

# Curriculum Vitae: Rachel Preca Trapani

## Personal Information:

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**Date of birth:** 19/11/1999

**Nationality:** Maltese

## Field Experience:

- May 2023: Field trip to Greece titled 'Living Faults in Greece'. Different fault structures, local stratigraphy and the different geometries of outcrops were observed and discussed with reference to the general seismotectonic regime. Active fault scarps and evidence of active tectonics were also observed.
- 2018 – 2022: Throughout the B.Sc., multiple geological and geophysical fieldtrips were organised around the Maltese Islands to observe and discuss the different outcrops visible across the island and to learn basic geological field measurement techniques, as well as different geophysical techniques (GPR, ERT and HVSR) and the required data processing.

## Projects:

- 2023: Internship Project title: Investigating the Impact of the Complex Geometry of Fault Zones on Seismic Rupture Propagation. Supervisor: Yann Klinger (DR CNRS). Co-Supervisors: Marion Thomas (ISTeP – Sorbonne Université) & Harsha Bhat (Géologie – ENS Paris)
- 2022 – 2023: Tutored Project title: Implementing an Alternative Processing Approach of Chirp Sub-Bottom Profiler Data to Enhance Image Quality. Supervisor: Héléne Carton (Maître de Conférences IPGP)
- 2021 – 2022: Independent Research Project title: Evaluation, Sensitivity and Comparison of Tsunami Simulation Programmes. Supervisor: Prof Pauline Galea (B.Sc.,Ph.D.(Wellington))
- 2021 – 2022: Short Review Paper title: Using Optical Fibres for Geophysics. Supervisor: Prof André Xuereb (B.Sc.(Hons)(Melit.),Ph.D.(S'ton),M.Ent.(Melit.))

## Awards:

- Best Environmental Final Year Project for academic year 2021/2022, sponsored by ERA.
- Dean of Science Award Certificate of merit for a B.Sc. (Hons) final year dissertation of sufficiently high quality.

## Education and Training:

October 2023 – October 2026: 3-year PhD at the Ludwig Maximilian University of Munich (LMU), Germany (EQF level 8), titled: Integrating physics-based earthquake rupture models in seismic hazard assessments

September 2022 – June 2023: M2 International Masters in Solid Earth Sciences at the Institut de Physique du Globe de Paris (IPGP), France (EQF level 7)

2018 - 2022: B.Sc. (Hons) Geosciences and Physics at the University of Malta (EQF level 6)

MATSEC Level Examinations (EQF level 4) obtained from G.F. Abela Junior College:

Advanced level: Biology, Physics

Intermediate level: Chemistry, French (B1), Physical Education, Psychology, Pure Mathematics, Systems of Knowledge

SEC Level Examinations (EQF level 3) obtained from San Andrea School:

Biology, English Language (native language), English Literature, Environmental Studies, French, Maltese (native language), Mathematics, Physical Education, Physics, Religion.

Level 1 Gymnastics Coaching Course issued by the Malta Gymnastics Federation

Italian (Plida A1) & ECDL

### Computer skills:

- Python skills – primarily numerical Python: (Study units: Computational Physics, Experimental and Advanced Experimental Physics, Computational Astronomy & Masters Tutored Project and Numerical Modelling study unit).
  - Writing and debugging basic programs.
  - Writing data analysis programs using numerical techniques, performing computer simulations and programming numerical models.
  - Using signal and image processing techniques during Computational Astronomy, where a script was developed to channelize telescope data and to create a binary CNN classifier to detect FRBs (fast radio bursts).
- MATLAB skills: (Study units: IT Skills for Geoscientists (MATLAB), Maths for Physicists 2 & Time Series Analysis, DSP and Inverse Theory & Masters Internship Project).
  - Application of mathematical knowledge
  - Numerical analysis of measured and modelled data.
  - Formation of data sources visualisation and application of signal processing techniques on time series.
- Basic knowledge in ArcGIS through IT skills for Geoscientists (GIS):
  - Ability to create, manipulate and analyse geoscientific data. These skills were applied during the contributions to the publication Micallef et al., 2021.
- Basic Bash skills:
  - Basic knowledge of loops, bash commands and file manipulation. Applied during the final year Independent Research Project and during the Masters Internship project to connect to remote servers to make use of simulation programmes.
  - Basic scripting applied to Generic Mapping Tools (GMT) during position as Research Support Officer with the University of Malta.

### Publications:

Micallef, A., Marchis, R., Saadatkah, N., Pondthai, P., Everett, M. E., Avram, A., Timar-Gabor, A., Cohen, D., **Preca Trapani, R.**, Weymer, B. A. & Wernette, P., 2021. Groundwater erosion of coastal gullies along the Canterbury coast (New Zealand): a rapid and episodic process controlled by rainfall intensity and substrate variability, *Earth Surf. Dynam.*, 9(1), pp. 1-18.

### Work Experience:

#### **July 2022 - August 2022: Research Support Officer with the Seismic Monitoring and Research Group (SMRG) within the Department of Geosciences at the University of Malta.**

My roles included sorting through daily seismic data, organising old seismic archives and plotting graphs and maps through GMT for different ongoing studies.

#### **2014 - 2023: Artistic gymnastics coach with Chun Gymnastics.**

I taught artistic gymnastics to children aged 2 (pre-schoolers) to 15 and I have choreographed a dance for the Gymfest of 2019, an annual gymnastics fest organised by the club.

#### **2019 - 2021: Gymnastics coach with Sirens ASC artistic swimming.**

I taught biweekly sessions to the under 12 Sirens synchronised swimming team (aged 7 – 12) and the youth teams in preparation for national team assessment and training.

#### **December 2015 - May 2016: Volunteer with Special Olympics Malta.**

I was in charge of supervising the children and I was also able to help them improve their skills.

#### **July 2015: Volunteer during the FISEC Games.**

I delegated the teams to and from transport and helped with any requirements during the tournaments.