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## Short presentation

My primary focus is on the development of imaging techniques and solving inverse problems. I utilize seismic wave observations to deploy an array of methods, including tomography, receiver function imaging, moment tensor inversion, relocation analysis, and shear wave splitting techniques.

Additionally, I engage in electromagnetic imaging, specifically employing lasers to assess the roughness and topography of surfaces. I have patented a novel optical scanning apparatus designed as a dynamic 3D interferometric surface probe. I am keen to connect with potential collaborators who share similar research interests. If your interests align with mine, please drop me a line.

Recently appointed as an assistant researcher in Klaus Mosegaard's group, where I am currently engaged in an innovative project aimed at refining algorithms to enhance our understanding of Earth's temporal history.

Websites:-

<https://youssof.webs.com>

<https://github.com/MohammadYoussof>

<https://gitlab.com/mohammadyoussof>

## Publications

### **Three-Dimensional Dynamic Interferometric Surface Probe**

Youssof, Mohammad, 30 Apr 2024, (Submitted) 46 p. United States Patent and Trademark Office (USPTO) .

### **Coupled Crust-Mantle Evolution for > 2 Gy in Southern Africa from Exceptionally Strong Crustal Anisotropy**

Thybo, H., Youssof, Mohammad & Artemieva, I. M., 27 Nov 2021, In: Acta Geologica Sinica - English Edition. 95, 1, p. 44-47 4 p.

### **Coupled Crust-Mantle Evolution for > 2 Gy in Southern Africa from Exceptionally Strong Crustal Anisotropy**

Thybo, H., Youssof, Mohammad & Artemieva, I. M., 27 Nov 2021, In: Acta Geologica Sinica (English Edition). 95, 1, p. 44-47 5 p.

### **Non-Volcanic Earthquake Swarm Near the Harrat Lunayyir Volcanic Field, Saudi Arabia**

Youssof, Mohammad, Mai, P. M., Nobile, A. & Jónsson, S., 21 May 2020, (Accepted/In press) In: Journal of Geophysical Research: Solid Earth.

### **Post-diking deformation in Harrat Lunayyir (Saudi Arabia) from InSAR**

Nobile, A., Cao, Y., Youssof, Mohammad, Tripanera, D., Passarelli, L. & Jónsson, S., 1 May 2020, In: EGU General Assembly 2020. 22, p. 8272 2 p.

### **Southern Africa crustal anisotropy reveals coupled crust-mantle evolution for over 2 billion years**

Thybo, H., Youssof, Mohammad & Artemieva, I., 29 Nov 2019, In: Nature Communications. 10, 1, p. 1 10 p., 5445.

### **Are recent seismic swarms around Harrat Lunayyir (Saudi Arabia) associated with magmatic intrusions?**

Nobile, A., Youssof, Mohammad, Tripanera, D., Zaharan, H. M., Mai, M. & Jónsson, S., 1 Apr 2019, 1 p. Copernicus/EGU.

**T23D-0390: Interdisciplinary Earthquake Hazard Research in Gulf of Aqaba and strait of Tiran (GAST)**

Jónsson, S., Avsar, U., Bektas, Z., Castro-Perdomo, N., Gabriel, A., Hanafy, S., Klinger, Y., Lefevre, M., Mai, P. M., Masson, F., Matrau, R., Passone, L., Pons-Branchu, E., Ribot, M., Ulrich, T., Viltres, R., Wollherr, S. & Youssef, Mohammad, 1 Apr 2019, 1 p. Washinton D.C. USA : Copernicus/EGU.

**Interdisciplinary Earthquake Hazard Research in Gulf of Aqaba and Strait of Tiran (GAST)**

Jonsson, S., Avsar, U., Bektas, Z., Castro-Perdomo, N., Gabriel, A. A., Hanafy, S., Klinger, Y., Lefevre, M., Mai, P. M., Masson, F., Passone, L., Pons-Branchu, E., Ribot, M., Ulrich, T., Wollherr, S. & Youssef, Mohammad, 1 Dec 2018, In: American Geophysical Union, Fall Meeting 2018. 23

**Earthquake swarm in non-volcanic areas of western Saudi Arabia: comparison of observations and imaging**

Youssef, Mohammad, Mai, P. M., Parisi, L., Tang, Z., Zahran, H. M., El-Hadidy, S. Y., Sami, M., Hosny, A., Al-Raddadi, W. & El-Hadidy, M. S., 1 Apr 2018, In: 20th EGU General Assembly, EGU2018, Proceedings from the conference held 4-13 April, 2018 in Vienna, Austria. 20, p. 16036

**Chemical composition of the continental crust: Insights from a quantitative interpretation of the Vp/Vs ratio**

Guerri, M., Youssef, Mohammad & Fulla, J., 1 Dec 2017, In: American Geophysical Union, Fall Meeting 2017. 11

**Earthquake swarm in the non-volcanic area north of Harrat Lunayyir, western Saudi Arabia: observations and imaging**

Youssef, Mohammad, Mai, P. M., Parisi, L., Tang, Z., Zahran, H. M., El-Hadidy, S. Y., Al-Raddadi, W., Sami, M. & El-Hadidy, M. S. Y., 1 Dec 2017, In: American Geophysical Union, Fall Meeting 2017. 53

**Application Of Receiver Based Techniques To Image Crustal Structures Of Scandinavia**

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**P-wave receiver function study of crustal structure in Scandinavia**

Makushkina, A., Thybo, H., Vinnik, L. & Youssef, Mohammad, 1 Apr 2016, In: EGU General Assembly 2016, held 17-22 April, 2016 in Vienna Austria. 18

**Seismic imaging beneath southwest Africa based on finite-frequency body wave tomography**

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**Crustal and upper mantle seismic structure of Russia from teleseismic receiver functions**

Youssef, Mohammad, Thybo, H., Artemieva, I. & Vinnik, L., 2016, In: Geophysical Research Abstracts. 18, 1 p., EGU2016-16341.

**Thickness and composition of the crust in southern Africa.**

Youssef, Mohammad, Thybo, H. & Artemieva, I., 2016, *35th Int. Geological Congress*. 1 p. 4422

**Velocity Structures underneath NRIL seismic station, Russia: Imaging the difference between the Siberian Craton and the West Siberian Basin**

Youssef, Mohammad, Thybo, H., Artemieva, I. & Vinnik, L., 2016, *Eos Trans. AGU*. AGU, Vol. 96. p. 1 199453

**Crustal and upper mantle structure of Siberia from teleseismic receiver functions**

Youssef, Mohammad, Thybo, H., Artemieva, I., Vinnik, L. & Oreshin, S., Apr 2015, In: Geophysical Research Abstracts. 17, 1 p., 6035.

**Strong crustal seismic anisotropy in the Kalahari Craton based on Receiver Functions**

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**Upper mantle seismic structure beneath southwest Africa from finite-frequency P- and S-wave tomography**

Youssof, Mohammad, Yuan, X., Tilmann, F., Heit, B., Weber, M., Jokat, W., Geissler, W., Laske, G., Eken, T. & Lushetile, B., Apr 2015, In: Geophysical Research Abstracts. 17, 1 p., 13898.

**Upper mantle structure beneath southern African cratons from seismic finite-frequency P- and S-body wave tomography**

Youssof, Mohammad, Thybo, H., Artemieva, I. M. & Levander, A., 2015, In: Earth and Planetary Science Letters. 420, p. 174-186 13 p.

**Strong seismic anisotropy in the crust of southern African cratons**

Thybo, H., Youssof, Mohammad & Artemieva, I., Dec 2014, In: EOS Trans. AGU. S23E-04.

**Teleseismic receiver functions imaging of Siberia**

Youssof, Mohammad, Thybo, H. & Artemieva, I., Dec 2014, In: TRANSACTIONS-AMERICAN GEOPHYSICAL UNION. 94 , 1 p., S51B-4462.

**EVOLUTION OF SOUTHERN AFRICAN CRATONS BASED ON SEISMIC IMAGING**

Thybo, H., Youssof, Mohammad & Artemieva, I., Oct 2014, In: Geological Society of America. Abstracts with Programs. 46 , 6, p. 43-43

**Seismic Structure of Southern African Cratons: A study based on teleseismic receiver functions and finite-frequency tomography**

Youssof, Mohammad, Artemieva, I., Levander, A. & Thybo, H., Apr 2014, In: Geophysical Research Abstracts. 16, 1 p., 10884.

**Moho depth and crustal composition in Southern Africa**

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**Seismic imaging of Southern African cratons: based on teleseismic receiver function and finite-frequency tomography**

Youssof, Mohammad, 2013, Department of Geosciences and Natural Resource Management, Faculty of Science, University of Copenhagen. 130 p.

**Seismic structure of the crust and lithospheric mantle of the southern African cratonic region**

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**Seismic velocity structure and anisotropy in southern African lithosphere terranes**

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**Investigating the translation of Earth's inner core**

Day, E. A., Cormier, V. F., Geballe, Z. M., Youssof, Mohammad & Yue, H., Dec 2012, In: Eos Trans. AGU, Fall Meet. Suppl.. 93, 52, D133A-2423.

**The crust and mantle beneath the Siberian provinces: a preliminary model based on new receiver function analysis**

Youssof, Mohammad, Artemieva, I., Thybo, H. & Frassetto, A., Apr 2012, In: Geophysical Research Letters. 14, EGU2012-8870.

**High-resolution imaging of the Kaapvaal Craton using P and S wave receiver functions and P- and S- finite frequency tomography**

Youssof, Mohammad, Thybo, H., Levander, A. & Artemieva, I., 2012, In: TRANSACTIONS-AMERICAN GEOPHYSICAL UNION. 93, 1 p., 1492831, T23C-2680.

**Why is the Kaapvaal different from other cratons?**

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**The extent of the Cratonic keel underneath the Southern African region: A 3D image using Finite-Frequency Tomography**

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