

## Current position

08/2020 -  
presumably  
05/2024

### **Ph.D. student at Max Planck Institute for Meteorology**

#### Pattern effects from stratospheric sulfate aerosol forcing

Why is the feedback to stratospheric sulfate aerosol forcing stronger than to CO<sub>2</sub> forcing? How do pattern effects shape the radiative response, and which specifics arise from the radiative forcing pattern? Which aerosol-specific mechanisms cause the formation of the aerosol-specific forcing pattern?

Department: Climate Physics  
member of the IMPRS-ESM grad school

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08/2020: major research topic change from medical physics / physiology to climate science

## Employment

02/2020 -  
06/2020

### **Data analyst: (Pre-)processing of EEG recorded during motion**

Center for Advanced Methods in Rehabilitation Sheba Hospital, Tel HaShomer, Israel

Development of novel EEG preprocessing methods based on independent / principal component analysis (ICA/PCA) and artifact subspace reconstruction (ASR), automatic removal of movement artifacts

10/2016 -  
06/2019

### **Student Research Assistant: Research on physiological and stochastic signals**

Uni Halle, Germany; Bar-Ilan University, Ramat Gan, Israel

Statistically analyzed artificial and physiological signals (EEG, EMG, ECG, ...) and their interrelations in healthy subjects and subjects with Parkinson's disease;

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## Education

10/2017 -  
01/2020

### **M.Sc. Medical Physics (final grad: 1.3\*)**

Martin-Luther University, Halle, Germany and  
Bar-Ilan University, Ramat Gan, Israel

Master's Thesis: Transitions in physiological coupling across physiological states and pathological conditions (grade: 1.0\*)

10/2014 -  
09/2017

### **B. Sc. Medical Physics (final grade: 1.5\*)**

Martin-Luther University, Halle

Bachelor's Thesis: Statistical analysis of EMG amplitudes and frequencies of patients with Parkinson's disease (grade: 1.0\*)

06/2013

### **High School Graduation / Abitur (final grade: 1.0\*)**

\*on the German grading scale, that ranges from 1.0 (best) to 4.0 (passed) / 5.0 (not passed).

<u>Languages</u>	German	native
	English	fluent / professional
	Hebrew (modern)	fluent
	French	advanced
	Latin	Latinum certificate
	Spanish	basics

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Awards /  
Grants /  
Invited Talks

**Invited Talk IUGG 2023**

"Climate feedback to stratospheric aerosol forcing: The key role of the pattern effect"

**Invited Talk Colorado State University 2022**

"Efficacy of stratospheric aerosol forcing"

**Outstanding Student Presentation Award 2021**

AGU Fall Meeting

**Minerva Short Term Research Grant 08/2018 - 09/2018**

for a stay as a visiting scientist in Sheba Hospital, Tel HaShomer, Israel  
~ 2k €

**Scholarship of the German Academic Scholarship Foundation 2015 - 2020**

**Gustav Mie Award 2017**

for outstanding performance in the Bachelor's studies

Conference  
contributions

**CFMIP / GASS Meeting** (poster) 2023

**EGU** (poster) 2023

**AGU Fall Meeting** (talk) 2022

**SPARC General Assembly** (poster) 2022

**Pattern Effect Workshop** (poster) 2022

**AGU Fall Meeting** (talk) 2021

**CFMIP Meeting** (poster) 2021

**GeoMIP Meeting** (talk) 2021

**vEGU Meeting** (talk) 2021

Outreach

**I'm a scientist** outreach program targeted at 5<sup>th</sup> to 12<sup>th</sup> grade students;  
2022 - <https://2klimawandel.imascientist.de/questions-to/moritzguenther/>  
(in German)

Supervision # Lior Avrutzky 01/2020 - 07/2020  
B.Sc. Biomedical Engineering, day-to-day supervision  
Ravikiran Hegde 07/2023 - presumably 05/2024  
M.Sc. Physics, day-to-day supervision

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Peer-Reviewed Publications In Prep.: **Günther, M.**, H. Schmidt, C. Timmreck, and M. Toohey:  
Why does stratospheric aerosol forcing strongly cool the warm pool?

# Marquez, J.S., Bartsch, R.P., **Günther, M.**, Shafiul Hasan, S.M., Koren, O., Plotnik, M., Bai, Ou 2023: Supplementary Motor Area Activity Differs in Parkinson's Disease with and without Freezing of Gait. *Parkinsons Dis*, 2023. doi.org/10.1155/2023/5033835

**Günther, M.**, Schmidt, H., Timmreck, C., Toohey, M. 2022: Climate Feedback to Stratospheric Aerosol Forcing: The Key Role of the Pattern Effect. *J. Climate*, 35, 4303-4317. doi.org/10.1175/JCLI-D-22-0306.1

# **Günther, M.**, Kantelhardt, J.W., Bartsch, R.P. 2022: The Reconstruction of Causal Networks in Physiology. *Front. Netw. Physiol.*, 2022-2. doi.org/10.3389/fnetp.2022.893743

# Asher, E.E., Plotnik, M., **Günther, M.**, Moshel, S., Levy, O., Havlin, S., Kantelhardt, J.W., Bartsch, R.P. 2021: Connectivity of EEG synchronization networks increases for Parkinson's disease patients with freezing of gait. *Commun Biol* 4, 1017. doi.org/10.1038/s42003-021-02544-w

# **Günther, M.**, Bartsch, R.P., Miron-Shahar, Y., Hassin-Baer, S., Kurths, J., Plotnik, M., Kantelhardt, J.W. 2019: Coupling Between Leg Muscle Activation and EEG During Normal Walking, Intentional Stops, and Freezing of Gait in Parkinson's Disease. *Front. Physiol.* 10:870. doi.org/10.3389/fphys.2019.00870

Reviewing Journal of Climate (2)

# German-Israeli collaborations are marked with a hash.