Personal information

I am an Earth system scientist with specific interest in studying the interactions between climate, the terrestrial biosphere, the atmosphere and carbon cycle. I am interested in the effects of high-latitude climate change on ecosystem disturbances and carbon fluxes, and their feedbacks to climate. I received my PhD in Geography in 2010 from Ghent University. Between 2011 and 2016 I worked in the US; first as postdoctoral researcher at NASA’s Jet Propulsion Laboratory (JPL), later as project scientist at the University of California, Irvine. In 2016, I started as Assistant Professor in Remote Sensing at Vrije Universiteit Amsterdam. In 2018, the Netherlands Organisation for Scientific Research granted my Vidi project Fires Pushing Trees North. I am a member of the NASA Arctic-Boreal Vulnerability Experiment science team and a management committee member of the European COST research network ‘Fire in the Earth System’. My research focuses on the role of ecosystem disturbance, primarily fires, on the water, carbon and energy cycles within the context of global change. I use a combination of field, modeling and remote sensing methods. My goal is to better understand the complex interactions between ecosystems, carbon cycling, climate and humans in a changing world. I have a broad interest in remote sensing, landscape ecology, terrestrial ecosystems, biosphere-atmosphere interactions and global environmental change.

Research output

Climate change decreases the cooling effect from postfire albedo in boreal North America

Influence of Fire on the Carbon Cycle and Climate

Hyperspectral remote sensing of fire: State-of-the-art and future perspectives

Evaluating endmember and band selection techniques for multiple endmember spectral mixture analysis using post-fire imaging spectroscopy

Lightning as a major driver of recent large fire years in North American boreal forests

Carbon dioxide sources from Alaska driven by increasing early winter respiration from Arctic tundra

The influence of daily meteorology on boreal fire emissions and regional trace gas variability
Unprecedented remote sensing data over the King and Rim fires megafires in the Sierra Nevada mountains of California

Black carbon aerosol dynamics and isotopic composition in Alaska linked with boreal fire emissions and depth of burn in organic soils

Identification of two distinct fire regimes in Southern California: implications for economic impact and future change

Daily burned area and carbon emissions from boreal fires in Alaska
Veraverbeke, S., Rogers, B. M. & Randerson, J. T., 2015, In : Biogeosciences. 12, 11, p. 3579-3601

Assessing fire severity using imaging spectroscopy data from the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) and comparison with multispectral capabilities

Quantifying fire-wide carbon emissions in interior Alaska using field measurements and Landsat imagery

Burned Area Detection and Burn Severity Assessment of a Heathland Fire in Belgium Using Airborne Imaging Spectroscopy (APEX)

Spatio-temporal variability in remotely sensed land surface temperature, and its relationship with physiographic variables in the Russian Altay Mountains
Van De Kerchove, R., Lhermitte, S., Veraverbeke, S. & Goossens, R., Feb 2013, In : ITC Journal. 20, p. 4-19

Thermal-based techniques for land cover change detection using a new dynamic MODIS multispectral emissivity product (MOD21)

Evaluating spectral indices and spectral mixture analysis for assessing fire severity, combustion completeness and carbon emissions

Synergy of VSWIR (0.4-2.5 μm) and MTIR (3.5-12.5 μm) data for post-fire assessments

An alternative spectral index for rapid fire severity assessments

Assessing post-fire vegetation recovery using red-near infrared vegetation indices: Accounting for background and vegetation variability

Spectral mixture analysis to assess post-fire vegetation regeneration using Landsat Thematic Mapper imagery: Accounting for soil brightness variation

Assessment of post-fire changes in land surface temperature and surface albedo, and their relation with fire-burn severity using multitemporal MODIS imagery

Evaluating Spectral Indices for Assessing Fire Severity in Chaparral Ecosystems (Southern California) Using MODIS/ASTER (MASTER) Airborne Simulator Data

Evaluating spectral indices for burned area discrimination using MODIS/ASTER (MASTER) airborne simulator data

A time-integrated MODIS burn severity assessment using the multi-temporal differenced normalized burn ratio (dNBR(MT))

Assessing intra-annual vegetation regrowth after fire using the pixel based regeneration index

Evaluation of pre/post-fire differenced spectral indices for assessing burn severity in a Mediterranean environment with Landsat Thematic Mapper

The temporal dimension of differenced Normalized Burn Ratio (dNBR) fire/burn severity studies: The case of the large 2007 Peloponnese wildfires in Greece

Illumination effects on the differenced Normalized Burn Ratio's optimality for assessing fire severity
Evaluating Landsat Thematic Mapper spectral indices for estimating burn severity of the 2007 Peloponnese wildfires in Greece