

# 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 52 publications in international and peer-reviewed scientific journals included in Web of Science and has an H-index of 20/24\*. He is first/second author on 20 publications.

\* Scopus/Google June 13, 2018

## Current position

### Assistant professor Geoscience & Remote Sensing

Delft University of Technology (TUDelft)

Department of Geoscience & Remote Sensing (GRS)

## Education

- |           |  |
|-----------|--|
| 2016      | <b>Big data:</b> management, analysis, visualization and legal aspects<br>GHENT UNIVERSITY, BELGIUM  |
| 2012      | <b>Ice sheets and glaciers in the climate system:</b> Karthaus summer school<br>INSTITUTE FOR MARINE AND ATMOSPHERIC RESEARCH (IMAU), NETHERLANDS  |
| 2004-2008 | <b>PhD in bioscience engineering</b><br>KULEUVEN, BELGIUM<br>Dissertation: <i>Vegetation regrowth monitoring after wildfires based on satellite time series similarity.</i>                          |
| 1999-2002 | <b>MSc in engineering of forest and land management</b> [with high distinction]<br>KULEUVEN, BELGIUM<br>Dissertation: <i>Improving soil salinity management in sugarcane using earth observation</i> |
| 1997-1999 | <b>BSc (candidate) in bio-engineering</b> [with distinction]<br>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

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. M., (2018). "Evaluation of the CloudSat surface snowfall product over Antarctica using ground-based precipitation radars". *The Cryosphere Discussions*, (2018), 1–21. doi: 10.5194/tc-2018-111. [📄](#)
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*. 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., Ulf, 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 Ulf, 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. 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. [📄](#)
38. 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. [📄](#)
37. 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. [📄](#)
36. 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. [📄](#)
35. 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. [📄](#)
34. 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. [📄](#)
33. 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. [📄](#)
32. 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. [📄](#)
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 mountain environments". *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. [DOI](#)
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. [DOI](#)
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.jag.2009.10.004. [DOI](#)
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. [DOI](#)
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. [DOI](#)
3. **Lhermitte, S.**, Verbesselt, J., Jonckheere, I., Nackaerts, K., Aardt, J., Verstraeten, W., Coppin, P., (2008). "Hierarchical image segmentation based on similarity of NDVI time series". *Remote Sensing of Environment*, 112 (2), 506–521. doi: 10.1016/j.rse.2007.05.018. [DOI](#)
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. [DOI](#)
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## Book chapters

2. Veraverbeke, S., **Lhermitte, S.**, Verstraeten, W., Goossens, R., (2010). "Assessing burn severity using satellite time series". In "Modelling, Monitoring and Management of Forest Fires II", pp. 107–118, by Perona, G. and C.A. Brebbia, eds., WIT Transactions on Ecology and the Environment. doi: 10.2495/FIVA100101.
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 Dartmouth, 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.
14. De Keersmaecker, W., **Lhermitte, S.**, Tits, L., Honnay, O., Somers, B., Coppin, P., (2014). "Linking NDVI and climate-based ecosystem stability with land cover in Europe". *IGARSS 2014, International Geoscience and Remote Sensing Symposium*, 3938–3940. doi: 10.1109/IGARSS.2014.6947346.
13. De Keersmaecker, W., **Lhermitte, S.**, Somers, B., Van Rooijen, N., Honnay, O., Schaminée, J., Farifteh, J., Coppin, P., (2013). "The sensitivity of ecosystem stability measures derived from remote sensing time series". *ASPRS 2013, American Society for Photogrammetry and Remote Sensing Annual Conference*, 166–175
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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.



9. Somers, B., Delalieux, S., Verstraeten, W., Cools, K., Verbesselt, J., **Lhermitte, S.**, Coppin, P., (2008). “*Integration of magnitude and shape related features in hyperspectral mixture analysis to monitor weeds in citrus orchards*”. IGARSS 2008, International Geoscience and Remote Sensing Symposium, vol. 1 (1). doi: 10.1109/IGARSS.2008.4778857.
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 VEG-ETATION 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	<b>Thore Kausch</b> TUDELFT, NETHERLANDS Modelling & Remote Sensing of Antarctic SMB variability
2015-now	<b>Niels Souverijns</b> KULEUVEN, BELGIUM The role of cloud-aerosol interactions in East Antarctica's surface mass balance
2015-now	<b>Alexandra Gossart</b> KULEUVEN, BELGIUM The role of snowdrift on local mass redistribution in East Antarctica
2012-2016	<b>Kristof Van Tricht</b> KULEUVEN, BELGIUM Understanding the role of clouds in the climate of Greenland
2011-2015	<b>Wanda De Keersmaecker</b> KULEUVEN, BELGIUM Quantification of vegetation response to climate anomalies through remote sensing
2010-2014	<b>Steven Vanonckelen</b> KULEUVEN, BELGIUM Detection and analysis of forest cover dynamics with Landsat satellite imagery, application in the Romanian Carpathian Ecoregion
2008-2010	<b>Sander Veraverbeke</b> GHENT UNIVERSITY, BELGIUM Assessing fire burn severity using spaceborne spectral indices

### PhD committee member

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-now), Vincent Smets (KULeuven, 2015-now), Björn Rombouts (KULeuven, 2016-now), Raymond Sellevold (TUDelft, 2017-now), Laura Muntjewerf (TUDelft, 2017-now)

## MSc/BSc supervision

31 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, TU Delft 2016-2017), Egli Michailidou (MSc, TU Delft 2017), Eva van der Kooij, Najoua Essaf, Tristan Keulemans (BSc, TUDelft, 2017), Maaïke 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), Coco Antonissen (MSc, TUDelft, 2018), Dirk Van der Valk (MSc, TUDelft, 2018), Kevin Groot (MSc, TUDelft, 2018)

## Teaching

- 2017-2018 **Simulation & visualisation** [CIE4604]  
MSc GEOSCIENCE & REMOTE SENSING, TUDELFT, NETHERLANDS  
Lecturer on Remote sensing data processing on big geo-data platforms
- 2017-2018 **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 cryosphere**  
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 *Geographical Information Systems* (coordinator Prof. Coppin P.(2002-2004), Prof. Van Orshoven J. (2005))

## Grants & fellowships

NWO GO Firm	<b>Assessing firn processes from multi-source satellite data</b> FUNDED BY NWO USER SUPPORT FOR SPACE RESEARCH PI
Mass2Ant	<b>East Antarctic surface mass balance in the Anthropocene : observations and multi-scale modelling</b> 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	<b>Snow monitoring using the Proba-V Mission Exploitation Platform (PV-MEP) Third Party Services</b> FUNDED BY ESA Co-PI and responsible for snow monitoring work package
U-Turn	<b>Understanding turning points in dryland ecosystem functioning</b> FUNDED BY BELSPO STEREO III International partner
Black & bloom	<b>Microbial processes darken and accelerate the melting of the Greenland Ice Sheet</b> FUNDED BY NERC International collaborator on project of PI's Tranter M. and Bamber J. (University Bristol)
Benemelt	<b>Melting of Dronning Maud Land ice shelves: a combined modelling and observational approach</b> FUNDED BY INBEV-LATOUR Collaborator on project of PI Lenaerts J. (Utrecht University)
Aerocloud	<b>How do aerosols and clouds affect the East Antarctic climate?</b> FUNDED BY BELSPO BRAIN Collaborator on project of PI Van Lipzig N. (KULeuven)
Aerocloud	<b>Antarctic precipitation, clouds and their interplay with aerosols: Combining ground-based remote sensing and regional climate modeling</b> FUNDED BY FWO Collaborator on project of PI Van Lipzig N. (KULeuven)
FWO post-doc fellowship	<b>Changes in surface properties of the Greenland ice sheet and their impact on climate modeling</b> FUNDED BY FWO Principal investigator
Fondecyt Regular 2011	<b>Modelling the current and future hydrological contribution of glaciers and seasonal snow in semi arid mountain catchments</b> FUNDED BY FONDECYT (CHILE) International collaborator on project of PI Kinnard C. (CEAZA)
Fondecyt Iniciacion 2009	<b>The introduction of fusion techniques to improve the determination of snow cover properties based on remote sensing imagery</b> FUNDED BY FONDECYT (CHILE) Principal investigator
Planet Action	<b>Spatio-temporal changes in glacier surface facies and ablation morphology in the Norte Chico region, Chile</b> FUNDED BY SPOT IMAGE Principal investigator
Ecoseg-SR/01/108	<b>Development of a spatio-temporal segmentation algorithm for satellite time series to monitor forest condition</b> FUNDED BY BELSPO STEREO II Investigator on project of PI Prof. Coppin P. (KULeuven)
Glovex-SR/16/81	<b>Assessment of vegetation regrowth by satellite remote sensing</b> FUNDED BY BELSPO STEREO II Investigator on project of PI Prof. Coppin P. (KULeuven)

## Scientific committees & reviews



## Co-convenorship

- 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, 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

- 2017-2018 **Remote Sensing Special Issue**  
**"Remote Sensing of Glaciers at Global and Regional Scales"**  
GUEST EDITOR  
[mdpi.com/journal/remotesensing/special\\_issues/Glaciers](https://mdpi.com/journal/remotesensing/special_issues/Glaciers)

## Press & outreach

### Press

- 2018 **Fifteen Years of Change in the Arctic**  
ONLINE PRESS  
[Nasa Earth Observatory](#), [Earth Sky](#)
- 2018 **Antarctic grounding lines**  
ONLINE PRESS  
[VRT NWS](#)
- 2018 **Penguin colonies on Antarctica**  
RADIO  
[De wereld vandaag @ VRT Radio 1](#), [VRT Radio 2](#)
- 2018 **Mass2Ant fieldwork**  
RADIO  
[NPO Radio 1](#)

- 2017 **Pine Island Glacier calving**  
 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](#)
- 2017 **Greenland wildfire**  
 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**  
 WRITTEN PRESS  
[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 highlights 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 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](#)
- 2016 **Lake Victoria Thunderstorms**  
 ONLINE PRESS  
 For complete coverage check [Altmetric](#) with highlights in  
[Delta](#), [Nasa Earth Observatory](#)
- 2016 **Benemelt Antarctic field campaign in the news**  
 RADIO & WRITTEN PRESS  
[ROB TV](#), [De Ochtend @ VRT Radio 1](#), [Nieuwe Feiten @ VRT Radio 1](#), [De Wereld vandaag @ VRT Radio 1](#), [Het Nieuwsblad](#), [De Standaard](#), [Rondom Leuven](#)
- 2012 **Interview for Science magazine on exceptional Greenland melt**  
 WRITTEN & ONLINE PRESS  
[Science](#)

## Lectures & Outreach

- 13 May 2018 **Hoe koud is het echt op Antarctica**  
 TUDELFT 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
- 21 Feb 2017 **Ijsplaten van Antarctica in een veranderend klimaat**  
 CAUSERIE @ OXACO  
 Presentation for wider audience

- 31 Jan 2017 **Ijsplaten van Antarctica in een veranderend klimaat**  
SLO NATUURWETENSCHAPPEN (GEOGRAPHY) KULEUVEN  
Presentation for geografie leerkrachten
- 18 Dec 2016 **Ice shelves on Antarctica**  
ONDERNEMERSHUIS MECHELEN  
Presentation on 'Ice shelves on Antarctica'
- Dec 2015 **Antarctica voor beginners**  
KLEUTERSCHOOL URSULINEN  
Introductie voor kleuterschool

## Skills

### Software

<b>Office applications:</b>	Office (Word, Excel, Powerpoint, Access), LaTeX, Adobe Creative Suite (Photoshop, Illustrator, Flash)
<b>Open-source Office:</b>	Libreoffice suite, Inkscape, imagemagick
<b>Program languages:</b>	python, R, C++, fortran, bash, IDL, matlab, javascript, php, html+css, sql
<b>Remote sensing:</b>	QGIS, Google Earth Engine, gdal/ogr, ArcGIS, Envi, Idrisi, PCI
<b>Operating systems:</b>	Linux, Mac, Windows

### Languages

<b>Dutch:</b>	Mother tongue
<b>English:</b>	Proficient understanding, speaking, and writing. [🌐 C2 level]
<b>French:</b>	Very good understanding, good speaking, and intermediate writing
<b>Spanish:</b>	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).