
French & Swiss citizenship

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## Skills

### Languages

French: mothertongue
English: fluent
German: intermediate
Spanish: basic knowledge

More coming soon...

### Computer

GNU/Linux • MS Windows

★ Python • C • Matlab • Bash shell
LaTeX • HTML5/CSS3
★ Julia • Fortran • W-Langage
Javascript • PHP
git • MySQL • parallel computing
☆ Mathematica • GMT
Sys admin • networks

## Interests

Photography
Music playing, Drawing

Hiking, Swimming
Slacklining, Juggling
Tai ji quan, Qi Gong

Amateur astronomy
Foreign languages learning
...and other remarkable things which this margin is too small to contain.

# Yann Ziegler

PhD & Engineer in Geophysics

(last update: March 11, 2024)

In brief – My domain of interest covers the Earth global dynamics over various time scales, including but not limited to the influence of mantle anelasticity and rheology in general, Earth rotational eigenmodes (Chandler wobble, FCN, FICN), time-variable gravity and glacial isostatic adjustment. I have worked at the confluence of geophysics, geodesy and astronomy doing data analysis, numerical modelling and theoretical developments. I am now looking for new opportunities in scientific research, teaching or other activities.

## Scientific Experience

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|---|---|
| Nov 2022<br>Sept 2019 | Research Associate – University of Bristol / Glaciology Centre<br>GlobalMass ERC-funded project: attributing global sea level rise to its component parts, work package 2: solid Earth.<br>Principal Investigator: Prof. Jonathan Bamber |
| Sept 2018<br>Oct 2016 | Postdoctoral researcher – Paris Observatory / SYRTE<br>Inner Earth parameters from the Bayesian inversion of VLBI and gravimetric data.<br>Supervisor: Dr. Sébastien Lambert |
| Jun 2016<br>Jan 2013 | PhD Thesis – Institut de Physique du Globe de Strasbourg (IPGS)<br>"Earth rotation modelling and joint analysis of polar motion and gravimetric data."<br>Supervisors: Dr. Yves Rogister and Jacques Hinderer |
| | Teaching Assistant for Licence/Master/Engineering students<br>Physics of the Earth • Physical geodesy • Potential field methods • C programming • Field work (electric and magnetic methods) |
| Oct – Nov 2013 | Visiting PhD Student at the Earth Sciences Institute, Academia Sinica, Taiwan, in the frame of the Orchid project: "Influence of thermo-chemical structure in the lower mantle on rotational modes of the core and translational modes of the inner core" |

## Education

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|---|---|
| 2009 – 2012 | Engineering school in geophysics & Master in Earth Sciences<br>École et Observatoire des Sciences de la Terre (EOST), France<br>*summa cum laude* |
| 2007 – 2010 | Licence/Bachelor of Science in Earth, Universe and Environment Sciences, Geophysics speciality<br>EOST, Strasbourg University, France<br>*summa cum laude* |

## Internships

| | |
|---|---|
| Jul – Dec 2012 | Engineering internship – EOST, Strasbourg<br>"Development of a Python software for the computation of strain rate fields through the inversion of geodetic data"<br>Supervisor: Dr. Frédéric Masson |
| Feb – Jun 2012 | Master internship – EOST, Strasbourg<br>"Rheological behaviour of the Earth mantle between the seismic band and the post-glacial rebound"<br>Supervisors: Dr. Yves Rogister and Jacques Hinderer |

# Publications and presentations

last update March 2024

Yann Ziegler, PhD in geophysics

## Articles in rank A journals, with reviewers[1]

[8] Rougier, J., Brady, A., Bamber, J. L., Chuter, S., Royston, S., Vishwakarma, B. D., Westaway, R., **Ziegler, Y.** (2022) The scope of the Kalman filter for spatio-temporal applications in environmental science, *Environmetrics*, e2773, doi:10.1002/env.2773

[7] **Ziegler, Y.**, Vishwakarma, B. D., Brady, A., Chuter, S., Royston, S., Westaway, R. M., Bamber, J. L. (2022) Can GPS and GRACE data be used to separate past and present-day surface loading in a data-driven approach?, *Geophysical Journal International*, Volume 232, Issue 2, February 2023, pp. 884–901, doi:10.1093/gji/ggac365

[6] Vishwakarma, B. D., **Ziegler, Y.**, Bamber, J. L., Royston, S. (2022) Separating GIA signal from surface mass change using GPS and GRACE data, *Geophysical Journal International*, Volume 232, Issue 1, January 2023, pp. 537–547, doi:10.1093/gji/ggac336

[5] **Ziegler, Y.**, Lambert, S. B., Nurul Huda, I., Bizouard, C., Rosat, S. (2020) Contribution of a joint Bayesian inversion of VLBI and gravimetric data to the estimation of the free inner core nutation and free core nutation resonance parameters, *Geophysical Journal International*, Volume 222, Issue 2, August 2020, pp. 845–860, doi:10.1093/gji/ggaa181

[4] Bizouard, C., Nurul Huda, I., **Ziegler, Y.**, Lambert, S. B. (2020) Frequency dependence of the polar motion resonance *Geophysical Journal International*, Volume 220, Issue 2, February 2020, pp. 753–758, doi:10.1093/gji/ggz463

[3] Nurul Huda, I., Lambert, S. B., Bizouard, C., **Ziegler, Y.**(2020) Nutation terms adjustment to VLBI and implication for the Earth rotation resonance parameters, *Geophysical Journal International*, Volume 220, Issue 2, February 2020, pp. 759–767, doi:10.1093/gji/ggz468

[2] **Ziegler, Y.**, Hinderer, J., Rogister, Y., Rosat, S. (2016) Estimation of the gravimetric pole tide by stacking long time-series of GGP superconducting gravimeters, *Geophysical Journal International*, Volume 205, Issue 1, 1 April 2016, pp. 77–88, doi:10.1093/gji/ggw007

[1] Masson, F., Lehujeur, M., **Ziegler, Y.**, Doubre, C. (2014) Strain rate tensor in Iran from a new GPS velocity field, *Geophysical Journal International*, Volume 197, Issue 1, 1 April 2014, pp. 10–21, doi:10.1093/gji/ggt509

## Articles in conference proceedings, with reviewers

[1] **Ziegler, Y.**, Rogister, Y., Hinderer, J., Rosat, S. (2016) Chandler Wobble and Frequency Dependency of the Ratio Between Gravity Variation and Vertical Displacement for a Simple Earth

[1] Journals with an Impact Factor larger than 1; in agreement with the requirements from the Conseil National des Université.

Model with Maxwell or Burgers Rheologies. In: Freymueller J.T., Sánchez L. (eds) International Symposium on Earth and Environmental Sciences for Future Generations. *International Association of Geodesy Symposia*, vol 147. Springer, Cham. doi:10.1007/1345_2016_247

### Oral communications followed by an article in aforementioned proceedings

[1] **Ziegler, Y.**, Rogister, Y., Hinderer, J., Rosat, S. (2015). Frequency dependency of the ratio between gravity variation and vertical displacement for an ellipsoidal rotating anelastic Earth. IUGG 26th General Assembly, Prague, Czech Republic, 07/2015. [proceedings]

## Preprints on open archive servers

[1] **Ziegler, Y.**, Bamber, J. L. (2023) Pygoda: a graphical interface to efficiently visualise and explore large sets of geolocated time series, *EarthArXiv*. doi:10.31223/X5D386

## Oral communications with proceedings in international conferences, without reviewers

[3] **Ziegler, Y.**, Lambert, S. B., Rosat, S., Bizouard, C. (2018) Toward Reliable Estimates of the Free Core and Inner Core Parameters from a Bayesian Inversion of VLBI and Gravimetric Data. IVS General Meeting, Longyearbyen, Svalbard, Norway, 06/2018. [proceedings]

[2] Lambert, S. B., Nurul-Huda, I., **Ziegler, Y.**, Richard, J.-Y., Liu, N., Gattano, C., Rosat, S., Bizouard, C. (2018) Measurement of Earth's Nutation by VLBI: Direct Estimates from VLBI Delays and a Discussion on the Error. IVS General Meeting, Longyearbyen, Svalbard, Norway, 06/2018. [proceedings]

[1] **Ziegler, Y.**, Lambert, S. B., Rosat, S., Bizouard, C. (2017) Free core and inner core nutations parameters from a bayesian analysis of VLBI and gravimetric data. *Journées* of Reference Systems and Earth Rotation, Alicante, Spain, 09/2017. [proceedings]

## Oral communications without proceedings in international or national conferences

[9] **Ziegler, Y.**, Bamber, J. L. (2022) Open source GUI software for geolocated time series visualisation. FOSS4G:UK, Bristol, United Kingdom, 11/2022.

[8] Royston, S., Brady, A., Chuter, S., **Ziegler, Y.**, Vishwakarma, D., Westaway, R., Rougier, J., Bamber, J. L. (2022) A sea-level budget (2003-2020) from a statistical, global, simultaneous inversion. EGU Virtual General Assembly, online, 04/2022.

[7] Royston, S., Brady, A., Chuter, S., Vishwakarma, D., **Ziegler, Y.**, Rougier, J., Bamber, J. L. (2021) A Global, Simultaneous Inversion for the Components of the Sea Level Budget, 2003-2020. AGU Hybrid Fall Meeting, online, 12/2021.

[6] **Ziegler, Y.**, Vishwakarma, B. D., Brady, A., Chuter, S., Royston, S., Westaway, R., Bamber, J. L. (2021) Data-driven estimate of past and present surface loading over North America: Bayesian

Hierarchical Modelling approach applied to GPS and GRACE observations. EGU Virtual General Assembly, online, 04/2021.

[5] Vishwakarma, B. D., **Ziegler, Y.**, Bamber, J. L., Royston, S. (2021) A novel data-driven method to estimate GIA signal from Earth observation data. EGU Virtual General Assembly, online, 04/2021.

[4] Brady, A., Rougier, J., **Ziegler, Y.**, Vishwakarma, B. D., Royston, S., Chuter, S., Westaway, R., Bamber, J. L. (2021) Overcoming challenges in spatio-temporal modelling of large-scale (global) data. EGU Virtual General Assembly, online, 04/2021.

[3] Brady, A., Rougier, J., Vishwakarma, B. D., **Ziegler, Y.**, Weastaway, R., Bamber, J. L. (2020) Spatio-temporal decomposition of geophysical signals in North America. EGU Virtual General Assembly, online, 05/2020.

[2] **Ziegler, Y.**, Rogister, Y., Hinderer, J. (2017). Étude du mouvement de Chandler et rhéologie du manteau terrestre. G2 Colloquium, Nice, France, 11/2017.

[1] **Ziegler, Y.**, Hinderer, J., Rogister, Y., Rosat, S. (2017). Influence of the Earth mantle rheology on the Chandler wobble period and quality factor and on the gravity-to-height changes ratio under surface loading at intermediate timescales. IAG Workshop, Strasbourg, France, 10/2017.

## Poster communications in international or national conferences

[9] Bamber, J. L., **Ziegler, Y.** (2022) A graphical, interactive software package for categorizing and sorting large geolocated time-series data. A possible tool for developing benchmark datasets? AI4EO, Munich, Germany, 10/2022

[8] Bamber, J. L., Bates, P., Brady, A., Chuter, S., Rougier, J., Royston, S., Vishwakarma, B. D., **Ziegler, Y.** (2020) An integrated, data-driven approach for estimating global glacial isostatic adjustment, VLM, land ice, hydrology and ocean mass trends. ICCC 2021 Workshop, online, 03/2021

[7] Lambert, S., **Ziegler, Y.**, Nurul Huda, I., Liu, N., Gattano, C., Richard, J.-Y., Bizouard, C. (2018) Earth's nutation: recent advances in improving the accuracy of their measurement by VLBI. EGU General Assembly, Vienna, Austria, 04/2018.

[6] Lambert, S. B., **Ziegler, Y.**, Rosat, S., Bizouard, C. (2017) Earth Core and Inner Core: What Can We Learn From a Bayesian Inversion of Combined Nutation and Surface Gravimetric Data? AGU Fall meeting, San Francisco, United States, 12/2017.

[5] **Ziegler, Y.**, Nurul Huda, I., Lambert, S. B., Rosat, S., Bizouard, C. (2017) Earth's Core and Inner Core Properties by Combination of Nutation and Surface Gravity Data. EGU General Assembly, Vienna, Austria, 04/2017.

[4] **Ziegler, Y.**, Hinderer, J., Rogister, Y., Rosat, S. (2015). Amplitude and phase of the gravimetric factor at the Chandler wobble frequency determined from GGP superconducting gravimeters. IUGG 26th General Assembly, Prague, Czech Republic, 07/2015.

[3] **Ziegler, Y.**, Masson, F. (2014). Strain Rate Tensor in the Euro-mediterranean Domain from GPS data. EGU General Assembly, Vienna, Austria, 04/2014.

[2] **Ziegler, Y.**, Hinderer, J., Rogister, Y., Rosat, S. (2013). Estimation of the gravimetric pole tide using GGP superconducting gravimeters. AGU Fall meeting, San Francisco, United States, 12/2013.

[1] **Ziegler, Y.**, Legros, H., Rogister, Y., Rosat, S. (2011). Study of Parametric Resonance in Earth Nutation. IUGG 25th General Assembly, Melbourne, Australia, 07/2011.

## Invited laboratory seminars

[1] **Ziegler, Y.** (2019) Deforming the anelastic Earth: geodynamics with a grain of rheology. Paris Institute for Earth Physics, Paris, France.

## Laboratory seminars and other local talks

[4] **Ziegler, Y.** (2022) Pygoda: a graphical interface to efficiently visualise and explore large sets of geolocated time series. Bristol Glaciology Centre, School of Geographical Sciences, University of Bristol, Bristol, United Kingdom.

[3] **Ziegler, Y.** (2020) A glimpse of global geodynamics: Earth rotation, gravimetry and rheology. Bristol Glaciology Centre, School of Geographical Sciences, University of Bristol, Bristol, United Kingdom.

[2] **Ziegler, Y.** (2018) Des modes propres de la rotation de la Terre à la géodynamique profonde. SYRTE/Paris Observatory, Paris, France.

[1] **Ziegler, Y.** (2014) Modélisation de la rotation de la Terre et analyse conjointe des données de mouvement du pôle et de gravimétrie. PhD students congress (ED413), Strasbourg, France.

## Reports and theses

[3] **Ziegler, Y.** (2016) Modelling of Earth rotation and joint analysis of polar motion and gravimetric data. PhD Thesis, IPGS/University of Strasbourg, 178pp. (in French)

[2] **Ziegler, Y.** (2012) Development of a Python software package for the computation of strain rate fields using geodetic data inversion. Engineering internship report, EOST/University of Strasbourg, 52pp. (in French)

[1] **Ziegler, Y.** (2012) Rheological behaviour of the Earth mantle from seismic band to post-glacial rebound. Master's Thesis, EOST/University of Strasbourg, 48pp. (in French)

## Software

[1] **Ziegler, Y.** (2023) Pygoda: a Python GUI to visualise and analyse efficiently large sets of geolocated time series. Zenodo.
DOI of first release: doi:10.5281/zenodo.10009815
Zenodo URL: https://zenodo.org/doi/10.5281/zenodo.10009814
GitHub repository: https://github.com/yannziegler/Pygoda