

WATER IN A CHANGING CLIMATE

Progress in Land-Atmosphere Interactions and Energy/Water Cycle Research

Parallel Science Conferences with Joint Sessions



Melbourne, Australia

24-28 August 2009

Final Program

Acrobat PDF versions are available for most of the GEWEX and Joint GEWEX/iLEAPS presentations

Click on the titles to view

Monday, 24 August 2009

0800 Registration open until 1800

0900 GEWEX/iLEAPS Joint Plenary Session

0900 Welcome and Opening

Chairs: Meinrat O. Andreae and Thomas Ackerman

- Bruce Stewart, WMO Commission for Hydrology
- Carlos Nobre, International Geosphere-Biosphere Programme
- Ghassem Asrar, World Climate Research Programme
- Anthony Busalacchi, ESSIC, University of Maryland
- Pavel Kabat, Conference Co-Chair, iLEAPS
- Soroosh Sorooshian, Univ. of California, Irvine; Conference Co-Chair, GEWEX

1000 Keynote Speeches

1000 • *Understanding the Climate System: Future Opportunities and Challenges*, Piers J. Sellers, NASA, Lyndon B. Johnson Space Center, USA

1030 Break

1100 • *Melbourne Water Management, 2002-2007: Lessons learnt from the frontline*, John Thwaites, Monash Sustainability Institute, Australia

1120 • *Prediction in Politics, Policy and Science*, Roger R. Pielke, Jr., Center for Science and Technology Policy Research, USA

1140 • *New Challenges in Unveiling the Links between Climate with Biogeochemical Process and the Atmosphere*, Paulo Artaxo, University of São Paulo, Brazil

1200 • *Suiving the Anthropocene: A 21st Century Challenge for Humanity*, Will Steffen, Climate Change Institute, The Australian National University

1230 Lunch

1400 GEWEX and iLEAPS Parallel Sessions

1400 iLEAPS Session 1: Surface Exchange Processes from Leaf-Level to Earth System Scale

Co-Chairs: A. Arneth, Lund Univ., Sweden; S. Harrison, Univ. of Bristol, UK

1400 *New developments in modelling elevated CO₂ effects on vegetation at ecosystem scale*, **Belinda Medlyn** (invited), David Ellsworth, Sune Linder, Rich Norby, Ram Oren, Ross McMurtrie

1420 *Interaction of micrometeorology and surface fluxes confounding the interpretation of CO₂ fluxes in central Amazonia*, **A. C. de Araújo**, A. J. Dolman, M. J. Waterloo, J. H. C. Gash, B. Kruijt, F. B. Zanchi, C. von Randow, J. M. E. de Lange, R. Stoevelaar, A. O. Manzi, A. D. Nobre, R. N. Lootens, F. J. J. Backerde

1440 *From point to globe: Up-scaling carbon and water fluxes from FLUXNET EDDY Covariance Tower via integration with Global Earth Observation*, **Markus Reichstein**, Martin Jung, Christian Beer, Enrico Tomelleri, Dennis Baldocchi, Nadine Gobron, Christian Rödenbeck, Dario Papale, FLUXNET members

1500 *Soil greenhouse gas exchange in the year after plantation harvesting*, **Stefan Arndt**, Stephen Livesley, Benedikt Fest, Luke Wylie

1530 Break

Monday, 24 August 2009 (Continued)

iLEAPS Session 1: Surface Exchange Processes from Leaf-Level to Earth System Scale

(Continued)

- 1600 *Soil-atmosphere greenhouse gas exchange in a temperate Eucalyptus regnans forest in Australia: A wildfire history perspective*, **Benedict J. Fest**, S. J. Livesley, M. Drosler, J. Beringer, S. K. Arndt
- 1620 *Ozone fluxes by EDDY Covariance over a temperate grassland, tropical rainforest and Arctic sea-ice*, **Jennifer B. A. Muller**, Carl J. Percival, Martin W. Gallagher, James R. Dorsey, Michael Flynn, David Fowler, Mhairi Coyle, Eiko G. Nemitz, Carole Helfter, Howard K. Roscoe, James D. Lee, Sarah Moller
- 1640 *The ecological theory of climate models*, **Gordan B. Bonan** (invited)
- 1710 *Incorporating functional diversity into land surface exchange processes: Results from the Jena Diversity (JEDI) vegetation model*, **Axel Kleidon**, Kristin Bohn, Ryan Pavlick, Björn Reu

1400 GEWEX Session 1: Regional Forecasting and Predictions for Hydrological Applications in Arid Zones

Co-Chairs: S. Sorooshian, UCI, USA; M. LeBlanc, JCU, Australia

- 1400 *Challenges in precipitation estimation for hydrometeorological applications*, **Soroosh Sorooshian**
- 1415 *Climate change impact on water resources for several river basins: A European, Asian and African case study*, **Erika Coppola**, Laura Mariotti, Xuejie Gao, En-Soon Im, Filippo Giorgi
- 1430 *Predicting climate change impact on low flows in a tropical river basin in India*, **Kapil Dev Sharma**, Ramakar Jha
- 1500 *WIRADA streamflow forecasting research (one of many Australian Modelling Systems)*, **Thomas Pagano**, Jim Elliott, Christopher Leahy, Adam Smith, Soori Sooriyakumaran, Prasantha Hapuarachchi, QJ Wang
- 1515 *Impact of the multi-year drought on water resources in the Murray-Darling Basin*, **Marc Leblanc**, Sarah O. Tweed, Paul Tregoning, Guillaume Ramillien, Adam Fakes

1530 Break

1600 GEWEX Session 2: Rainfall Variability and Drought in Australia

Co-Chairs: A. Pitman, UNSW, Australia; N. Nicholls, Monash University, Australia

- 1600 *Winter rainfall and circulation trends in the Southern Hemisphere*, **Julie Arblaster**, Harry Hendon, David Karoly, Gerald Meehl
- 1615 *Attribution of South East of Australia recent rainfall decline*, **Bertrand Timbal**
- 1630 *Decadal shifts in weather systems affecting Southern Australia*, **Jorgen Frederiksen**, Carsten Frederiksen, Stacey Osbrough
- 1645 *How does bias correction of GCM precipitation affect Australian drought estimates for the future?* **Fiona Johnson**, Ashish Sharma
- 1700 *Australian rainfall variability and predictability: The relative importance of slow and intraseasonal processes*, **Carsten Frederiksen**, Simon Grainger, Xiaogu Zheng
- 1715 *Homogeneous Multi-Model Ensemble prediction of Australian seasonal rainfall*, **Eun-Pa Lim**, Harry Hendon, David Anderson, Oscar Alves
- 1730 *Seasonal prediction of Australian summer monsoon rainfall: Why it can't be done*, **Harry Hendon**, Eun-Pa Lim
- 1800 Welcome Reception

Tuesday, 25 August 2009

0800 Registration open until 1800

0830 iLEAPS Session 1: Surface Exchange Processes from Leaf-Level to Earth System Scale

(Continued from Monday)

Co-Chairs: A. Arneth, Lund Univ., Sweden; S. Harrison, Univ. of Bristol, UK

0830 *Contrasting land-surface processes in dry and wet climate simulated by an Australian model*, **Huqiang Zhang**, Bernard Pak

0850 *Multiple stress effects on a native eucalyptus forest: disturbance and the long way to recovery*, **Eva van Gorsel**, Heather Keith, Helen A. Cleugh, Ray Leuning, Vanessa Haverd, Steve Zegelin, K. L. Jacobson

0910 *Estimation of CH₄ emission from Asian region by Visit Model*, **Motoko Inatomi**, Akihiko Ito

0930 *Biosphere-atmosphere interactions in the EMEP MSC-W chemical transport model: Lessons and uncertainties*, **David Simpson**

0950 *Fire in Australian savannas: From leaf to landscape*, **J. Beringer** (invited), L. B. Hutley, N. J. Tapper, L. A. Cernusak, K. Görden, D. Abramson, P. Uotila

1010 Discussion

1030 Break

1100 iLEAPS Session 4: Aerosols from the Land Surface and Their Interactions with the Climate System

Conveners: P. Artaxo, Univ. of Sao Paulo, Brazil; G. Feingold, NOAA, USA; V. M. Kerminen, Finnish Meteorological Institute, Finland

Co-Chairs: M. Kulmala, G. Feingold

1100 *Natural aerosol and CCN burdens in the continental atmosphere*, **Meinrat O. Andreae** (invited)

1130 *Biomass burning and biogenic aerosols in the tropics: What have we learnt from African Monsoon Multidisciplinary Analyses (AMMA) and the Oxidant and Particle Photochemical Processes (OP-3) Studies?* **Hugh Coe** (invited), James Allan, Keith Bower, Gerard Capes, Jonathan Crosier, Victoria Hand, Niall Robinson, David Vaughan, Qi Chen, Scott Martin, Jacqueline Hamilton; Nicholas Hewitt, Gavin Phillips, Eiko Nemitz, Jim Haywood, Ben Johnson, Claire Reeves, Jennifer Murphy

1150 *Biosphere-atmosphere interactions - The use of continuous and comprehensive measurements*, **Markku Kulmala**

1210 *Optical and chemical properties of biogenic aerosols from Amazonia*, **Paulo Artaxo**, Luciana V. Rizzo, Melina Paixão, Silvia de Lucca, Kenia T. Wiedemann

1230 Lunch

1400 *Aerosol formation potential of plant emissions – Analysis of plant chamber experiments*, **M. Dal Maso**, T. Hohaus, A. Kiendler-Scharr, E. Kleist, T. F. Mentel, R. Tillmann, J. Wildt

1420 *Simulating nucleation characteristics*, **Henri Vuollekoski**, Tuomo Nieminen, Sanna-Liisa Sihto, Hannele Korhonen, Markku Kulmala

1440 *The boundary layer Amazonian aerosol population*, **Annica M. L. Ekman**, Radovan Krejci, Peter Tunved

1500 *New aerosol optical properties in the Canadian GEM model*, **Irena Paunova**, P. Vaillancourt, L. Garand, K. von Salzen

1515 *Time-span and spatial-scale of regional new particle formation*, **Tareq Hussein**, H. Junninen, P. Tunved, A. Kristensson, M. Dal Maso, I. Riipinen, P. P. Aalto, H.-C. Hansson, E. Swietlicki, M. Kulmala

1530 Break

Tuesday, 25 August 2009 (*Continued*)

iLEAPS Session 4: Aerosols from the Land Surface and Their Interactions with the Climate System

(*Continued*)

Conveners: P. Artaxo, Univ. of Sao Paulo, Brazil; G. Feingold, NOAA, USA; V. M. Kerminen, FMI, Finland
Co-Chairs: Markku Kulmala, Graham Feingold

- 1600 *Particle formation processes in eucalypt forests – The role of sulphates and organics*, **Zoran Ristovski**, Tanja Suni, Markku Kulmala, Michael Boy, Nicholas Meyer, Andrew Turnipseed, Lidia Morawska, Urs Baltensperger, Rob Modini
- 1620 *Long-term monitoring of aerosol particles and ions at SMEAR II Station in Hyytiälä, Finland*, **Tuukka Petäjä**
- 1640 *Clean and pollution-affected newly-formed particles at a virgin boreal forest*, **Petri Vaattovaara**, Tuukka Petäjä, Jorma Joutsensaari, Pasi Miettinen, Boris Zaprudin, Aki Kortelainen, Juha Heijari, Pasi Yli-Pirilä, Pasi Aalto, Doug R. Worsnop, Ari Laaksonen
- 1700 *Observation of the suppression of water uptake by mixed organic-sulphate aerosol particles*, **Rob Modini**, Zoran Ristovski, Graham Johnson, Congrong He
- 1715 *How nucleation modifies precipitation: An experiment*, **Wolfgang Junkermann**, J. Hacker, T. Lyons, U. Nair

GEWEX John Roads Memorial Symposium

Chair: M. Kanamitsu, UCSD

0830 GEWEX Session 3: Analyses of Water and Energy Cycles

Chair: M. Bosilovich, NASA/GSFC

- 0830 *Societal benefits from GEWEX and related water cycle research*, **Richard Lawford**
- 0845 *CEOP data integration*, **Toshio Koike**, Hiroyuki Tsutsui, Hui Lu, Katsunori Tamagawa, Mirza Cyrus Raza, Lei Wang, Oliver Saavedra, Hideyuki Fujii
- 0900 *Use of CEOP data for validation of land-hydrology performance in the NCEP Global Forecast System*, **Michael Ek**, Sidney Katz
- 0915 *Modern Era Retrospective-analysis for Research and Applications (MERRA) global water and energy budgets*, **Michael Bosilovich**, Junye Chen, Franklin R. Robertson
- 0930 *Research networks for studies of the hydroclimate and climate change of the La Plata Basin*, **Ernesto Hugo Berbery**
- 0945 *Interannual variation and decadal trend in regional downscaling*, **Masao Kanamitsu**
- 1000 *Normalized covariance evaluations of the North American Regional Reanalysis Water Cycle*, **Alex Ruane**
- 1030 Break
- 1045 *The North American Regional Climate Change Assessment Program (NARCCAP): Overview of results*, **Linda Mearns**, NARCCAP Team

1100 GEWEX Session 4: Climate Prediction Systems

Chair: S. Schubert, NASA/GSFC

- 1100 *Ensemble prediction of seasonal variability with a coupled ocean-atmosphere model*, **Jorgen Frederiksen**, C.S. Frederiksen, S.L. Osbrough
- 1115 *Dynamical monthly forecasting for Australia: Bridging the gap between weather and seasonal forecasting*, **Debbie Hudson**, Oscar Alves, Harry Hendon
- 1130 *The Second Phase of the Global Land Atmosphere Coupling Experiment (GLACE-2): Update on progress*, **Bart van den Hurk**, Tomohito Yamada, Randal Koster
- 1145 *Low-frequency variability of the Indian Monsoon-ENSO relation and the Tropical Atlantic*, **Fred Kucharski**, A. Bracco, Jin Ho Yoo, Franco Molteni
- 1200 *Comparison of idealized and actual predictability of temperature and precipitation in the CFS and DEMETER seasonal climate models*, **Eric Wood**, David Lavers, Lifeng Luo
- 1215 *Predictability of the Madden-Julian Oscillation in the Poama Dynamical Seasonal Prediction System*, **Harun Rashid**, Harry Hendon, Oscar Alves, and Matthew Wheeler

1230 Lunch

Tuesday, 25 August 2009 (Continued)

1400 GEWEX Session 5: Regional Downscaling

Co-Chairs: B. Rockel, GKSS; L. Mearns, NCAR

- 1400 *Approaches to dynamical downscaling*, **Jack Katzfey** (invited)
- 1415 *Downscaling of precipitation - The observational pitfall*, **Bodo Ahrens**, A. Dobler
- 1430 *The Experimental Climate Prediction Center's regional spectral model: An overview*, **Ana Nunes** (invited)
- 1445 *Precipitation climatology in the Intermountain Region of the United States simulated by the NARCCAP regional climate models*, **Shih-Yu Wang**, Robert R. Gillies, Eugene S. Takle, William J. Gutowski, Jr.
- 1500 *Simulations of regional, extreme monthly precipitation by the NARCCAP RCMs*, **William Gutowski**
- 1515 *Regional climate model simulations of the severe 1999-2004 Canadian Prairie drought*, **Kit Szeto**, Burkhardt Rockel, Murray Mackay, Colin Jones, John Roads, Ron Stewart

1530 Break

1600 GEWEX Session 6: Regional Hydroclimate Projects and Studies

Co-Chairs: J. Huang, NOAA/CPPA; R. Stewart, University of Manitoba

- 1600 *Water isotope modeling in the Murray-Darling Basin*, **Matthew Fischer**
- 1615 *High Resolution Simulations of Snowfall over Colorado and some Climate Impacts*, **Roy Rasmussen**, David Gochis, Changhai Liu, Kyoko Ikeda, Jimy Dudhia, Greg Thompson, David Yates, Fei Chen, Mukul Tewari, Wei Yu, Kathy Miller, Aigou Dai, Vanda Grubisic, Paul Houser, Kristi Arsenault, Yang Liang
- 1630 *BALTEX Assessment of Climate Change (BACC) for the Baltic Sea Basin*, **Hans von Storch**, Hans-Jörg Isemer, Marcus Reckermann, BACC Author Team
- 1645 *Regional terrestrial water storage dynamics at multiple timescales*, **Pat J. F. Yeh**, Hyungjun Kim, Taikan Oki
- 1715 *How reliable are the estimates of climate variability in extreme precipitation?* **Olga Zolina**, Clemens Simmer, Alice Kapala, Konstantin Belyaev, Sergey Gulev
- 1730-1900 Joint GEWEX/iLEAPS Poster Session (Terrace)
- 1800-1900 iLEAPS-GEIA Activities (Grand Ballroom)
- 1900-2100 Showing of the University of Miami's documentary, [One Water](#). *This event is open to the general public as well as participants in the Conference and will be held in the Grand Ballroom.*

Wednesday, 26 August 2009

0800 Registration open until 1800

Joint GEWEX/iLEAPS Sessions

0830 Session A: Land in the Climate System

Conveners: N. de Noblet-Ducoudré, LSCE, France; A. Pitman, UNSW, Australia; J. Kim, Yonsei University, Korea; B. van den Hurk, KNMI, The Netherlands

Chairs: N. de Noblet-Ducoudré and J. Kim

0830 *Building the case for (or against) land-driven climate predictability*, **Paul Dirmeyer** (invited), Zhichang Guo, Randal Koster, Kaye Brubaker, Adam Schlosser

0900 *A new perspective on soil moisture–precipitation feedbacks from the African Monsoon Multidisciplinary Analyses*, **Christopher Taylor**, Phillip P. Harris, Richard J. Ellis, Amanda Gounou, Françoise Guichard, Douglas J. Parker, Leonhard Gantner, Norbert Kalthoff, Matt Garvert, Miguel Angel Gaertner

0915 *Benchmarking the JULES model for use in a GCM*, **Eleanor Blyth**, Matt Pryor, Steve Sitch, Doug Clark

0930 *Using a Global Flux Network—FLUXNET—to study the breathing of the terrestrial biosphere*, **Dennis Baldocchi** (invited), Rodrigo Vargas, Markus Reichstein, Dario Papale

0955 *Global and temporal characteristics of hydroclimate/vegetation biophysical process interactions*, **Yongkang Xue**, Fernando De Sales, Ratko Vasic, C. Roberto Mechoso, Akio Arakawa, Stephen Prince

1010 *Quantifying irreversibility of land surface processes and their sensitivity to global change*, **Axel Kleidon**, James Dyke, Fabian Gans, Lee Miller, Philip Porada, Stan Schymanski

1030 Break

1100 *Earth system vulnerabilities through carbon-climate interactions*, **Michael Raupach**

1125 *Using observational diagnostics of soil moisture-climate interactions as constraints to IPCC projections*, **Sonia Seneviratne**, Philippe Ciais, Markus Reichstein, Edouard L. Davin, Boris Orlowsky, and Adriaan J. Teuling

1145 Session B: Aerosol, Cloud, Precipitation and Climate Interactions

Conveners: M. O. Andreae, Max Planck Institute for Chemistry, Germany; M. Kulmala, University of Helsinki, Finland; G. Feingold, NOAA/ESRL; T. Ackerman, JISAO

Chairs: M. O. Andreae and T. Ackerman

1145 *Climate effects of aerosols: A link to cloudiness and precipitation*, **Teruyuki Nakajima** (invited)

1215 *Does it rain more on weekdays than weekends?* **R. E. Carbone**, J. D. Tuttle, D. Nychka

1230 Lunch

1400 *Aerosol-cloud-precipitation interactions in a self-organising system*, **Graham Feingold**, Hailong Wang

1425 *Anthropogenic aerosols and Southern Hemisphere climate change: A modelling perspective*, **Leon Rotstajn** (invited)

1450 *“Trends” and variability in tropical rainfall distribution and relation with aerosol*, **Long Chiu**, R. Chokngamwong, Tseon Hei Har

1505 *Observations and simulations of supercooled liquid water (SLW) in Southern Ocean clouds*, **Steve Siems**, Anthony Morris, Michael Manton

1520 *Do aerosols influence precipitation on a large scale? One look on potential aerosol impact on hydrological pathways*, **Anders Engström**, Annica Ekman, David Noone

1535 Break

Wednesday, 26 August 2009 (*Continued*)

Joint GEWEX/iLEAPS Sessions (*Continued*)

1600 Session C: Future Generation of Integrated Observation and Modeling Systems

Conveners: G. Brasseur, NCAR, USA; J. Finnigan, CSIRO, Australia; M. Miller, ECMWF, UK; K. Trenberth, NCAR, USA; H. Dolman, Free Univ., The Netherlands

Chairs: G. Brasseur and M. Miller

- 1600 *Integrated observation and modelling systems for meteorology and atmospheric composition*, **Adrian Simmons** (invited)
- 1630 *Combining models and data on the global carbon cycle: Fusion or confusion*, **Peter Rayner** (invited)
- 1655 *Aspects of a climate observing system: Energy and water*, **Kevin Trenberth** (invited)
- 1720 *The BEACHON Project: Integrating cycles and scales*, **Alex Guenther**
- 1735 *The Australian Water Resources Assessment system: Blending water cycle observations and models at local and continental scale*, **Albert van Dijk**, Luigi Renzullo
- 1750 *Observing global and continental terrestrial water and energy budgets using satellite remote sensing*, **Eric Wood**, Justin Sheffield, Craig Ferguson, Tara Troy, Ming Pan
- 1805 *ESA's new contributions to global Earth system observations*, **Paul Ingmann**, Mark Drinkwater, Joerg Langen, Klaus Scipal, Michael Kern, Malcolm Davidson
- 1930 Conference Dinner at Melbourne Museum

Thursday, 27 August 2009

0800 Registration open until 1800

0830 iLEAPS Session 2: Progress in Land-Atmosphere Interactions and Climate Change

Conveners: S. I. Seneviratne, ETH, Switzerland; P. Friedlingstein, LSCE, France; G. Farquhar, Australian National University; P. Canadell, CSIRO, Australia

Co-Chairs: S. I. Seneviratne, ETH, Switzerland and P. Friedlingstein, LSCE, France

- 0830 *Quantifying land-atmosphere interactions for climate change*, **I. Colin Prentice** (invited)
- 0900 *A numerical approach for dealing with soil wetness and evapotranspiration over large grid areas*, Piers J. Sellers
- 0930 *Impact of land use and land cover changes on atmosphere-biosphere exchanges and atmospheric chemistry*, **Laurens Ganzeveld**
- 0950 *Emissions of gases and particles from biomass burning during the 20th century*, **Claire Granier**, Aude Mieville, Cathy Liousse, Bruno Guillaume, Florent Mouillot, Jean-François Lamarque, Jean-Marie Grégoire, Gabrielle Pétron
- 1010 *Amazonian Aerosol Characterization Experiment (AMAZE-08)*, **Scott P. Martin**, Paulo Artaxo, AMAZE-08 Team
- 1030 Break
- 1100 *The Carbon-Land Model Intercomparison Project (C-LAMP): A prototype for coupled biosphere-atmosphere model benchmarking for the IPCC Fifth Assessment Report (AR5)*, **Forrest M. Hoffman**, James T. Randerson, Inez Y. Fung, Peter E. Thornton, Natalie M. Mahowald, Gordon B. Bonan, Steven W. Running
- 1120 *Benchmarking land surface model carbon fluxes using atmospheric CO₂ measurements*, **Rachel M. Law**, Ying-Ping Wang, Bernard Pak
- 1140 *Impact of land use change and nitrogen deposition on the carbon and nitrogen stocks of plants and soils*, **Atul K. Jain**, Xiojuan Yang, Tosha Richardson
- 1200 *Modelling the spatial and temporal variability of energy, water and carbon-dioxide fluxes over Australian tropical savannas*, **Peter Isaac**, Jason Beringer, Lindsay Hutley
- 1230 Lunch

Thursday, 27 August 2009 (Continued)

iLEAPS Session 2: Progress in Land-Atmosphere Interactions and Climate Change

(Continued)

Co-Chairs: S. I. Seneviratne, ETH, Switzerland and P. Friedlingstein, LSCE, France

- 1400 *Modelling permafrost in an earth system model: Permafrost's response to (and role in) climate change*, **David M. Lawrence** (invited), Andrew G. Slater
- 1430 *Arctic vegetation changes induce high latitude warming through greenhouse effect*, **Abigail Swann**, Inez Fung, Samuel Levis, Gordon Bonan, Scott Doney
- 1450 *The role of snow/ice cover in formulating the local circulation on the northern slope of the Himalayas*, **Han Zou**, Libo Zhou, Shupo Ma, Peng Li
- 1510 *The impact of changes in diffuse radiation on the global land carbon sink*, **Linda M. Mercado**, N. Bellouin, S. Stith, O. Boucher, C. Huntingford, M. Wild, P. M. Cox
- 1530 Break
- 1600 *Contribution of land-atmosphere coupling to temperature and precipitation extremes of the European summer climate in the 20th century*, **Eric. B. Jaeger**, Sonia I. Seneviratne
- 1620 *How is climate change likely to change transpiration rates from plant canopies?* **Miko U. F. Kirschbaum**
- 1640 *Global flood and landslide detection and prediction using satellite observations*, **Robert F. Adler**

0830 GEWEX Session 7: Observing Surface Fluxes: From Local to Global Scales

Chair: J. Finnigan, CSIRO

- 0830 *Surface fluxes from local to global scales*, **Bill Rossow** (invited)
- 0900 *Global land-surface evaporation and climate*, **Eleanor Blyth**, Richard Harding, W. James Shuttleworth
- 0915 *Satellite estimations of atmospheric energy budgets*, **Bing Lin**, Paul W. Stackhouse Jr., Yongxiang Hu, Norm Loeb, Tai-Fang (Alice) Fan
- 0930 *Long-Term variability of land surface-atmosphere interaction in heterogeneous terrain: Results from the CEOP reference site Lindenberg*, **Udo Rummel**, Frank Beyrich, Sieghard Richter, Wolfgang Adam, Gerd Vogel
- 0945 *On the balance of precipitation and evaporation at regional and global scale in the HOAPS-3 satellite climatology and other data sets*, **Jörg Schulz**, Axel Andersson, Christian Klepp, Stephan Bakan

1000 GEWEX Session 8: Multiscale Properties of the Tropical Energy and Water Cycles: From Thunderstorms to Monsoons

Co-Chairs: H. Hendon, CAWCR; TBA

- 1000 *The Maya Express – Linking tropical moisture to mid-latitude flooding over North America*, **Paul Dirmeyer**, James L. Kinter III
- 1015 *Diagnosis of the MJO modulation of tropical cyclogenesis using an empirical index*, **Matthew Wheeler**, Suzana Camargo, Adam Sobel
- 1030 Break
- 1100 *Simulated effects of overshooting convection on water vapour in the tropical UTLS (upper-troposphere/lower-stratosphere)*, **Muhammad Hassim**, Todd Lane
- 1115 *Characterizing precipitation extremes in the TRMM Multi-Satellite Precipitation Analysis*, **George Huffman**, Robert F. Adler, David T. Bolvin, Eric J. Nelkin
- 1200 *Tropical cloud regimes and their interactions with large scales*, **Christian Jakob**
- 1215 *Mechanisms and processes for the generation of early-morning clouds over the Tonle Sap Lake in Cambodia*, **Kumiko Tsujimoto**, Toshio Koike
- 1230 Lunch

Thursday, 27 August 2009 (Continued)

1400 **GEWEX Session 9: Advances in the Representation of the Energy and Water Cycle in Models**

Chair: G. Feingold, NOAA/ESRL

- 1400 *Intercomparison of single-column and LES model results with Cabauw observations within the Third GEWEX Atmospheric Boundary Layer Study (GABLS3), Bert Holtslag, F. C. Bosveld, S. Basu, G. Svensson*
- 1430 *Multi-scale modelling system with unified physics, Wei-Kuo Tao*
- 1445 *Assessing the performance of a prognostic and a diagnostic cloud scheme using single column model simulations of TWP-ICE, Charmaine Franklin, Christian Jakob, Martin Dix, Greg Roff*
- 1500 *Evaluating global and regional hydrological cycles in the met office global NWP model, Paul Earnshaw, Sean Milton*
- 1515 *A USCLVAR multi-model assessment of the impact of SST Anomalies and land-atmosphere feedbacks on drought, Siegfried Schubert, USCLIVAR Drought Working Group*
- 1530 Break
- 1600 *Modelling components of the surface energy balance using two canopy concepts in the Access Model, Eva Kowalczyk, L. Stevens, Y. P. Wang, R. Law, B. Pak*
- 1615 *Improving the numerical solution of soil moisture-based Richards Equation, Xubin Zeng, Mark Decker*

1630 **GEWEX Session 10: Cloud Climate Feedbacks**

Co-Chairs: R. Colman, CAWCR; W. Rossow, CREST/City College of NY

- 1630 *Understanding global cloud "feedbacks": Rapid responses to climate forcing and feedback evolution under large global warming, Robert Colman, Bryant McAvaney*
- 1645 *Time scales of variability of the tropical atmosphere and the implied radiative feedbacks, George Tselioudis, William B. Rossow*
- 1700 *Exploring the low cloud feedback mechanisms with observations and LES Modelling, Kuan-Man Xu, Anning Cheng, Zachary Eitzen*
- 1715 *Convection in a parameterized and super-parameterized model and its role in the representation of the MJO, Hongyan Zhu, Harry Hendon, Christian Jacob*
- 1730-1900 Joint GEWEX/iLEAPS Poster Session (Terrace)

Friday, 28 August 2009

0830 **iLEAPS Session 3: Role of Atmospheric Boundary Layer Processes in Modulating Surface Exchanges**

Conveners/chairs: L. Ganzeveld, Wageningen University, The Netherlands; B. Holtslag, Wageningen University, The Netherlands

- 0830 *Introduction to Session 3: Role of boundary layer processes in modulating surface exchanges, Laurens Ganzeveld*
- 0850 *Dynamics of nocturnal exchange of ozone and carbon dioxide in and above a boreal forest canopy, Timo Vesala (invited), Üllar Rannik, Petri Keronen, Janne Rinne, Ivan Mammarella, Pasi Kolari, Jukka Pumpanen*
- 0920 *The role of boundary layer clouds in transport and dispersion of trace gases, Harm Jonker (invited), Remco Verzijlbergh, Thijs Heus, Jordi Vila-Guerau de Arellano*
- 0950 *Eddy covariance observations of CH₄ and N₂O towards more accurate emission estimates, Petra S. Kroon, A. Hensen, H. J. J. Jonker, A. P. Schrier-Uijl, M. J. Tummers, F. C. Bosveld*
- 1010 *Turbulence structure above vegetation canopies, John J. Finnigan, Roger H. Shaw, Edward G. Patton*
- 1030 Break

Friday, 28 August 2009 (*Continued*)

iLEAPS Session 3: Role of Atmospheric Boundary Layer Processes in Modulating Surface Exchanges

(*Continued*)

Conveners/chairs: L. Ganzeveld, Wageningen University, The Netherlands; B. Holtslag, Wageningen University, The Netherlands

- 1100 *Identifying parameters to describe local land-atmosphere coupling*, **Michael Ek**, Cor Jacobs, Joseph A. Santanello Jr., Obbe Tuinenburg
- 1120 *Radon as a quantitative natural tracer of mixing and venting in clear and cloudy convective boundary layers over land*, **Alastair Williams**, Wlodek Zahorowski, Scott Chambers, Jorg Hacker, Alan Griffiths, Adrian Element, Sylwester Werczynski
- 1140 *Turbulent boundary layer dynamics: Intermittent or persistent turbulence?* **Florence Bocquet**, B. Balsley
- 1150 *Innovative and "hair-raising" final talk*, **Pavel Kabat**, M. O. Andreae, P. J. Sellers, C. Nobre, A. Henderson-Sellers
- Poster Awards
- Slide Show

0830 GEWEX Session 11: The Role of Integrated Observing Systems in Closing Regional and Global Water and Energy Budgets

Co-Chairs: T. Koike, University of Tokyo, Japan; P. Ingmann, ESA-ESTEC

- 0830 *Space-based observations of the global water cycle*, **Jack Kaye** (invited)
- 0900 *Earth observations and moist processes*, **Graeme Stephens** (invited), Deborah G. Vane
- 0930 *Transdisciplinary missions of JAXA on water cycles by Earth Observation Satellites*, **Taikan Oki**
- 1000 *CALIPSO laser depolarization from around the globe: Improved understanding of ice cloud properties and relation to deep convection*, **Kenneth Sassen**, Jiang Zhu
- 1015 *Water Cycle Multimission Observation Strategy (WACMOS)*, **Bob Su**, M. van Helvoirt, R. de Jeu, D. Fernández Prieto, R. Roebeling, J. Schulz, M. Schröder, P. Stammes, C. van der Tol, P. van Oevelen, W. Wagner, L. Wang
- 1030 Break
- 1100 *Regionalization of surface heat fluxes over heterogeneous landscape of the Tibetan Plateau*, **Yaoming Ma**, Weiqiang Ma, Hirohiko Ishikawa

1115 GEWEX Session 12: Climate Change and Global Precipitation

Co-Chairs: C. Kummerow, CSU; TBA

- 1115 *Global precipitation - Means, variations, and relations to temperature*, **Robert Adler**, Guojun Gu, George Huffman
- 1130 *A possible tipping point associated with summertime rainfall*, **Richard E. Carbone**
- 1145 *Change in precipitation extremes indices due to global warming projected by a 20-km mesh global atmospheric model*, **Shoji Kusunoki**, Kenji Kamiguchi, Mio Matsueda
- 1200 *Merging satellites, models and gauges to obtain new precipitation estimates*, **Mathew Sapiano**, Philip A. Arkin, John E. Janowiak, Thomas M. Smith
- 1215 *CPC Unified Precipitation Products: Global high-resolution gauge-satellite merged analyses of daily precipitation*, **Pingping Xie**, Soo-Hyun Yoo, Wei Shi, CPC Precipitation Working Group
- 1230-1300 Conference Wrap-Up, Peter van Oevelen