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Employment

Postdoctoral fellow

Dept of Physical Geography and Ecosystem Science

Lund University

Lund, Sweden

2014 Apr 20 → present

Research outputs

Estimation of district-level spring barley yield in southern Sweden using multi-source satellite data and random forest approach

Li, X., Jin, H., Eklundh, L., Bouras, E. H., Olsson, P.-O., Cai, Z., Ardö, J. & Duan, Z., 2024 Sept 25, In: International Journal of Applied Earth Observation and Geoinformation. 134, 104183

Wildfire impacts on the carbon budget of a managed Nordic boreal forest

Kelly, J., Kljun, N., Cai, Z., Doerr, S. H., Donofrio, C., Holst, T., Lehner, I., Lindroth, A., Thapa, S., Vestin, P. & Santín, C., 2024 May 15, In: Agricultural and Forest Meteorology. 351, 110016.

Assessing topographic effects on forest responses to drought with multiple seasonal metrics from Sentinel-2

Sang, Y., Tian, F., Jin, H., Cai, Z., Feng, L., Dou, Y. & Eklundh, L., 2024 Apr, In: International Journal of Applied Earth Observation and Geoinformation. 128, 103789.

Reviews and syntheses: Remotely sensed optical time series for monitoring vegetation productivity

Kooistra, L., Berger, K., Brede, B., Graf, L. V., Aasen, H., Roujean, J. L., Machwitz, M., Schlerf, M., Atzberger, C., Prikaziuk, E., Ganeva, D., Tomelleri, E., Croft, H., Reyes Muñoz, P., Garcia Millan, V., Darvishzadeh, R., Koren, G., Herrmann, I., Rozenstein, O. & Belda, S. & 13 others, Rautiainen, M., Rune Karlsen, S., Figueira Silva, C., Cerasoli, S., Pierre, J., Tanlr Kaylkçl, E., Halabuk, A., Tunc Gormus, E., Fluit, F., Cai, Z., Kycko, M., Udelhoven, T. & Verrelst, J., 2024 Jan, In: Biogeosciences. 21, 2, p. 473-511 39 p.

Optimizing Remote Sensing Data and Light Use Efficiency Model for Accurate Gross Primary Production Estimation in African Rangelands

Pal, M. K., Ardö, J., Eklundh, L., Cai, Z., Tagesson, T., Wieckowski, A., Buitenwerf, R., Davison, C., Grobler, D., Munk, M., Senty, P., Brümmer, C., Feig, G., Vanzyl, P. & Griffiths, P., 2024, *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium, Proceedings.* IEEE - Institute of Electrical and Electronics Engineers Inc., p. 4289-4293 5 p. (International Geoscience and Remote Sensing Symposium (IGARSS)).

Remotely Sensed Herbaceous Rangelands Biomass from African Rangelands: Validation and Uncertainties

Pal, M. K., Ardö, J., Eklundh, L., Cai, Z., Tagesson, T., Wieckowski, A., Buitenwerf, R., Davison, C., Grobler, D., Munk, M., Senty, P., Lo, A. & Griffiths, P., 2024, *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium, Proceedings.* IEEE - Institute of Electrical and Electronics Engineers Inc., p. 4986-4990 5 p. (International Geoscience and Remote Sensing Symposium (IGARSS)).

In-situ start and end of growing season dates of major European crop types from France and Bulgaria at a field level
Ganeva, D., Tallec, T., Brut, A., Prikaziuk, E., Tomelleri, E., Koren, G., Verrelst, J., Berger, K., Graf, L. V., Belda, S., Cai, Z. & Silva, C. F., 2023 Dec, In: Data in Brief. 51, 109623.

Higher vegetation sensitivity to meteorological drought in autumn than spring across European biomes
Jin, H., Vicente-Serrano, S. M., Tian, F., Cai, Z., Conradt, T., Boincean, B., Murphy, C., Farizo, B. A., Grainger, S., Lopez-Moreno, J. I. & Eklundh, L., 2023 Aug 25, In: Communications Earth and Environment. 4, 14 p., 299.

Estimating local-scale forest GPP in Northern Europe using Sentinel-2: Model comparisons with LUE, APAR, the plant phenology index, and a light response function
Junttila, S., Ardö, J., Cai, Z., Jin, H., Kljun, N., Klemedtsson, L., Krasnova, A., Lange, H., Lindroth, A., Mölder, M., Noe, S., Tagesson, T., Vestin, P., Weslien, P. & Eklundh, L., 2023 Jun, In: Science of Remote Sensing. 7, 100075.

Impacts of stump harvesting on carbon dioxide, methane and nitrous oxide fluxes
Vestin, P., Mölder, M., Kljun, N., Cai, Z., Hasan, A., Holst, J., Klemedtsson, L. & Lindroth, A., 2022 Jun, In: iForest - Biogeosciences and Forestry. 15, 3, p. 148-162 15 p.

Improving neural network classification of indigenous forest in New Zealand with phenological features
Ye, N., Morgenroth, J., Xu, C. & Cai, Z., 2022 Apr 23, In: Journal of Environmental Management. 115134.

Biodiversity decline with increasing crop productivity in agricultural fields revealed by satellite remote sensing
Abdi, A. M., Carrié, R., Sidemo-Holm, W., Cai, Z., Boke-Olén, N., Smith, H. G., Eklundh, L. & Ekroos, J., 2021 Nov, In: Ecological Indicators. 130, 108098.

Calibrating vegetation phenology from Sentinel-2 using eddy covariance, PhenoCam, and PEP725 networks across Europe
Tian, F., Cai, Z., Jin, H., Hufkens, K., Scheifinger, H., Tagesson, T., Smets, B., Van Hoolst, R., Bonte, K., Ivits, E., Tong, X., Ardö, J. & Eklundh, L., 2021 Jul, In: Remote Sensing of Environment. 260, 112456.

Early growing season anomalies in vegetation activity determine the large-scale climate-vegetation coupling in Europe
Wu, M., Vico, G., Manzoni, S., Cai, Z., Maoya, B., Tian, F., zhang, J., ye, K. & Messori, G., 2021, In: Journal of Geophysical Research: Biogeosciences. 126, 5, 19 p., e2020JG006167.

Modelling daily gross primary productivity with sentinel-2 data in the nordic region–comparison with data from modis
Cai, Z., Junttila, S., Holst, J., Jin, H., Ardö, J., Ibrom, A., Peichl, M., Mölder, M., Jönsson, P., Rinne, J., Karamihalaki, M. & Eklundh, L., 2021, In: Remote Sensing. 13, 3, 18 p., 469.

The complex multi-sectoral impacts of drought: Evidence from a mountainous basin in the Central Spanish Pyrenees
Vicente-Serrano, S. M., Peña-Angulo, D., Murphy, C., López-Moreno, J. I., Tomas-Burguera, M., Domínguez-Castro, F., Tian, F., Eklundh, L., Cai, Z., Alvarez-Farizo, B., Noguera, I., Camarero, J. J., Sánchez-Salguero, R., Gazol, A., S., G., Conradt, T., Boincean, B. & El Kenawy , A., 2021, In: Science of the Total Environment. 769, 144702.

The confounding effect of snow cover on assessing spring phenology from space: A new look at trends on the Tibetan Plateau
Huang, K., Zhang, Y., Tagesson, T., Brandt, M., Wang, L., Chen, N., Zu, J., Jin, H., Cai, Z., Tong, X., Cong, N. & Fensholt, R., 2021, In: Science of the Total Environment. 756, 144011.

Impacts of Clear-Cutting of a Boreal Forest on Carbon Dioxide, Methane and Nitrous Oxide Fluxes
Vestin, P., Mölder, M., Kljun, N., Cai, Z., Hasan, A., Holst, J., Klemedtsson, L. & Lindroth, A., 2020 Sept 1, In: Forests. 11, 9, p. 961 28 p., 11.

Vegetation Observation in the Big Data Era: Sentinel-2 data for mapping the seasonality of land vegetation
Cai, Z., 2019 Jan, Lund: Lund University, Faculty of Science, Department of Physical Geography and Ecosystem Science . 56 p.

An empirical assessment of the MODIS land cover dynamics and TIMESAT land surface phenology algorithms
Stanimirova, R., Cai, Z., Melaas, E. K., Gray, J. M., Eklundh, L., Jönsson, P. & Friedl, M. A., 2019, In: Remote Sensing. 11, 19, 2201.

A Method for Robust Estimation of Vegetation Seasonality from Landsat and Sentinel-2 Time Series Data
Jönsson, P., Cai, Z., Melaas, E., Friedl, M. & Eklundh, L., 2018 Apr 19, In: Remote Sensing. 10, 4, 13 p., 635.

Effects of low thinning on carbon dioxide fluxes in a mixed hemiboreal forest
Lindroth, A., Holst, J., Heliasz, M., Vestin, P., Lagergren, F., Biermann, T., Cai, Z. & Mölder, M., 2018, In: Agricultural and Forest Meteorology. 262, p. 59-70

Performance of Smoothing Methods for Reconstructing NDVI Time-Series and Estimating Vegetation Phenology from MODIS Data
Cai, Z., Jönsson, P., Jin, H. & Eklundh, L., 2017 Dec 7, In: Remote Sensing. 9, 12, 1271.

Activities

POSTER: European drought impacts on vegetation: a new pattern in recent two decades
Jin, H. (Presenter), Eklundh, L. (Presenter), Vicente-Serrano, S. M. (Role not specified), Murphy, C. (Role not specified), Tian, F. (Role not specified), Cai, Z. (Role not specified), Conradt, T. (Role not specified), Boincean, B. (Role not specified), Farizo, B. A. (Role not specified), Grainger, S. (Role not specified) & López -Moreno, J. I. (Role not specified)
2022 May 17

POSTER: How to study interactive effects of climate and climate change for pollinations in the future?
Blasi Romero, M. (Presenter), Cai, Z. (Contributor), Jönsson, A. M. (Contributor), Sahlin, U. (Contributor) & Clough, Y. (Contributor)
2022 May 16

Projects

CGLOPS-1 LSP: Copernicus Global Land Operations Service - Land Surface Phenology
Eklundh, L. (Researcher), Cai, Z. (Researcher) & Jin, H. (Researcher)
2022/01/01 → 2023/12/31

HR-VPP: Copernicus High-Resolution Vegetation Phenology and Productivity
Eklundh, L. (Researcher), Cai, Z. (Researcher) & Jin, H. (Researcher)
2020/01/01 → 2023/12/31

HR-VPP2: Copernicus High-Resolution Vegetation Phenology and Productivity II
Eklundh, L. (Researcher), Jin, H. (Researcher), Cai, Z. (Researcher) & Ardö, J. (CoI)
2024/09/16 → 2028/09/17

Twin-Waters: Digital Tools for Sustainable Water Resources Management: Integrating impact of change of climate, land use, and optimised solutions
Li, J. (PI), Cai, Z. (Researcher), Zhang, L. (Researcher) & Persson, K. M. (Researcher)
FORMAS, The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning
2024/03/27 → 2026/11/30

Improving African sub-seasonal vegetation feedback in Earth system models using multiple satellite observations and field measurements
Wu, M. (Researcher), Tagesson, T. (Researcher), Duan, Z. (Researcher) & Cai, Z. (Researcher)
2022/01/01 → 2024/12/31

TIMESAT - software to analyze time-series of satellite sensor data

Eklundh, L. (PI), Jönsson, P. (PI) & Cai, Z. (Research student)

2002/01/01 → …