Stef Lhermitte

REMOTE SENSING SCIENTIST



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Profile

Remote sensing scientist with specific interest in the use of multi-source remote sensing and land surface modelling to assess cryosphere, atmosphere and ecosystem dynamics.

Stef Lhermitte is assistant professor Geoscience & Remote Sensing at TUDelft, after obtaining a PhD in bioscience engineering at KULeuven, Belgium, and several international post-docs positions (CEAZA, KNMI, KULeuven), where he worked on broad range of remote sensing technologies in a variety of applications ranging from cryospheric and atmospheric sciences to ecology and hydrology. Now he focuses on the development of innovative remote sensing methods for assessing land-atmosphere interactions in order to assess the effect of climate (change) on the cryosphere, ecosystem dynamics, the hydrological cycle, sea level rise, etc. and their feedbacks on (future) climate.

Stef Lhermitte (co-)authored 55 publications in international and peer-reviewed scientific journals included in Web of Science and has an H-index of 24/27*. He is first/second author on 20 publications.

* Scopus/Google September 12, 2019

Current position

Assistant professor Geoscience & Remote Sensing

Delft University of Technology (TUDelft)

Department of Geoscience & Remote Sensing (GRS)

Education

2016 Big data: management, analysis, visualization and legal aspects

GHENT UNIVERSITY, BELGIUM

lce sheets and glaciers in the climate system: Karthaus summer school

INSTITUTE FOR MARINE AND ATMOSPHERIC RESEARCH (IMAU), NETHERLANDS

2004-2008 PhD in bioscience engineering

KULEUVEN, BELGIUM

 ${\it Dissertation: Vegetation regrowth\ monitoring\ after\ wild fires\ based\ on\ satellite\ time\ series}$

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1999–2002 **MSc in engineering of forest and land management** [with high distinction]

KULEUVEN. BELGIUM

Dissertation: Improving soil salinity management in sugarcane using earth observation

1997–1999 **BSc (candidate) in bio-engineering** [with distinction]

University of Antwerp, Belgium

Experience

2016-now **Assistant professor**

DEPT. OF GEOSCIENCE & REMOTE SENSING, TUDELFT, NETHERLANDS

Assistant professor focusing on the combined use of multi-source remote sensing and land surface modelling to assess cryosphere, atmosphere and ecosystem dynamics.

2013-2016 FWO post-doctoral research fellow

DEPT. OF EARTH & ENVIRONMENTAL SCIENCE, KULEUVEN, BELGIUM

Postdoctoral research fellow combining multi-source remote sensing data and land surface models to assess cryosphere, atmosphere and ecosystem dynamics.

2011-2013 Post-doctoral researcher

ROYAL NETHERLANDS METEOROLOGICAL INSTITUTE (KNMI), NETHERLANDS

Postdoctoral researcher focusing on the improvement of the albedo parametrisation in the regional climate model RACMO using optical satellite remote sensing data (in cooperation with IMAU, Netherlands)

2008-2010 Remote sensing scientist & head of the Remote sensing and GIS laboratory

CEAZA, CENTRO DE ESTUDIOS AVANZADOS EN ZONAS ÁRIDAS, CHILE

Head of the Remote Sensing and GIS laboratory and remote sensing scientist working on use of multi-source satellite imagery to study hydrological, snow/ice and ecological processes in the arid zones of north-central Chile.

2008 Post-doctoral researcher

M3-BIORES, KULEUVEN, BELGIUM

Postdoc researcher focusing on the development of a hierarchical, multi-scale, spatio-temporal segmentation software tool (in cooperation with CSIRO, Australia).

2002-2008 Research associate and PhD student

M3-BIORES, KULEUVEN, BELGIUM

Research associate focusing on the development of new methodologies to assess ecosystem dynamics after wild fires based on satellite remote sensing time series data.

Publications

Articles in peer reviewed journals

- 56. Noël, B. P. Y., Berg, W. J., Lhermitte, S., Broeke, M. R., (2019). "Rapid ablation zone expansion amplifies north Greenland mass loss". Science Advances, In review (9), eaaw0123. doi: 10.1126/sciadv.aaw0123.
- 55. Datta, R. T., Tedesco, M., Fettweis, X., Agosta, C., Lhermitte, S., Lenaerts, J. T. M., Wever, N., (2019). "The Effect of Foehn⊠Induced Surface Melt on Firn Evolution Over the Northeast Antarctic Peninsula". Geophysical Research Letters, 46 (7), 3822–3831. doi: 10.1029/2018GL080845. □
- 54. Gossart, A., Palm, S. P., Souverijns, N., Lenaerts, J. T. M., Gorodetskaya, I. V., Lhermitte, S., Lipzig, N. P. M., (2019). "Blowing snow in East Antarctica: comparison of ground-based and space-borne retrievals". The Cryosphere Discussions. doi: 10.5194/tc-2019-25.
- 53. Réveillet, M., MacDonell, S., Gascoin, S., Kinnard, C., Lhermitte, S., Schaffer, N., (2019). "Uncertainties in the spatial distribution of snow sublimation in the semi-arid Andes of Chile". The Cryosphere Discussions. doi: 10.5194/tc-2019-31.
- 52. Souverijns, N., Gossart, A., Lhermitte, S., Gorodetskaya, I. V., Grazioli, J., Berne, A., Duran-Alarcon, C., Boudevillain, B., Genthon, C., Scarchilli, C., Van Lipzig, N. P., (2018). "Evaluation of the CloudSat surface snowfall product over Antarctica using ground-based precipitation radars". The CryosphereCryosphere, 12 3775–3789. doi: 10.5194/tc-12-3775-2018.
- 51. Souverijns, N., Gossart, A., Gorodetskaya, I. V., Lhermitte, S., Mangold, A., Laffineur, Q., Delcloo, A., van Lipzig, N. P. M., (2018). "How does the ice sheet surface mass balance relate to snowfall? Insights from a ground-based precipitation radar in East Antarctica". The Cryosphere, 12 (6), 1987–2003. doi: 10.5194/tc-12-1987-2018.
- 50. Noël, B., van de Berg, W. J., Lhermitte, S., Wouters, B., Schaffer, N., van den Broeke, M. R., (2018). "Six decades of glacial mass loss in the Canadian Arctic Archipelago". Journal of Geophysical Research: Earth Surface, 123 (6), 1430–1449. doi: 10.1029/2017JF004304.

- 49. van Wessem, J. M., van de Berg, W. J., Noël, B. P. Y., van Meijgaard, E., Amory, C., Birnbaum, G., Jakobs, C. L., Krüger, K., Lenaerts, J. T. M., Lhermitte, S., Ligtenberg, S. R. M., Medley, B., Reijmer, C. H., van Tricht, K., Trusel, L. D., van Ulft, L. H., Wouters, B., Wuite, J., van den Broeke, M. R., (2018). "Modelling the climate and surface mass balance of polar ice sheets using RACMO2 Part 2: Antarctica (1979–2016)". The Cryosphere, 12 (4), 1479–1498. doi: 10.5194/tc-12-1479-2018.
- 48. Noël, B., van de Berg, W. J., van Wessem, J. M., van Meijgaard, E., van As, D., Lenaerts, J. T. M., Lhermitte, S., Kuipers Munneke, P., Smeets, C. J. P. P., van Ulft, L. H., van de Wal, R. S. W., van den Broeke, M. R., (2018). "Modelling the climate and surface mass balance of polar ice sheets using RACMO2 Part 1: Greenland (1958–2016)". The Cryosphere, 12 (3), 811–831. doi: 10.5194/tc-12-811-2018.
- 47. Gossart, A., Souverijns, N., Gorodetskaya, I. V., **Lhermitte, S.**, Lenaerts, J. T., Schween, J. H., Mangold, A., Laffineur, Q., Van Lipzig, N. P., (2017). "Blowing snow detection from ground-based ceilometers: Application to East Antarctica". Cryosphere, 11 (6), 2755–2772. doi: 10.5194/tc-11-2755-2017.
- 46. Thiery, W., Gudmundsson, L., Bedka, K., Semazzi, F., Lhermitte, S., Willems, P., Van Lipzig, N., Seneviratne, S., (2017). "Early warnings of hazardous thunderstorms over Lake Victoria". Environmental Research Letters, 12 (7), 12 074012. doi: 10.1088/1748-9326/aa7521.
- 45. Souverijns, N., Gossart, A., Lhermitte, S., Gorodetskaya, I., Kneifel, S., Maahn, M., Bliven, F., Van Lipzig, N. P. M., (2017). "Estimating radar reflectivity snowfall rate relationships and their uncertainties over Antarctica by combining disdrometer and radar observations". Atmospheric research, 196 211–223. doi: 10.1016/j.atmosres.2017.06.001.
- 44. Lenaerts, J., Van Tricht, K., Lhermitte, S., L'Ecuyer, T., (2017). "Polar clouds and radiation in satellite observations, reanalyses, and climate models". Geophysical Research Letters, 44. doi: 10.1002/2016GL072242.
- 43. Noël, B., van de Berg, W. J., **Lhermitte, S.**, Wouters, B., Machguth, H., Howat, I., Citterio, M., Moholdt, G., Lenaerts, J. T. M., van den Broeke, M. R., (2017). "A tipping point in refreezing accelerates mass loss of Greenland's glaciers and ice caps". Nature Communications. doi: 10.1038/ncomms14730.
- 42. Lenaerts, J. T. M. *., Lhermitte, S. *., Drews, R., Ligtenberg, S. R. M., Berger, S., Helm, V., Smeets, C. J. P. P., van den Broeke, M. R., van de Berg, W. J., Eijkelboom, M., Eisen, O., Pattyn, F., (2017). "Meltwater produced by wind-albedo interaction stored in an East Antarctic ice shelf." Nature Climate Change, 7, 58-62 * Joint first author. doi: 10.1038/NCLIMATE3180.
- 41. Steger, C. R., Reijmer, C. H., van den Broeke, M. R., Wever, N., Forster, R. R., Koenig, L. S., Kuipers-Munneke, P., Lehning, M., Lhermitte, S., Ligtenberg, S. R. M., Miège, C., Noël, B. P. Y., (2017). "Firn meltwater retention on the Greenland Ice Sheet: a model comparison". Frontiers in Earth Science, 5 (3). doi: 10.3389/feart.2017.00003.
- 40. De Keersmaecker, W., Lhermitte, S., Hill, M. J., Tits, L., Coppin, P., Somers, B., (2017). "Assessment of regional vegetation response to climate anomalies: a case study for Australia using GIMMS NDVI time series between 1982 and 2006". Remote Sensing, 9 (1), 34. doi: 10.3390/rs9010034.
- 39. De Keersmaecker, W., Rooijen, N., Lhermitte, S., Tits, L., Schaminée, J., Coppin, P., Honnay, O., Somers, B., (2016). "Species-rich semi-natural grasslands have a higher resistance but a lower resilience than intensively managed agricultural grasslands in response to climate anomalies". Journal of Applied Ecology, 53 (2), 430–439. doi: 10.1111/1365-2664.12595.
- 38. Docquier, D., Thiery, W., Lhermitte, S., Lipzig, N., (2016). "Multi-year wind dynamics around Lake Tanganyika". Climate Dynamics, 47 (9), 3191–3202. doi: 10.1007/s00382-016-3020-z.
- 37. Noël, B., Berg, W. J., Machguth, H., Lhermitte, S., Howat, I., Fettweis, X., Van Den Broeke, M. R., (2016). "A daily, 1-km resolution dataset of downscaled Greenland ice sheet surface mass balance (1958-2015)". Cryosphere, 10 2361–2377. doi: 10.5194/tc-10-2361-2016.
- 36. Van Tricht, K., Lhermitte, S., Gorodetskaya, I. V., Van Lipzig, N. P. M., (2016). "Improving satellite-retrieved surface radiative fluxes in polar regions using a smart sampling approach". Cryosphere, 10 2379–2397. doi: 10.5194/tc-10-2379-2016. ☐
- 35. Hawinkel, P., Thiery, W., Lhermitte, S., Swinnen, E., Verbist, B., Van Orshoven, J., Muys, B., (2016). "Vegetation response to precipitation variability in East Africa controlled by biogeographical factors". Journal of Geophysical Research: Biogeosciences, 121 (9), 2422–2444. doi: 10.1002/2016JG003436.
- 34. Thiery, W., Davin, E. L., Seneviratne, S. I., Bedka, K., Lhermitte, S., Van Lipzig, N. P. M., (2016). "Hazardous thunderstorm intensification over Lake Victoria". Nature Communications, 7 12786. doi: 10.1038/ncomms12786.
- 33. Hublart, P., Ruelland, D., García de Cortázar-Atauri, I., Gascoin, S., Lhermitte, S., Ibacache, A., (2016). "Reliability of lumped hydrological modeling in a semi-arid mountainous catchment facing water-use changes". Hydrology and Earth System Sciences, 20 (9), 3691–3717. doi: 10.5194/hess-20-3691-2016.

- 32. Van Tricht, K., Lhermitte, S., Lenaerts, J., Gorodetskaya, I., L'Ecuyer, T., Noël, B., Van Den Broeke, M., Turner, D., Van Lipzig, N., (2016). "Clouds enhance Greenland ice sheet meltwater runoff". Nature Communications, 7 10266. doi: 10.1038/ncomms10266.
- 31. Thiery, W., Davin, E. L., Panitz, H.-J., Demuzere, M., Lhermitte, S., Van Lipzig, N., (2015). "The Impact of the African Great Lakes on the Regional Climate". Journal of Climate, 28 (10), 4061–4085. doi: 10.1175/JCLI-D-14-00565.1.
- 30. Hawinkel, P., Swinnen, E., Lhermitte, S., Verbist, B., Van Orshoven, J., Muys, B., (2015). "A time series processing tool to extract climate-driven interannual vegetation dynamics using Ensemble Empirical Mode Decomposition (EEMD)". Remote Sensing of Environment, 169 375–389. doi: 10.1016/j.rse.2015.08.024.
- 29. Vanonckelen, S., Lhermitte, S., Van Rompaey, A., (2015). "The effect of atmospheric and topographic correction on pixel-based image composites: Improved forest cover detection in mountainenvironments". International Journal of Applied Earth Observation and Geoinformation, 35 (PB), 320–328. doi: 10.1016/j.jag.2014.10.006.
- 28. De Keersmaecker, W., Lhermitte, S., Tits, L., Honnay, O., Somers, B., Coppin, P., (2015). "A model quantifying global vegetation resistance and resilience to short-term climate anomalies and their relationship with vegetation cover". Global Ecology and Biogeography, 24 (5), 539–548. doi: 10.1111/geb.12279.
- 27. De Keersmaecker, W., Lhermitte, S., Tits, L., Honnay, O., Somers, B., Coppin, P., (2015). "Resilience and the reliability of spectral entropy to assess ecosystem stability". Global Change Biology. doi: 10.1111/gcb.12799.
- 26. Bertin, A., Alvarez, E., Gouin, N., Gianoli, E., Montecinos, S., Lek, S., Gascoin, S., Lhermitte, S., (2015). "Effects of wind-driven spatial structure and environmental heterogeneity on high-altitude wetland macroinvertebrate assemblages with contrasting dispersal modes". Freshwater Biology, 60 (2), 297–310. doi: 10.1111/fwb.12488.
- 25. Maahn, M., Burgard, C., Crewell, S., Gorodetskaya, I., Kneifel, S., Lhermitte, S., Van Tricht, K., Van Lipzig, N., (2014). "How does the spaceborne radar blind zone affect derived surface snowfall statistics in polar regions?". Journal of Geophysical Research Atmospheres, 119 (24), 13604–13620. doi: 10.1002/2014JD022079.
- 24. **Lhermitte, S.**, Abermann, J., Kinnard, C., (2014). "Albedo over rough snow and ice surfaces". Cryosphere, 8 (3), 1069–1086. doi: 10.5194/tc-8-1069-2014.
- 23. Van Tricht, K., Gorodetskaya, I., Lhermitte, S., Turner, D., Schween, J., Van Lipzig, N., (2014). "An improved algorithm for polar cloud-base detection by ceilometer over the ice sheets". Atmospheric Measurement Techniques, 7 (5), 1153–1167. doi: 10.5194/amt-7-1153-2014.
- 22. Vanonckelen, S., Lhermitte, S., Balthazar, V., Van Rompaey, A., (2014). "Performance of atmospheric and topographic correction methods on Landsat imagery in mountain areas". International Journal of Remote Sensing, 35 (13), 4952–4972. doi: 10.1080/01431161.2014. 933280.
- 21. De Keersmaecker, W., Lhermitte, S., Honnay, O., Farifteh, J., Somers, B., Coppin, P., (2014). "How to measure ecosystem stability? An evaluation of the reliability of stability metrics based on remote sensing time series across the major global ecosystems". Global Change Biology, 20 (7), 2149–2161. doi: 10.1111/gcb.12495.
- 20. Vanonckelen, S., Lhermitte, S., Van Rompaey, A., (2013). "The effect of atmospheric and topographic correction methods on land cover classification accuracy". International Journal of Applied Earth Observation and Geoinformation, 24 (1), 9–21. doi: 10.1016/j.jag.2013.02. 003.
- 19. Gascoin, S., Lhermitte, S., Kinnard, C., Bortels, K., Liston, G., (2013). "Wind effects on snow cover in Pascua-Lama, Dry Andes of Chile". Advances in Water Resources, 55 25–39. doi: 10.1016/j.advwatres.2012.11.013.
- 18. Van Angelen, J., Lenaerts, J., Lhermitte, S., Fettweis, X., Kuipers Munneke, P., Van Den Broeke, M., Van Meijgaard, E., P. Smeets, C., (2012). "Sensitivity of Greenland Ice Sheet surface mass balance to surface albedo parameterization: A study with a regional climate model". Cryosphere, 6 (5), 1175–1186. doi: 10.5194/tc-6-1175-2012.
- 17. Veraverbeke, S., Verstraeten, W., Lhermitte, S., Van De Kerchove, R., Goossens, R., (2012). "Assessment of post-fire changes in land surface temperature and surface albedo, and their relation with fireburn severity using multitemporal MODIS imagery". International Journal of Wildland Fire, 21 (3), 243–256. doi: 10.1071/WF10075.
- 16. Van De Kerchove, R., Lhermitte, S., Veraverbeke, S., Goossens, R., (2012). "Spatio-temporal variability in remotely sensed land surface temperature, and its relationship with physiographic variables in the Russian Altay Mountains". International Journal of Applied Earth Observation and Geoinformation, 20 (1), 4–19. doi: 10.1016/j.jag.2011.09.007.
- 15. Lhermitte, S., Verbesselt, J., Verstraeten, W., Coppin, P., (2011). "A comparison of time series similarity measures for classification and change detection of ecosystem dynamics". Remote Sensing of Environment, 115 (12), 3129–3152. doi: 10.1016/j.rse.2011.06.020.

- 14. Gascoin, S., Kinnard, C., Ponce, R., Lhermitte, S., MacDonell, S., Rabatel, A., (2011). "Glacier contribution to streamflow in two headwaters of the Huasco River, Dry Andes of Chile". Cryosphere, 5 (4), 1099–1113. doi: 10.5194/tc-5-1099-2011.
- 13. Veraverbeke, S., Lhermitte, S., Verstraeten, W., Goossens, R., (2011). "Evaluation of pre/post-fire differenced spectral indices for assessing burn severity in a mediterranean environment with landsat thematic mapper". International Journal of Remote Sensing, 32 (12), 3521–3537. doi: 10.1080/01431161003752430.
- 12. Veraverbeke, S., Lhermitte, S., Verstraeten, W., Goossens, R., (2011). "A time-integrated MODIS burn severity assessment using the multi-temporal differenced normalized burn ratio (dNBRMT)". International Journal of Applied Earth Observation and Geoinformation, 13 (1), 52–58. doi: 10.1016/j.jag.2010.06.006.
- 11. **Lhermitte, S.**, Verbesselt, J., Verstraeten, W., Veraverbeke, S., Coppin, P., (2011). "Assessing intra-annual vegetation regrowth after fire using the pixel based regeneration index." ISPRS Journal of Photogrammetry and Remote Sensing, 66 (1), 17–27. doi: 10.1016/j.isprsjprs. 2010.08.004.
- 10. Veraverbeke, S., Lhermitte, S., Verstraeten, W., Goossens, R., (2010). "The temporal dimension of differenced Normalized Burn Ratio (dNBR) fire/burn severity studies: The case of the large 2007 Peloponnese wildfires in Greece". Remote Sensing of Environment, 114 (11), 2548–2563. doi: 10.1016/j.rse.2010.05.029.
- 9. Veraverbeke, S., Verstraeten, W., Lhermitte, S., Goossens, R., (2010). "Evaluating Landsat Thematic Mapper spectral indices for estimating burn severity of the 2007 Peloponnese wildfires in Greece". International Journal of Wildland Fire, 19 (5), 558–569. doi: 10.1071/WF09069.
- 8. Lhermitte, S., Verbesselt, J., Verstraeten, W., Coppin, P., (2010). "A pixel based regeneration index using time series similarity and spatial context". Photogrammetric Engineering and Remote Sensing, 76 (6), 673–682.
- 7. Verstraeten, W., Vermeulen, B., Stuckens, J., Lhermitte, S., Zande, D., Ranst, M., Coppin, P., (2010). "Webcams for bird detection and monitoring: A demonstration study". Sensors, 10 (4), 3480–3503. doi: 10.3390/s100403480.
- 6. Veraverbeke, S., Verstraeten, W., Lhermitte, S., Goossens, R., (2010). "Illumination effects on the differenced Normalized Burn Ratio's optimality for assessing fire severity". International Journal of Applied Earth Observation and Geoinformation, 12 (1), 60–70. doi: 10. 1016/j.jaq.2009.10.004.
- 5. Delalieux, S., Auwerkerken, A., Verstraeten, W., Somers, B., Valcke, R., Lhermitte, S., Keulemans, J., Coppin, P., (2009). "Hyperspectral reflectance and fluorescence imaging to detect scab induced stress in apple leaves". Remote Sensing, 1 (4), 858–874. doi: 10.3390/rs1040858.
- 4. Somers, B., Delalieux, S., Verstraeten, W., Verbesselt, J., Lhermitte, S., Coppin, P., (2009). "Magnitude- and shape-related feature integration in hyperspectral mixture analysis to monitor weeds in citrus orchards". IEEE Transactions on Geoscience and Remote Sensing, 47 (11), 3630–3642. doi: 10.1109/TGRS.2009.2024207.
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- 2. Verbesselt, J., Somers, B., **Lhermitte**, **S.**, Jonckheere, I., Aardt, J., Coppin, P., (2007). "Monitoring herbaceous fuel moisture content with SPOT VEGETATION time-series for fire risk prediction in savanna ecosystems". Remote Sensing of Environment, 108 (4), 357–368. doi: 10.1016/j.rse.2006.11.019.
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Book chapters

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- 1. Verbesselt, J., Jönsson, P., Lhermitte, S., Jonckheere, I., Aardt, J., Coppin, P., (2006). "Relating time-series of meteorological and remote sensing indices to monitor vegetation moisture dynamics". In "Signal and image processing for remote sensing", pp 153–173, by Chen, C., ed., CRC Press, University of Massachusetts, North Darthmouth, USA

Conference proceedings

- 15. De Keersmaecker, W., Lhermitte, S., Tits, L., Honnay, O., Coppin, P., Somers, B., (2015). "Towards the large-scale assessment of vegetation biomass production stability". MultiTemp 2015 8th International Workshop on the Analysis of Multitemporal Remote Sensing Images. doi: 10.1109/Multi-Temp.2015.7245764.
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- 12. Vanonckelen, S., Lhermitte, S., Van Rompaey, A., Griffiths, P., (2013). "Integration of topographic correction in a pixel-based compositing algorithm in the Romanian Carpathians". MultiTemp 2013 7th International Workshop on the Analysis of Multi-Temporal Remote Sensing Images: "Our Dynamic Environment". doi: 10.1109/Multi-Temp.2013.6866012.
- 11. Veraverbeke, S., Goossens, R., Verstraeten, W., **Lhermitte, S.**, (2009). "Correction of topographic effects influencing the differenced Normalized Burn Ratio's optimality for estimating fire severity.". Proceedings of the VII International EARSeL Workshop: Advances in remote Sensing and GIS Applications in Forest Fire Management. Towards an operational use of remote sensing in forest fire management, 271–276
- 10. **Lhermitte, S.**, Verstraeten, W., Coppin, P., Verbesselt, J., (2008). "Spatio-temporal segmentation based on subsequences of satellite image time series". IGARSS 2008, International Geoscience and Remote Sensing Symposium, vol. 2 (1). doi: 10.1109/IGARSS.2008.4779153.
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- 8. Lhermitte, S., Verbesselt, J., Verstraeten, W., Coppin, P., (2007). "Assessing vegetation regrowth after fire based on time series of SPOT-vegetation data". MultiTemp 2007 4th International Workshop on the Analysis of Multi-Temporal Remote Sensing Images. doi: 10.1109/MULTITEMP.2007.4293050.
- 7. Lhermitte, S., Van Aardt, J., Coppin, P., (2005). "Development of indicators of burning efficiency based on time series of SPOT VEGETATION data". MultiTemp 2005 3rd International Workshop on the Analysis of Multi-Temporal Remote Sensing Images, vol. 2005 125. doi: 10.1109/AMTRSI.2005.1469854.
- 6. Lhermitte, S., Tips, M., Verbesselt, J., Jonckheere, I., Van Aardt, J., Coppin, P., (2005). "Development of indicators of vegetation recovery based on time series analysis of SPOT VEGETATION data". Proceedings of SPIE The International Society for Optical Engineering, vol. 5976. doi: 10.1117/12.627625.
- 5. Verbesselt, J., Somers, B., Lhermitte, S., Van Aardt, J., Jonckheere, I., Coppin, P., (2005). "Estimating vegetation dryness to optimize fire risk assessment with SPOT VEGETATION satellite data in savanna ecosystems". Proceedings of SPIE The International Society for Optical Engineering, vol. 5976. doi: 10.1117/12.627682.
- 4. Lhermitte, S., Verbesselt, J., Jonckheere, I., Van Aardt, J., Coppin, P., (2005). "Eco-climatic image segmentation based on time series". Communications in agricultural and applied biological sciences, vol. 70 (2), 165–168
- 3. Verbesselt, J., Somers, B., Lhermitte, S., Aardt, J., Jonckheere, I., Coppin, P., (2005). "Fire risk assessment in savanna ecosystems with multi-temporal satellite data". Communications in agricultural and applied biological sciences, vol. 70 (2), 23–26
- 2. Lhermitte, S., Verbesselt, J., Nackaerts, K., Coppin, P., (2004). "Eco-climatic image segmentation based on time series". ASPRS 2013, American Society for Photogrammetry and Remote Sensing Annual Conference, (0128)
- 1. Verbesselt, J., Lhermitte, S., Coppin, P., Eklundh, L., Jönsoon, P., (2004). "Biophysical drought metrics extraction by time series analysis of SPOT Vegetation data". IGARSS 2004, International Geoscience and Remote Sensing Symposium, vol. 3 2062–2065

Student support & teaching

PhD supervision & support

2018-now Weiran Li

TUDELFT, NETHERLANDS

Remote sensing of firn properties

2018-now Thore Kausch

TUDELFT, NETHERLANDS

Modelling & Remote Sensing of Antarctic SMB variability

2015-now Niels Souverijns

KULEUVEN, BELGIUM

The role of cloud-aerosol interactions in East Antarctica's surface mass balance

2015-now Alexandra Gossart

KULEUVEN, BELGIUM

The role of snowdrift on local mass redistribution in East Antarctica

2012-2016 Kristof Van Tricht

KULEUVEN, BELGIUM

Understanding the role of clouds in the climate of Greenland

2011-2015 Wanda De Keersmaecker

KULEUVEN, BELGIUM

Quantification of vegetation response to climate anomalies through remote sensing

2010-2014 Steven Vanonckelen

KULEUVEN. BELGIUM

 $Detection\ and\ analysis\ of\ forest\ cover\ dynamics\ with\ Landsat\ satellite\ imagery,\ application\ in\ the\ Romanian\ Carpathian$

Ecoregion

2008-2010 Sander Veraverbeke

GHENT UNIVERSITY, BELGIUM

Assessing fire burn severity using spaceborne spectral indices

PhD committee member

Defended: Robin Lombaert (KULeuven, 2013), Roberto Chavez (WUR, 2014), Junchao Shi (TUDelft, 2017), Eliakim Hamunyela (Wageningen University, 2017), Seyed Hosseini Aria (TUDelft, 2018), Jonathan Van Beek (KULeuven, 2012-2018) **In progress:** Vincent Smets (KULeuven, 2015-now), Björn Rombouts (KULeuven, 2016-now), Raymond Sellevold (TUDelft, 2017-now), Laura Muntjewerf (TUDelft, 2017-now), Paulo Negri Bernardino (KULeuven/Wageningen University, 2017-now)

MSc/BSc supervision

32 MSc/BSc students as supervisor, co-promotor, promotor: Ruben Rommens (MSc KULeuven, 2003-2004), Miet Boonen, Matthias Tipps (MSc KULeuven, 2004-2005), Sofie Vanzegbroek (MSc KULeuven, 2005-2006), Kim Calders (MSc KULeuven, 2007-2008), Mattias Vanderoost, Gil Gram (MSc KULeuven/CEAZA, 2008-2009), Kirsten Bortels (MSc KULeuven/CEAZA, 2010-2011), Joost Neujens (BSc, KULeuven 2013-2014), Niels Tooth, Camille Christiansen, Joni Ceuppens, Katrien Wouters (MSc, KULeuven 2014-2015), Lander Van Tricht (BSc, KULeuven 2015-2016), Tobias Nauwelaers, Thomas Antheunis (MSc, KULeuven 2015-2016), Merve Günes (BSc MSc, TU Delft 2016-2017/2019), Egli Michailidou (MSc, TU Delft 2017), Eva van der Kooij, Najoua Essaf, Tristan Keulemans (BSc, TUDelft, 2017), Maaike Izeboud (MSc, TUDelft, 2018), Annelies Voordendag (MSc, TUDelft, 2018), Ruben Egbers (MSc, TUDelft, 2018), Job Rosier (MSc, TUDelft, 2018), Weiran Li (MSc, TUDelft, 2018), Daniël Kersbergen (MSc, TUDelft, 2018), Daan Ris (BSc, TUDelft, 2018), Max Felius (BSc, TUDelft, 2018), Brendan Scherpenisse (MSc, TUDelft, 2018), Coco Antonissen (MSc, TUDelft, 2018), Dirk Van der Valk (MSc, TUDelft, 2018-2018), Kevin Groot (MSc, TUDelft, 2018-2019), Renske Free (BSc, TUDelft, 2018), Manish Kharagjitsing (MSc, TUDelft, 2019), Geerten van der Zalm (MSc, TUDelft, 2019), Thijs van Esch (MSc, TUDelft, 2019), Huub Ackermans (BSc, TUDelft, 2019), Nicael Jooste (MSc, TUDelft, 2019), Mirja Dooren (MSc, TUDelft, 2019), Fokke Dijkstra (MSc, TUDelft, 2019), Veronika Tollenaar (MSc, TUDelft, 2019)

Teaching

2018-2020 Cryosphere: remote sensing & modelling

BSc Applied, TUDELFT, NETHERLANDS

Lecturer

2018-2020 Big geo-data & machine learning [CIE5603 Advanced project on GRS]

MSc Geoscience & Remote Sensing, TUDelft, Netherlands

Coordinator + responsible lecturer

2017-2020 Simulation & visualisation [CIE4604]

MSc Geoscience & Remote Sensing, TUDelft, Netherlands

Lecturer on Remote sensing data processing on big geo-data platforms

2017-2020 Geodesy & Remote Sensing [CIE4606]

MSc Geoscience & Remote Sensing, TUDelft, Netherlands

Lecturer on radiative transfer modelling

2016-2018 **Ice, snow & climate change** [CIE4602]

MSc Geoscience & Remote Sensing, TUDelft, Netherlands

Lecturer of remote sensing topics

2016-2018 Introduction to geophysics & remote sensing [AESB1440]

BSC APPLIED EARTH SCIENCES, TUDELFT, NETHERLANDS Lecturer of hyperspectral remote sensing topic

2016-2018 Spaceflight assignment [AE3536]

BSc MINOR SPACEFLIGHT, TUDELFT, NETHERLANDS Responsible for 3 assignments for 9 students

2016-2018 Earth observation [CT3532]

BSC MINOR SPACEFLIGHT, TUDELFT, NETHERLANDS

Coordinator + responsible lecturer

2014-2016 Remote sensing of the atmosphere

MSc in Geography / MSc in Earth Observation, KULeuven, Belgium

Coordinator + responsible lecturer

2014-2016 Remote sensing: climatological applications

MSc in bioscience engineering, KULeuven, Belgium

Guest lecture in Land Cover & Land Use monitoring (coordinator Prof. Somers B.)

2014-2015 Remote sensing of the cryopshere

MSc, Utrecht University, Netherlands

Guest lecture in *Physics of Remote Sensing* (coordinator Prof. Houweling S.)

2011-2014 Temporal image analysis techniques

MSc in Earth Observation, KULeuven, Belgium

Guest lecture in *Remote sensing of vegetative systems* (coordinator Prof. Coppin P.)

2005-2007 Trend analysis

Advanced MSc in Earth Observation, KULeuven, Belgium

Guest lecture in Vegetative canopy monitoring (coordinator Prof. Coppin P.)

2002-2005 Geographical information systems [Practical sessions]

MSc in engineering of forest & land management, KULeuven, Belgium

 $Practical\ sessions\ of\ \textit{Geographical Information Systems}\ (coordinator\ Prof.\ Coppin\ P. (2002-2004),\ Prof.\ Van\ Orshoven\ J.$

(2005))

Grants & fellowships

NWO GO Damage Remote sensing of damage feedbacks and ice shelf instability in Antarctica

FUNDED BY NWO USER SUPPORT FOR SPACE RESEARCH

PΙ

NWO GO Firm Assessing firn processes from multi-source satellite data

FUNDED BY NWO USER SUPPORT FOR SPACE RESEARCH

PΙ

Mass2Ant East Antarctic surface mass balance in the Anthropocene: observations and multi-

scale modelling

FUNDED BY BELSPO BRAIN / NWO

Co-PI and principal NWO-funded collaborator (4 years of PhD funding) on project of PI Goosse H. (UCL)

PV-MEP TPS Snow monitoring using the Proba-V Mission Exploitation Platform (PV-MEP) Third

Party Services
Funded by ESA

Co-PI and responsible for snow monitoring work package

U-Turn Understanding turning points in dryland ecosystem functioning

Funded by Belspo Stereo III International partner

Black & bloom Microbial processes darken and accelerate the melting of the Greenland Ice Sheet

FUNDED BY NERC

International collaborator on project of PI's Tranter M. and Bamber J. (University Bristol)

Benemelt Melting of Dronning Maud Land ice shelves: a combined modelling and observa-

tional approach
Funded by Inbev-Latour

Collaborator on project of PI Lenaerts J. (Utrecht University)

Aerocloud How do aerosols and clouds affect the East Antarctic climate?

FUNDED BY BELSPO BRAIN

Collaborator on project of PI Van Lipzig N. (KULeuven)

Aerocloud Antarctic precipitation, clouds and their interplay with aerosols: Combining ground-

based remote sensing and regional climate modeling

FUNDED BY FWO

Collaborator on project of PI Van Lipzig N. (KULeuven)

FWO post-doc fellowship Changes in surface properties of the Greenland ice sheet and their impact on climate

modeling
FUNDED BY FWO
Principal investigator

Fondecyt Regular 2011 Modelling the current and future hydrological contribution of glaciers and seasonal

snow in semi arid mountain catchments

Funded by Fondecyt (Chile)

International collaborator on project of PI Kinnard C. (CEAZA)

Fondecyt Iniciacion 2009 The introduction of fusion techniques to improve the determination of snow cover

properties based on remote sensing imagery

Funded by Fondecyt (Chile Principal investigator

Planet Action Spatio-temporal changes in glacier surface facies and ablation morphology in the

Norte Chico region, Chile

Funded by SPOT IMAG Principal investigator

Ecoseg-SR/01/108 Development of a spatio-temporal segmentation algorithm for satellite time series

to monitor forest condition

Investigator on project of PI Prof. Coppin P. (KULeuven)

Glovex-SR/16/81 Assessment of vegetation regrowth by satellite remote sensing

FUNDED BY BELSPO STEREO II

Investigator on project of PI Prof. Coppin P. (KULeuven)

Scientific committees & reviews

Co-convernorship

EGU 2018 Remote sensing of the cryosphere [CR2.1]

EGU GENERAL ASSEMBLY 2018, VIENNA, AUSTRIA

Co-convenor

EGU 2017 Remote sensing of the cryosphere [CR2.1]

EGU GENERAL ASSEMBLY 2017, VIENNA, AUSTRIA

Convenor

EGU 2016 Remote sensing of the cryosphere [CR2.1]

EGU GENERAL ASSEMBLY 2016, VIENNA, AUSTRIA

Convenor

EGU 2015 Remote sensing of polar snow and ice [CR2.1]

EGU general assembly 2015, Vienna, Austria, 12 April – 17 April

Co-convenor

EGU 2014 Remote sensing of the cryosphere [CR2.1]

EGU GENERAL ASSEMBLY 2014, VIENNA, AUSTRIA, 28 APRIL – 2 MAY

Co-convenor

Multitemp 2007 Fourth International Workshop on the Analysis of Multitemporal Remote Sensing Images

MULTITEMP 2007, LEUVEN, BELGIUM, 18-20 JULY Member of the organisation committee

Reviews for

Nature Geoscience, The Cryosphere, Remote Sensing of Environment, Journal of Glaciology, Scientific Reports, IEEE Transactions on Geoscience and Remote Sensing, ISPRS Journal of Photogrammetry and Remote Sensing, Global Ecology and Biogeography, Photogrammetric Engineering & Remote Sensing, Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Remote Sensing, International Journal of Remote Sensing, Biogeosciences, Atmospheric Science Letters, Journal of Arid Environments, Nonlinear Processes in Geophysics, Geocarto International, International Journal of Geographical Information Science, Biosystems Engineering, EARSeL eProceedings, Sensors, Scientia Agricola, Ecological Modeling, Annals of Forest Science, NSF, Fondecyt, NWO, EUFAR

Editorial work

2018-now The Cryosphere

EDITOR

Editorial Board

2018-2019 Remote Sensing Special Issue

"Remote Sensing of Glaciers at Global and Regional Scales"

GUEST EDITOR

Special issue website

Press & outreach

Press

2019 Brunt ice shelf

Online press

🖺 BBC, 🖺 Fortune, 🖺 Earther, 🖺 Business Insider, 🖺 Het Laatste Nieuws, 🖺 Het Nieuwsblad, 🗎 De Limburger, 🗎 In.gr,

Stuttgarter

2019 Climate change

Written press

Volkskrant

2019 Pine Island Glacier

Online press

Atlas Obscura

2018 Larsen C: square iceberg

ONLINE PRESS

■ Mashable, ■ VRT NWS, ■ iNews

2018 Pine Island Glacier: calving

ONLINE PRESS

☐ The Weather Channel, ☐ Mashable, ☐ Quartz, ☐ Scientific American, ☐ Live Science, ☐ Science Alert, ☐ Daily Beast, ☐ The Daily Mail, etc

2018 Vavilov Ice Cap surge

ONLINE PRESS

Earther

2018 Helheim calving Earther 2018 Wat weten we van de Zuidpool? NOS Podcast #DeDag 2018 Fifteen Years of Change in the Arctic ONLINE PRESS Nasa Earth Observatory, Earth Sky, Washington Post Antarctic grounding lines ONLINE PRESS VRT NWS 2018 Penguin colonies on Antarctica ₱ De wereld vandaag @ VRT Radio 1, ₱ VRT Radio 2. 2018 Mass2Ant fieldwork NPO Radio 1 Pine Island Glacier calving 2017 RADIO, WRITTEN & ONLINE PRESS 🕮 Washington Post, 🖹 Nasa hyperwall, 🖺 NY Times, 🗎 The Verge, 🖺 Live Science, 🖹 Quartz, 🖺 USA Today, 🗎 Gizmodo, Daily Mail, Inverse, Euronews, Science Alert, The Weather Channel, Scientias, CBS News, ■ AOL, ■ International Business Times Greenland wildfire 2017 RADIO, WRITTEN & ONLINE PRESS BBC, ■ New Scientist, ■ The Guardian, ■ The Independent ■ Eos, ■ NBC News, ■ Nasa Earth, ■ Nasa Earth Blog, Climate Central Wildfire Today, Newsweek, HLN, Clean Technica, Euronews, Forbes, Grist, ■ Mother Jones, ■ NPR, ■ DW, ■ Huffington Post, ■ VRT Nieuws, ■ IFLS, ■ Gizmodo, ■ Popsci, ■ SD, ■ Scientias 2017 Asian glaciers ■ De Volkskrant, ■ De Morgen 2017 Larsen-C iceberg A68 Tv, radio, written & online press 💷 AD, 💷 De Morgen, 🗎 Climate Central, 🖵 VTM Nieuws, 🞐 BNR, 🗎 Mashable, 🗎 International Business Times, ☐ Independent, ☐ HLN, ☐ RT 2017 Peterman rift Tv, radio, written & online press □ NOS op 3, □ Van Gils & Gasten, □ Washington Post, □ Washington Post follow-up □ CNN, □ Volkskrant, □ Tech Times Live Science, IFL Science ABS News, Daily Mail, Mashable, Inhabitat, Business Insider, The Weather Network, NASA Earth Observatory, International Business Times, Phys.org, Paris Match, Science Times, Eath.com, PBS Newshour, Scientias 2016 Antarctic melt-albedo feedback Tv, radio, written & online press For complete coverage check Altmetric with higlights in 🖵 VRT nieuws, 🖵 VTM journaal, 🖵 Karrewiet @ Ketnet, 🖵 RTL journaal, 🖢 De wereld vandaag @ VRT Radio, 🖢 VRT Radio nieuws, 💷 National Geographic, 🖹 New Scientist , 🖹 De Volkskrant , 🖹 Washington Post , 🖹 Le Soir, 🖹 Eos, 🖹 El Mundo, 🗎 The International Business Times, 🖹 Kennis van Nu NTR, , 🖹 Telegraaf , 🖹 De Morgen , 🖹 Japan

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Times, Der Spiegel, Focus.de, Algemeen Dagblad, NOS, Phys.org, IFL science, Business insider

, 🖹 Science alert, 🖹 Life science, 🖹 CBS News, 🖺 Climate Central, 🖺 Fox news, 🗎 Huffington Post

Lake Victoria Thunderstorms

Delta, Nasa Earth Observatory

For complete coverage check Altmetric with higlights in

2016 Benemelt Antarctic field campaign in the news

RADIO & WRITTEN PRESS

□ ROB TV, UDe Ochtend @ VRT Radio 1, UNieuwe Feiten @ VRT Radio 1, UDe Wereld vandaag @ VRT Radio 1, UDE Het Nieuwsblad, UDE Standaard, UDE Rondom Leuven

2012 Interview for Science magazine on exceptional Greenland melt

WRITTEN & ONLINE PRESS

Science

Lectures & Outreach

22 Apr 2019 Hoe verander je het klimaat?

JRSULINEN MECHELEN

Presentation for 10 year old students

19 Feb 2019 What happens in Antarctica does not stay in Antarctica

Causerie @ Oxaco

Presentation for wider audience

7 Nov 2018 Assessing ice sheet changes from Copernicus satellites

COPERNICUS & POLAR REGIONS INDUSTRY WORKSHOP

Polar applications of Copernicus

16 Oct 2018 De fysica van Antarctica

NATUURKUNDE SYMPOSIUM: PHYSICS OF NATURE Keynote lecture [https://symposium.vvtp.tudelft.nl/]

12 Oct 2018 What happens in Antarctica does not stay in Antarctica

VIB Brain & Disease: PhD symposium

Keynote lecture

4 Oct 2018 Remote Sensing of anomalies and feedbacks using time series models

SATEX WORKSHOP ON DATA GUIDED APPRAISAL OF BIOSPHERE-CLIMATE INTERACTIONS

4 Jul 2018 Antarctica Report: science, no-fiction

CINEMA LUMEN: SIZZLING SUMMER OF SPACE

Introduction of Antarctic science by the movie 'Europa Report'

13 May 2018 Hoe koud is het echt op Antarctica

UDFLET JEUGD UNIVERSITEIT

Presentation for 8-12 year old students

21 Mar 2018 La Belgique et l'Antarctique, Impressions de Chercheurs

EVENING CONFERENCE ON ANTARCTIC RESEARCH Presentation for ice shelf research & experiences

Feb 2018 Antarctica voor beginners

BASIS- & KLEUTERSCHOOL URSULINEN Introductie voor kleuter- & lagere school

Causerie @ Oxaco

Presentation for wider audience

31 Jan 2017 Ijsplaten van Antarctica in een veranderend klimaat

SLO Natuurwetenschappen (Geography) KULeuven

Presentation for geografie leerkrachten

Ondernemershuis Mechelen

Presentation on 'Ice shelves on Antarctica'

Dec 2015 Antarctica voor beginners

KLEUTERSCHOOL URSULINEN
Introductie voor kleuterschool

Skills

Software

Office applications: Office (Word, Excel, Powerpoint, Access), LaTeX, Adobe Creative Suite (Photoshop, Illustrator, Flash)

Open-source Office: Libreoffice suite, Inkscape, imagemagick

Program languages: python, R, C++, fortran, bash, IDL, matlab, javascript, php, html+css, sql

Remote sensing: QGis, Google Earth Engine, gdal/ogr, ArcGIS, Envi, Idrisi, PCI

Operating systems: Linux, Mac, Windows

Languages

Dutch: Mother tongue

English: Proficient understanding, speaking, and writing. [❖ C2 level]
French: Very good understanding, good speaking, and intermediate writing

Spanish: Very good understanding and speaking, good writing

Field work management

Organisation of field campaigns in the Chilean Andes (2010, 2014) and coordinator and assistance in a scientific field campaign on the Roi Baudoin ice shelf (East-Antarctica, Jan 2016 & Dec 2017).