# Weather and Climate - Peer Reviewed Journal Articles

1. **Title: Retrieving co-occurring cloud and precipitation properties of warm marine boundary layer clouds with A-Train data.** By Mace, G. G., Avey, S., Cooper, S., Lebsock, M., Tanelli, S. & Dobrowalski G. (2016). Journal Geophysical Research - Atmospheres, 121. Doi: 10.1002/2015JD023681.
   **Description:**
   It is often necessary to average several thousand (hundred) precipitating (weakly precipitating) profiles to obtain meaningful information regarding the properties important to microphysical processes. Regardless, if such process level information is deemed necessary for better constraining predictive models of the climate system, measurement systems specifically designed to accomplish such retrievals must be considered for the future.
   Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD023681/full

2. **Title: An intensified hydrological cycle in the simulation of geoengineering by cirrus cloud thinning using ice crystal fall speed changes.** By Jackson, L. S., Crook, J. A, & Forster, P. M. (2016). Journal of Geophysical Research: Atmospheres, 121. Doi: 10.1002/2015JD024304.
   **Description:**
   Proposals to geoengineer Earth's climate by cirrus cloud thinning (CCT) potentially offer advantages over solar radiation management schemes: amplified cooling of the Arctic and smaller perturbations to global mean precipitation. Using an idealized climate model implementation of CCT in which ice particle fall speeds were increased 2×, 4×, and 8× we examine the relationships between effective radiative forcing (ERF) at the top of atmosphere, near-surface temperature, and the response of the hydrological cycle.
   Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/2015JD024304/full

3. **Title: Loss of a lake system in a megacity: The impact of urban expansion on seasonal meteorology in Mexico City.** By Benson-Lira, V., Georgescu, M., Kaplan, S., & Vivoni, E. R. (2016). Journal of Geophysical Research - Atmospheres, 121, 3079–3099. Doi: 10.1002/2015JD024102.
   **Description:**
   The Mexico City Metropolitan Area (MCMA) has undergone significant urban expansion in a closed basin that once supported a large lacustrine system. While urbanization has been mentioned as a factor in observed meteorological trends, a systematic study of the effects of land use-land cover change (LULCC) on seasonal meteorology is lacking. In this study, we utilize the Weather Research and Forecasting (WRF) system to determine the spatiotemporal changes in near-surface air temperature, precipitation, and boundary layer conditions induced by the modern-day urban landscape relative to pre-settlement conditions.
   Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD024102/full

4. **Title: On the Detection of Precipitation dependence on Temperature.** By Zhou, Y., Luo, M., and Leung, Y. (2016). Geophysical Research Letters, 43. Doi: 10.1002/2016GL068811.
   **Description:**
   Employing their newly proposed inter annual difference method (IADM), Liu et al. (2009) and Shiu et al. (2012) reported a shocking increase of around 100% K−1 in heavy precipitation with warming global temperature in 1979–2007. Such increase is alarming and prompts us to probe into the IADM. In this

study, both analytical derivations and numerical analyses demonstrate that IADM provides no additional information to that of the conventional linear regression, and, it may give a false indication of dependence.
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2016GL068811/full

5. **Title: Statistical downscaling and dynamical downscaling of regional climate in China: Present climate evaluations and future climate projections.** By Tang, J., Niu, X., Wang, S., Gao, H., Wang, X., & Wu, J. (2016). Journal of Geophysical Research - Atmospheres, 121, 2110–2129. Doi: 10.1002/2015JD023977.
**Description:**
Statistical downscaling and dynamical downscaling are two approaches to generate high-resolution regional climate models based on the large-scale information from either reanalysis data or global climate models. In this study, these two downscaling methods are used to simulate the surface climate of China and compared. The Statistical Downscaling Model (SDSM) is cross validated and used to downscale the regional climate of China. Then, the downscaled historical climate of 1981–2000 and future climate of 2041–2060 are compared with that from the Weather Research and Forecasting (WRF) model driven by the European Center-Hamburg atmosphere model and the Max Planck Institute Ocean Model (ECHAM5/MPI-OM) and the L'Institut Pierre-Simon Laplace Coupled Model, version 5, coupled with the Nucleus for European Modelling of the ocean, low resolution (IPSL-CM5A-LR).
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD023977/full

6. **Title: New Gridded Daily Climatology of Finland: Permutation-based Uncertainty Estimates and Temporal trends in Climate.** By Aalto, J., Pirinen, P., & Jylhä, K. (2016). Journal of Geophysical Research - Atmospheres, 121. Doi: 10.1002/2015JD024651.
**Description:**
Long-term time series of key climate variables with a relevant spatiotemporal resolution are essential for environmental science. Moreover, such spatially continuous data, based on weather observations, are commonly used in, e.g., downscaling and bias correcting of climate model simulations.
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD024651/full

7. **Title: Multi-decadal fluctuations of the North Atlantic Ocean and feedback on the winter climate in CMIP5 control simulations.** By Peings, Y., Simpkins, G., & Magnusdottir, G. (2016). Journal of Geophysical Research - Atmospheres, 121, 2571-2592. Doi: 10.1002/2015JD024107.
**Description:**
This study examines the relationship between the Atlantic Multi-decadal Variability (AMV) and the wintertime atmospheric circulation of the North Atlantic in simulations of the fifth Coupled Model Inter comparison Project (CMIP5). Comparisons of internal (using preindustrial control simulations) and externally forced (using historical and Representative Concentration Pathways 8.5 simulations) simulated AMV with observations suggest that the CMIP5 models lack internally generated AMV, except for two models (GFDL-ESM2G and HadGEM2-ES).
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD024107/full

8. **Title: An Evaluation of the Variable-Resolution-CESM for Modeling California's climate.** By Huang, X., Rhoades, A. M., Ullrich, P. A., & Zarzycki, C. M. (2016). Journal of Advances in Modeling Earth Systems, 8, 345–369. Doi: 10.1002/2015MS000559.
   **Description:**
   In this paper, the recently developed variable-resolution option within the Community Earth System Model (VR-CESM) is assessed for long-term regional climate modeling of California at 0.25° (~28 km) and 0.125° (~14 km) horizontal resolutions. The mean climatology of near-surface temperature and precipitation is analyzed and contrasted with reanalysis, gridded observational data sets, and a traditional regional climate model (RCM)—the Weather Research and Forecasting (WRF) model.
   Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/2015MS000559/full

9. **Title: On the Reconstruction of Ocean Circulation and Climate based on the "Gardar Drift".** By Langehaug, H. R., Mjell, T. L., Ottera, O. H., Eldevik, T., Ninnemann, U. S., & Kleiven, H. F. (2016). Paleoceanography, 31,399–415. Doi: 10.1002/2015PA002920.
   **Description:**
   Sediment-based reconstructions of bottom water velocity at the Gardar Drift are commonly interpreted to reflect changes in the eastern Nordic Seas overflows. Here we investigate the relationship between changes in the water that overflows through the Faroe Shetland Channel and downstream bottom velocity at the location of the Gardar Drift as represented in a 500 year long simulation with the Bergen Climate Model.
   Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/2015PA002920/full

10. **Title: Tropical West Pacific moisture dynamics and Climate controls on rainfall isotopic ratios in Southern Papua, Indonesia.** By Permana, D. S., Thompson, L. G., & Setyadi, G. (2016). Journal of Geophysical Research - Atmospheres, 121, 2222–2245. Doi: 10.1002/2015JD023893.
    **Description:**
    Understanding the controls on stable isotopologues of tropical rainfall is critical for paleo-climatic reconstruction from tropical ice core records. The southern Papua region, Indonesia, has a unique climate regime that allows for the evaluation of the influence of precipitation and convective activity on seasonal rainfall δ18O. The influence of the El Niño–Southern Oscillation (ENSO) on inter annual rainfall δ18O variation is also important for paleo-climate reconstruction. Here we present stable isotope analyses of 1332 rain samples collected daily during the period from January 2013 to February 2014 (ENSO-normal) and December 2014 to September 2015 (El Niño) at various elevation stations (9 to 3945 m above sea level) on the southern slope of the central mountain ranges in Papua.
    Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD023893/full

11. **Title: Robust Cloud Feedback over Tropical land in a warming Climate.** By Kamae, Y., Ogura, T., Watanabe, M., Xie, S.-P., & Ueda, H. (2016). Journal of Geophysical Research - Atmospheres, 121, 2593–2609. Doi: 10.1002/2015JD024525.
    **Description:**
    Cloud-related radiative perturbations over land in a warming climate are of importance for human health, ecosystem, agriculture, and industry via solar radiation availability and local warming amplification. However, robustness and physical mechanisms responsible for the land cloud feedback were not examined sufficiently because of the limited contribution to uncertainty in global climate sensitivity. Here

we show that cloud feedback in general circulation models over tropical land is robust, positive, and is relevant to atmospheric circulation change and thermodynamic constraint associated with water vapor availability.
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD024525/full

12. **Title: Evaluation of near-surface temperature, humidity, and equivalent temperature from regional climate models applied in type II downscaling.** By Pryor, S. C., & Schoof, J. T. (2016). Journal of Geophysical Research - Atmospheres, 121, 3326–3338. Doi: 10.1002/2015JD024539.
**Description:**
Atmosphere-surface interactions are important components of local and regional climates due to their key roles in dictating the surface energy balance and partitioning of energy transfer between sensible and latent heat. The degree to which regional climate models (RCMs) represent these processes with veracity is incompletely characterized, as is their ability to capture the drivers of, and magnitude of, equivalent temperature (Te). This leads to uncertainty in the simulation of near-surface temperature and humidity regimes and the extreme heat events of relevance to human health, in both the contemporary and possible future climate states.
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JD024539/full

13. **Title: Characterization of the Climate Absolute Radiance and Refractivity Observatory (CLARREO) Ability to serve as an Infrared Satellite Inter calibration Reference.** By Tobin, D., Holz, R., Nagle, F., & Revercomb, H. (2016). Journal of Geophysical Research - Atmospheres, 121. Doi: 10.1002/2016JD024770.
Description:
Climate Absolute Radiance and Refractivity Observatory (CLARREO) is a future mission employing an infrared spectrometer with unprecedented calibration accuracy and the ability to assess its calibration on-orbit using a novel verification system. Utilizing this capability for satellite inter-calibration is a primary objective of the mission. This paper presents a new infrared inter-calibration methodology that minimizes the inter-calibration uncertainties and provides uncertainty estimates resulting from the scene variability and instrument noise.
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2016JD024770/full

14. **Title: Multiyear Climate Prediction with initialization based on 4D-Var Data Assimilation.** Geophysical Research Letter, 43. Doi: 10.1002/2016GL067895. By Mochizuki, T., Masuda, S., Ishikawa, Y., & Awaji, T. (2016).
**Description:**
An initialization relevant to inter annual-to-decadal climate prediction has usually used a simple restoring approach for oceanic variables. The 4D-Var approach enables us to directly assimilate a time trajectory of slow changes of the Aleutian Low that are compatible with the sea surface height and the OHC. Consequently, we can estimate a coupled climate state suitable for hind casting dynamical changes over the extra tropical North Pacific as observed.
Retrieved from http://onlinelibrary.wiley.com/wol1/doi/10.1002/2016GL067895/full

15. **Title: Whole Planet coupling between Climate, Mantle, and Core: Implications for rocky Planet Evolution.** By Foley, B. J., & Driscoll, P. E. (2016). Geochemistry, Geophysics, Geosystems, 17. Doi: 10.1002/2015GC006210.
    **Description:**
    Earth's climate, mantle, and core interact over geologic time scales. Climate influences whether plate tectonics can take place on a planet, with cool climates being favorable for plate tectonics because they enhance stresses in the lithosphere, suppress plate boundary annealing, and promote hydration and weakening of the lithosphere. Plate tectonics plays a vital role in the long-term carbon cycle, which helps to maintain a temperate climate.
    Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/2015GC006210/epdf

16. **Title: Characterizing the onset and demise of the Indian Summer Monsoon.** By Noska, R., & Misra, V. (2016). Geophysical Research Letter, 43. Doi: 10.1002/2016GL068409.
    **Description:**
    An objective index of the onset and demise of the Indian summer monsoon (ISM) is introduced. This index has the advantage of simplicity by using only one variable, which is the spatially averaged all-India rainfall, a reliably observed quantity for more than a century. The proposed onset index is shown to be insensitive to all historic false onsets.
    Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/2016GL068409/pdf

17. **Title: Five centuries of U.S. West Coast drought: Occurrence, spatial distribution, and associated atmospheric circulation patterns.** By Wise, E. K. (2016). Geophysical Research Letter, 43. Doi: 10.1002/2016GL068487.
    **Description:**
    The U.S. West Coast drought commencing in 2012 developed in association with a large, persistent high-pressure ridge linked to internal atmospheric variability. This study places the occurrence, spatial patterns, and associated circulation features of West Coast drought into a paleo climate context through a synoptic dendroclimatology approach linking atmospheric circulation to surface hydro-climate patterns.
    Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/2016GL068487/pdf