# Tim Appelhans

## Curriculum Vitae

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## Education and Qualifications

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| since 08/2012 | **Lecturer (Akad. Rat)** | Philipps University Marburg, Germany |
| 2011 - 2012 | **Post-Doctoral Fellow** | Philipps University Marburg, Germany |
| 2010 - 2011 | **Post-Doctoral Fellow** | University Bayreuth, Germany |
| 2010 | **Ph.D. Geography** | University of Canterbury, New Zealand |
| 2008 | **Lecturer** | University of Otago, New Zealand |
| 2005 | **Dipl. Geography** | Friedrich-Alexander University Erlangen-Nürnberg, Germany |

## Awards

2010 **Best Doctoral Thesis in Geography**. Presidents award, New Zealand Geographical Society.
2006 **Best oral student presentation**. Resource Management Under Stormy Skies Conference, Christchurch, New Zealand, 20 - 23 November 2006.

## Research

My principle research interests lie in the fields of geography, atmospheric sciences and ecosystem research across a wide range of spatial and temporal scales. In particular I am interested in boundary layer climatology and its interaction with other aspects of the earth-atmosphere system, especially in complex terrain (primarily montane and urban environments). My research is application-oriented and, being a geographer, I approach it in an inter-disciplinary manner. Among other research tools, I primarily use computational statistics (R), remote sensing and general spatial analysis approaches for my scientific investigations.
To date, I have authored 0 papers, technical reports, conference contributions and software packages on various topics in the broad areas of environmental sciences, general geography and (applied) climatology. A list of these appears on pages 5–5.

## Grants

**2013 - 2016** *Ecological Climatology and Remote Sensing* **€ 145,600**

Together with Prof. Dr. Thomas Nauss from Philipps University Marburg I am leading this subproject which is part of the DFG research group FOR 1246 *Kilimanjaro ecosystems under global change: Linking biodiversity, biotic interactions and biogeochemical ecosystem processes.*

## Teaching

**Lectures**

- Climatology, GEOG 286/392, Otago (S1 2008)
- Environmental hazards management, GEOG 305, Canterbury (S1 2009, S1 2010)
- Environmental Processes: Research Practice, GEOG 211, Canterbury (S1 2010)
- Research Methods in Geography, 309, Canterbury (S2 2010)
- Recourses and Sustainability, 108, Canterbury (S2 2010)

**Seminars**

- Fernerkundliche Erfassung und Analyse globaler raum-zeitlicher Umweltveränderungen, Marburg (SS 2016) *(Remote sening based analysis of global spatio-temporal environmental changes)*
- Die Geographie des Bieres – Nachhaltiges Wirtschaften in der Lebensmittelindustrie (SS 2014 & SS 2015) *(The Geography of Beer)*
- Erfassung und Analyse von Landschaftsmustern mit Geländemethoden und Fernerkundung, Marburg (WS 2013 – WS 2015) *(Collection and analysis of landscape patterns using field observations and remote sensing)*
- Analyse und Visualisierung von Umweltdatensätzen für den Einsatz in Beruf und Schule, Marburg (SS 2013) *(Analysis and visualisation of enviromental data sets for professional use)*
- Erfassung, Analyse und Visualsierung ausgewählter Umweltdatensätze, Marburg (WS 2012) *(Collection, analysis and visualisation of selected environmental data sets)*
- Aufbereitung, Analyse und Visualisierung von klima-ökologischen Datensätzen, Marburg (WS 2011) *(Handling, analysis and visualisation of eco-climatological data sets)*
- Projektarbeit Physische Geographie, Marburg (WS 2011) *(Project work physical Geography)*

**Laboratory courses**

- Climatology, GEOG 286/392, Otago (S1 2008)

**Excursions/Practicals**

- Field research methods (Science), GEOG380, Otago (S1 2008)
- 4-tägige Exkursion Berchtesgaden, Bayreuth (SS 2011)

## Grad student supervision

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| **Ph.D.** | ongoing | I. Otte | Development of a new approach for cost-effective, ground-based fog remote sensing techniques at Mt. Kilimanjaro |
| | ongoing | F. Detsch | Quantification of evapo-transpiration in tropical ecosystems: an integrative approach using field observations and remote sensing techniques |
| | ongoing | E. Mwangomo | Classical spatial statistics vs. modern machine learning approaches for the generation of high-resolution climatological surfaces in complex terrain (Mt. Kilimanjaro) |
| | ongoing | H. Meyer | High resolution satellite- and machine learning based monitoring of climate and land cover dynamics in South African savannas |
| | completed | M. Kuehnlein | A machine learning based 24-h-technique for an area-wide rainfall retrieval using MSG SEVIRI data over Central Europe |

## Tertiary education training

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| **Fortbildungszentrum Hochschullehre** | Planung einer Lehrveranstaltung (structured course palnning) (12 AE/hrs) |
| **Hochschuldidaktisches Netzwerk Mittelhessen** | Fachliche und überfachliche Kompetenzen stärken durch reflektierte Projektarbeit in gemeinnützigen Kontexten: das Service Learning Konzept (project work and service learning) (16 AE/hrs) |

## Skills

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| **Advanced knowledge** | of statistical programming including data mining and machine learning applications (R) |
| **Advanced knowledge** | of Geographical Information Systems (R, IDRISI, QGIS, SAGA GIS, ESRI, GDAL, TNTmips) and other spatial/atmospheric analysis tools (incl. Surfer, IDV, Vapor) |
| **Proficient knowledge** | of UNIX/LINUX shell environment |
| **Basic knowledge** | of meso-scale numerical modelling (The Air Pollution Model - TAPM, WRF) and programming languages C++, javascript |

## Software

Since 2011 I have authored and contributed to various open source software programs/packages. Details below.

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| **julendat** | JULENDAT Utilities for Environmental Data<br>`https://github.com/environmentalinformatics-marburg/julendat` |
| **remote** | Empirical Orthogonal Teleconnections in R<br>`https://cran.r-project.org/web/packages/remote/index.html` |
| **satellite** | Various Functions for Handling and Manipulating Remote Sensing Data<br>`https://cran.r-project.org/web/packages/satellite/index.html` |
| **mapview** | Interactive viewing of spatial objects in R<br>`https://cran.r-project.org/web/packages/mapview/index.html` |
| **Rsenal** | magic R functions for things various<br>`https://github.com/environmentalinformatics-marburg/Rsenal` |
| **gpm** | Geospatial predictive modeling using parameterized and unparameterized models<br>`https://github.com/environmentalinformatics-marburg/gpm` |

## Administrative and community involvement

### Administrative duties

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| **since 2015** | Member of the Marburg Research Academy board of directors |
| **2010** | Administration of all laboratory courses at 100 level in Geography, Department of Geography, University of Canterbury. |
| **2007 - 2008** | PhD representative. Department of Geography, University of Canterbury, Christchurch, New Zealand. |

### Peer-review activities

I have delivered peer-reviews for the following journals:

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| **Climate** | `http://www.mdpi.com/journal/climate` |
| **Spatial Statistics** | `http://www.journals.elsevier.com/spatial-statistics` |
| **STOTEN** | `http://www.journals.elsevier.com/science-of-the-total-environment` |

### References


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| **Prof. Andrew Sturman** | Department of Geography, University of Canterbury,<br>Private Bag 4800, Christchurch, New Zealand.<br>email: andrew.sturman@canterbury.ac.nz<br>phone: +64 3 364 2502 |
| **Prof. Dr. Thomas Nauss** | Environmental Informatics, Department of Geography,<br>Philipps University Marburg, Deutschhausstr. 12,<br>35032 Marburg, Germany.<br>email: thomas.nauss@staff.uni-marburg.de<br>phone: +49 6421 28 25980 |
| **Dr. Nicolas Cullen** | Department of Geography, University of Otago,<br>PO Box 56, Dunedin, New Zealand.<br>email: njc@geography.otago.ac.nz<br>phone: +64 3 479 3069 |


## Publications