Dr Kasper Johansen
Hydrology, Agriculture and Land Observation Group
Water Desalination and Reuse Center
King Abdullah University of Science and Technology (KAUST)
Thuwal, 23955-6900, Kingdom of Saudi Arabia
Email: Kasper.Johansen@kaust.edu.sa

PERSONAL INFORMATION

Born: Copenhagen, Denmark, February 1, 1977
Citizen: Danish / Permanent Australian resident since July 2001
Residency: Saudi Arabia
Phone: +966-545 351 582

RESEARCH INTERESTS AND EXPERTISE

Dr Johansen's central research focus lies within the domain of high spatial resolution image data collection (specially the use of unmanned aerial vehicles; UAV), processing and analysis, and geographic object-based image analysis and machine learning techniques for automatic feature extraction in a range of environments, spanning agricultural, rangeland, riverine and coastal ecosystems. He has explored a diverse range of field, UAV, airborne and satellite sensing technologies, including multispectral, hyperspectral, thermal infrared, synthetic aperture radar and LiDAR systems. In this context, he has produced research contributions that have not only been recognized, but also shaped the emerging field of high spatial resolution remote sensing.

ACADEMIC QUALIFICATIONS

Ph.D. in Remote Sensing
The University of Queensland, Australia, February 2004 – March 2007
Thesis Title: A framework for riparian zone monitoring over local to regional scales in Australian tropical savannas

B. Science with Honours Class 1 in Geographical Sciences
University of Copenhagen, Denmark / The University of Queensland, Australia, September 1999 – December 2003

Graduate Certificate in High Education
The University of Queensland, Australia, February 2011 – December 2012

Holder of an Australian Remote Pilot License for UAV operations of multirotors
     Issued: 20 June 2016

Holder of an Australian Remotely Piloted Aircraft Operator's Certificate for commercial UAV operations (CASA.ReOC.0894)
     Issued: 24 January 2017

Holder of an Australian Remote Pilot License for aeroplanes (fixed wing UAVs)
     Issued: 22 August 2017

PROFESSIONAL EXPERIENCE

Jan 2023 - Present	R5 Senior Research Scientist	KAUST	Environmental remote sensing
Nov 2017 – 2023	R4 Research Scientist	KAUST	Remote sensing of agricultural and arid environments
Jul 2014 – Nov 2017	Senior Research Fellow	University of Queensland	Horticulture mapping and monitoring; mine site rehabilitation status mapping; UAV mapping applications
Dec 2013 – Jun 2014	UQ Research Fellow	University of Queensland	Developing an approach for mapping woody vegetation change using Landsat time-series and the Google Earth Engine
Jul 2010 – Nov 2013	UQ Research Fellow / TERN AusCover Science Coordinator	University of Queensland	Calibration and validation of continental scale biophysical time-series products with focus on obtaining, linking and scaling up from field data to airborne image data to moderate spatial resolution satellite image data
Nov 2006 – Jun 2010	Postdoctoral Research Fellow	University of Queensland & QLD Department of Environment and Resource Management	Mapping and monitoring riparian zone attributes at large spatial extents based on field survey and remote sensing data (90%), teaching and tutoring (10%)
Nov 2003 – Jan 2004	Research Assistant	University of Queensland & Rainforest CRC	Multi-temporal remote sensing of World Heritage rainforest in far north Queensland

AWARDS

2022   *Application in progress*. Mapping carrying capacity within the King Salman Royal Nature Reserve
PI: Matthew McCabe and Kasper Johansen
Project duration: 1 January 2023 – 31 December 2024
Application amount: 9-10 million SAR

2020   Awarded Competitive Research Grant (CRG) Program, KAUST.
Title: Proximal to remote: harnessing emerging sensors for improved water and food security
PI: Matthew McCabe, Co-investigators: Kasper Johansen, Dominique Courault, Albert Olioso, Susan Steele-Dunne, Rasmus Houborg
Project duration: 1 April 2021 – 1 April 2024
Amount granted: US$ 1,001,792

2020   Measuring groundwater abstraction over all agricultural domains from 2016-2021. Collaboration with the Ministry of Environment, Water and Agriculture (MEWA) - Project 2
PI: Matthew McCabe, Co-investigators: Kasper Johansen, Oliver Lopez
Project duration: 2 years
Amount granted by KAUST: $1 million

2019   Detection of Red Palm Weevils in Date Palm.
PI: Matthew McCabe, Co-investigators: Atif Shamim, Kasper Johansen, Alper Bozkurt, Mohammed Mozib
Project duration: 2 years
Amount granted by KAUST: $600,000

2018   Awarded KAUST-KAU Initiative funds from the KAUST Office of Sponsored Research.
Title: Identifying the genetic basis for salinity and heat tolerance in quinoa using drone-based sensing technologies
PI: Mark Tester, Co-investigators: Matthew McCabe, Kasper Johansen, Magdi Moussa
Project duration: 3 years

Amount granted: $500,000

2017 Awarded ARC Discovery Grant,
Project ID: DP180103460
Title: Ultrahigh-resolution remote sensing for assessing biodiversity hotspots
CIs: Arko Lucieer, Stuart Phinn, Susanne Schmidt, Kasper Johansen, Nicholas Coops
Years: 2017-2020
Amount granted: $402,607

2014 Awarded Australian Coal Association Research Program (ACARP) Grant – 2 year project
Title: Cost-efficient, empirically based framework using integrating datasets to demonstrate rehabilitation quality
CIs: Peter Erskine, Kasper Johansen, and Andrew Fletcher
Years: March 2015 – March 2017
Amount granted: $297,484

2014 Awarded Best Research Paper presented at 36th ASSCT Conference on the Gold Coast, 29 April 2014.

2012 Awarded ARC Discovery Grant,
Project ID: DP130100218
Title: Achieving Biodiversity Conservation and Ecosystem Service Delivery: the Role of Landscape Structure
CIs: Jonathan Rhodes, Martine Maron, Clive McAlpine, Kasper Johansen
Years: 2013-2015
Amount granted: $280,000

2011 ResTeach Fellowship award ($15,300)
2010 ResTeach Fellowship award ($14,850)
2009 ResTeach Fellowship award ($14,850)
2008 Finalist for the 11th Riversymposium Young Water Scientist Award
2008 ResTeach Fellowship award ($14,850)
2007 UQ New Staff Research Start-Up Fund ($12,000)
2007 ResTeach Fellowship award ($13,907)
2005 Graduate School Research Travel Award ($4,000)
2003 International Postgraduate Research Scholarship (IPRS) ($24,000 per year for 3 years covering tuition fees)
2003 University of Queensland Graduate School Scholarship (UQGSS) ($18,484 per year for 3 years covering living allowance).
2003 Operational funding from Tropical Savannas CRC ($15,000)

CONSULTANCY PROJECTS

2023 Determining Rangeland Carrying Capacity (RCU, $2,400,000)

2022 Project for Royal Commission of Al Ula (RCU, $380,000). Develop 3D model of rock formation for construction of villas based on Unmanned Aerial Vehicle imagery.

2021-2022 Project for Jacobs Zate ($40,000). Meta-analysis of literature to assess carbon sequestration and storage of trees and soils in KSA.

2020 Project for the Saudi Arabian Ministry of Transport and Logistic Services (MOT, $165,000). Develop 3D model of rock formation for detection of rock stability above a road segment in the Asir region based on Unmanned Aerial Vehicle imagery.

2019 Project for Royal Commission of Al Ula (RCU, $304,620). Develop 3D model of rock formation for construction of a resort and conference center based on Unmanned Aerial Vehicle imagery.

2016-2017 Project for Sugar Research Australia ($60,000). Development of commercial approach for and results comparison of SPOT-6/7 and WorldView-2/3 image data for mapping of sugarcane grub damage and risk using object-based image analysis.

2015 Project for Brisbane City Council ($21,000) - Impervious surface mapping of the Brisbane Local Government Area using WorldView-2 Imagery, LiDAR data and object-based image analysis.

2014 Project for Trimble ($35,000) – Rule set and Architect Solution development in the eCognition software, mapping land-cover / land-use change in Hong Kong, automatic DSM, DTM, and canopy height model generation from LiDAR data, mapping of mine site breaklines from mobile terrestrial laser scanning

data, and automatic oil palm counting, health mapping and density mapping of oil palm plantations in Malaysia, Indonesia and Thailand using UAV data.

2013-2014   Project for QLD Department of Agriculture, Forestry and Fisheries ($35,000) – Collection of field and airborne hyper-spectral data of sugarcane fields for Nitrogen content mapping.

2013-2015   Project for QLD Department of Agriculture, Forestry and Fisheries ($99,000) – Mapping of sugarcane grub damage and risk from multi-temporal high spatial resolution imagery using object-based image analysis.

2013   Project for the National Banana Bunchy Top Project, Australian Banana Growers' Council ($30,000) – Object-based mapping of banana plants from orthophotos to facilitate eradication of Banana Bunchy Top Virus on the Sunshine Coast, Queensland.

2009   Project for Victoria Department of Sustainability and Environment, Project 5 ($59,638) – Object-based mapping of stream bank condition from field data and airborne LiDAR and optical image data.

2008   Project for Victoria Department of Sustainability and Environment, Project 4 ($25,629) – Mapping riparian zones from LiDAR data.

2008   Project for Victoria Department of Sustainability and Environment, Project 3 ($59,305) – Documentation for tendering for statewide riparian zone mapping project in Victoria.

2008   Project for Victoria Department of Sustainability and Environment, Project 2 ($164,293) – Mapping riparian zones in Victoria from high spatial resolution image and field data.

2008   Project for Anglo Coal Australia Pty Ltd, Moranbah, Queensland, Australia ($21,000) – Environmental Risk Assessment: Assessing biophysical parameters related to biodiversity of riparian zones and floodplains from hyper-spectral imagery.

2007   Project for Victoria Department of Sustainability and Environment, Project 1 ($94,142) – Trial project – Mapping riparian zones in Victoria from high spatial resolution image and field data.

PROFESSIONAL JOURNAL REVIEWS

- **Associate Editor** for the Unmanned Aerial Systems specialty section of Frontiers in Remote Sensing (since July 2020)
- **Guest Editor** for special issue on Remote Sensing of Agricultural Yield in the Agricultural and Forest Meteorology journal (Published July 2021)
- Frontiers in Artificial Intelligence in Food, Agriculture and Water
- Frontiers in Plant Science
- IEEE Geoscience and Remote Sensing Letters
- IEEE Transactions on Geoscience and Remote Sensing
- International Journal of Remote Sensing
- Hydrobiologia
- Canadian Journal of Remote Sensing
- Remote Sensing of Environment
- **Guest Editor** for the special issue on high-spatial resolution remote sensing for environmental monitoring and management in the Journal of Spatial Science (Published June 2008).
- Sensors
- Remote Sensing
- International Journal of Applied Earth Observation and Geoinformation
- Forest Ecology and Management
- **Guest Editor** for the special issue on Geo-Object Based Image Analysis of remotely sensed data in the Journal of Spatial Science (Published June 2010).
- ISPRS Journal of Photogrammetry and Remote Sensing
- Journal of the American Water Resources Association
- Geomorphology
- Landscape and Urban Planning
- Computers and Electronics in Agriculture

SUPERVISION

Student name	Degree	Start date	Completion date
Matthew Murtough	Coursework Masters (8 units)	Jul 2011	June 2012
Taihei Sakaushi	Honours (8 units)	Feb 2011	Nov 2011
Ben A. Jarihani	PhD	Mar 2011	Feb 2015
Hai-Hoa Nguyen	PhD	Feb 2010	Apr 2013
Muhammad Kamal	PhD	Feb 2012	Mar 2015
Hugo Fabian Vaca Puentes	Coursework Masters (8 units)	Feb 2013	Jun 2013
Somayeh Eskandari	Coursework Masters (8 units)	Feb 2013	Jun 2013
Wilbert J. Simbila	Coursework Masters (8 units)	Feb 2013	Jun 2013
Alexander Shanahan	Coursework Masters (8 units)	Feb 2015	Nov 2015
Aaron Aeberli	Coursework Masters (8 units)	Feb 2015	Nov 2015
Dan Wu	PhD	Jul 2015	Jun 2019
Ma. Paz Montano	Coursework Masters (8 units)	Feb 2016	Nov 2016
Aaron Aeberli	PhD	Feb 2016	Nov 2022
Yu-Hsuan Tu	PhD	Mar 2016	Feb 2019
Tri Raharjo	Coursework Masters (8 units)	Jan 2017	Jun 2017
HALO/KAUST *	7 Postdocs, 9 PhD, 7 Masters	Nov 2017	Present

*Masters students: Paula A. Avendano, Sarah A. Kanee, Areej Alwahas, Mariana Elias Lara, Omar Lopez Camargo, Fabio Veiga de Camargo, Tanaallah A. Alqurshi
PhD students: Bruno Aragon, Ting Li, Matteo Ziliani, Areej Alwahas, Omar Lopez Camargo, Mariana Elias Lara, Jorge Rodriguez Galvis, Victor Angula Morales, Ioana Andreea Ciocanaru
Postdoctoral Researchers: Yoann Malbeteau, Yu-Hsuan Tu, Jiale Jiang, Chungfeng Ma, Javier Blanco Sacristan, Marcel El Hajj, Jamal El Farkh

TEACHING

Year/ Semester	Course Code & Name	Contact hours	Contribution to course (%)
2017/1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	15 hours	Two days of fieldwork with groups of 35 students Lecture
2016/2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Lectures and Tutorials on Object-based image analysis and LiDAR and UAV data collection and processing
2016/1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	15 hours	Two days of fieldwork with groups of 35 students Lecture
2015/2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Lectures and Tutorials on Object-based image analysis and LiDAR data
2015/1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	6 hours	One day of fieldwork with groups of 30-35 students Lecture
2014/2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	8 hours	Lectures and Tutorials on Object-based image analysis
2014/1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	6 hours	One day of fieldwork with groups of 30-35 students Lecture

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2013/1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	8 hours	One day of fieldwork with groups of 30-35 students Lecture
2012/2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Lectures and Tutorials on Object-based image analysis
2012/1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	11 hours	Two days of fieldwork with groups of 30-35 students Lecture
2011/2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Lectures and Tutorials on Object-based image analysis
2011 / 1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	58 hours	**GEOM2000 / GEOM 7000** Tutorial 18 hours (approx 30 students) Lecture 1 hours (approx 60 students) Student assistance and draft editing 10 hour Field trip 20 hours over three days Curriculum improvement (10 hours) Percentage contribution: 35%
	ENVM3201	3 hours	**ENVM3201** Lecture 3 hours (approx 25 students)
2010 / 2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	20 hours	Tutorial 11 hours (approx 20 students) Lecture 9 hours (approx 20 students) Student assistance and draft editing 10 hours Development of teaching material Percentage contribution: 40%
2009 / 2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Tutorial 11 hours (approx 20 students) Lecture 5 hours (approx 20 students) Student assistance and draft editing 5 - 10 hours Percentage contribution: 25%
2009 / 1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	30 hours	**GEOM2000 / GEOM 7000** Tutorial 26 hours (approx 20 students) Lecture 2 hours (approx 60 students) Student assistance and draft editing 20 hours Percentage contribution: 25% **ENVM3201**
	ENVM3201	3 hours	Lecture 3 hours (Approx 25 students)
2008 / 2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Tutorial 11 hours (approx 20 students) Lecture 1 hour (approx 20 students) Student assistance and draft editing 10 hours Percentage contribution: 25%
2008 / 1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	30 hours	Tutorial 26 hours (approx 20 students) Lecture 4 hours (approx 60 students) Student assistance and draft editing 20 hours Percentage contribution: 25%
2007 / 2	GEOM3001 / GEOM7001 - Advanced Remote Sensing of Environment	12 hours	Tutorial 11 hours (approx 20 students) Lecture 1 hour (approx 20 students) Student assistance and draft editing 10 hours Percentage contribution: 25%
2007 / 1	GEOM 2000 / GEOM 7000 - Introduction to Remote Sensing of Environment	38 hours	Tutorial 34 hours (approx 20 students) Lecture 4 hours (approx 60 students) Student assistance and draft editing 25 hours Percentage contribution: 25%

PUBLICAIONS

Google Scholar (updated 30 Oct 2022)

All citations:	5.362
Citations since 2017:	3.602
h-index:	41
i10-index:	77

https://scholar.google.com/citations?user=n4t2IIYAAAAJ&hl=en
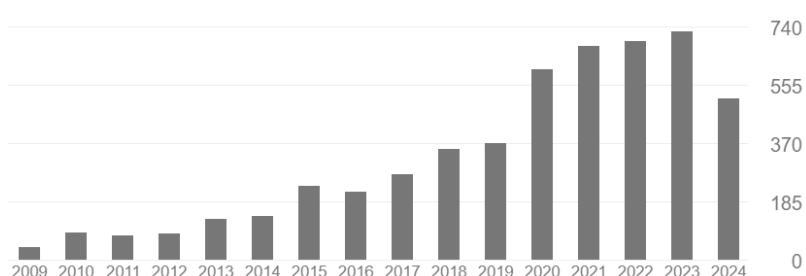
Theses

Johansen, K., 2007. A framework for riparian zone monitoring over local to regional scales in Australian tropical savannas: methods for monitoring riparian zones using high spatial resolution imagery and field data. PhD Thesis, The University of Queensland, Brisbane, Australia.

Johansen, K., 2004. Mapping the health of riparian vegetation in Australian tropical savannas using high and moderate spatial resolution satellite imagery. B. Science (Hons) Thesis, The University of Queensland, Brisbane, Australia.

Book Chapters

Johansen, K., Maltese, A., McCabe, M.F. (2023). Monitoring agricultural ecosystems. In E.B. Dor and S. Manfreda, Unmanned aerial systems for monitoring soil, vegetation, and riverine environments (UAS), Elsevier. Amsterdam, Netherlands.

Souter, N., **Johansen, K.**, and Reid, M. (2016). Monitoring and Assessment of Vegetation in Australian Riverine Landscapes. In: Vegetation of Australian riverine landscapes: biology, ecology and management (Eds. S. Capon; C. James; M. Reid). CSIRO Publishing, ISBN: 9780643096318.

Johansen, K., Trevithick, R., Bradford, M., Hacker, J., McGrath, A., and Lieff, W. (2015). Australian examples of field and airborne AusCover campaigns. In In A. Held, S. Phinn, M. Soto-Berelov & S. Jones (Eds.), AusCover good practice guidelines: a technical handbook supporting calibration and validation activities of remotely sensed data products (pp. 294-327). Version 1.1. TERN AusCover, ISBN 978-0-646-94137-0.

Gill, T., **Johansen, K.**, Scarth, P., Armston, J., Trevithick, R., and Flood, N. (2015). Persistent Green Vegetation Fraciton. In In A. Held, S. Phinn, M. Soto-Berelov & S. Jones (Eds.), AusCover good practice guidelines: a technical handbook supporting calibration and validation activities of remotely sensed data products (pp. 134-154). Version 1.1. TERN AusCover, ISBN 978-0-646-94137-0.

Broomhall, M., **Johansen, K.**, Wu, D. (2015). Quality assurance steps for AusCover hyper-spectral data. In In A. Held, S. Phinn, M. Soto-Berelov & S. Jones (Eds.), AusCover good practice guidelines: a technical handbook supporting calibration and validation activities of remotely sensed data products (pp. 249-260). Version 1.1. TERN AusCover, ISBN 978-0-646-94137-0.

Blaschke, T., **Johansen, K.**, and Tiede, D. (2011). Object based image analysis for vegetation mapping and monitoring. In Q. Weng, <u>Advances in Environmental Remote Sensing: Sensors, Algorithms, and Applications</u>. CRC Press, Taylor and Francis. ISBN: 978-1-4200-9175-5.

Sousa, A.M.O. and **Johansen, K.,** (2009). Remote sensing applications in riparian areas (p. 148-156). In D. Arizpe, A. Mendes and J. Rabaça, <u>Sustainable riparian zones: a management guide</u>, Ripidurable, Generalitat Valenciana, Spain.

Phinn, S., Ticehurst, C., Held, A., Scarth, P., Nightingale, J. and **Johansen, K.** (2008). New tools for monitoring world heritage values (p. 591 – 609). In N. Stork and S. Turton (eds), <u>Living in a dynamic tropical forest landscape</u>, Blackwell Publishing.

Refereed Journal Papers

Blanco-Sacristan, J., **Johansen, K.**, McCabe, M.F. (2024). Towards SDG 15: Using remote sensing to restore our lands, from the coastal fringe to the deep desert. Frontiers for Young Minds, section Earth Sciences. 10.3389/frym.2024.1393515

Morten, M., Fiene, G., Ahmed, H., Rey, E., Abrouk, M., Angel, Y., **Johansen, K.**, Saber, N., Malbeteau, Y., Al-Mashharawi, S., Ziliani, M., Aragon, B., Oakey, H., Berger, B., Brien, C., Krattinger, S., Mousa, M., McCabe, M., Negrao, S., Tester, M., Magdalena, J. (2024). Deciphering Salt Stress Responses in Solanum pimpinellifolium through High-Throughput Phenotyping. The Plant Journal.

Blanco-Sacristan, J., **Johansen, K.**, Elias-Lara, M., Tu, H.-Y., Duarte, C.M., McCabe, M.F. (2024), Quantifying mangrove carbon assimilation rates using UAV imagery. Scientific Reports, 14, 4648. https://doi.org/10.1038/s41598-024-55090-w.

Elfarkh, J., **Johansen, K.**, Morales, V.A., Lopez, O., McCabe, M.F. (2023). Quantifying within-flight variation of land surface temperature from a UAV-based thermal infrared camera. Drones, 7, 617. https://doi.org/10.3390/drones7100617

El Hajj, M.M., **Johansen, K.**, Almashharawi, S.K., McCabe, M.F. (2023). Water uptake rates over olive orchards using Sentinel-1 synthetic aperture radar data. Agricultural Water Management, 288, 108462. https://doi.org/10.1016/j.agwat.2023.108462

Elfarkh, J., **Johansen, K.**, El Hajj, M.M., Almashharawi, S.K., McCabe, M.F. (2023). Evapotranspiration, gross primary productivity and water use efficiency over a high-density olive orchard using ground and satellite based data. <u>Agricultural Water Management</u>, 287, 108423. https://doi.org/10.1016/j.agwat.2023.108423.

Shi, Y., Ballesio, M., **Johansen, K.**, Trentman, D., Huang, Y., McCabe, M.F., Bruhn, R., Schuster, G. (2023). Semi-universal geo-crack detection by machine learning. <u>Frontiers in Earth Science</u>, 11, 1073211. https://doi.org/10.3389/feart.2023.1073211.

Aeberli, A., Phinn, S., **Johansen, K.**, Robson, A., Lamb, D.W. (2023). Characterisation of banana plant growth using high spatio-temporal resolution multispectral UAV imagery. <u>Remote Sensing</u>, 15, 679. https://doi.org/10.3390/rs15030679.

Li, T., Valencia, O.M.L., **Johansen, K.**, McCabe, M.F. (2023). A retrospective analysis of national-scale agricultural development in Saudi Arabia from 1990 to 2021. <u>Remote Sensing</u>, 15, 731. https://doi.org/10.3390/rs15030731.

Aeberli, A., Robson, A., Phinn, S., Lamb, D.W., **Johansen, K.** (2022). A comparison of analytical approaches for the spectral discrimination and characterisation of mite infestations on banana plants. <u>Remote Sensing</u>, 14(21), 5467. https://doi.org/10.3390/rs14215467.

Tu, Y., **Johansen, K.**, Aragon, B., McCabe, M.F. (2022). The radiometric accuracy of the 8-band multi-spectral surface reflectance from the Planet SuperDove constellation. <u>International Journal of Applied Earth Observation and Geoinformation</u>, 114, 103035. https://doi.org/10.1016/j.jag.2022.103035.

Ma, C., **Johansen, K.**, McCabe, M.F. (2022). Combining Sentinal-2 data with an optical-trapezoid approach to infer within-field soil moisture variability and monitor agricultural production stages. <u>Agricultural Water Management</u>, 274, 107942. https://doi.org/10.1016/j.agwat.2022.107942.

Blanco-Sacristan, J., **Johansen, K.**, Duarte, C.M., Daffonchio, D., Hoteit, I., McCabe, M.F. (2022). Mangrove distribution and afforestation potential in the Red Sea. <u>Science of The Total Environment</u>, 843, 157098. 10.1016/j.scitotenv.2022.157098.

El Hajj, M.M., Almashharawi, S.K., **Johansen, K.**, Elfarkeh, J., McCabe, M.F. (2022). Exploring the use of synthetic aperture radar data for irrigation management in super high-density olive orchards. <u>International Journal of Applied Earth Observation and Geoinformation</u>, 112, 102878. 10.1016/j.jag.2022.102878

Jiang, J., **Johansen, K.**, Tu. Y.-H., McCabe, M.F. (2022). Multi-sensor and multi-platform consistency and interoperability between UAV, Planet CubeSat, Sentinel-2 and Landsat reflectance data. <u>GIScience and Remote Sensing</u>, 59(1), 936-958. https://doi.org/10.1080/15481603.2022.2083791

Johansen, K., Dunne, A.F., Tu, Y.-H., Jones, B.H., McCabe, M.F. (2022). Monitoring coastal water flow dynamics using sub-daily high-resolution SkySat satellite and UAV-based imagery. <u>Water Research</u>, 219, 118531.

Johansen, K., Ziliani, M.G., Houborg, R., Franz, T., McCabe, M.F. (2022). CubeSat constellations provide enhanced crop phenology and digital agricultural insights using daily leaf area index retrievals. <u>Scientific Reports</u>, 12, 5244. https://doi.org/10.1038/s41598-022-09376-6.

Li, T., **Johansen, K.**, McCabe, M.F. (2022). A machine learning approach for identifying and delineating agricultural fields and their multi-temporal dynamics using three decades of Landsat data. <u>ISPRS Photogrammetry and Remote Sensing</u>, 186, 83-101. https://doi.org/10.1016/j.isprsjprs.2022.02.002.

Ma, C., **Johansen, K.**, McCabe, M.F. (2022). Monitoring irrigation events and crop dynamics using Sentinel-1 and Sentinel-2 time series. <u>Remote Sensing</u>, 14, 1205. https://doi.org/10.3390/rs14051205.

Johansen, K., Dunne, A.F., Tu, Y-H., Almashharawi, S., Jones, B.H., McCabe, M.F. (2022). Dye tracing and concentration mapping in coastal waters using unmanned aerial vehicles. <u>Scientific Reports</u>, 12, 1141. https://doi.org/10.1038/s41598-022-05189-9.

Jiang, J., **Johansen, K.**, Stanschewski, C.S., Wellman, G. Mousa, M.A.A., Fiene, G.M., Asiry, K.A., Tester, M., McCabe, M.F. (2022). Phenotyping a diversity panel of quinoa using UAV-retrieved leaf area index, SPAD-based chlorophyll and a random forest approach. <u>Precision Agriculture</u>, 1-23. https://doi.org/10.1007/s11119-021-09870-3.

Stutsel, B., **Johansen, K.**, Malbeteau, Y.M., McCabe, M.F. (2021). Detecting plant stress using thermal and optical imagery from an unoccupied aerial vehicle. <u>Frontiers in Plant Science</u>, 12, 734944. https://doi.org/10.3389/fpls.2021.734944.

Stanschewski, C.S., Rey, E., Fiene, G., Caine, E.B., Wellman, G., Melino, V., Patiranage, D.S.R., **Johansen, K.**, Schmockel, S., Bertero, D., Oakey, H., Coloque-Little, C., Afzal, I., Raubach, S., Miller, N., Streich, J., Amby, D.B., Emrani, N., Warmington, M., Mousa, M, Wu, D., Jacobson, D., Andreasen, C., Jung, C., Murphy, K., Bazile, D., Tester, M., and on behalf of the Quinoa Phenotyping Consortium (2021). Quinoa phenotyping methodologies: an international consensus. <u>Plants</u>, 10, 1759. https://doi.org/10.3390/plants10091759.

Malbeteau, Y., **Johansen, K.**, Aragon, B., Al-Mashhawari, S.K., McCabe, M.F. (2021). Overcoming the challenges of thermal infrared orthomosaics using a swath-based approach to correct for dynamic temperature and wind effects. Remote Sensing, 13(16), 3255. https://doi.org/10.3390/rs13163255.

Aeberli, A., **Johansen, K.**, Robson, A., Lamb, D.W., Phinn, S. (2021). Detection of banana plants using multi-temporal multispectral UAV imagery. Remote Sensing, 13, 2123. 10.3390/rs13112123.

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