

## Clara Draper

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### Education

PhD, 2011: University of Melbourne, Faculty of Engineering, Melbourne, Australia.

MSc, 2006: Monash University, School of Mathematical Sciences, Melbourne, Australia.

BSc/BEng, 2001: University of Melbourne, Melbourne, Australia (Major: Math./Env. Eng.).

### Professional Experience

- NOAA/ESRL Physical Sciences Division / University of Colorado, CIRES: Research Scientist III (04/2017-current)
- NASA Global Modeling and Assimilation Office / University Space Research Association: Research Associate, Scientist II, Scientist III (05/2011- 02/2017)
- NASA Global Modeling and Assimilation Office / University of Maryland Baltimore County: Research Associate (02/2011-05/2011)
- Centre National de Recherches Météorologiques (CNRM) / Météo-France: Associated Scientist (04/2010-12/2010)
- Australian Bureau of Meteorology Centre for Australian Weather and Climate Research: Professional Officer (06/2004-06/2008)

### Bio/Current Responsibilities

Clara Draper's research is focused on land data assimilation, with a particular interest in coupled data assimilation in atmospheric systems. She currently leads land data assimilation research at the NOAA Earth System Research Laboratories, Physical Sciences Laboratory, where she is developing a coupled land/atmosphere data assimilation intended for use in NOAA's operational weather forecasting systems. Previous to this, she was with the NASA Global Modeling and Assimilation Office, where she developed and tested a coupled land/atmosphere data assimilation system that is planned for use in NASA's future reanalyses.

### Publications (all 2016-2020, then first author only)

- Gruber, A and co-authors (2020), Validation practices for satellite soil moisture retrievals: What are (the) errors?, *Remote Sensing of Environment*, 244, 111806.
- Hagan, D, R Parinussa, G Wang, and C Draper (2020), An Evaluation of Soil Moisture Anomalies from Global Model-Based Datasets over the People's Republic of China, *Water*, 12, 117.
- Albergel, C and co-authors (2019). Data assimilation for continuous global assessment of severe conditions over terrestrial surfaces, *Hydrol. Earth Syst. Sci. Discuss.*, <https://doi.org/10.5194/hess-2019-534>, in review.
- Draper, C and R Reichle (2019). Assimilation of Satellite Soil Moisture for Improved Atmospheric Reanalyses, *Monthly Weather Review*, 147, 2163–2188.

- Albergel, C, S Munier, A Bocher, B Bonan, Y Zheng, C Draper, D Leroux, J-C Calvet (2018). LDAS-Monde Sequential Assimilation of Satellite Derived Observations Applied to the Contiguous US : An ERA-5 Driven Reanalysis of the Land Surface Variables. *Remote Sensing*, 10, 1627.
- Hacker, J, Draper, C and L Madaus (2017). Challenges and Opportunities for Data Assimilation in Mountainous Environments, *Atmosphere*, 9, 127.
- Draper, C, R Reichle, R Koster (2017). Assessment of MERRA-2 Land Surface Energy Flux Estimates, *Journal of Climate*, 31, 671–691.
- Giroto, M, G Lannoy, R Reichle, M Rodell, C Draper, S Bhanja, A Mukherjee (2017). Benefits and Pitfalls of GRACE Data Assimilation: A Case Study of Terrestrial Water Storage Depletion in India, *Geophysical Research Letters*, 44: 4107-4115.
- Gelaro, R and co-authors (2017). The Modern-Era Retrospective Analysis for Research and Applications, Version 2 (MERRA-2), *Journal of Climate*, 30, 5419–5454.
- Kolassa, J, R Reichle, and C Draper (2017). Merging active and passive microwave observations in soil moisture data assimilation, *Remote Sensing of Environment*, 191, 117-130.
- Reichle, R, C Draper, Q Liu, M Giroto, S Mahanama, R Koster, and G De Lannoy (2016). Assessment of MERRA-2 land surface hydrology estimates, *Journal of Climate*, 30, 2937–2960.
- Reichle, R, Q Liu, R Koster, C Draper, S Mahanama, and G Partyka (2016). Land surface precipitation in MERRA-2, *Journal of Climate*, 30, 1643–1664.
- Draper, C and R Reichle (2015). The impact of near-surface soil moisture assimilation at sub-seasonal, seasonal, and inter-annual time scales, *Hydrology and Earth System Sciences*, 19, 4831-4844.
- Draper, C, R Reichle, G De Lannoy, and B Scarino (2015). A dynamic approach to addressing observation-minus-forecast mean differences in a land surface skin temperature data assimilation system, *Journal of Hydrometeorology*, 16, 449-464.
- Draper, C, R Reichle, G De Lannoy, and Q Liu (2012). Assimilation of passive and active microwave soil moisture retrievals, *Geophysical Research Letters*, 39, L04401.
- Draper, C, J-F Mahfouf, J-C Calvet, E Martin, and W Wagner (2012). Assimilation of ASCAT near-surface soil moisture into the SIM hydrological model over France, *Hydrology and Earth System Sciences*, 15, 2011, 3829-3841.
- Draper, C, J-F Mahfouf, and J Walker (2010). Root zone soil moisture from the assimilation of screen-level variables and remotely sensed soil moisture, *Journal of Geophysical Research*, 116, D02127.
- Draper, C, J-F Mahfouf, and J Walker (2009). An Extended Kalman Filter assimilation of AMSR-E near-surface soil moisture into the ISBA land surface scheme, *Journal of Geophysical Research*, 114, D20104.
- Draper, C, J Walker, P Steinle, R de Jeu, and T Holmes (2009). An evaluation of AMSR-E derived soil moisture over Australia, *Remote Sensing of Environment*, 113(4), 703-710.
- Draper, C & G Mills (2008). The atmospheric water balance over the semiarid Murray-Darling River Basin, *Journal of Hydrometeorology*, 9 (3), 521-534.