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 meteorological 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, xiy@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).

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**Guest Editors:**

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

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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.

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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.

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PhD from Utah State University and Northwest A&F University (China). As an Associate
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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
Submission gateway: https://mc03.manuscriptcentral.com/acta-e

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