

# Stef Lhermitte

## REMOTE SENSING SCIENTIST



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## Profile

Remote sensing scientist with specific interest in the use of multi-source remote sensing, land surface modelling and machine learning 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 methods (e.g. machine learning) 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 66 publications in international and peer-reviewed scientific journals included in Web of Science and has an H-index of 33/39\*. He is first/second author on 21 publications.

\* Scopus/Google October 8, 2021

## Current position

### Assistant professor Geoscience & Remote Sensing

Delft University of Technology (TUDelft)  
Department of Geoscience & Remote Sensing (GRS)

## Education

- |           |                                                                                                                                                                                                      |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2016      | <b>Post-academic track on Big data:</b> management, analysis, visualization and legal aspects<br>GHENT UNIVERSITY, BELGIUM                                                                           |
| 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

- 66 peer-reviewed publications since 2008 incl. 7 papers in high-impact inter-disciplinary journals (e.g., Nature Climate Change, 4x Nature Communications, Science Advances, PNAS)
- 21 publications as first/second author
- Citations: 4090 (Google), 2791 (Scopus)
- H-index: 39 (Google), 33 (Scopus)

## Articles in peer reviewed journals

66. Voordendag, A., Réveillet, M., MacDonell, S., **Lhermitte, S.**, (2021). "Snow model comparison to simulate snow depth evolution and sublimation at point scale in the semi-arid Andes of Chile". *The Cryosphere*, 15 (9), 4241–4259. doi: 10.5194/tc-15-4241-2021. [📄](#)
65. de Roda Husman, S., Sanden, J. J., **Lhermitte, S.**, Eleveld, M. A., (2021). "Integrating intensity and context for improved supervised river ice classification from dual-pol Sentinel-1 SAR data". *International Journal of Applied Earth Observation and Geoinformation*, 101 (May), 102359. doi: 10.1016/j.jag.2021.102359. [📄](#)
64. Francis, D., Mattingly, K. S., **Lhermitte, S.**, Temimi, M., Heil, P., (2021). "Atmospheric extremes caused high oceanward sea surface slope triggering the biggest calving event in more than 50 years at the Amery Ice Shelf". *Cryosphere*, 15 (5), 2147–2165. doi: 10.5194/tc-15-2147-2021.
63. **Lhermitte, S.**, Sun, S., Shuman, C., Wouters, B., Pattyn, F., Wuite, J., Berthier, E., Nagler, T., (2020). "Damage accelerates ice shelf instability and mass loss in Amundsen Sea Embayment". *Proceedings of the National Academy of Sciences*, 201912890. doi: 10.1073/pnas.1912890117. [📄](#)
62. Noël, B., Jakobs, C. L., Pelt, W. J. J., **Lhermitte, S.**, Wouters, B., Kohler, J., Hagen, J. O., Luks, B., Reijmer, C. H., Berg, W. J., Broeke, M. R., (2020). "Low elevation of Svalbard glaciers drives high mass loss variability". *Nature Communications*, 11 (1), 4597. doi: 10.1038/s41467-020-18356-1. [📄](#)

61. Kausch, T., **Lhermitte, S.**, Lenaerts, J., Wever, N., Inoue, M., Pattyn, F., Sun, S., Wauthy, S., Tison, J.-L., van de Berg, W. J., (2020). "Impact of coastal East Antarctic ice rises on surface mass balance: insights from observations and modeling". *The Cryosphere*, 1–20. doi: 10.5194/tc-2020-66.
60. Dunmire, D., Lenaerts, J. T. M., Banwell, A. F., Wever, N., Shragge, J., **Lhermitte, S.**, Drews, R., Pattyn, F., Hansen, J. S. S., Willis, I. C., Miller, J., Keenan, E., (2020). "Observations of buried lake drainage on the Antarctic Ice Sheet". *Geophysical Research Letters*. doi: 10.1029/2020GL087970. 
59. Izeboud, M., **Lhermitte, S.**, Van Tricht, K., Lenaerts, J. T. M., Van Lipzig, N. P. M., Wever, N., (2020). "The Spatiotemporal Variability of Cloud Radiative Effects on the Greenland Ice Sheet Surface Mass Balance". *Geophysical Research Letters*, 47 (12). doi: 10.1029/2020GL087315. 
58. Kampenhout, L., Lenaerts, J. T., Lipscomb, W. H., **Lhermitte, S.**, Noël, B., Vizcaíno, M., Sacks, W. J., Broeke, M. R., (2020). "Present-Day Greenland Ice Sheet Climate and Surface Mass Balance in CESM2". *Journal of Geophysical Research: Earth Surface*, 125 (2). doi: 10.1029/2019JF005318. 
57. Réveillet, M., MacDonell, S., Gascoin, S., Kinnard, C., **Lhermitte, S.**, Schaffer, N., (2020). "Impact of forcing on sublimation simulations for a high mountain catchment in the semiarid Andes". *The Cryosphere*, 14 (1), 147–163. doi: 10.5194/tc-14-147-2020. 
56. Noel, B. P. Y., van de Berg, W. J., **Lhermitte, S.**, van den Broeke, M. R., (2019). "Rapid ablation zone expansion amplifies north Greenland mass loss". *Science Advances*, 5 (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). "Impact of forcing on sublimation simulations for a high mountain catchment in the semi-arid Andes". *The Cryosphere*. doi: 10.5194/tc-2019-31. . \* Accepted and in-press.
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 Cryosphere*, 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 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. 
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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. doi: 10.1038/NCLIMATE3180. [📄](#) \* **Joint first author**
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. [📄](#)
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35. Hawinkel, P., Thiery, W., **Lhermitte, S.**, Swinnen, E., Verbist, B., Van Orshoven, J., Muys, B., (2016). "Vegetation response to pre-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 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.
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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.
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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.
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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.
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.
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.
1. Verbesselt, J., Jönsson, P., **Lhermitte, S.**, Van Aardt, J., Coppin, P., (2006). "Evaluating satellite and climate data-derived indices as fire risk indicators in savanna ecosystems". *IEEE Transactions on Geoscience and Remote Sensing*, 44 (6), 1622–1632. doi: 10.1109/TGRS.2005.862262.

## Student support & teaching

### PhD supervision & support

- |           |                                                                                                                                                                                                                                                           |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2021-now  | <b>Shashwat Shukla</b> , Remote sensing of fire processes<br>CO-PROMOTOR, TUDELFT, NETHERLANDS<br>Since Jan 2021; Funded by NWO Groot                                                                                                                     |
| 2021-now  | <b>Sophie de Roda Husman</b> , Remote sensing of ice shelf melt<br>CO-PROMOTOR, TUDELFT, NETHERLANDS<br>Since Jan 2021; Funded by NWO Groot                                                                                                               |
| 2019-now  | <b>Maaïke Izeboud</b> , Remote sensing of damage feedbacks and ice shelf instability<br>CO-PROMOTOR, TUDELFT, NETHERLANDS<br>Since May 2019; Funded by NWO User Support 2018                                                                              |
| 2018-now  | <b>Weiran Li</b> , Remote sensing of fire properties<br>CO-PROMOTOR, TUDELFT, NETHERLANDS<br>Since Jul 2018; Funded by NWO User Support 2017                                                                                                              |
| 2018-now  | <b>Thore Kausch</b> , Modelling & Remote Sensing of Antarctic SMB variability<br>CO-PROMOTOR, TUDELFT, NETHERLANDS<br>Since Apr 2018; Funded by NWO Polar Program                                                                                         |
| 2015-2019 | <b>Niels Souverijns</b> , The role of cloud-aerosol interactions in East Antarctica's surface mass balance<br>CO-PROMOTOR, KULEUVEN, BELGIUM<br>Funded by FWO. Currently senior researcher @ VITO.                                                        |
| 2015-2019 | <b>Alexandra Gossart</b> , The role of snowdrift on local mass redistribution in East Antarctica<br>CO-PROMOTOR, KULEUVEN, BELGIUM. DEFENCE DATE 2019-12-12<br>Funded by Belgian Science Policy (Belspo) BRAIN. Starts post-doc @ Antarctica New Zealand. |
| 2012-2016 | <b>Kristof Van Tricht</b> , Understanding the role of clouds in the climate of Greenland<br>CO-PROMOTOR, KULEUVEN, BELGIUM<br>Funded by FWO PhD fellowships. Currently senior researcher @ VITO.                                                          |

- 2011-2015 **Wanda De Keersmaecker**, Quantification of vegetation response to climate anomalies through remote sensing  
DAILY SUPERVISOR, KULEUVEN, BELGIUM  
Funded by Belgian Science Policy (Belspo) Earth Observation call: Stereo II. Currently post-doc researcher @ WUR.
- 2010-2014 **Steven Vanonckelen**, Detection and analysis of forest cover dynamics with Landsat satellite imagery, application in the Romanian Carpathian Ecoregion  
DAILY SUPERVISOR, KULEUVEN, BELGIUM  
Funded by Belgian Science Policy (Belspo) Earth Observation call: Stereo II. Currently senior researcher at INBO.
- 2008-2010 **Sander Veraverbeke**, Assessing fire burn severity using spaceborne spectral indices  
CO-PROMOTOR, GHENT UNIVERSITY, BELGIUM  
Funded by Ghent University Special Research Funds. Currently assistant professor @ VU.

## PhD committee member

Assessment committee member of 12 PhD students:

- **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), Vincent Smets (KULeuven, 2015-2020)
- **In progress:** , Björn Rombouts (KULeuven, 2016-now), Raymond Sellevold (TUDelft, 2017-now), Laura Muntjewerf (TUDelft, 2017-now), Paulo Negri Bernardino (KULeuven/Wageningen University, 2017-now), Sarah Wauthy (Université Libre de Bruxelles, 2018-now)

## MSc/BSc supervision

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 Vanderoot, 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), 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), 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), Estella Fernandes (BSc, TUDelft, 2018), Veronika Tollenaar (MSc, TUDelft, 2019), Merve Gunes (MSc, TUDelft, 2020), Sophie de Roda Husman (MSc, TUDelft, 2020), Sofie Schijvenaars (BSc, TUDelft, 2020), Thirza Feenstra (BSc, TUDelft, 2020), Juliette Kool (MSc, TUDelft, 2021), Jelle Zitman (MSc, TUDelft, 2021), Michaja Van Capel (BSc, TUDelft, 2020), Daan van der Heide (MSc, TUDelft, 2021), Dylan Kreyen (MSc, TUDelft, 2021), Fleur Verschoor (MSc, TUDelft, 2021), Marije van Hell (MSc, TUDelft, 2021), Andre Vallendar (MSc, TUDelft, 2021), Bas Walraven (MSc, TUDelft, 2021),

## Teaching

- 2020-2022 **Applied Machine Learning** [CS4305TU]  
MSC TUDelft WIDE, NETHERLANDS  
Lecturer of convolutional neural networks
- 2020-2022 **Remote Sensing & Big Data** [CIE5603]  
MSC GEOSCIENCE & REMOTE SENSING, TUDelft, NETHERLANDS  
Coordinator + responsible lecturer
- 2019-2022 **Bouwplaats - Remote Sensing** [CIE5603]  
BSC CIVIL ENGINEERING, TUDelft, NETHERLANDS  
Lecturer

- 2019-2022 **Climate impacts & Engineering** [CIE5603]  
BSc CIVIL ENGINEERING, TUDELFT, NETHERLANDS  
Lecturer
- 2019-2022 **Climate change: Science & ethics** [CIE4510]  
MSc CIVIL ENGINEERING AND GEOSCIENCES, TUDELFT, NETHERLANDS  
Lecturer
- 2018-2022 **Cryosphere: remote sensing & modelling** [CIE5603]  
MSc GEOSCIENCE & REMOTE SENSING, TUDELFT, NETHERLANDS  
Lecturer
- 2018-2020 **Big geo-data & machine learning** [CIE5603 Advanced project on GRS]  
MSc GEOSCIENCE & REMOTE SENSING, TUDELFT, NETHERLANDS  
Coordinator + responsible lecturer
- 2017-2022 **Simulation & visualisation** [CIE4604]  
MSc GEOSCIENCE & REMOTE SENSING, TUDELFT, NETHERLANDS  
Lecturer on Remote sensing data processing on big geo-data platforms
- 2017-2022 **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



Protect	<b>PROjecTing sEa-level rise : from iCe sheets to local implicaTions</b> FUNDED BY H2020 Project member on WP3
Ice shelves on Google Earth Engine	<b>State and fate of Antarctica's gatekeepers</b> FUNDED BY GOOGLE PI
NWO Groot	<b>State and fate of Antarctica's gatekeepers: a High-Resolution approach for ice Shelf instability (HiRISE)</b> FUNDED BY NWO GROOT co-PI
NWO GO Damage	<b>Remote sensing of damage feedbacks and ice shelf instability in Antarctica</b> FUNDED BY NWO USER SUPPORT FOR SPACE RESEARCH PI
NWO GO Firn	<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	<b>Remote sensing of the cryosphere [CR2.1]</b> EGU GENERAL ASSEMBLY 2018, VIENNA, AUSTRIA Co-convenor
EGU 2017	<b>Remote sensing of the cryosphere [CR2.1]</b> EGU GENERAL ASSEMBLY 2017, VIENNA, AUSTRIA Convenor
EGU 2016	<b>Remote sensing of the cryosphere [CR2.1]</b> EGU GENERAL ASSEMBLY 2016, VIENNA, AUSTRIA Convenor
EGU 2015	<b>Remote sensing of polar snow and ice [CR2.1]</b> EGU GENERAL ASSEMBLY 2015, VIENNA, AUSTRIA, 12 APRIL – 17 APRIL Co-convenor
EGU 2014	<b>Remote sensing of the cryosphere [CR2.1]</b> EGU GENERAL ASSEMBLY 2014, VIENNA, AUSTRIA, 28 APRIL – 2 MAY Co-convenor
Multitemp 2007	<b>Fourth International Workshop on the Analysis of Multitemporal Remote Sensing Images</b> 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	<b>The Cryosphere</b> EDITOR  Editorial Board
2018-2019	<b>Remote Sensing Special Issue</b> <b>"Remote Sensing of Glaciers at Global and Regional Scales"</b> GUEST EDITOR  Special issue website

# Press & outreach

## Press

### 2021 PIG weakening

ONLINE PRESS

 Mashable

### 2021 Icebergs

ONLINE PRESS

 Delta




### 2021 Antarctica smelt

WRITTEN PRESS

 Eos

### 2020 Iceberg A68

ONLINE PRESS

 HLN,  Mashable,  7sur7,  Nieuwsblad,  VRT Nws,  BBC,  BBC  Earther,  Science times,  Gizmodo,  Yahoo



















### 2020 Sea Ice Arctic

ONLINE PRESS

 VRT Nws

### 2020 Damage Amundsen Sea

ONLINE PRESS

 Washington Post,  CNN,  Guardian,  Der Spiegel,  SciTechDaily,  VRT Nws,  IFL Science,  Sputnik News,  NY Post,  Business Insider,  Corriere,  Nu.nl,  Fox News,  USA today,  CTV,  RTBF,  Wired,  Metro














### 2020 Pine Island Glacier

ONLINE PRESS

 ABC news,  Scientias

### 2019 Amery iceberg D28

ONLINE PRESS

 BBC,  NBC News,  TIME,  BBC,  Euronews,  Observador,  <https://videnskab.dk>,  [expressen.se](https://expressen.se),  [hs.fi](https://hs.fi),  IFLS,  Daily Mail,  LMalta,  LZ.de






### 2019 Earth From Space

TV SHOW

 BBC

### 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**  
ONLINE PRESS  
[Earth](#)
- 2018 **Wat weten we van de Zuidpool?**  
PODCAST  
[NOS Podcast #DeDag](#)
- 2018 **Fifteen Years of Change in the Arctic**  
ONLINE PRESS  
[Nasa Earth Observatory](#), [Earth Sky](#), [Washington Post](#)
- 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 &amp; WRITTEN PRESS

ROB TV, De Ochtend @ VRT Radio 1, Nieuwe Feiten @ VRT Radio 1, De Wereld vandaag @ VRT Radio 1, Het Nieuwsblad, De Standaard, Rndom Leuven

**2012 Interview for Science magazine on exceptional Greenland melt**

WRITTEN &amp; ONLINE PRESS

Science

**Interactive websites**

- Meltwater on an East Antarctic ice shelf: [www.tudelft.pageflow.io/benemelt](http://www.tudelft.pageflow.io/benemelt)
- A tipping point for Greenland glaciers & ice caps: [www.tudelft.pageflow.io/gics](http://www.tudelft.pageflow.io/gics)
- North Greenland mass loss: [www.tudelft.pageflow.io/north-gris](http://www.tudelft.pageflow.io/north-gris)
- Damaged ice shelves in Antarctica: <https://tudelft.pageflow.io/pig-damage>

**Lectures & Outreach****18 Nov 2020 Mechelen aan zee: wat als de ijskappen smelten?**

MECHELEN

Natuurpunt Warme winteravonden

**10 Mar 2020 Antarctica voor de zeespiegel: een onzeker zwaargewicht**

WAASMUNSTER

Invited presentation

**10 Oct 2019 Remote sensing of damage feedbacks and ice shelf instability in Antarctica**

NSO EARTH OBSERVATION, SCIENCE &amp; SOCIETY SYMPOSIUM

Invited presentation

**8 Oct 2019 Antarctica voor de zeespiegel: een onzeker zwaargewicht**

MERCATORKRING

Keynote for port of Antwerp representatives

**22 Apr 2019 Hoe verander je het klimaat?**

URSULINEN 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 &amp; 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 &amp; 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**

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

### 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).