Journal of Meteorological Research

Special Issue on Development and Applications of Regional and Global Land Data Assimilation Systems (LDAS) (JMR-LDAS)

Call for Papers

Land Data Assimilation Systems (LDASs) have gone through almost two decades of research and development where numerous exciting and inspiring progresses have been witnessed. Since the initiation of the North American and Global LDAS (NLDAS and GLDAS) by scientists from the NASA, NOAA, Princeton University, University of Washington, as well as other universities in the beginning of 2000, various national and regional LDASs have been developed in Europe, South America, Canada, and China. These systems have also been extended from offline (uncoupled), semi-coupled, to fully coupled. With satellite products becoming widely and continuously available, LDASs have been largely improved with benefits of data assimilation. At the same time, as more and more *in situ* and satellite observations become available, the scientific understating of land surface processes and land surface models (LSM) have been greatly improved by addition of more realistic physical processes, optimized model parameters, new soil and vegetation datasets, and upgraded model structures. Improvements in LSM and assimilation of satellite data improved the quality and reliability of LDAS products such that they can be used to provide optimal initial conditions for coupled weather and climate modeling and to support drought monitoring, agricultural crop planning, and water resources management. Many LDAS systems have been operationally implemented at various national service centers to produce timely products to users. Two examples are the NLDAS at NCEP/NOAA and the China Meteorological Administration (CMA) LDAS system (CLDAS for short) at the National Meteorological Information Center (NMIC)/CMA.

In the past, CMA did not have an operational LDAS system. Users from both scientific community and service sectors have been utilizing NASA GLDAS products, as well as NOAA and ECMWF reanalysis products for their research and applications. Recently, CLDAS has seen a rapid development. CLDAS version 1.0 was operationally implemented in 2013, and version 2.0 in 2017. The CLDAS products have been released to the public. Its surface metrological forcing data, energy fluxes, water fluxes, and state variables need to be comprehensively evaluated against *in situ* observations, satellite retrievals, and reanalysis products. At the same time, many applications of these products are being carried out in both research institutions and service sectors. In addition, a regional LDAS system is being developed specially for the arid and semi-arid area in northwestern China, in an effort to better cope with the challenges of coarse/low-quality meteorological observations, as well as the lack of scientific understanding on land surface processes there. Furthermore, the NLDAS and GLDAS are moving forward to increasing spatial

resolution, improving forcing data, using latest versions of land-surface models, adding data assimilation procedures, and using new soil and vegetation datasets. These new developments have facilitated the advancement of atmospheric, climatological, and hydrological sciences.

We invite contributions of original research and review articles that will facilitate various LDAS efforts in the science and application community. Potential topics include but are not limited to:

- ➢ Development and progress of national, regional, and global LDAS systems
- ➢ Improvement and assessment of surface meteorological forcing
- ➢ Application of data assimilation techniques in LDAS
- ➢ Comparison analysis of LDAS and reanalysis products
- ➢ Evaluation of LDAS products against *in situ* observations and satellite retrievals
- ➢ Application of LDAS products in regional and global coupled weather and climate models
- ➢ Improvement of land surface/hydrological models including model physical processes, soil and vegetation datasets, model structure and parameters, etc.
- ➢ Application of LDAS products in drought/flood monitoring and prediction, wild fire, agriculture and crop management, water resource management, etc.
- ➢ Impacts of LDAS products on atmospheric data assimilation

We are especially interested in papers elaborating on improvement of CLDAS and its application in the arid and semi-arid area of Northwest China, as well as comparative investigations between CLDAS and other LDAS/reanalysis products. In support of the publication of this special issue, publication charges of innovative, well-written papers will be waived, pending on the scores and comments of the handling Editor/reviewers and the Responsible Editors Team of this special issue; and three best papers will be awarded with certificates and cash prizes. Contributions from both Chinese and overseas authors are well encouraged.

Responsible Editors for the Special Issue:

Lead Editor:

Youlong Xia, I.M. Systems Group at EMC\NCEP, College Park, Maryland, USA, xiay@imsg.com

PhD from Ludwig-Maximilians University of Munich, Germany in 1999. Serving as a Senior Research Scientist since 2006 at EMC/NCEP to coordinate and develop the North American Land Surface Data Assimilation System. His areas of interest include land surface modeling, model optimization and uncertainty estimate, drought/hydrologic monitoring and prediction, seasonal hydrological forecast system, data verification and evaluation, data assimilation, and so on.

Editors:

Chunxiang Shi, National Meteorological Information Center, China Meteorological Administration (CMA), Beijing, China, shicx@cma.gov.cn

PhD from Chinese Academy of Sciences in 2008. As a Chief Scientist in NMIC of CMA, she has led the research on data blending from multiple sources and its operational

application. She has been building the first China real-time operational Land Data Assimilation System (CLDAS), and is now co-leading a research team to develop the CMA next generation 40-yr global atmosphere reanalysis project (CRA-40).

Ming Pan, Department of Civil and Environmental Engineering, Princeton University, Princeton, New Jersey, USA, mpan@princeton.edu

BE from Tsinghua University in 2000 and PhD from Princeton University in 2006. As a Research Scientist, he serves as PI and Co-I for a number of projects funded by U.S. institutions such as NASA. His areas of interest include hydrologic remote sensing, land surface modeling, hyper-resolution modeling, data assimilation/fusion/learning, hydrologic monitoring and short/long-term forecast.

Guest Editors:

Yaohui Li, Institute of Arid Meteorology, China Meteorological Administration, Lanzhou, China, liyh@iamcma.cn

PhD from Chinese Academy of Sciences in 2006. As a Senior Research Scientist and Director of his institute, he investigates arid climate change, drought formation and monitoring, regional arid climate modeling, and land–atmosphere interaction.

Xiwu Zhan, NOAA-NESDIS Center for Satellite Applications and Research, College Park, Maryland, USA, Xiwu.Zhan@noaa.gov

PhD from Cornell University. As a senior research scientist, he has been leading multiple research projects for NOAA and NASA. Main areas of his research team at NOAA include: development and application of operational satellite land surface data products, land data assimilation, drought monitoring, and so on.

Lifeng Luo, Department of Geography, Environment, and Spatial Sciences, Michigan State University, East Lansing, Michigan, USA, lluo@msu.edu

BS from Peking University in 1998, and PhD from Rutgers University in 2003. As an Associate Professor, he focuses on hydrology and climate sciences, including land-atmosphere interaction and its impact on the global climate and hydrological cycle, climate extremes, seasonal drought prediction, and climate change.

Aihui Wang, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, wangaihui@mail.iap.ac.cn

PhD from Chinese Academy of Sciences in 2007. As a research professor, she is interested in land surface/hydrology model improvement, drought reconstruction and predication, land surface data construction and validation, and so on.

Jifu Yin, Earth System Science Interdisciplinary Center, University of Maryland, College Park, Maryland, USA, jifu.yin@noaa.gov

PhD from Nanjing University of Information Science & Technology (NUIST) in 2015. Post-doc at NOAA-NESDIS-STAR. Currently as an Assistant Research Scientist, he is interested in satellite remote sensing of land surface soil moisture and its assimilation, climate and hydrologic modeling, and drought monitoring and forecasting.

Xitian Cai, Lawrence Berkley National Laboratory, Berkeley, California, USA, xtcai@lbl.gov

PhD from University of Texas in 2015. Currently as a Postdoctoral Fellow, he focuses on investigating water, carbon, and nutrient cycles using land surface and earth system models.

Baoqing Zhang, College of Earth and Environmental Sciences, Lanzhou University, Lanzhou, China, baoqzhang@lzu.edu.cn

PhD from Utah State University and Northwest A&F University (China). As an Associate

Professor, he works on development of physically based multiscalar drought indices, rainwater harvesting potential in arid and semi-arid regions, etc.

Bailing Li, Earth System Science Interdisciplinary Center, University of Maryland, College Park, Maryland, USA, bailing.li-1@nasa.gov

PhD from University of Arizona in 1998. Currently as a research scientist, she is working on land surface modeling, data assimilation of satellite estimated soil moisture and terrestrial water storage changes.

Zengcahao Hao, College of Water Sciences, Beijing Normal University, Beijing, China, haozc@bnu.edu.cn

PhD in 2012 from Texas A&M University. As an assistant professor now, his mainly works on drought monitoring and prediction, hydrological simulation, climate change and extremes.

Dagang Wang, Department of Water Resources and Environment, Sun Yat-Sen University, Guangzhou, China, wangdag@mail.sysu.edu.cn

BE from Dalian University of Technology in 1997 and PhD from University of Connecticut in 2007. Now as an Associate Professor, he works on land surface modeling, urbanization on climate, and hydrometeorological forecast.

Tongren Xu, Faculty of Geographical Science, Beijing Normal University, Beijing, China, xutr@bnu.edu.cn

PhD from Beijing Normal University in 2011. Now as an Associate Professor, he focuses on developing evapotranspiration data assimilation and uncertainties analysis, eco-hydrology, and so on.

Xing Yuan, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, yuanxing@tea.ac.cn

PhD from Chinese Academy of Sciences in 2008. Awarded “Thousand Talents Program for Distinguished Young Scholars” in 2015. Now as a research professor, he is interested in hydroclimatology, including hydrological modeling and forecasting, and so on.

Important Dates

Submission open: January 15, 2018

Submission deadline: January 14, 2019

Publication time: As soon as the paper is accepted and edited. The Special Issue in virtual format will be compiled online and the Special Issue in print is available upon request.

Style and format instructions available at

http://www.cmsjournal.net:8080/Jweb_jmr/EN/column/column23.shtml

Submission gateway: https://mc03.manuscriptcentral.com/acta-e

&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&

Journal of Meteorological Research (JMR), formerly *Acta Meteorologica Sinica*, is published internationally by the Chinese Meteorological Society and Springer Nature. JMR intends to promote the exchange of scientific and technical innovation and thoughts between Chinese and foreign meteorologists. It covers all fields of meteorology, including observational, modeling, and theoretical research and applications in weather forecasting and climate prediction, as well as related topics in geosciences and environmental sciences.

JMR contains academic papers, research/field program highlights, conference reports, and comprehensive discussions on meteorological research and operation undertaken both in China and worldwide.

For more information about JMR, visit
http://www.springer.com/journal/13351

http://www.springer.com/journal/13351

Journal of Meteorological Research
Co-Editors-in-Chief: Ding, Y.; Li, T.; Peng, M.S.; Weng, F.; Yu, R.; Zhang, R.; Yi, L.
ISSN: 2095-6037 (print version)
ISSN: 2198-0934 (electronic version)
Journal no. 13351