

## Curriculum Vitae of Ran-Novitsky Nof and list of publication

E-mail: [ran.nof@gmail.com](mailto:ran.nof@gmail.com) | Web: <http://ran.nof.info> | Phone: 052-2253290

### TECHNICAL HIGHLIGHTS:

- SeisComp3: installation, operation and administration (Gempa Certified).
- GIS specialist - knowledge of using ARCGIS, ERMapper and Erdas software
- Trained with Satellite Based Remote Sensing (InSAR, PSInSAR, SAR, Multi Spectral).
- Computer Programming: C, Python, VBA.
- Web design: HTML, PHP.
- Application development: GTK, QT4
- Proficient with Linux / Unix / Windows / OSX operating systems.
- Script languages - bash and awk (Linux/Unix).
- Skillful with *MS Office* programs - Power Point, Excel, Word and Outlook (inc. macros).
- Photoshop and GIMP Image Processing Software Expert.
- Languages: Hebrew, English.

### EDUCATION:

- |           |  |                           |
|-----------|--|---------------------------|
| 2014-2016 | <b>University of California, Berkeley</b><br><u>Post-Doc Fellow</u> , Seismology<br>Earthquake Early Warning Systems. PI: Prof. Richard M. Allen   | <b>Berkeley, CA, USA</b>  |
| 2012      | <b>Ben-Gurion University of the Negev</b><br><u>Ph.D.</u> , Geology<br>Thesis topic -" <i>Current Ground Movements in the Dead-Sea Area and Their Implications for Crustal Rheology and Infrastructure Instability: A Synthetic Aperture Radar Interferometry (InSAR) study</i> " supervised by Prof. Yehuda Eyal, Dr. Alon Ziv and Dr. Gidon Baer | <b>Beer-Sheva, Israel</b> |
| 2006      | <b>Ben-Gurion University of the Negev</b><br><u>M.Sc.</u> , Geology<br>Thesis topic -" <i>Detecting recent ground movements on the Carmel fault system using interferometric synthetic aperture RADAR (InSAR)</i> " supervised by Prof. Yehuda Eyal and Dr. Gidon Baer   | <b>Beer-Sheva, Israel</b> |
| 2003      | <b>Ben-Gurion University of the Negev</b><br><u>B.Sc.</u> , Geology and Environment  | <b>Beer-Sheva, Israel</b> |

### EMPLOYMENT HISTORY:

- |           |  |                          |
|-----------|--|--------------------------|
| 2017      | <b>The Geological Survey of Israel</b><br><u>Researcher</u><br>Seismology, Geodesy and Natural Hazards | <b>Jerusalem, Israel</b> |
| 2014-2017 | <b>The Geophysical Institute of Israel</b><br><u>Seismologist</u>                                      | <b>Lod, Israel</b>       |

- R&D of Earthquake Early Warning System (EWS). Software development, Seismic data QC, Seismic data SQL database.
- 2012-2013 **Tel-Aviv University** **Tel-Aviv, Israel**  
Researcher,  
 Building and managing the Dead Sea seismic mini-arrays network. Design, build and maintain acquisition and processing center. Seismic stations array installation.
- 2007 - 2011 **Ben-Gurion University of the Negev** **Beer-Sheva, Israel**  
Teaching Assistant  
 Teaching geological mapping, structural geology, tectonics, geophysics, geology intro for geographers and geological processes inside earth.
- 2006 **Rehovot Cultural Fund** **Rehovot, Israel**  
Geology Teacher for Gifted Children  
 Building and teaching a short term geology course for gifted children.
- 2006 **Ecolog Engineering LTD.** **Rehovot, Israel**  
Geologist  
 Managing projects, Software development, GIS processing and field work.
- 2003 - 2005 **Ben-Gurion University of the Negev** **Beer-Sheva, Israel**  
Teaching Assistant  
 Teaching structural geology, geological mapping and tectonics.

#### **ADDITIONAL TRAINING:**

- 2013 **SeisComp3** **Potsdam, Germany**  
 1-week training course for operators at GEMPA GmbH, with Dr. Bernd Weber (Seattle release).
- 2007 **IPTA and Gamma Software** **Gumligen, Swiss**  
 1-week training course at Gamma Remote Sensing, with Dr. Urs Wegmüller and Dr. Charles L. Werner.
- 2005 **ROI-PAC Software** **Oxford, UK**  
 2 weeks visit at COMET lab in Oxford University, with Prof. Barry Parsons and Prof. Tim Write.
- 2004 **SIOSAR Software** **San Diego, USA**  
 2 weeks visit at Scripps Institution of Oceanography, UCSD, San-Diego with Prof. David Sandwell.

#### **SCHOLARSHIPS AND AWARDS:**

- *Research Grant, Raymond and Beverly Sackler Fund for Convergence Research (2016).*
- *PostDoc scholarship, the Geological Survey of Israel (2014-2016).*
- *The Peretz Grader Award, Israel Geological Society (2013).*
- *Binational Science Foundation (BSF) travel grant for young scientists (2009).*
- *Ph.D. scholarship, the Geological & Environmental Dpt., BGU (2007 - 2012).*
- *Ph.D. scholarship, the Geological Survey of Israel (2007 - 2012).*

- *M.Sc scholarship, the Geological & Environmental Dpt., BGU (2003 - 2005).*
- *M.Sc scholarship, the Geological Survey of Israel (2003 - 2006).*
- *The Miriam and Aaron Gutwirth Scholarship (2005).*

#### **OTHER:**

- *Member of the Executive Committee of the Israel Geological Society (2008).*
- *Referee for: Earth, Planets and Space, Bulletin of Seismological Society of America, Seismological Research Letters, Journal of Photogrammetry and Remote Sensing, Geomorphology, Remote Sensing of Environment, Journal of Seismology.*
- *Member of the Computing Committee at the Geophysical Institute of Israel (2014).*
- *CMAS Advanced open water diver and Advanced Nitrox diver (1995).*

#### **SOFTWARE DEVELOPMENT:**

- **RoiView:** Explore InSAR data and more (<http://roiview.sourceforge.net>). Recommended by Prof. Eric Fielding for viewing ROI-PAC results.
- Contributor of **ObsPy:** A Python framework for seismology (<http://obspy.org>).
- More tools are available at: <https://github.com/rannof>

#### **SCIENTIFIC PUBLICATIONS:**

##### **Peer reviewed articles:**

- **Nof R.N.**, Abelson M., Raz E., Magen Y., Atzori S., Salvi S., Baer G., 2019, SAR interferometry for sinkhole early warning and susceptibility assessment along the Dead Sea, Israel, *Remote Sensing*, 11(1), 89, doi: 10.3390/rs11010089
- **Nof R.N.**, Chung A. I., Rademacher H., Allen R. M., 2019, MEMS Accelerometer Mini-Array (MAMA): A Low-Cost Implementation For Seismological Investigation, *Earthquake Spectra*, 35(1), 21-38, doi:10.1193/021218EQS036M
- Baer, G., Magen, Y., **Nof, R. N.**, Raz, E., Lyakhovsky, V., Shalev, E., 2018, InSAR measurements and viscoelastic modeling of sinkhole precursory subsidence: Implications for sinkhole formation, early warning and sediment properties, *J. Geophys. Res.*, doi:10.1002/2017JF004594
- Abelson M., Aksinenko T., Kurzon I., Pinsky V., Baer G., **Nof R.**, and Yechieli Y., 2017, Nanoseismicity forecasts sinkhole collapse in the Dead Sea coast years in advance, *Geology*, doi:10.1130/G39579.1.
- **Nof, R.N.**, Allen R. M., 2016, Implementing the ElarmS Earthquake Early Warning Algorithm on the Israeli Seismic Network, *BSSA*, 106 (5). 2332-2344 , doi:10.1785/0120160010.
- **Nof, R.N.**, Baer, G., Ziv, A., Raz, E., Atrozi, S., Salvi, S., 2013, Sinkhole precursors along the Dead Sea, Israel, revealed by SAR interferometry, *Geology*, 49 (9), 1019-1022, doi:10.1130/G34505.1.

- **Nof, R.N.**, Ziv, A., Doin, M.-P., Baer, G., Fialko, Y., Wdowinski, S., Eyal, Y., Bock, Y., 2012, Rising of the lowest place on Earth due to Dead Sea water-level drop: Evidence from SAR Interferometry and GPS, *J. Geophys. Res.*, 117, B05412, doi:10.1029/2011JB008961.
- Baer, G., Hamiel, Y., Shamir, G. and **Nof, R.**, 2008, Evolution of a magma-driven earthquake swarm resolved by InSAR and ground observations, *East African Rift, 2007*, *EPSL.*, 272, 339-532. doi: 10.1016/j.epsl.2008.04.052
- **Nof, R. N.**, Baer, G., Eyal, Y and Novali, F., 2008, Current surface displacement along the Carmel fault system in Israel from InSAR stacking and PSInSAR, *Israel J. Earth Sci.*, 57(2), 71-86. doi:10.1560/ijes.57.2.71

**Peer reviewed articles in Hebrew:**

- בר, ג., גוף, ר., רז, א., 2017, חיזוי בולענים מהחלל, אקולוגיה וסביבה, 8(1), 346-353.

**Ph.D Thesis:**

- **Nof, R. N.**, 2012, Current Ground Movements in the Dead-Sea Area and Their Implications for Crustal Rheology and Infrastructure Instability: A Synthetic Aperture Radar Interferometry (InSAR) study, Ph.D. thesis, Ben-Gurion University of the Negev, Beer-Sheva, p. 130. (in English, Hebrew abs.)

**M.Sc. Thesis:**

- **Nof, R. N.**, 2006, Recent crustal movements along the Carmel fault system using interferometric synthetic aperture RADAR (InSAR), M.Sc. thesis, Ben-Gurion University of the Negev, Beer-Sheva, p. 110. (in Hebrew, English abs.)

**Reports**

- Ran N., Abelson M., Raz E., Magen Y., Shalev E., Lyahovsky V., Atzori S., Salvi S. and Baer G., 2018, InSAR measurements along the Dead Sea for understanding sinkhole formation mechanism in Infrastructure Response to Natural and Anthropological Changes Along the Dead Sea Basin: Multi-Year Monitoring and Research Framework, 2012-2016, Final Report 2018, vol. GIS/08/2017, edited by Gidon Baer, GSI, Jerusalem, Israel. (in Hebrew)
- Baer G., **Nof R.**, Raz E., 2017, Sinkhole forecasting form space, , in Infrastructure Response to Natural and Anthropological Changes Along the Dead Sea Basin: Multi-Year Monitoring and Research Framework, 2012-2016, Final Report 2016, vol. GIS/08/2017, edited by Gidon Baer, GSI, Jerusalem, Israel. (in Hebrew)
- **Nof, R.**, 2014, Feasibility analysis of SeisComp3 automatic processing system at the Seismological Department, The Geophysical Institute of Israel (GII), Internal Report 030/783/14, Geophysical Institute of Israel, Lod, Israel.
- Shaviro, M., Baer, G., Haviv, I., **Nof, R.**, 2014, Utilizing high resolution radar interferometry to examine the influence of flood water on subsidence in the vicinity of the Dead Sea sinkholes, in Infrastructure Instability Along the Dead Sea Report 2012-2013, vol. GIS/06/2014, edited by Gidon Baer, Geological Survey of Israel, Jerusalem, Israel. (in Hebrew)

- **Nof, R.N.**, 2013, Current Ground Movements in the Dead-Sea Area and Their Implications for Crustal Rheology and Infrastructure Instability: A Synthetic Aperture Radar Interferometry (InSAR) study, GSI, Jerusalem, GSI/08/2013.
- **Nof, R.N.**, Baer G., 2013 , Monitoring gradual subsidence and changes along the Dead Sea coast using SAR interferometry, in Infrastructure Instability Along the Dead Sea Final Report 2011-2012, vol. GIS/05/2013, edited by Gidon Baer, Geological Survey of Israel, Jerusalem, Israel. (in Hebrew)
- **Nof, R.N.**, Baer G., 2012 , Monitoring gradual subsidence and changes along the Dead Sea coast using SAR interferometry, in Infrastructure Instability Along the Dead Sea Final Report 2008-2011, vol. GIS/01/2012, edited by Gidon Baer, Geological Survey of Israel, Jerusalem, Israel. (in Hebrew)
- **Nof, R.N.**, Baer G., 2011 , Monitoring gradual subsidence and changes along the Dead Sea coast using SAR interferometry, in Infrastructure Instability Along the Dead Sea Final Report 2008-2010, vol. GIS/02/2011, edited by Gidon Baer, Geological Survey of Israel, Jerusalem, Israel. (in Hebrew)
- **Nof, R. N.**, Sade, M., Baer, G. and Ziv, A., 2008, Detection and identification of earthquakes and ground deformations in Iran, using spaceborn SAR interferometry, GSI, Jerusalem, GSI/13/2008. (in Hebrew)
- Shirav-Scwartz, M., Calvo, R., Bein, A., Burg, A., **Nof, R. N.** and Baer, G., 2006, Red Sea – Dead Sea conduit, geo-environmental study along the Arava Valley, GSI, Jerusalem, GSI/29/2006.
- **Nof, R. N.**, 2006, Recent crustal movements along the Carmel fault system using interferometric synthetic aperture radar (InSAR), GSI, Jerusalem, GSI/27/2006. (in Hebrew, English abs.)
- **Novitsky, R.** and Baer G., 2004. Ground movements detected by PSInSAR: Haifa and Mt Carmel, Israel., GSI, Jerusalem, TR-GSI/16/2004.

#### **Meetings:**

- Kurzon I., **Nof R.N.**, Laporte M., Lutzky H., Polozov A., Zakosky D., Shulman H., Goldberg A., Tatham B., Perlin M., 2019, TRUA Project: upgrading Israel's seismic warning network – towards earthquake early warning in Israel, Submitted, AGU Fall Meeting. San Francisco, CA, USA.
- Tunç S., **Nof R.N.**, Çaka D., Barış Ş., Tunç B., Zülfişkar C., Türkoğlu M., Özşaraç V., 2019, Implementation of Earthquake Alarm System (Elarms) in Bursa and Yalova cities (BUYEEW), Northwest Turkey, Poster, 4<sup>th</sup> international conf. on EEW, Seoul, Korea.
- **Nof R.N.**, Kurzon I., 2019, TRUAA – Earthquake Early Warning System for Israel. Implementation and current status, Lecture, 4<sup>th</sup> international conf. on EEW, Seoul, Korea.
- Yagoda-Biran G., **Nof R.**, Kamai R., Pashcur Y., Maiti S.k., 2019, A new seismo-engineering ground-motion database for Israel, Poster, ICEGE, Rome, Italy.
- Yagoda-Biran G., Kamai R., Pashcur Y., Maiti S.K., **Nof R.**, 2019, A New Seismo-Engineering Ground-Motion Database for Israel, Lecture (Yagoda-Biran), Israel Geological Society Annual Meeting 2019, Kfar Blum, Israel.
- **Nof R.**, Polozov A., Wetzler N., Biran G., Kurzon I., 2019, Seismic data at the seismological division – new online services, Poster, Israel Geological Society Annual Meeting 2019, Kfar Blum, Israel.

- Kurzon I., **Nof R.**, Lutzky H., Polozov A., Zakosky D., Shwartzburg A., Giller V., Bar-Natan A., Reich B., Gorstein M., Feldman L., Giller D., Avirav V., Portnoy P., Ben-Dor G., Aizenshtat-Soffer E., Wetzler N., 2019, TRUA Project: upgrading Israel's seismic warning network – towards earthquake early warning in Israel, Lecture, Israel Geological Society Annual Meeting 2019, Kfar Blum, Israel.
- **Nof R.**, 2018, Sinkholes monitoring and early warning system at the lowest place on Earth, Lecture (Invited), Azerbaijan–Israel Workshop on Earthquake Seismology and Geodynamics, Jerusalem, Israel
- **Nof R.**, 2018, Towards Sinkhole Early Warning System Along the Dead Sea, Seminar, Department of Geophysics, Tel-Aviv University, 21 Mar, 2018, Tel-Aviv, Israel.
- **Nof R.**, Chung A. I., Rademacher H., Dengler L. A., Hemphill-Heley M. A., Allen R. M., 2017, MEMS Accelerometers Mini-Array (MAMA) Initial results and lessons learned, Poster (Invited) S11A-0561. AGU Fall Meeting. New Orleans, LA, USA.
- **Nof R.**, 2017, Monitoring Geo-Hazards Using SAR Interferometry, Lecture (Invited), GEO-CRADLE Regional Workshop, Tel Aviv, Israel.
- Baer, G., Shviro, M., **Nof R.**, Magen, Y., Ziv, A., Haviv, I., 2017, High-resolution InSAR Constraints on Subsidence Mechanisms and Geotechnical Parameters of Sediments along the Dead Sea Shores, Poster, Fringe 2017 workshop. Helsinki, Finland.
- **Nof R. N.**, Allen R. M., 2017, Implementing ElarmS for the Israeli Seismic Network – New Tools and Approaches, Lecture. IGS Annual Meeting. Mizpe-Ramon, Israel.
- Baer G., Shviro M., **Nof R.**, Magen Y., Ziv A., Haviv I., 2017, High-resolution InSAR constraints on subsidence mechanisms and geotechnical parameters of sediments along the Dead Sea shores, Lecture (By G. Baer). 2017 IGS Annual Conf. Mitzpe Ramon, Israel.
- **Nof R. N.**, Chung A. I., Rademacher H., Allen R. M., 2016, Integrating Low-Cost MemS Accelerometer Mini-Arrays (MAMA) in Earthquake Early Warning Systems, Poster S23A-2738. AGU Fall Meeting. San Francisco, CA, USA.
- **Nof R. N.**, Allen R. M., 2016, Implementing ElarmS for the Israeli Seismic Network – New Tools and Approaches, Lecture. SSA Annual Meeting. Reno, NV, USA.
- **Nof R. N.**, Chung A. I., Meng L., Kong Q., Allen R. M., 2016, MEMS Accelerometers Mini Array (MAMA) – a Low Cost Solution for Array-based Earthquake Early Warning System, Poster. SSA Annual Meeting. Reno, NV, USA.
- Nof R., 2016, - Implementing ElarmS for the Israeli Seismic Network - New Tools and Approaches, (**Invited Lecture**), ShakeAlert Research Meeting, Pasadena, CA, USA.
- **Nof R. N.**, Allen R. M., 2015, Toward an Earthquake Early Warning System in Israel - Implementing ElarmS for the Israeli Seismic Network, Poster S33B-2784. AGU Fall Meeting. San Francisco, CA, USA.
- Allen R. M., Allen S., Aranha M., Chung A., Hellweg M., Henson I., Melgar D., Neuhauser D., **Nof R.**, Strauss J., 2015, Prioritizing earthquake and tsunami alerting efforts, Lecture S22B-01 (by R. M. Allen). AGU Fall Meeting. San Francisco, CA, USA.

- Ran Nof, 2015, Seismic hazard and EEW in Israel, (**Invited lecture**), First International Conference on the Academic-Based Trans-border Earthquake Early Warning System, San Francisco, CA, USA.
- Baer G., Avni Y., Shviro M., **Nof R.**, Gavrieli I., Lensky N., Yechieli Y., Haviv I., Dente E., 2015, A New Mode of Sinkhole Formation along the Dead Sea Shorelines (Israel): Observations from InSAR, LiDAR, Timelapse Field Camera, and Water Analysis, Lecture (by G. Baer). Fringe 2015 Workshop. Frascati (Rome), Italy.
- Baer G., **Nof R. N.**, Avni Y., Shviro M., Atzori S., 2014, Sinkhole Precursors and Formation Mechanism along the Dead Sea Shorelines, Israel, Analyzed by InSAR, Field Mapping, Water Analysis and Elastic Modeling, Poster G54A05 (invited). AGU Fall Meeting. San Francisco, CA, USA
- **Nof R. N.**, Baer G., Ziv A., Raz E., Atzori S., Salvi S., 2013, Sinkhole precursors along the Dead Sea, Israel, revealed by SAR interferometry, Lecture (by S. Salvi). ISPRA 3<sup>rd</sup> International Workshop: Voragini in Italia. Rome, Italy.
- Abelson M., Aksinenko T., **Nof R.**, Baer G., Pinsky V. and Yechieli Y., 2014, Predicting sinkhole collapses at the Dead Sea from above and from within: Results from microseismic monitoring and SAR interferometry, Poster. EGU General Assembly 2013. Vienna, Austria.
- Abelson M., **Nof R.N.** and Yechieli Y., 2014, Hydrology and sinkholes along the Dead Sea shores – 2013 update, Field trip, 2014 IGS Annual Conf. Ein-Bokek, Israel.
- Shaviro, M., Baer, G., Haviv, I., **Nof, R.**, 2014, Utilizing high resolution radar interferometry to examine the influence of flood water on subsidence in the vicinity of the Dead Sea sinkholes, Poster. No. 15, 2014 IGS Annual Conf. Ein-Bokek, Israel.
- Baer G., **Nof R.N.**, Ziv A., Raz E., Atzori S., Salvi S., 2013, Sinkhole precursors along the Dead Sea, Israel, revealed by SAR interferometry, Poster.3-P-255, ESA Living Planet Symposium. Edinburgh, United Kingdom.
- **Nof R.N.**, 2013, The Peretz Grader Award winner talk, Lecture, 2013 IGS Annual Conf. Akko (Acre), Israel.
- **Nof R.N.**, Baer G., Ziv A., Raz E., Atzori S., Salvi S., 2013, Sinkhole precursors along the Dead Sea, Israel, revealed by SAR interferometry, Lecture (by G. Baer). EGU General Assembly 2013. Vienna, Austria.
- **Nof R.N.**, Ziv A., Doin M.P., Baer G., Fialko Y., Wdowinski S., Eyal Y., Bock Y., 2011, The lowest place on Earth is rising due to the Dead-Sea water level drop: Evidence from InSAR time series analysis, Poster. Fringe 2011 Workshop, Frascati (Rome), Italy.
- **Nof R.N.**, Ziv A., Doin M.P., Baer G., Fialko Y., Wdowinski S., Sade M., Eyal Y., 2011, The lowest place on Earth is rising due to the Dead-Sea water level drop: Evidence from InSAR time series analysis, Lecture. 2011 IGS Annual Conf. Mitzpe Ramon, Israel.
- **Nof R.**, Baer, G. and Hamiel, Y., 2010, Differential Coherence Change Detection (DCCD): A new method for detecting surface changes in space and time using space-borne SAR measurements, Lecture. 2010 IGS Annual Conf. Eilat, Israel.

- **Nof R. N.**, Baer, G., Eyal, Y and Novali, F., 2007, InSAR measurements used to constrain the current slip along the Carmel fault system, Israel, (Lecture), ENVISAT 2007 Symposium, Montreux, Switzerland, ESA Pub. SP-636 2007.
- Heimann, A., Baer, G., Frieslander, U., Gluck, D., Greenbaum, N., **Nof, R.**, Shamir, G. and Zilberman, E., 2007, Is the Carmel fault, a major branch of the Dead Sea Transform, active?, EGU General Assembly 2007, Vienna, Austria.
- Baer, G., Abelson, M., Finzi, Y., Funning, G., **Nof, R.**, Shamir, G. and Wright, T, 2007, Application of InSAR measurements and mechanical modeling for natural hazard assessment and mitigation along the Dead Sea Transform, EGU General Assembly 2007, Vienna, Austria.
- **Novitsky, R.**, Baer, G. and Eyal, Y., 2006, Current ground movements in Mt. Carmel: stacking of InSAR measurements and elastic modeling, Lecture. IGS Annual Conf. Bet-Shean, Israel.
- Kanari, M., Ariely, R., Harkavi, A., Meiler, M., Shapira, S., Yelin, G., Politi, M., Shaanan, U., Shaar, R., Steinberg, J., Bakun, D., Bar, O., **Novitsky, R.**, Yagoda, G., Wald, R., Shtivelman, V., Goldman, M., Rybakov, M., Agnon, A., Feinstein, S., Marco, S., 2006, Geophysical imaging of an active strand of the Carmel fault: a contribution to seismic hazard assessment, Poster. IGS Annual Conf. Bet-Shean, Israel.
- **Novitsky, R.**, Baer, G., Eyal, Y. and Shamir, G., 2005, Permanent scattering InSAR– a new technique for detecting mm-scale ground movements, applied to the area adjacent to the Carmel fault system, Lecture. IGS Annual Conf., Mashabim, Israel.