办公地址：北京市海淀区复兴路甲38号嘉德公寓821—823室，邮编：100039

电 话：010-88202236
传 真：010-88202336
邮 箱：sales@truwel.com

北京华益瑞科技有限公司自成立以来一直致力于生态环境，气象水文，结构监测，工业数据采集控制的系统集成以及设备研发。在过去的几年中，我们先后为中国生态系统研究网络 CERN 组织，CFERN 网络和科技部 973 项目提供监测设备，全面参与了中国通量网 China Flux 项目的建设，同时与以下单位保持密切的合作：中国科学院，中国林科院，中国农科院，中国气象局，国家海洋局，清华大学，同济大学等国家重点高校及其它研究所等。

LIST OF PARTICIPANTS

1. **Agusti-Panareda, Anna**
ECMWF, United Kingdom
2. **Ahmed, Kawser**
Dhaka University, Bangladesh
3. **Alden, Caroline**
INSTAAR / University of Colorado
Boulder, USA
4. **Alexandrov, Georgii**
A.M. Obukhov Institute of
Atmospheric Physics of Russian
Academy of Sciences, Russian Fed
5. **Al-Shamroukh, Dalal**
Kuwait Institute for Scientific
Research, Kuwait
6. **Anders, Robert**
Oak Ridge National Lab, USA
7. **Aoki, Shuji**
Tohoku University, Japan
8. **Aryal, Deb Raj**
El Colegio de la Frontera Sur
(ECOSUR), Mexico, Mexico
9. **Asanuma, Tatsuhiko**
Meisei Electric co. Ltd., Japan
10. **ataka, mioko**
kyoto university, Japan
11. **Badawy, Bakr**
Environment Canada, Canada
12. **Baker, David**
Colorado State University, USA
13. **Baker, Ian**
Colorado State University, USA
14. **Bakker, Dorothee**
School of Environmental Sciences,
University of East Anglia, United
Kingdom
15. **Balbinot, Rafaelo**
Federal University of Santa Maria -
Brazil, Brazil
16. **Ballav, Srabanti**
Jadavpur University, India
17. **Bao, Ying**
the First Institute of Oceanography,
SOA, China
18. **Bartlett, Paul**
Environment Canada, Canada
19. **Basso, Luana**
Instituto de Pesquisas Energéticas e
Nucleares - IPEN, Brazil
20. **Basu, Sourish**
SRON Netherlands Institute for
Space Research, Netherlands
21. **Becker, Meike**
GEOMAR Helmholtz Centre for
Ocean Research Kiel, Germany
22. **Belikov, Dmitry**
National Institute for Environmental
Studies, Japan
23. **Bellerby, Richard**
Norwegian Institute for Water
Research, Norway
24. **Bergamaschi, Peter**
European Commission Joint
Research Centre, Italy
25. **Berridge, Callum**
Vrije Universiteit Amsterdam,
Netherlands
26. **Bhatt, Ram Krishna**
Central Arid Zone Research Institute
(ICAR), India
27. **Bopp, Laurent**
LSCE / IPSL, France
28. **Bovensmann, Heinrich**
Institute of Environmental Physics,
University of Bremen, Germany
29. **Brailsford, Gordon**
NIWA, New Zealand
30. **Broquet, Gregoire**
LSCE, France
31. **Brown, Peter**
University of East Anglia, Norwich,
United Kingdom
32. **Bruhwieler, Lori**
NOAA Earth System Research
Laboratory, USA
33. **Brunke, Ernst-Günther**
South African Weather Service,
South Africa
34. **Buermann, Wolfgang**
Institute for Climate and Atmospheric
Science, University of Leeds, United
Kingdom
35. **Buschmann, Matthias**
IUP University of Bremen, Germany
36. **Cai, Wei-Jun**
University of Delaware, USA
37. **Canadell, Pep**
CSIRO, Australia
38. **Cao, Longhui**
ZheJiang University, China
39. **Carvalho, Nuno**
Max Planck Institute for
Biogeochemistry, Germany
40. **Cassisa, Cyril**
Institute of Energy, Environment and
Economy, China
41. **Chatterjee, Abhishek**
National Center for Atmospheric
Research, USA
42. **Chen, Baozhang**
Institute of Geographic Sciences and
Natural Resources Research, CAS,
China
43. **Chen, Huilin**
University of Groningen
&NOAA/ESRL, USA
44. **Chen, Jing**
University of Toronto, Canada
45. **Chen, Min-Te**
National Taiwan Ocean University
46. **Chen, Tiexi**
Nanjing University, China
47. **Chen, Yaoliang**
xinjiang institute of ecology and
geography, chinese academy of
science, China
48. **Chen, Youmin**
Henan University, China
49. **Chen, Zhaohui**
IAP, China
50. **Chevallier, Chevallier**
LSCE, France
51. **Chierici, Melissa**
Institute of Marine Research,
Norway
52. **Chu, Ying**
National Institute of Metrology, China
53. **Ciais, Philippe**
LSCE, France
54. **Clement, Dominic**
ETH Zurich, Switzerland
55. **Colm, Sweeney**
NOAA, USA
56. **Combe, Marie**
Wageningen University, Netherlands
57. **Cresto Aleina, Fabio**
Max Planck Institute for Meteorology,
Germany
58. **Dai, Minhan**
State Key Laboratory of Marine
Environmental Science (Xiamen
University), China
59. **Davis, Ken**
PSU, USA
60. **De Brito, Alan**
National Institute for Space
Research, Brazil
61. **Deng, Feng**
University of Toronto, Canada
62. **Denning, Scott**
Colorado State University, USA
63. **Deutscher, Nicholas**
University of Bremen, Germany
64. **Ding, Ping**
Guangzhou Institute of
Geochemistry, Chinese Academy of
Sciences, China
65. **Dolman, Han**
Vu University Amsterdam,
Netherlands
66. **Du, Enzai**
Peking University, China
67. **Du, Xin**
Nankai University, China
68. **Dyukarev, Egor**
Institute of Monitoring of Climatic
and Ecological Systems SB RAS,
Russian Fed
69. **Dzade, Nelson**
University College London, UK
70. **Ekoungoulou, Romeo**
Beijing Forestry University, China
71. **Evans, Gavin**
University of Southampton, United
Kingdom
72. **Fang, Yuanyuan**
Carnegie Institution for Science,
USA
73. **Fanin, Thierry**
Vrije University, Netherlands
74. **Fay, Amanda**
University of Wisconsin-Madison,
USA
75. **Feitz, Andrew**
Geoscience Australia, Australia
76. **Feng, Xiaojuan**
Institute of Botany, CAS, China
77. **Fernandez, Irene**
IIAG/CSIC, Spain

- 78. Flecha Saura, Susana**
Instituto de Ciencias Marinas de Andalucía (CSIC), Puerto Real, Cádiz, Spain., Spain
- 79. Fransson, Agneta**
Norwegian Polar Institute, Norway
- 80. Freibauer, Annette**
Thuenen-Institute of Climate-Smart Agriculture, Germany
- 81. Froelicher, Thomas**
Princeton University, USA
- 82. Fu, Jia**
Campbell Scientific Inc., USA
- 83. Fu, yongshuo**
University of Antwerp; Peking university, Belgium
- 84. Ganshin, Alexander**
Central Aerological Observatory, Russian Fed
- 85. Garcia Ibanez, Maria Isabel**
Institute Investigaciones Marinas (CSIC), Spain
- 86. Gatti, Luciana**
IPEN, Brazil
- 87. Geels, Camilla**
Aarhus University, Denmark
- 88. Golovatskaya, Evgeniya**
IMCES SB RAS, Russian Fed
- 89. Gonzalez Alonso, Federico**
CIFOR-INIA, Spain
- 90. Goris, Nadine**
Geophysical Institute at the University of Bergen & Bjerknes Centre for Climate Research, Bergen, Norway
- 91. Goto, Daisuke**
National Institute of Polar Research, Japan
- 92. Graven, Heather**
Scripps Institution of Oceanography, USA
- 93. Gregor, Luke**
University of Cape Town, South Africa
- 94. Griffith, David**
University of Wollongong, Australia
- 95. Gruber, Nicolas**
ETH Zurich, Switzerland
- 96. Guo, Zhengtang**
Institute of Geology and Geophysics, Chinese Academy of Science, China
- 97. Gusti, Mykola**
International Institute for Applied Systems Analysis / Lviv Polytechnic National University, Austria
- 98. Hajima, Tomohiro**
Japan Agency for Marine-Earth Science and Technology, Japan
- 99. Han, Ching Chun**
Picarro Beijing Representative Office, China
- 100. Han, Qifei**
Xinjiang Institute of Ecology and Geography, CAS, China
- 101. Hankin, Steve**
NOAA/PMEL, USA
- 102. Harasawa, Sumiko**
National Institute for Environmental Studies, Japan
- 103. Heimann, Martin**
Max-Planck-Institute for Biogeochemistry, Jena, Germany
- 104. Heinze, Christoph**
University of Bergen, Geophysical Institute and Bjerknes Centre, Norway
- 105. Heinze, Mathias**
Max Planck Institute for Meteorology, Germany
- 106. Hoffman, Forrest**
Oak Ridge National Laboratory, USA
- 107. Hoffmann, Friederike**
University of Bergen, Norway
- 108. Hong, Jiyoun**
Korea Environment Institute, South Korea
- 109. Hong, Wu**
Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS), China
- 110. Hoppema, Mario**
Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Germany
- 111. House, Joanna**
Cabot Institute, Bristol University, United Kingdom
- 112. Houweling, Sander**
SRON/IMAU, Netherlands
- 113. Hsieh, Chengi**
National Taiwan University
- 114. Hu, Xinpeng**
Texas A&M University - Corpus Christi, USA
- 115. Hu, Yubin**
Alfred Wegener Institute, Germany
- 116. Hu, Zengyun**
Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, China
- 117. Huang, Mei**
Institute of geographical sciences and nature resources research, China
- 118. Huang, Qing**
Beijing Normal University, China
- 119. Huang, Xiaoxian**
Nanjing University, China
- 120. Huertas, I. Emma**
CSIC, Spain
- 121. Hughes, Arthur**
CO2 Capture Corporation, USA
- 122. Hungate, Bruce**
Northern Arizona University, USA
- 123. Hutjes, Ronald**
Wageningen University, Netherlands
- 124. Ichii, Kazuhito**
Fukushima University, Japan
- 125. Iida, Yosuke**
Japan Meteorological Agency, Japan
- 126. Indira, Nuggehalli**
C-MMACS, India
- 127. Inoue, Gen**
University of Tokyo, Japan
- 128. Ishidoya, Shigeyuki**
National Institute of Advanced Industrial Science and Technology (AIST), Japan
- 129. Ishii, Masao**
Meteorological Research Institute, Japan
- 130. Ishizawa, Misa**
National Institute for Environmental Studies, Japan
- 131. Jaervi, Leena**
University of Helsinki, Finland
- 132. Jain, Atul**
University of Illinois, USA
- 133. Janardanan Achari, Rajesh**
Center for Global Environmental Research, National Institute for Environmental Studies, Tsukuba, Japan, Japan
- 134. Jeong, Jaeyeob**
UNIVERSITY OF SOUTH AUSTRALIA, South Korea
- 135. Jeremy, Mathis**
NOAA - PMEL, USA
- 136. Jia, Binghao**
LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
- 137. Jia, Xin**
Beijing Forestry University, China
- 138. Jiang, Chuangye**
Shanxi Province Climate Center, China
- 139. Jiang, Fei**
International Institute for Earth System Science, Nanjing University, China
- 140. Jiang, Qian**
Institute of Geography, University of Hamburg, Germany
- 141. Jiang, Yongkai**
Tsinghua University, China
- 142. Jiao, Nianzhi**
Xiamen University, China
- 143. Johnson, Mark**
LI-COR BIOSCIENCES, USA
- 144. Jones, Dylan**
University of Toronto, Canada
- 145. Jones, Steve**
University of East Anglia, United Kingdom
- 146. Ju, Weimin**
Nanjing University, China
- 147. Kang, Ji-Sun**
KIAPS, South Korea
- 148. Karstens, Ute**
Max-Planck-Institute for Biogeochemistry, Germany
- 149. Kato, Tomomichi**
LSCE, CEA-CNRS-UVSQ, France
- 150. Kauppi, Pekka**
University of Helsinki, Finland
- 151. Kawamiya, Michio**
JAMSTEC, Japan
- 152. Kawasaki, Masahiro**
Research Institute for Humanity and Nature, Japan
- 153. Keeling, Ralph**
Scripps Institution of Oceanography, USA
- 154. Kentarchos, Anastasios**
European Commission, Belgium
- 155. Keppel-Aleks, Gretchen**
University of California, Irvine, USA
- 156. Kim, Choosig**

- Department of Forest Resources,
Gyeongnam National University of
Science and Technology, South
Korea
157. Kim, Hyun Mee
Yonsei University, South Korea
158. Kim, JinWoong
Yonsei University, South Korea
159. Kim, Joon
Seoul National University, South
Korea
160. Kim, Kyung-Ryul
Seoul National University, South
Korea
161. Kim, Yongwon
University of Alaska Fairbanks, USA
162. Kishimoto, Ayaka
National Institute for
Agro-Environmental Sciences,
Japan
163. Ko, Ginger Wai Kuen
The University of Hong Kong,
HongKong SAR, China
164. Koertzing, Arne
GEOMAR, Germany
165. Kominami, Yuji
Forestry and forest products
research institute, Japan
166. Kondo, Masayuki
Fukushima University, Japan
167. Kosugi, Naohiro
Meteorological Research Institute,
Japan
168. KOULIKOV, SERGUEI
LI-COR BIOSCIENCES, USA
169. Kozlova, Elena
University of East Anglia, United
Kingdom
170. Kozyr, Alexander
Oak Ridge National Laboratory, USA
171. Kraus, Parker
Colorado State University, USA
172. Kuddeyarov, Valery
Institute of Phys-Chem & Biol
Problems in Soil Science of RAS,
Russian Fed
173. Kunz, Martin
Max Planck Institute for
Biogeochemistry, Germany
174. Kurganova, Irina
Institute of Physicochemical and
Biological Problems in Soil Science,
Russian Academy of Sciences,
Russian Fed
175. Kurz, Werner
Natural Resources Canada, Canada
176. Kuske, Tehani
Geoscience Australia, Australia
177. Labuschagne, Casper
South African Weather service,
South Africa
178. Landschützer, Peter
University of East Anglia, United
Kingdom
179. Lansoe, Anne Sofie
Department of Environmental
Science, Aarhus University,
Denmark
180. Laruelle, Goulven
Université Libre de Bruxelles,
Belgium
181. Lauerwald, Ronny
Université Libre de Bruxelles,
Belgium
182. Lauvaux, Thomas
PennState University, USA
183. Lauvset, Siv Kari
University of Bergen, Norway
184. Lavric, Jost Valentin
Max Planck Institute for
Biogeochemistry, Germany
185. Le Quére, Corinne
Tyndall Centre for Climate Change
Research, University of East Anglia,
United Kingdom
186. Lee, Haeyoung
Korea Meteorological Administration,
South Korea
187. Lee, Jo Kien
Monash University, Malaysia
188. Legge, Oliver
University of East Anglia, United
Kingdom
189. Lenton, Andrew
CSIRO Marine and Atmospheric
Research, Australia
190. Leuenberger, Markus
Physics Institute, University of Bern,
Switzerland
191. Levy, Marina
LOCEAN, France
192. Li, Chaofan
Xinjiang Institute of Ecology and
Geography of Chinese Academy of
Sciences, China
193. Li, Hongmei
Max-Planck Institute for Meteorology,
Germany
194. Li, Longhui
University of Technology, Sydney,
Australia
195. Li, Weiping
National Climate Center, China
Meteorological Administration, China
196. Li, Yangchun
IAP, China
197. Liang, Naishen
National Institute for Environmental
Studies, Japan
198. Liang, Xiaoping
tianjin polytechnic university, China
199. Lin, Guanghui
Tsinghua University, China
200. Lin, John
University of Utah, USA
201. Lindroth, Anders
Lund University, Sweden
202. Liu, Jinxun
SGT Inc, -
203. Liu, Li
Dalian Institute of Chemical Physics,
CAS, China
204. Liu, Miaomiao
Nanjing University, China
205. Liu, Ronggao
IGSNRR, Chinese Academy of
Sciences, China
206. Liu, Shuguang
US Geological Survey, USA
207. Liu, Xiuping
Institute of Genetics and
Developmental Biology, CAS, China
208. Liu, Yangchun
China
209. Liu, Yu
ETH, China
210. Liu, Zhiyuan
Ocean University of China, China
211. Lo Monaco, Claire
LOCEAN-IPSL, France
212. Lohrenz, Steven
University of Massachusetts
Dartmouth, USA
213. Lopez, Morgan
CEA-LSCE, France
214. Lu, Daren
Institute of Atmospheric Sciences,
IAP, China
215. Lu, Lixin
Colorado State University, USA
216. Luo, Geping
Xinjiang Institute of Ecology and
Gepgraphy, CAS, China
217. Luo, Yiqi
University of Oklahoma, USA
218. Lv, Weiwei
Wuhan Regional Climate Center,
China
219. Ma, Chun
Tianjin Research Institute for Water
Transport Engineering, Ministry of
Transport, China
220. Ma, Jie
Xinjiang Institute of Ecology and
Geography, CAS, China
221. MacBean, Natasha
Laboratoire des Sciences du Climat
et de l, France
222. Machida, Toshinobu
National Institute for Environmental
Studies, Japan
223. Maki, Takashi
Meteorological Research Institute,
Japan
224. Maksyutov, Shamil
NIES, Japan
225. Manizza, Manfredi
Scripps Institution of Oceanography,
USA
226. Manning, Andrew
University of East Anglia, United
Kingdom
227. Manohar, S.N.
University of Groningen,
Netherlands
228. Martin, Georg
Estonian Marine Institute, University
of Tartu, Estonia
229. Masarie, Ken
NOAA ESRL, USA
230. Matsueda, Hidekazu
Meteorological Research Institute,
Japan
231. Matsumi, Yutaka
Nagoya University, Japan
232. Mauricio, Espinoza
Universidad Austral de Chile, Chile
233. McGillis, Wade
Columbia University, USA
234. McKinley, Galen

- University of Wisconsin - Madison, USA
235. McNeil, Ben
 University of New South Wales, Australia
236. Meijer, Harro A.J.
 Univeristy of Groningen, Netherlands
237. Mi, Yanjiao
 Free University Amsterdam, Netherlands
238. Mikaloff Fletcher, Sara
 National Institute of Water and Atmospheric Research, New Zealand
239. Miles, Natasha
 The Pennsylvania State University, USA
240. Miller, John
 NOAA, USA
241. Miller, William
 LI-COR BIOSCIENCES, USA
242. Min, Deullae
 Korea Meteorological Administration, South Korea
243. Miranda, Jussara
 FEDERAL UNIVERSITY OF RIO DE JANEIRO, Brazil
244. Mongin, Mathieu
 CSIRO, Australia
245. Moore, Berrien
 University of Oklahoma, USA
246. Morgan, Eric
 Max Planck Institute for Biogeochemistry, Germany
247. Moriarty, Roisin
 UEA, United Kingdom
248. Morimoto, Shinji
 National Institute of Polar Research, Japan
249. Mu, Linquan
 The University of Georgia, USA
250. Mukai, Hitoshi
 National Institute for Environmental Studies, Japan
251. Murata, Akihiko
 JAMSTEC, Japan
252. Murayama, Shohei
 National Institute of Advanced Industrial Science and Technology (AIST), Japan
253. Murray, James W.
 University of Washington, USA
254. Murray-Tortarolo, Guillermo
 University of Exeter, United Kingdom
255. Mystakidis, Stefanos
 ETH Zurich, Switzerland
256. Na, Qiao
 Xishuangbanna Tropical Botanical Garden. Chinese Academy of Science, China
257. Nakamura, Takashi
 Japan Meteorological Agency, Japan
258. Nakaoka, Shin-ichiro
 National Institute for Environmental Studies, Japan
259. Nakicenovic, Nebojsa
 IIASA and Vienna Univ. of Technology, Austria
260. Nguyen Hoang, Thai Khang
 Institute of Oceanography, Vietnam
261. Nickless, Alecia
 Council for Scientific and Industrial Research, South Africa
262. Niu, Shuli
 Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China
263. Niwa, Yosuke
 Meteorological Research Institute, Japan
264. Nomura, Shohei
 National Institute for environmental Studies (NIES), Japan
265. Oda, Tom
 CSU-NOAA, USA
266. Ojala, Anne
 University of Helsinki, Finland
267. Oncley, Steven
 NCAR/EOL, USA
268. Orr, James
 LSCE/IPSL, CEA-CNRS-UVSQ, France
269. Ouchi, Mai
 Nagoya University, Japan
270. Pajusalu, Liina
 Estonian Marine Institute, University of Tartu, Estonia
271. Pan, Gong
 University of Leicester, United Kingdom
272. Parazoo, Nicholas
 Jet Propulsion Laboratory, USA
273. Park, Geun Ha
 Korea Institute of Ocean Science & Technology (KIOST), South Korea
274. Park, Sung-Bin
 MPI-gBGC, South Korea
275. Patra, Prabir
 Research Institute for Global Change/JAMSTEC, Japan
276. Peng, Changhui
 University of Quebec at Montreal, Canada
277. Peng, Chuang
 University of Exeter, United Kingdom
278. Peters, Wouter
 Wageningen University, Netherlands
279. Peylin, Philippe
 LSCE, France
280. Pfeil, Benjamin
 University of Bergen, Norway
281. Piao, Shilong
 Peking University, China
282. Pickers, Penelope
 School of Environmental Sciences, University of East Anglia, United Kingdom
283. Piper, Stephen
 UCSD/Scripps Institution of Oceanography, USA
284. Post, Hanna
 Juelich Research Center GmbH, Germany
285. Prentice, Iain Colin
 Imperial College, United Kingdom
286. Qi, Ye
 Tsinghua University, China
287. Qian, Duo
 Beijing Forestry University, China
288. Qu, Bo
 Nantong University, China
289. Racape, Virginie
 LOCEAN-IPSL-UPMC, France
290. Rahman, Md. Mizanur
 SAARC Meteorological Research Centre (SMRC), Bangladesh
291. Ravi Kumar, Kunchala
 IITP, India
292. Raymond, Peter
 Yale FES, USA
293. Rayner, Peter
 The University of Melbourne, Australia
294. Regnier, Pierre
 Université Libre de Bruxelles, Belgium
295. Reichstein, Markus
 Max-Planck-Institute for Biogeochemistry, Germany
296. Resplandy, Laure
 LSCE-IPSL, France
297. Rodgers, Keith
 AOS Program, Princeton University, USA
298. Roedenbeck, Christian
 Max Planck Institute for Biogeochemistry Jena, Germany
299. Roy, Tilla
 L'Ocean, France
300. Rubino, Mauro
 CSIRO, Australia
301. Saitoh, Naoko
 Center for Environmental Remote Sensing, Chiba University, Japan
302. Sanchez, Maria Luisa
 LATUV-University of Valladolid, Spain
303. Sasai, Takahiro
 Nagoya Univ., Japan
304. Sasakawa, Motoki
 National Institute for Environmental Studies, Japan
305. Sasano, Daisuke
 Meteorological Research Institute, Japan
306. Sasse, Tristan
 University of New South Wales, Australia
307. Sawa, Yousuke
 Meteorological Research Institute, Japan
308. Schaefer, Doug
 Xishuangbanna Trop Bot Gdn, China
309. Scholze, Marko
 Lund University, Sweden
310. Schroder, Ivan
 Geoscience Australia, Australia
311. Schuster, Ute
 University of East Anglia, United Kingdom
312. Schwandner, Florian M
 Jet Propulsion Laboratory, USA
313. Schwinger, Joerg
 Geophysical Institute/University of Bergen, Norway
314. Sebastien, Biraud
 Lawrence Berkeley National Laboratory, USA

- 315. Séférian, Roland**
LSCE/IPSL, France
- 316. Seibt, Ulli**
UCLA, USA
- 317. Shchepashchenko, Dmitry**
IIASA, Austria
- 318. Shen, Chengde**
Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, China
- 319. Shen, Jiaheng**
Institute of Geology and Geophysics, CAS, China
- 320. Sheng, Yao**
School of Mathematical Sciences, Beijing Normal University, China
- 321. Shi, Hao**
UTS, Australia
- 322. Shi, Yusheng**
Nagoya University, Japan
- 323. Shiga, Yoichi**
Stanford University, USA
- 324. Shim, Changsub**
Korea Environment Institute, South Korea
- 325. Shvidenko, Anatoly**
IIASA, Austria
- 326. Sistani, Karamat**
USDA-ARS, USA
- 327. Six, Katharina**
Max Planck Institute for Meteorology, Germany
- 328. Smirnov, Nikolay**
IGCE of Roshydromet and RAS, Russian Fed
- 329. Son, Yowhan**
Korea University, South Korea
- 330.**
- 331. Song, Zhaoyang**
Ocean University of China, China
- 332. Sperlich, Peter**
MPI-BGC, Germany
- 333. Stavert, Ann**
CSIRO, Australia
- 334. Steinkamp, Kay**
National Institute of Water and Atmospheric Research, New Zealand
- 335. Stephens, Britton**
National Center for Atmospheric Research, USA
- 336. Sugawara, Satoshi**
Miyagi University of Education, Japan
- 337. Sun, Jielun**
National Center for Atmospheric Research, USA
- 338. Sun, Xian**
Shanxi Province Climate Center, China
- 339. Suto, Hiroshi**
JAXA, Japan
- 340. Swathi, Pananjady**
CMMACS, India
- 341. Takakiyo, Nakazawa**
Tohoku University, Japan
- 342. Tao, Bo**
Auburn University, USA
- 343. Tarko, Alexander**
Computing Center Russian Academy of Sciences, Russian Fed
- 344. Tazu, Saeki**
National Institute for Environmental Studies, Japan
- 345. Telionis, Demetri**
Virginia Polytechnic Institute and State University, USA
- 346. Telszewski, Maciej**
International Ocean Carbon Coordination Project, Poland
- 347. Temme, Andries**
VU University, Netherlands
- 348. Teramoto, Munemasa**
National Institute for Environmental Studies, Japan
- 349. Terao, Yukio**
National Institute for Environmental Studies, Japan
- 350. Thompson, Rona**
NILU, Norway
- 351. Tian, Hanqin**
Auburn University, USA
- 352. Tian, Xiangjun**
Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, China
- 353. Tiwari, Yogesh**
Indian Institute of Tropical Meteorology, India
- 354. Tjiputra, Jerry**
Uni Research, Bergen, Norway, Norway
- 355. Tohjima, Yasunori**
National Institute for Environmental Studies, Japan
- 356. Tomelleri, Enrico**
MPI, Germany
- 357. Totterdell, Ian**
Met Office, U.K., United Kingdom
- 358. Tsuboi, Kazuhiro**
Meteorological Research Institute, Japan
- 359. Tu, Jun**
Kennesaw State University, USA
- 360. Tum, Markus**
German Aerospace Center (DLR), Germany
- 361. Turk, Daniela**
Dalhousie University, Canada
- 362. Turnbull, Jocelyn**
GNS Science, New Zealand
- 363. Usatyuk, Vladimir**
Specialized Training–Research Center, Moscow State University, Russia, Russian Fed
- 364. Valsala, Vinu**
Indian Institute of Tropical Meteorology (IITM), India
- 365. van der Laan-Luijkx, Ingrid**
Wageningen University, Netherlands
- 366. van der Schoot, Marcel**
CSIRO, Australia
- 367. Vardag, Sanam Noreen**
Institute of Environmental Physics, Germany
- 368. Velasco, Erik**
Singapore-MIT Alliance for Research and Technology, Singapore
- 369. Vesala, Timo**
University of Helsinki, Finland
- 370. Vogel, Felix R.**
LSCE, France
- 371. Wan, Liyang**
Ministry of Education Key Laboratory for Earth System Modeling, and Center for Earth System Science, Tsinghua University, Beijing, China, China
- 372. Wang, Chongchen**
bucea, China
- 373. Wang, Haikun**
Nanjing University, China
- 374. Wang, Han**
Macquarie University, Australia
- 375. Wang, Hengmao**
International Institute for Earth System Science, Nanjing University, China
- 376. Wang, Jinfang**
Beijing Ecotek Company Limited, China
- 377. Wang, Jun**
LASG, China
- 378. Wang, Lei**
Tianjin University of Science & Technology, China
- 379. Wang, Liang**
Ocean University of China, China
- 380. Wang, Shaoqiang**
Institute of Geographic Sciences and Natural Resources Research, China
- 381. Wang, Shirly**
CAS
- 382. Wang, Wenfeng**
Chinese Academy of Sciences, China
- 383. Wang, Xiujun**
University of Maryland, USA
- 384. Wang, Xufeng**
Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China
- 385. Wang, Xuhui**
Peking University, China
- 386. Wang, Yingping**
CSIRO, Australia
- 387. Wang, Yun**
School of Mathematical Sciences, Beijing Normal University, China
- 388. Wang, Yuting**
Institute of Environmental Physics, Germany
- 389. Wang, Yuying**
Center for Agricultural Resources Research, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, China
- 390. Wang, Zhaohui Aleck**
Woods Hole Oceanographic Institution, USA
- 391. Wanninkhof, Richard**
NOAA/AOML, USA
- 392. Watson, Andrew**
University of East Anglia, United Kingdom
- 393. Welp, Lisa**
Scripps Institution of Oceanography, UCSD, USA
- 394. Wilson, Philip**

- University of East Anglia, United Kingdom
395. Wiltshire, Andrew
Met Office Hadley Centre, United Kingdom
396. Wong, Kam Weng (Clare)
Jet Propulsion Laboratory, USA
397. Wu, Chaoyang
University of Toronto, Canada
398. Wu, Fuzhong
Institute of Ecology & Forestry, Sichuan Agricultural University, China
399. Wu, Haibin
Institute of Geology and Geophysics, Chinese Academy of Sciences, China
400. Wu, You
University of Maryland, China
401. Wu, You
Nanjing University of Information Science & Technology, China
402. Xi, Fengming
Institute of Applied Ecology(IAE),CAS, China
403. Xia, Xueqi
China University of Geosciences, Beijing, China
404.
405. Xie, Zhenghui
LASG/IAP, China
406. Xing, Pan
East China university of science and technology, China
407. Xiong, Jun
ORAU, USA
408. Xiong, Xiaozhen
NOAA/NESDIS/STAR, USA
409. Xu, Bin
NMIC, China
410. Xu, Minggang
Soil and Fertilizer Institute, Chinese Academy of Agricultural Sciences, China
411. Xu, Xiaomei
University of California, Irvine, USA
412. Xue, Liang
First Institute of Oceanography, SOA, China
413. Xue, Ming
Ocean University of China, China
414. Yadav, Vineet
Carnegie Institution for Science, Department of Global Ecology, USA
415. Yan, Yuan
University of Antwerp, Belgium
416. Yang, Gang
Northwest A&F University, China
417. Yang, Jiameng
Nanjing University, China
418. Yaremchuk, Alexey
Andreyev Acoustics Institute, Russian Fed
419. Yasunaka, Sayaka
National Institute for Environmental Studies, Japan
420. Ye, Hui
Chinese academic of science, China
421. Yi, Weixi
Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, China
422. Yokota, Tatsuya
National Institute for Environmental Studies, Japan
423. Yoshida, Yukio
National Institute for Environmental Studies, Japan
424. Yoshikawa, Hisayuki
Hokkaido University, Japan
425. Yu, Yanyan
Institute of Geology and Geophysics, Chinese Academy of Science, China
426. Yu, Yongqiang
IAP, CAS, China
427. Yu, Zicheng
Lehigh University, USA
428. Yuan, Zhuang
The National Meteorological Information Center, China
429. Zamelczyk, Katarzyna
University of Tromsø, Department of Geology, Norway
430. Zeng, Michael
Ecotech, Australia
431. Zeng, Ning
University of Maryland, USA
432. Zha, Tianshan
Beijing Forestry University, China
433. Zha, Tonggang
Beijing Forestry University, China
434. Zhai, Weidong
National Marine Environmental Monitoring Center, China
435. Zhang, Chi
Xinjiang Institute of Ecology and Geography, CAS, China
436. Zhang, Fangmin
University of Toronto, Canada
437. Zhang, Haiyun
China University of petroleum, China
438. Zhang, Huifang
Institute of Geographic Sciences and Natural Resources Research, CAS, China
439. Zhang, Meigen
Institute of Atmospheric Physics, China
440. Zhang, Qian
Beijing Normal University, China
441. Zhang, Qiang
Institute of Geographic Sciences and Natural Resources Research, CAS, China
442. Zhang, Qingyu
Institute of Geographic Sciences and Natural Resources Research, CAS, China
443. Zhang, Tinglong
Northwest A&F University, China
444. Zhang, Wenjin
Shanxi Province Climate Center, China
445. Zhang, Wenxin
Lund University, Sweden
446. Zhang, Xia
Institute of Atmospheric Physics, Chinese Academy of Science, China
447. Zhang, Xiaochun
Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China
448. Zhang, Yanxia
Nanjing University, China
449. Zhang, Yao
Northwest A&F University, USA
450. Zhao, Deai
Institute of geology and geophysics ,CAS, China
451. Zhao, Dongliang
Ocean university of china, China
452. Zhao, Fang
University of Maryland, USA
453. Zhao, Huade
National Marine Environmental Monitoring Center, China, China
454. Zhao, Meifang
Centural South University of Forestry and Technology, China
455. Zhao, Yonghua
Cold and Arid Regions Environment and Engineering Research Institute,CAS, China
456. Zhao, Yumei
National Ocean Technology Center, China
457. Zhen, Xiaojie
北京天诺基业科技有限公司, China
458. Zheng, Heng
Beijing Normal University, China
459. Zheng, Xiaogu
College of global change and earth system science, Beijing Normal University, China
460. Zhengjia, Liu
Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China
461. Zhou, Cong
East China Normal University, China
462. Zhou, Jie
Beijing Forest University, China
463. Zhou, Liping
Peking University, China
464. Zhou, Tao
Beijing Normal University, China
465. Zhu, Chunmao
Hokkaido University, Japan
466. Zhu, Gaofeng
Lanzhou University, China
467. Zhu, Qiuhan
Northwest A&F University, China
468. Zhu, Zhiliang
USGS, USA
469. Zhuravlev, Ruslan
Central Aerological Observatory, Russian Fed
470. Ziehn, Tilo
CSIRO, Australia
471. Yao, Yongjun
Beijing Truvel Instruments, Inc., China
472. Liu, Lingli
Institute Of Botany, CAS



















