

Sebastian Walter

Curriculum Vitae

Planetary Sciences and Remote Sensing
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Education

2016–2025 Ph.D., Geosciences, Freie Universität Berlin (in part time)
1996–2003 Diploma in Geology and Paleontology, Freie Universität Berlin

Professional experience

since 11/2004 Research Associate, Freie Universität Berlin

2026–2027 Project lead "Mastcam-Z", Support for operation, data processing, and validation of the Mastcam-Z camera on the Mars2020 Perseverance Rover
2022–2025 Project lead "Koregistrierung", large-scale co-registration with iterative feedback to external camera orientation for planetary remote sensing imagery
since 2020 Imaging group lead at planetary sciences and remote sensing
2018–2019 Lead of the work package "web-GIS" of the EU-funded project "iMars"
since 2016 Member of the "Global Topography and Mosaics Task Group" (GTMTG) of the HRSC Science Team, HRSC in-flight calibration and multi-orbit bundle block adjustment
2004–2011 Development of a high performance computing system for scientific computing, automated image processing and database operations for HRSC
since 2004 Data archiving for space projects, including *HRSC*, *Cassini ISS*, *Dawn FC*

Instrument and community participation

- Co-I, HRSC on Mars Express (ESA/DLR)
- Co-I, PanCam on ExoMars rover (ESA/UCL)
- Co-I, Mastcam-Z on Mars 2020 Perseverance (NASA/JPL), (pending NASA approval)
- Science Collaborator, PMI on Psyche (NASA/JPL)
- Associate, JANUS camera on JUICE orbiter (ESA/DLR)
- Steering committee member, Mapping and Planetary Spatial Infrastructure Team (MAPSIT), NASA Analysis and Assessment Group

Selected publications

- [1] **Walter, S.H.G.**, Aye, K.-M., Jaumann, R., Postberg, F., 2024. Mars Reconnaissance Orbiter Context Camera Updated In-Flight Calibration. *Earth and Space Science* 11, e2023EA003491. <https://doi.org/10.1029/2023EA003491>
- [2] Ovchinnikova, A., Jaumann, R., **Walter, S.H.G.**, Gross, C., Zuschneid, W., Postberg, F., 2025. A modeling approach for water and sediment transport in Jezero crater on Mars based on new geomorphological evidence. *Icarus* 426, 116349. <https://doi.org/10.1016/j.icarus.2024.116349>
- [3] Jaumann, R., [...], **Walter, S.H.G.**, Hiesinger, H., 2024. Geological Record of Water and Wind Processes on Mars as Observed by the Mars Express High Resolution Stereo Camera. *Space Sci Rev* 220, 45. <https://doi.org/10.1007/s11214-024-01076-z>
- [4] Orgel, C., [...], **Walter, S.H.G.**, 2024. Characterization of High-priority Landing Sites for Robotic Exploration Missions in the Apollo Basin, Moon. *Planet. Sci. J.* 5, 29. <https://doi.org/10.3847/PSJ/ad1108>
- [5] Quantin-Nataf, C., [...], **Walter, S.H.G.**, [...], 2023. The Complex Exhumation History of Jezero Crater Floor Unit and its implication for Mars Sample return. *Journal of Geophysical Research: Planets*.
- [6] **Walter, S.H.G.**, Munteanu, R.R.C., Aye, M., 2023. CTX in-flight calibration and data dissemination. *EGU General Assembly 2023*, <https://doi.org/10.5194/egusphere-egu23-13656>
- [7] **Walter, S.H.G.**, Gross, C., Neesemann, A., Munteanu, R., Jaumann, R., Postberg, F., Bell, J., 2022. An Interactive Virtual Hiking Map for Jezero Crater, the Mars 2020 Perseverance Rover Landing Site. *European Planetary Science Congress 16*, EPSC2022-32. <https://doi.org/10.5194/epsc2022-32>
- [8] **Walter, S.H.G.**, Neesemann, A., Gwinner, K., Michael, G.G., Jaumann, R., Postberg, F., 2022. Coregistering Mars Reconnaissance Orbiter Context Camera Images to Mars Express High Resolution Stereo Camera Global Datasets. *European Planetary Science Congress 16*, EPSC2022-601. <https://doi.org/10.5194/epsc2022-601>
- [9] Bell, J.F., [...], **Walter, S.H.G.**, [...], 2022. Geological, multispectral, and meteorological imaging results from the Mars 2020 Perseverance rover in Jezero crater. *Science Advances* 8. <https://doi.org/10.1126/sciadv.abo4856>
- [10] Klenner, F., Umair, M., **Walter, S.H.G.**, Khawaja, N., Hillier, J., Nölle, L., Zou, Z., Napoleoni, M., Sanderink, A., Zuschneid, W., Abel, B., Postberg, F., 2022. Developing a Laser Induced Liquid Beam Ion Desorption Spectral Database as Reference for Spaceborne Mass Spectrometers. *Earth and Space Science* 9. <https://doi.org/10.1029/2022EA002313>
- [11] **Walter, S.H.G.**, Michael, G.G., Gwinner, K., Jaumann, R., 2020. Seamless albedo mosaic maps from Mars Express High Resolution Stereo Camera (HRSC) imagery. *European Planetary Science Congress 14*, EPSC2020-18. <https://doi.org/10.5194/epsc2020-18>
- [12] **Walter, S.H.G.**, Muller, J.-P., Sidiropoulos, P., Tao, Y., Gwinner, K., Putri, A.R.D., Kim, J.-R., Steikert, R., van Gasselt, S., Michael, G.G., Watson, G., Schreiner, B.P., 2018. The Web-Based Interactive Mars Analysis and Research System for HRSC and the iMars Project. *Earth and Space Science* 5, 308–323. <https://doi.org/10.1029/2018EA000389>
- [13] Michael, G., **Walter, S.H.G.**, Kneissl, T., Zuschneid, W., Gross, C., McGuire, P.C., Dumke, A., Schreiner, B., van Gasselt, S., Gwinner, K., Jaumann, R., 2016. Systematic processing of Mars Express HRSC panchromatic and colour image mosaics: Image equalisation using an external brightness reference. *Planetary and Space Science* 121, 18–26. <https://doi.org/10.1016/j.pss.2015.12.002>