

# Sahra Kacimi

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## Professional experience

- 2021-present**      **Scientist:** *Remote sensing and analysis of the sea ice system. Retrievals of snow depth, ice thickness, ice kinematics from various instruments. Study of sea ice processes and ice-ocean interactions using observations and models.*  
Jet Propulsion Laboratory (Caltech /NASA).
- 2017-2021**      **Technical staff:** *Analysis and treatment of satellite, airborne and ground measurements for precipitation and snow depth retrievals.*  
Jet Propulsion Laboratory (Caltech /NASA).
- 2015-2016**      **Visiting assistant researcher:** *Development of a data-assimilation approach for AIRS infrared brightness temperatures in cloud and rain.*  
Joint Institute For Regional Earth System Science and Engineering (UCLA); Jet Propulsion Laboratory (Caltech /NASA).
- 2012-2015**      **Postdoctoral fellow:** *Improving the vertical profiling of precipitation using passive microwave radiometers for the GPM mission.*  
Jet Propulsion Laboratory (Caltech /NASA).

## Education

- 2009-2012:**      **Ph.D. degree in Meteorology, Oceanography and Environment**, UVSQ - University Versailles Saint Quentin en Yvelines, Versailles, France.
- 2007-2008:**      **M.S. degree in Physical Methods in Remote sensing**, University Paris 7 Denis Diderot, France.

## Honors, Awards and Fellowships

- 2012-2015:**      NASA postdoctoral fellowship at Jet Propulsion Laboratory.
- 2009-2012:**      PhD fellowship, CNES (Centre National des Etudes Spatiales) /EADS-Astrium, France.

## Peer-reviewed publications

Kwok, R., Petty, A. A., Bagnardi, M., Kurtz, N. T., Cunningham, G. F., Ivanoff, A., and **Kacimi, S.**: Refining the sea surface identification approach for determining freeboards in the ICESat-2 sea ice products, *The Cryosphere*, 15, 821–833, <https://doi.org/10.5194/tc-15-821-2021>, 2021.

**Kacimi, S.** and Kwok, R.: The Antarctic sea ice cover from ICESat-2 and CryoSat-2: freeboard, snow depth, and ice thickness, *The Cryosphere*, 14, 4453–4474, <https://doi.org/10.5194/tc-14-4453-2020>, 2020.

Kwok, R., Cunningham, G. F., **Kacimi, S.**, Webster, M. A., Kurtz, N. T., & Petty, A. A. (2020). Decay of the snow cover over Arctic sea ice from ICESat-2 acquisitions during summer melt in 2019. *Geophysical Research Letters*, 47, e2020GL088209. <https://doi.org/10.1029/2020GL088209>

Kwok, R., **Kacimi, S.**, Webster, M. A., Kurtz, N. T. and Petty, A. A. (2020), Arctic snow depth and sea ice thickness from ICESat-2 and CryoSat-2 freeboards: A first examination. *Journal of Geophysical Research: Oceans*, 125(3), e2019JC01600.

Kwok, R., **Kacimi, S.**, Markus, T., Kurtz, N.T., Studinger, M., Sonntag, J.G., Manizade, S.S., Boisvert, L.N., and Harbeck, J.P., 2019: ICESat-2 surface height and sea-ice freeboard assessed with ATM lidar acquisitions from Operation IceBridge, *Geophysical Research Letters* 46.20: 11228-11236.

Steward, J., Haddad, Z., Hristova-Veleva, S., **Kacimi, S.**, and Seo, E. K. ,2018: Variational Deconvolution of Conically Scanned Passive Microwave Observations With Error Quantification. *IEEE Transactions on Geoscience and Remote Sensing*, 57(2), 1001-1014.

Kwok, R. and **Kacimi, S.**, 2018: Three years of sea ice freeboard, snow depth, and ice thickness of the Weddell Sea from Operation IceBridge and CryoSat-2. *The Cryosphere* 12, 2789-2801.

Kwok, R., Pang, S.S. and **Kacimi, S.**, 2017: Sea ice drift in the Southern Ocean: Regional patterns, variability, and trends. *Elem Sci Anth*, 5.

Haddad, Z.S., Sawaya, R.C., **Kacimi, S.**, Sy, O.O., Turk, F.J. and Steward, J. 2017: Interpreting millimeter-wave radiances over tropical convective clouds, *J. Geophys. Res. Atmos.*, 122, 1650–1664, doi:10.1002/2016JD025923.

**Kacimi S.**, N. Viltard and P-E. Kirstetter, 2013: A new methodology for rain identification from passive microwave data in Tropics using neural networks. *Quarterly Journal of the Royal Meteorological Society: Special Issue on the Megha-Tropiques mission*, **139**, 912-922. doi: 10.1002/qj.2114

### Non-peer-reviewed publications

Haddad Z. S., Sawaya R. S., **S. Kacimi**, Sy O. O., and Steward J. L. "Quantifying and monitoring convection intensity from mm-wave sounder observations", *Proc. SPIE 9882, Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions VI*, 98820M (3 May 2016); <https://doi.org/10.1117/12.2228186>

Haddad, Z., **Kacimi, S.** and D. Short, 2015: A parametrization of vertically-variable horizontal non-uniformity of rain within the GPM-SPR beams. *Geoscience and Remote Sensing Symposium (IGARSS), 2015 IEEE international*, 5131-5133. doi: 10.1109/IGARSS.2015.7326988.

Tapiador F., **Kacimi S.**, Castro M. Levizzani, V., Katsanos, D. and García-Ortega E. (2015). *Precipitation Science: Observations, Retrievals, and Modeling*. *Advances in Meteorology*. 2015. 10.1155/2015/843403.

### Conferences

**Kacimi S.** and Kwok R.: Three years of snow depth and ice thickness from ICESat-2 and CryoSat-2. *Oral presentation at the American Geophysical Union (AGU) Fall Meeting*, New Orleans, USA (13-17 December 2021).

**Kacimi S.** and Kwok R.: A look at the Antarctic sea ice cover from combined measurements of ICESat-2 and CryoSat-2 ". **Invited oral presentation at the virtual American Geophysical Union (AGU) Fall Meeting** (1-17 December 2020).

**Kacimi S.** and Haddad Z.-S.: Using the Megha-Tropiques SAPHIR sounder for rain: "Detection, forward observation operator (for DA), and retrievals". *Poster presentation at the 7th IPWG Workshop on Precipitation Measurements*, Tsukuba, JAPAN. (17-21 November 2014)

**Kacimi S.** and Haddad Z.-S.: Improving the instantaneous vertical profiling of precipitation from spaceborne radiometers using high sensitivity ground-based radar measurements. *Poster presentation at the 31st Conference on Hurricanes and Tropical Meteorology*, San Diego, USA. March 30-April 4, 2014

**Kacimi S.**, Haddad Z.-S. and Turk J.-F.: Improving the instantaneous vertical profiling of precipitation using ground-based radar measurements. *Oral presentation at the 1<sup>st</sup> international Megha-Tropiques ground validation workshop*, Toulouse, France. November 25-27, 2013.

**Kacimi S.** and Haddad Z.-S.: Improving the resolution of over-sampled radiometer and radar measurements for rain retrieval algorithms. *Poster presentation at the American Geophysical Union (AGU) Fall Meeting*, San Francisco, USA. December 3-7, 2012.

**Kacimi S.**, Haddad Z.-S. and Viltard N.: Status of BRAIN algorithm for the Megha Tropiques mission. *Oral presentation at the 4<sup>th</sup> TRMM/GPM science conference*, Tokyo, Japan. November 13-16, 2012.

**Kacimi S.**, Viltard N. and Kirstetter P.-E.: Optimization of a rain retrieval algorithm using microwave data from satellites. *Oral presentation at the European Geophysical Union (EGU) meeting*, Vienna, Austria. April 3-8, 2011.

**Kacimi S.**, Viltard N. and Kirstetter P.-E.: Reduction of a rain retrieval algorithm database using Self Organizing Maps. *Poster presentation at the PMM (Precipitation Measurement Missions) meeting*, Seattle, USA. November 1-5, 2010.

## **Editorial / Review activities**

### **Journals:**

- The Cryosphere Journal- 2020
- Journal of Hydrometeorology- 2014-2016
- IEEE: Transactions on Geoscience and Remote Sensing- 2015

### **Editor:**

- Guest editor for the special issue: “Precipitation science: Observations, Retrievals, and Modeling”. *Advances in Meteorology* (2015).

### **Proposal panel review:**

- NASA The Science of Terra, Aqua, and Suomi-NPP call - 2020
- NASA Remote sensing theory for Earth science call - 2019

## **Field experiments**

**Megha-Tropiques mission validation campaign**, Niamey, Niger, August 2010

## **Skills**

**Languages** French (native), English (fluent), Spanish (fluent), Lingala (basic level)

**Computer** Windows, Linux / Unix, Mac OS, Fortran, Matlab, IDL, GMT, Microsoft Office