

Publications of Team Natural Hazards (01.01.2013 – 01.01.2023)

Peer-reviewed journal publications

- Hertel, V., Chow, C., Wani, O., Wieland, M., Martinis, S. (2023): Probabilistic SAR-based flood segmentation with adapted Bayesian convolutional neural network, *Remote Sensing of Environment*.
- Kippnich, U., Mehrl, J., Lechner, K., Wieland, M., Angermann, L. (2022): Drohnenbefliegung im Ahrtal 2021: Erstellung von digitalen Karten und 3D-Modellen. *Im Einsatz*, 29, 34-37.
- Zorn, E.U., Orynbaikyzy, A., Plank, S., Babeyko, A., Darmawan, H., Robbany, I.F., Walter, T.R., 2022. Identification and ranking of subaerial volcanic tsunami hazard sources in Southeast Asia. *NHESS*, 3083–3104.
- Wang, W., Motagh, M., Plank, S., Orynbaikyzy, A., Roessner, S. (2022): Application of SAR time-series and deep learning in estimating landslide occurrence time. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLIII-B3-2022, XXIV ISPRS Congress (2022 edition), 6–11 June 2022, Nice, France.
- Wieland, M., Fichtner, F., Martinis, S. (2022): UKIS-CSMASK: A Python package for multi-sensor cloud and cloud-shadow segmentation. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLIII-B3-2022, XXIV ISPRS Congress (2022 edition), 6–11 June 2022, Nice, France.
- Martinis, S., Groth, S., Wieland, M., Rättich, M., Knopp, L. (2022): Improving reliability in flood mapping by generating a global seasonal reference water mask using Sentinel-1/2 time-series data. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, Volume XLIII-B3-2022 XXIV ISPRS Congress (2022 edition), 6–11 June 2022, Nice, France.
- Rösch, M., Plank, S. (2022): Detailed mapping of lava and ash deposits at Indonesian volcanoes by the means of VHR PlanetScope change detection. *Remote Sensing*, 14(5), 1168.
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- Cesca, S., Sujan, M., Rudzinski, L., Vajedian, S., Niemz, P., Plank, S., Petersen, G., Deng, Z., Rivaleta, E., Vuan, A., Percy, M., Linares, P., Heimann, S., Dahm, T. (2022): *Communications Earth and Environment*, 3, 89.
- Wieland, M., Resch, B., Lechner, K. (2022): Künstliche Intelligenz zur Analyse und Fusion von Erdbeobachtungs- und Internetdaten zur Entscheidungsunterstützung im Katastrophenschutz. *Crisis Prevention*, 4.

- Lechner, K., Wieland, M., Gähler, M., Schröter, E., Merkle, Nina, Gstaiger, V., Kippnich, U., Mehrl, J., Selzer, M. (2022) Satelliten- und Luftbilder zur Lageerfassung. Rettungs-Magazin, 1, 22-26. Ebner Media Group.
- Schlaffer, S., Chini, M., Wouter, D., Plank, S. (2022): Monitoring Surface Water Dynamics in the Prairie Pothole Region of North Dakota Using Dual-Polarised Sentinel-1 SAR Time Series. *Hydrol. Earth Syst. Sci.*, 26, 841–860.
- Marchese, F., Genzano, N., Nolde, M., Falconieri, A., Pergola, N., Plank, S. (2022): Mapping and characterizing the Kīlauea (Hawai‘i) lava lake through Sentinel-2 MSI and Landsat-8 OLI observations of December 2020-February 2021. *Env. Modelling and Software*, 148.
- Helleis, M., Wieland, M., Krullikowski, C., Martinis, S., Plank, S. (2022): Sentinel-1-based water and flood mapping: Benchmarking Convolutional Neural Networks against an operational rule-based processing chain. *IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing*, 15, 2023-2036.
- Martinis, S., Groth, S., Wieland, M., Knopp, L., Rättich, M. (2022): Towards a global seasonal and permanent reference water product from Sentinel-1/2 data for improved flood mapping. *Remote Sensing of Environment*, 278.
- Arendt, R., Reinhardt-Imjela, C., Schulte, A., Faulstich, L., Ullmann, T., Beck, L., Martinis, S., Johannes, P., Lengricht, J. (2021): Natural pans as an important surface water resource in the Cuvelai Basin - metrics for storage volume calculations and identification of potential augmentation sites. *Water*, 13 (177), 1-21.
- Dech, S., Holzwarth, S., Asam, S., Andresen, T., Bachmann, M., Boettcher, M., Dietz, A., Eisfelder, C., Frey, C., Gesell, G., Gessner, U, Hirner, A., Hofmann, M., Kirches, G., Klein, D., Klein, I., Krau, T., Krause, D., Plank, S., et al. (2021): Potential and Challenges of Harmonizing 40 Years of AVHRR Data: The TIMELINE Experience, *Remote Sensing*.
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- Wieland, M., Martinis, S., (2020): Large scale surface water change observed by Sentinel-2 during the 2018 drought in German. *International Journal of Remote Sensing*, 41 (12), 4742-4756.
- Nolde, M., Plank, S., Riedlinger, T., (2020): An adaptive and extensible system for satellite-based, large scale burnt area monitoring in near-realtime. *Remote Sensing*, 12 (13), 1-20.
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- Aravena P., P.M., Spröhnle, K., Geiß, C., Schoepfer, E., Plank, S., Taubenböck, H., (2018): Multi-sensor feature fusion for very high spatial resolution built-up area extraction in temporary settlements. *Remote Sensing of Environment*, 209, 793-807.
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Book chapters and monographs

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- Deivasihamani, D. (2022): Performance and transferability assessment of Convolutional Neural Network (CNN) based building detection models for emergency response. Masterarbeit, Technische Universität München.
- Mederer, P. (2022): Water detection in Sentinel-1 data using a Bayesian Convolutional Neural Network: Application of uncertainty estimations to identify error prone areas and improve the results. Masterarbeit, Katholische Universität Eichstätt-Ingolstadt.
- Kugelmann, L. (2022): Nutzung von Nutzung von Drohnen und Drohrendaten im Katastrophenschutz. Bachelorarbeit, Universität Würzburg.
- Hertel, V. (2022): Probabilistic deep learning methods for capturing uncertainty in SAR-based water segmentation maps. Masterarbeit, Universität Stuttgart.
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- Robbany, I. (2021): Identification and Analysis of Tsunamigenic Volcanoes in Indonesia using Satellite-Based Earth Observation Data. Masterarbeit, HafenCity Universität Hamburg.
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- Li, Y., (2020): Flood mapping in rural and urban areas with multi-temporal SAR intensity and InSAR coherence. PhD thesis, Ludwig-Maximilians-Universität München.
- Chun, S., (2019): Assessing the potential of Earth Observation data to differentiate between burned area and harvested agricultural land. Master thesis, University of Trier.
- Knopp, L., (2019): Development of a burned area processor based on Sentinel-2 data using deep learning. Master thesis, Technische Universität München.
- Blocksdorf, A., (2019): Development of an automatic process chain for estimating post-fire soil erosion susceptibility. Master thesis, Katholische Universität Eichstätt-Ingolstadt.
- Müller, I., Hipondoka, M., Winkler, K., Gessner, U., Martinis, S., Taubenböck, H., (2018): Monitoring flood and drought events - earth observation for multiscale assessment of water-related hazards and exposed elements. In: *Climate change and adaptive land management in southern Africa - assessments, changes, challenges, and solutions Biodiversity & Ecology* (6). Klaus Hess Publishers, 136-143.
- Shakya, H., (2018): Computing flood frequency and Duration from Earth Observation data. Master thesis, Technical University of Munich, Germany.
- Miesgang, C., (2018): Evaluierung, Kalibrierung und Validierung eines Algorithmus zur Detektion von Brandflächen mit Sentinel-3 OLCI Daten auf Basis der Active Level Set Methode. Master thesis, University of Munich, Germany.
- Baumhoer, C., (2018): An automated approach to estimate large-scale flood volumes based on SAR satellite imagery and different DEMs - a risk management support. Master thesis, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany.
- Karg, S., (2017): Burn scar detection using polarimetric ALOS-2 time-series data. Master thesis, Global Change Ecology, Germany.
- Cerri, M., (2017): Flood simulation using HEC-RAS model calibrated with remotely sensed water mask: a case study of Mulde River, Germany. Thesis, Technical University of Munich, Germany.

- Li, P., (2017): Evaluation and improvement of a dual-channel method for detection and quantification of high-temperature events based on FireBIRD data. Master thesis, University of Stuttgart, Germany.
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- Strunz, G., Martinis, S., Schöpfer, E., (2016): Beiträge der Fernerkundung zur Unterstützung des Katastrophenmanagements und der humanitären Hilfe. In: Handbuch Geodäsie - Band Photogrammetrie und Fernerkundung, Springer.
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- Pfeuffer, C., (2016): Opportunities of satellite based remote sensing for the long-term monitoring of volcanoes. Thesis.
- Becker, C., (2016): Global flood detection using Sentinel-2A-MSI by combining histogram-based and regional methods compared with an automated Random Forest approach. Master thesis, University of Munich, Germany.
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- Chow, C., (2014): Evaluation of the applicability of a probabilistic terrain descriptor to improve the thematic accuracy of DLR's TerraSAR-X based Flood Service (TFS). Master thesis.
- Fuermann, M., (2014): Evaluation von Methoden zur Erkennung von aktiven Feuern mit AVHRR. Bachelorarbeit, Ludwig-Maximilians-University of Munich, Germany.

- Warth, G., (2013): Automatische Hochwassererkennung anhand der Verwendung bistatischer Kohärenzdaten der TanDEM-X Mission. Master thesis, University of Tübingen, Germany.
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- Cao, W., (2013): Change Detection using TerraSAR-X data. Diploma thesis, University of Stuttgart.

Conference papers and presentations

- Cesca, S., Sujan, M., Rudzinski, L., Vajedian, S., Niemz, P., Plank, S., Petersen, G., Deng, Z., Rivaleta, E., Vuan, A., Percy, M., Linares, P., Heimann, S., Dahm, T. (2022): Massive swarm driven by magmatic intrusion at the Bransfield Strait, Antarctica. EGU 2022, Wien.
- Wieland, M. (2022): AIFER: Artificial Intelligence for analysis and fusion of Earth Observation and internet data to support situational awareness in emergency response. Zivile Sicherheitstechnologien in Norwegen: Digitale Sicherheit und Schutz vor Naturereignissen, 30.11.2022.
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