**NATACHA KALECINSKI**

Postdoctoral associate

Department of Geographical Sciences

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**Education**

2015 Ph.D. in Atmospheric Sciences, Polytechnique school, France

2011 M.S. Ocean, Atmosphere and climate science, University of Grenoble Alpes, France

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**Recent Appointments**

Present Postdoctoral associate, Department of Geographical Sciences, University of Maryland, College Park, USA

2015-2018 Research Engineer, EDF Store & Forecast, Lyon, FRANCE

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**Refereed Articles**

Jean-Claude, J-C., Vermote, E.,Skakun, S., Murphy, E., Dubovik, O., **Kalecinski, N.,** Korgo, B., Holben, B., (2022). Aerosol models from the AERONET database: application to surface reflectance validation. Atmospheric Measurement Techniques. 15. 1123-1144. 10.5194/amt-15-1123-2022.

Franch, B., Vermote,E. Skakun, S., Santamaria-Artigas, A., **Kalecinski, N**., Roger, J-C., Becker-Reshef, I., Barker, B., Justice, C., Sobrino, J.A., The ARYA crop yield forecasting algorithm: Application to the main wheat exporting countries. **2021,** Volume 104, 102552. <https://doi.org/10.1016/j.jag.2021.102552>

Skakun, S., **Kalecinski, N.I.**., Brown, M.G.L., Johnson, D.M., Vermote, E.F., Roger, J.-C., Franch, B. Assessing within-Field Corn and Soybean Yield Variability from WorldView-3, Planet, Sentinel-2, and Landsat 8 Satellite Imagery. Remote Sens. **2021**, 13, 872. <https://doi.org/10.3390/rs13050872>

Badosa, J., Haeffelin, M., **Kalecinski, N**., et al. Reliability of day ahead solar irradiance forecasts on Reunion Island depending on synoptic wind and humidity conditions. Solar Energy, 2015, vol. 115, p. 306-321. <https://doi.org/10.1016/j.solener.2015.02.039>

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**Publications (In Review, Submitted, or In Prep)**

**Kalecinski N**.,Skakun S., Torbick N., Huang X., Roger J.C., Vermote E., Integration of L-band and C-band SAR data with high resolution optical observation in crop yield estimation, Science of Remote Sensing, 2023 (in review).

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**Press/ mass media publication.**

**Bloomberg**: “*Russia Reaped $1 Billion of Wheat in Occupied Ukraine, NASA Says*”,

<https://www.bloomberg.com/news/articles/2022-12-03/russia-reaped-1-billion-of-wheat-in-occupied-ukraine-nasa-says>

**NASA Earth Observatory**: “*Larger Wheat Harvest in Ukraine Than Expected*” ,

<https://earthobservatory.nasa.gov/images/150590/larger-wheat-harvest-in-ukraine-than-expected>

**NASA Earth Observatory**: “*Measuring War’s Effect on a Global Breadbasket*”,

<https://earthobservatory.nasa.gov/images/150025/measuring-wars-effect-on-a-global-breadbasket>

**NASA Harvest Publication: “***Is High Resolution Imagery Sufficient To Solely Explain Crop Yields?”* <https://nasaharvest.org/index.php/news/high-resolution-imagery-sufficient-solely-explain-crop-yields>

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**Refereed Presentations**

**Kalecinski, N.,** ***Forecasting Crop Yield using NASA Data*,** Hyper Wall for NASA presentation, Classic Commodity, Houston, 2024

**Kalecinski, N.,** Skakun, S., Roger, J.-C., Vermote, E., Franch, B., Barker, B.,*Operational crops yield prediction from MODIS and VIIIRS surface reflectance in Europe and USA for summer and winter crops***, JpGU, 2023**

Nair, S.S., Becker Reshef, I., Wagner, J., Sadeh, Y., Hosseini, M., Khabbazan, S., Skakun, S., Munshell, B., Baber, S., Duncan, E., Li, F., Sahajpal, R., **Kalecinski, N**., Baker, B., and Humber, M., *A Rapid Assessment Framework to monitor harvest progress in Ukraine*, EGU 2023

**Kalecinski, N.,** Skakun, S., Roger, J.-C., Vermote, E., Fall AGU 2021 conference, "Optical and radar data synergy to capture intra/inter field yield variability,"(Presentation), New Orleans, United States. (December 13, 2021 - December 17, 2021).

Franch, B., Vermote, E., Skakun, S., Santamaria-Artigas, A., **Kalecinski, N**., Roger, J. C., ... & Justice, C. (2021, July). *Forecasting Wheat Yield Using Remote Sensing: The ARYA Forecasting System*. IEEE International Geoscience and Remote Sensing Symposium IGARS*,* 2021 (pp. 6419-6422).

Franch, B., Skakun, S., Santamaria Artigas, A., **Kalecinski, N**., Roger, J.-C., Becker-Reshef, I., Molla-Bononad, B., Moletto-Lobos, I., Sanchez-Torres, M.J., San Bautista, A., Rubio, C., Justice, C., Sobrino, J., (September 19, 2022 - September 23, 2022). "*ARYA: A remote sensing based method for forecasting wheat yield. Application over the major exporting countries*," [Conference Paper] 6th Recent Advances in Quantitative Remote Sensing (RAQRS)

Roger, J.-C., Derimian, Y., Coeur, C., Vermote, E., **Kalecinski, N.,** Santamaria Artigas, A., Skakun, S., Dubovik, O., Holben, B., (September 19, 2022 - September 23, 2022). *"Evolution of the aerosol daily direct radiative efficiency during the pre-COVID-19 decade using the AERONET database,"* [Conference Paper] 6th Recent Advances in Quantitative Remote Sensing (RAQRS)

Roger, J.-C., vermote, E., Skakun, S., Dubovik, O., **Kalecinski, N**., Korgo, B., Holben, B., (September 19, 2022 - September 23, 2022). *"Aerosol models from the AERONET data base: Application to surface reflectance validation,"* [Conference Paper] 6th Recent Advances in Quantitative Remote Sensing (RAQRS)

Roger, J.-C., vermote, e., Skakun, S., Murphy, E. F., Dubovik, O., **Kalecinski, N**., Korgo, B., Holben, B., (July 17, 2022 - July 22, 2022*). "Aerosol models from the AERONET data base: Application to surface reflectance validation,"* [Conference Paper] International Geoscience and Remote Sensing Symposium (IGARSS)

Roger, J.-C., Derimian, Y., Coeur, C., Vermote, E., **Kalecinski, N**., Skakun, S., Dubovik, O., Holben, B., Korgo, B., Santamaria Artigas, A., (July 4, 2022 - July 8, 2022). "Evolution of the aerosol daily direct radiative efficiency during the pre-COVID-19 decade using the AERONET database," [Conference Paper] International Radiation Symposium (IRS) 2022

Roger, J.-C., Vermote, E., Dubuisson, P., Villaescusa Nadal, J., Santamaria Artigas, A., **Kalecinski, N**., Skakun, S., (July 4, 2022 - July 8, 2022). *"New Vectorial Version of the Second Simulation of the Satellite Signal in the Solar Spectrum,"* [Conference Paper] International Radiation Symposium (IRS) 2022

Franch, B., Vermote, E., Skakun, S., Santamaria Artigas, A., **Kalecinski, N**., Roger, J.-C., et al., (May 23, 2022 - May 27, 2022). *"Forecasting Wheat Yield Over the Major Wheat Exporting Countries,"* [Conference Paper] Living Planet Symposium

Badosa, J., Haeffelin, M., and **Kalecinski, N.,** *Solar radiation temporal and spatial variability and correlations with trade wind characteristics over reunion island (21s, 55.5 e).* In *EGU General Assembly Conference Abstracts*. Vol. 14. 2012

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**Refereed Poster**

**Kalecinski, N**., Skakun, S., Torbick, N., Huang, X., Roger, J.-C., Vermote, E. F., (2023). *Crop yield estimation at different growing stages using a synergy of SAR and optical remote sensing data*, JpGU, 2021

**Kalecinski, N**., Skakun, S., Torbick, N., Huang, X., Roger, J.-C., Vermote, E. F., (2022). *"Integration of L-band and C-band SAR data with high resolution optical observation in field crop yield estimation,"* [Workshop] NISAR Workshop

Roger, J.-C.,Derimian, Y., Coeur, C., Kalecinski, N., Skakun, S., Dubovik, O., Vermote, E. F., Justice, C., Holben, B., Fall AGU 2021conference, "*Evolution of the Aerosol Radiative Efficiency During the Last Decade Using the AERONET Database,"* New- Orleans, United States. (December 13, 2021 - December 17, 2021)

Roger, J.C., Vermote, E., Skakun, S., **Kalecinski, N.,** *New vectorial version of the second simulation of the satellite signal in the solar spectrum, 6SV2.,* IGARSS, 2020

**Kalecinski, N.**, Martial H., Badosa, J., and Roger, J.C., *Cloud formation over La Reunion Island for surface products*. In *AGU Fall Meeting 2019*. AGU, 2019.

Roger, J.C., Vermote, E., Skakun, S., Franch, B., Dubovik, O., Holben, B., **Kalecinski, N**. and Justice, C.O., 2019, December. *AEROSOL MODELS FOR ATMOSPHERIC CORRECTIONS OVER LAND*. In *AGU Fall Meeting 2019*. AGU

**Kalecinski, N**, Haeffelin, M., Badosa J. *Evaluation of the performance of a meso-scale NWP model to forecast solar irradiance on Reunion Island for photovoltaic power applications*, JSS 2015, France

<https://sirta.ipsl.polytechnique.fr/jss2015_presentations.html>

https://sirta.ipsl.polytechnique.fr/documents/JSS2015/posters/JSS2015\_poster-E5\_Kalecinski.pdf

**Kalecinski, N.,** Haeffelin, M., Badosa, J., & Periard, C, *Scénarios de nuages sur l’île de la Réunion en journée: synthèse d’observations satellites et de simulations numériques*, JSS 2015, France

<https://sirta.ipsl.polytechnique.fr/documents/JSS2015/posters/JSS2015_poster-A7_Kalecinski.pdf>

Haeffelin, M., Badosa, J., **Kalecinski, N.,** Mathorel, J., Sèze, G., *PVSCOPE outil de prévision de l'énergie solaire*, JSS, 2015.

https://sirta.ipsl.polytechnique.fr/documents/JSS2015/posters/JSS2015\_poster-E4\_Mathorel.pdf

Badosa, J., Haeffelin, M., **Kalecinski, N**., et al. *Satellite-based solar irradiance and photovoltaic (PV) production forecasting on Reunion Tropical Island*, AMS, 2014

Badosa, J., Haeffelin, M., Dupont, J.C., Migan, A., Mambrini, T., Mathorel, J., Bars, G., Nassar, J., Bourdin, V., **Kalecinski, N**., Sèze, G., Szantai, A., *Enjeux sociétaux autour de la recherche en rayonnement solaire*. JSS 2014

**Kalecinski, N**., Haeffelin, M., Badosa, J., & Periard, C Evaluation of the performance of a meso-scale NWP model to forecast solar irradiance on Reunion Island for photovoltaic power applications. In *EGU General Assembly Conference Abstracts*, 2013

<https://meetingorganizer.copernicus.org/EGU2013/posters/11636>

<https://meetingorganizer.copernicus.org/EGU2013/EGU2013-11851.pdf>

Badosa, J., Haeffelin, M., and **Kalecinski**, N., *"Solar radiation temporal and spatial variability and correlations with trade wind characteristics over reunion island (21s, 55.5 e)." EGUGA* (2012):12808.

<https://meetingorganizer.copernicus.org/EGU2012/EGU2012-12808.pdf>

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**Workshops**

2024 Commodity Classic, Houston, Texas (Hyper Wall presenter for NASA)

2023 ACRES, Kickoff, Saint Louis, Missouri (Presenter)

2022 NISAR-ISSRO, Pasadena, California (Poster)

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**Research Project and Grant**

*2023–2028*

Collaborator for the NASA project “NASA ACRES: A Climate Resilient Ecosystem Approach to Strengthening US Agriculture.”

PI: A. Whitcraft (UMD)

*2021-2023*

Co- Investigator for High Impact Hot spot of Land Cover, Land Use Change: Ukraine and Neighboring countries.

Grant Research NASA-Washington (Headquarters) : $498,269.00

*2011–2013*

Collaborateur for the PEGASE Project (Production of Electricity from Gas and Solar Energy).

Grant: 5 M €. Project granted by ADEME convention N°1005C0190 and EDF company.

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**Entrepreneurial, Technology Transfer, and Public Engagement Activities**

*2015 – 2017*

Co-develop PVSCOPE Software for the day-ahead and intra-day photovoltaic (PV) power production forecasts.

*25% of the PVSCOPE software patent.*

February 2017 – October 2017

BENCHMARK organized by EDF company of real time solar, and wind forecast energy production. Software evaluation.

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**Teaching, Extension, Mentoring, and Advising**

*2024*

UMD doctoral student/postdoc peer mentoring program

*June 2023 to present.*

Co-advisor, PhD student Italo Giuliano, University of Valencia, Spain

PhD subject: “The NYMERIA-ARYA model: Novel Yield Model of Experimental Remote-sensing Improvement based on Artificial intelligence for the Algorithm Remotely-sensed Yield Algorithm”

*2022, 2023*

MS GIS and GeoInt Spring Capstone, GEOG, UMD

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**Editorships, Editorial Boards, and Reviewing Activities**

Many reviewing Activity for Journal and Presses-Reviewer like:

*International Journal of Environmental Research and Public Health*.

*Remote Sensing of Environment*.

*PLOS ONE*.

*Remote Sensing*.

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**Professional Memberships**

AGU membership, 2023

JpGU menbership. 2023