

Öcal Necmioğlu (PhD)

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Work: Boğaziçi University-Kandilli Observatory and Earthquake Research Institute
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Work Experience

Aug. 2008 –

Kandilli Observatory and Earthquake Research Institute

Boğaziçi University

Istanbul, Turkey

Geophysical Engineer

Manager of Belbaşı Nuclear Tests Monitoring Center *(23 July 2015 - current)

Assistant Manager of Regional Earthquake and Tsunami Monitoring Center (7 February 2018 – current)

Coordinator of the Tsunami Working Group of KOERI – Regional Earthquake and Tsunami Monitoring Center (2010 -)

Deputy Manager of Belbasi NTMC (3 November 23 July 2015)

Assistant Manager of Belbasi NTMC (22 October -23 July 2015)

* Turkish National Data Center for CTBT

Execution of all tasks within the mandate of the center in accordance to Law 4462 on the Ratification of the Comprehensive Nuclear-Test-Ban Treaty and Law 5031 on the Agreement Between the United States and the Republic of Turkey Concerning the Closure of Belbasi Installation and the Activation of a New Seismic Research Station.

- Supervision of the technical personnel at Belbasi Central Recording Facility and all associated seismic array operations
- Participating relevant CTBTO working group meetings as a delegate
- Liaison with CTBTO and AFTAC (US-Air Force Technical Applications Center) representatives
- Performing technical and data quality analysis on request
- Assisting and advising the Director of KOERI in issues concerning the centre

As the Assistant Manager of the Regional Earthquake and Tsunami Monitoring Center

Main responsibilities are:

- Organize, coordinate, monitor and assess real-time tsunami warning system operations at the center

As the Coordinator of the Tsunami Working Group of KOERI – Regional Earthquake and Tsunami Monitoring Center

Main responsibilities are:

- Liaison with ICG/NEAMTWS as the TNC
- Member of the TOWS Inter-ICG Task Team on Tsunami Watch Operations as nominated from NEAMTWS (2013-2017)
- Co-chair of the ICG/NEAMTWS Task Team on Operations (2016)
- Member of ICG/NEAMTWS Steering Committee (2011 -)
- Co-chair person of the Task Team on the Communication Test and Tsunami Exercises (2011-2013) responsible for the planning, organization and evaluation of the first Communication Test Exercise and first Tsunami Exercise (NEAMWave12) in the NEAM Region
- Member of the Intergovernmental Oceanographic Commission (UNESCO)/Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) Task Team on the Regional TWS Architecture (2009-2011)
- Member of the Intergovernmental Oceanographic Commission (UNESCO)/Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) Task Team on the Communication Test Exercises as a KOERI representative (2009 - 2011);

Projects involved

- **Tsunami Working Group Coordinator (2014 October - present)**
- **Tsunami Working Group Coordinator Assistant (2009-2014 October)**
- **Work Package Leader** (WP3: in the EC/ERCC Pilot project in the area of Early Warning Systems for natural disasters: ARISTOTLE - All Risk Integrated System Towards The holistic Early-warning)
- **Work Package Leader** (WP6: Operational detection and communication infrastructure) in FP7 Project ASTARTE: Assessment, Strategy And Risk Reduction for Tsunamis in Europe (Grant Agreement No: 603839); 1/11/2013 – 31/10/2016);
- **Task Leader** (Task 2.3 Tsunami scenario database for sea of Marmara) and Researcher in the JAMSTEC/JST project “MARDim: EARTHQUAKE AND TSUNAMI DISASTER MITIGATION IN THE MARMARA REGION AND DISASTER EDUCATION IN TURKEY (April 2013 – March 2018)
- **Project Coordinator Assistant** for FP7 Project MARSite: New Directions in Seismic Hazard Assessment through Focused Earth Observation in the Marmara Supersite (Grant Agreement No: 308417); 1/11/2012 – 30/4/2016)
- **KOERI Key Personnel** for Project TRIDEC - Collaborative, Complex and Critical Decision-Support in Evolving Crises (Grant agreement no: 258723 - IRM Global Risk Award 2013 in the category of ‘Managing Risks across Boundaries’); 1/9/2010 – 31/10/2013;

Feb. 2001 – Jan. 2008

Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)
International Data Centre **Vienna, Austria**
Waveform Analysis Unit 1, Monitoring and Data Analysis Section,
Associate Analyst (Seismic, Hydroacoustic and Infrasonic Analyst)

Performing seismogram analysis for Comprehensive Nuclear Test-Ban Treaty Verification:

- Reviewing in detail automatically generated events and parameters, using the raw data and correcting the automatic processing solutions, such as possible re-estimation of signal parameters (slowness, azimuth, amplitude), event hypocentre and event origin time;
- Identifying unassociated signal detections and raw waveform data to spot and locate events not previously defined in the automatic bulletin;
- Controlling data quality for seismic, hydroacoustic and infrasonic stations;
- Testing of hardware and software applications/algorithms;
- Training of new staff members and participants in training courses organized by the International Data Centre Division.

Oct. 1997 – Feb. 2001

Western Geophysical
Global Offshore Operations **London, UK**
Field Geophysicist (Processing Geophysicist and Seismic Analyst)

Onboard Data Processing of 4C Ocean Bottom Cable/Hydrophone Streamer Data - Offshore Global Operations:

- Performed Onboard Data Quality Control;
- Created geometry databases and produced CommonReceiverPoints (CRP)-gathers, picked first arrivals and repositioned receivers, merged seismic data with the navigation data;
- Applied surface statics, geospreading corrections, predictive deconvolutions, and outside mute;
- Created semblances, correlation stacks and multi velocity function databases for interactive velocity picking;
- Summed hydrophone and geophone data using NormalMoveOut and applied random noise attenuation and created stacks;
- Created 3D Seismic Data Cubes, time slices and applied depth migration to the data;
- Carried out the full processing of onboard hydrophone streamer data;
- Liaised with the client and the co-ordinator regarding data acceptance or rejection;
- Supervised Field Geophysicists in subordinate positions involved in offshore seismic processing;
- Assisted the Group Leader in reviewing and implementing proper procedures, reported all problems and made recommendations for improvements: In the use of personnel resources, in the acquisition of the data, for the use of processing software applications, systems and techniques.

Education

Feb. 2008-Sep. 2014

PhD Geophysics
Tsunami Hazard in Turkey and Surroundings
Boğaziçi University, Kandilli Observatory and Earthquake Research Institute
Istanbul, Turkey

Sep. 1993- Jul. 1997

BSc (honours) in Geophysical Engineering
Istanbul Technical University, Faculty of Mines, Istanbul, Turkey

Subject of the Dissertation: “Mid-Ocean Spreading Centres and Volcanic Earthquakes: Iceland” (Supervisor: Prof. Tuncay Taymaz)

Sep. 1992 – Jun. 1993	Jan van Ruusbroek Kollege, Brussels, Belgium Exchange Student sponsored by the American Field Service Intercultural Programs-Turkish Culture Foundation; Istanbul, Turkey
Sep. 1985 – Jun. 1992	Cagaloglu Anatolian (bilingual Turkish/German) Highschool; Istanbul, Turkey

Personal Information

Year and Place of Birth	1975; Istanbul, Turkey
Nationality	Turkish

Languages (other than Turkish)

English	fluent
German	intermediate
French	basic

International Service

2019	Guest Editor of the Special Issue of the “Sensors” on “Advances in Sensor Applications for Early Warning Systems”; “Sensors” (ISSN 1424-8220; CODEN: SENS9)
2018	Member of the Scientific Committee of the 2018 Scientific Congress of the Turkish National Union of Geodesy and Geophysics
2017/11-	Co-chair of the ICG/NEAMTWS Task Team on Tsunami Operations
2016/2-present	CTBTO/WGB Task Leader on Testing, Provisional Operations, Performance Assessment
2016	Member of the Scientific Committee of the 2 nd Turkish Marine Sciences Conference
2016	Nominated National Expert for the ICG/NEAMTWS /Candidate Tsunami Service Provider Accreditation Process
2015/11-2016/11	Co-chair of the ICG/NEAMTWS Task Team on Tsunami Operations
2015/11	Invited as reviewer in the Natural Hazards Special Volume on “75 years from November 10th 1940 Vrancea earthquake”
2015/3- present	Included in the Reviewer Database for Philosophical Transactions of Royal Society
2014	Guest Editor of the Earth, Planets and Space (EPS) Special issue: Disaster Mitigation, Recovery and Early Warning against the next Marmara earthquake
2014/8	2nd European Conference on Earthquake Engineering and Seismology (2ECEES) 24-29 August 2014, Istanbul - Turkey Session Convener: Assessment and New Strategies for Tsunami Mitigation
2014/5-present	Included in the Reviewer Database for Pure and Applied Geophysics (PAGEOPH) http://link.springer.com/journal/24
2013/11-2016/9	Member of the TOWS Inter-ICG Task Team on Tsunami Watch Operations as nominated from NEAMTWS (2013-2016)
2013/09-present	Member of the IUGG Joint Tsunami Commission http://jisao.washington.edu/tsunamicommission/

- 2012/10-present** Included in the Reviewer Database for Research in Geophysics (<http://www.pagepress.org/rg>) given in experience particularly in tsunami warning systems.
- 2012/2-present** Tsunami National Contact for ICG/NEAMTWS (Intergovernmental Oceanographic Commission of UNESCO; Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas)
- 2011/11-present** Member of ICG/NEAMTWS Steering Committee (Intergovernmental Oceanographic Commission of UNESCO; Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas)
- 2011/9-2016/2** CTBTO/WGB Task Leader on Performance Assessment
- 2011/1-2013/11** Co-Chair of the Task Team on the Communication Test and Tsunami Exercise; Intergovernmental Oceanographic Commission (of UNESCO); Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) responsible for the planning, organization and evaluation of the first Communication Test Exercise and first Tsunami Exercise (NEAMWave12) in the NEAM Region
- 2009-2011** Member of the Intergovernmental Oceanographic Commission (UNESCO)/Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) Task Team on the Regional TWS Architecture
- 2009-2011** Member of the Intergovernmental Oceanographic Commission (UNESCO)/Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS) Task Team on the Communication Test Exercises

Publications / Oral Presentations / Posters

Ocal Necmioğlu, “Challenges And Requirements For Near-Field Tsunami Warning in Urban Areas”, Invited Panel Speaker, United Nations Office for Disaster Risk Reduction-2018 European Forum for Disaster Risk Reduction, 21-23 November 2018, Rome-Italy, **INVITED**

Öcal Necmioğlu, Ceren Özer Sözdinler, Mehmet Yılmaz, Doğan Kalafat, Nurcan Meral Özel, Gülüm Tanırcan, Haluk Özener; Tsunami tehlikesine hazır mıyız ?, Türkiye Ulusal Jeodezi ve Jeofizik Birliği Bilimsel Kongresi, 30 Mayıs – 2 Haziran 2018, İzmir

Ocal Necmioğlu, Ceren Özer Sözdinler, Ahmet Cevdet Yalçın, Mohammad Heidarzadeh, and Takeo Ishibe; Challenges and requirements for near-field Tsunami Warning in the Aegean Sea and Eastern Mediterranean; EGU2018-12273, 8-12 April 2018, Vienna, Austria

Gerassimos Papadopoulos, Alessandro Annunziato, Ahmet Cevdet Yalciner, Apostolos Agalos, Marinos Charalampakis, Gozde Guney Dogan, Ocal Necmioğlu, Ceren Ozer Sozdinler, Tatyana Novikova, Pamela Probst, and Chiara Proietti; The east Aegean Sea seismic tsunamis of 12 June and 20 July 2017: lessons learned for the tsunami potential and the early warning in the Mediterranean; EGU2018-17349, 8-12 April 2018, Vienna, Austria

Fatih Turhan, Mehmet Yılmaz, Öcal Necmioğlu, and Ayşegül Köseoğlu; An Assessment of Early-Est by KOERI-RETMC; EGU2018-12139, 8-12 April 2018, Vienna, Austria

Öcal Necmioğlu, Ceren Özer Sözdinler, Mehmet Yılmaz, Fatih Turhan, Ali Pınar, Haluk Özener; Advances in KOERI-TWS based on lessons learnt from 20 July 2017 Bodrum-Kos Event; IOC Symposium: Advances in Tsunami Warning to Enhance Community Responses, Paris, France, 12-14 February 2018

Mohammad Heidarzadeh , Ocal Necmioğlu , Takeo Ishibe and Ahmet C. Yalciner (2017), Bodrum–Kos (Turkey–Greece) Mw 6.6 earthquake and tsunami of 20 July 2017: a test for the Mediterranean tsunami warning system; Geoscience Letters, 4:31

Tsunami Action on Coasts and Constructions; Guler H., Cinar G., Sharghivand N., Sozdinler C., Dogan G., Necmioğlu O., Zaytsev A., Yalciner A.; FUNDAMENTALNAYA i PRIKLADNAYA GIDROFIZIKA, 2017. V. 10, N 3, Pages 65-72

Special issue “The next Marmara earthquake: disaster mitigation, recovery, and early warning”; Takane Hori, Ali Pınar , Ocal Necmioğlu , Muneo Hori and Azusa Nishizawa; Earth, Planets and Space (2017) 69:65 DOI 10.1186/s40623-017-0648-9

Panel Discussion “Global Verification Capability: The Five Announced DPRK Nuclear Tests” Moderator: W. Randy Panellists: Steven Gibbons, Chiappini Massimo, Öcal Necmioğlu, Anders Ringbom, Kim Won-Young; **INVITED**; Science and Technology Conference 2017, 26-30 June 2017, Vienna – Austria

Selected Research Activities of Turkish NDC; O. Necmioğlu, K. Semin, M.U. Teoman, S. Altuncu Poyraz, S. Kocak, C.T. Destici; Science and Technology Conference 2017, 26-30 June 2017, Vienna - Austria

Performance of MarSite Multi parameter Borehole Instrumentation; Cansun Guralp, Suleyman Tunc, Oguz Ozel, Nurcan Meral Ozel, and Ocal Necmioğlu; EGU2017-19129; 23-28 April 2017, Vienna - Austria

MARSite–MARMARA SUPERSITE: Accomplishments and Outlook; Nurcan Meral Ozel, Ocal Necmioğlu, Semih Ergintav, Asım Oguz Ozel, Franco Italiano, Paolo Favali, Pascal Bigarre, Ziyadin Cakir, Louis Geli, Hideo Aochi, Remy Bossu, Can Zulfikar, and Karin Sesetyan; EGU2017-18891; 23-28 April 2017, Vienna - Austria

Preparation of Synthetic Earthquake Catalogue and Tsunami Hazard Curves in Marmara Sea using Monte Carlo Simulations; Başak Bayraktar, Ceren Özer Sözdinler, Öcal Necmioğlu, and Nurcan Meral Özel; EGU2017-1374; 23-28 April 2017, Vienna - Austria

New Operational Phase of KOERI-Regional Earthquake and Tsunami Monitoring Center Öcal Necmioğlu, Ceren Özer Sözdinler, Mehmet Yılmaz, Ayşegül Köseoğlu, Fatih Turhan, Mustafa Çomoğlu, Nurcan Meral Özel, Ali Pınar, and Kıvanç Kekovalı; EGU2017-12131; 23-28 April 2017, Vienna - Austria

Seismic Analysis of Three Bomb Explosions in Turkey; Korhan Umut Semin, Ocal Necmioğlu, Serdar Kocak, Cem Destici, Ugur Teoman, Nurcan Meral Ozel; AGU Fall Meeting 2016, 12-16 December 2016, San Francisco, USA

Calculation of Tsunami Damage and preparation of Inundation Maps by 2D and 3D numerical modeling in Göcek, Turkey; Ceren Ozer Sozdinler, Taro Arikawa, Ocal Necmioglu, Nurcan Meral Özel; AGU Fall Meeting 2016, 12-16 December 2016, San Francisco, USA

The Global Tsunami Model (GTM); Finn Løvholt, Hong Kie Thio, Carl Bonnevie Harbitz, Jascha Polet, Stefano Lorito, Roberto Basili, Manuela Volpe Fabrizio Romano, Jacopo Selva, Alessio Piatanesi, Gareth Davies, Jonathan Griffin, Maria Ana Baptista, Universidade de Lisboa, Rachid Omira, Andrey Y. Babeyko, William L Power, Mario Salgado Gálvez, Joern Behrens, Ahmet C Yalciner, Utku Kanoglu, Onur Pekcan, Stephanie Ross, Tom Parsons, Randall J LeVeque, Frank I Gonzalez, Raphael Paris, Andreas Schäfer, Miquel Canals, Stuart A Fraser, Yong Wei, Robert Weiss, Filippo Zaniboni, Gerassimos A Papadopoulos, Irina Didenkulova, Ocal Necmioglu, Ceren Ozer Sozdinler, Anawat Suppasri, Patrick J Lynett, Mohammad Mokhtari, Mathilde Sørensen, Christa von Hillebrandt-Andrade, Ignacio Aguirre Ayerbe, Íñigo Aniel-Quiroga, Serge Guillas, Jorge Macias; AGU Fall Meeting 2016, 12-16 December 2016, San Francisco, USA

Doğu Akdeniz ve Bağlantılı Denizler Tsunami Erken Uyarı Sistemi, Öcal Necmioğlu, Nurcan Meral Özel, Ceren Özer Sözdinler, Mustafa Çomoğlu, Ali Pınar, Mehmet Yılmaz, Tülay Çokacar, Doğan Kalafat, Ahmet Cevdet Yalçiner, Türkiye Deniz Bilimleri Konferansı, 31 Mayıs – 3 Haziran 2016, Ankara

Bölgesel Deprem ve Tsunami İzleme Merkezi Çalışmaları Çerçevesinde Akdenizde Yüksek Çözünürlüklü Tsunami Sayısal Modellemesi, Ceren Özer Sözdinler, Başak Fırat, Öcal Necmioğlu, Murat Elge, Nurcan Meral Özel, Türkiye Deniz Bilimleri Konferansı, 31 Mayıs – 3 Haziran 2016, Ankara

HFRadar'ın Tsunami Tespiti İçin Karadeniz ve Akdeniz Kıyılarında Potansiyel Kullanımı, Tülay Çokacar, Öcal Necmioğlu, Ceren Özer, Türkiye Deniz Bilimleri Konferansı, 31 Mayıs – 3 Haziran 2016, Ankara

New Directions in Seismic Hazard Assessment Through Focused Earth Observation in the MARMARA SuperSITE – Project Achievements, Nurcan Meral Ozel, Öcal Necmioğlu, Semih Ergintav, Oguz Ozel, Paolo Favali, Pascal Bigarre, Ziyadin Çakır, Sinan Ozeren, Louis Geli, John Douglas, Hideo Aochi, Remy Bossu, Can Zülfikar, Karın Şeşetyan and Mustafa Erdik, EGU2016-15122, 17-22 April 2016, Vienna-Austria

Progress of KOERI Tsunami Warning System for the Eastern Mediterranean, Aegean and Black Seas, Ocal Necmioglu, Nurcan Meral Ozel, Ceren Ozer Sozdinler, Mehmet Yilmazer, Tulay Cokacar, Mustafa Comoglu, Ali Pinar, and Kivanc Kekovali, EGU2016-11737, 17-22 April 2016, Vienna-Austria

Potential Use of HF Radar for Tsunami Detection in the Central and Eastern Mediterranean, Tulay Cokacar, Ocal Necmioglu, and Ceren Ozer, EGU2016-14237, 17-22 April 2016, Vienna-Austria

Development of a Tsunami Scenario Database for Marmara Sea, Ceren Ozer Sozdinler, Ocal Necmioglu, and Nurcan Meral Ozel, EGU2016-11661, 17-22 April 2016

Design and challenges for a tsunami early warning system in the Marmara Sea; Necmioğlu, Ö.; Earth, Planets and Space.2016, 68:13, DOI: 10.1186/s40623-016-0388-2

Earthquake Scenario-Based Tsunami Wave Heights in the Eastern Mediterranean and Connected Seas, Ocal Necmioglu and Nurcan Meral Özel, 26th General Assembly of the International Union of Geodesy and Geophysics, JP5, 22 June – 2 July 2015, Prague - Czech Republic

Tsunami Warning System for the Eastern Mediterranean and Its Connected Seas; O. Necmioglu, N. Ozel, M. Yilmazer, M. Çomoğlu, C. Özer Sözdinler, D. Kalafat, A. Yalçiner; CTBT: Science and Technology Conference 2015, 22-26 June 2015, Vienna-Austria

Ground Motion Scaling Study in Central Anatolia Region, Turkey; K. Semin, N. Ozel, O. Necmioglu, C. Destici, S. Kocak, U. Teoman; CTBT: Science and Technology Conference 2015, 22-26 June 2015, Vienna-Austria

A Semantic IoT Early Warning System for Natural Environment Crisis Management, Stefan Poslad, Stuart E. Middleton, Fernando Chaves, Ran Tao, Ocal Necmioglu, And Ulrich Bügel; IEEE Transactions on Emerging Topics In Computing, 17 May, 2015; 10.1109/TETC.2015.2432742

Integrated multidisciplinary fault observation in Marmara Through MARSite – Project Progress by Nurcan Meral Ozel, Ocal Necmioglu, Asım Oguz Ozel, Semih Ergintav, Louis Louis Geli, Paolo Favali, Cansun Guralp, John Douglas, Pierre-Philippe Mathieu, Onur Tan, Cemil Gürbüz, and Mustafa Erdik; EGU2015-6000, Poster Presentation, EGU 2015, 12-17 April 2015, Vienna, Austria

Necmioğlu O., Ozel MN., Favali P., Ergintav S., Ozel O., Bigarre P., Geli L., Aochi H., Bossu R., Çakür Z., Zulfikar C., Sesetyan K., Douglas J., Integrated Multidisciplinary Fault Observation in Marmara Through MARSite – Project Achievements (S11A-2738), AGU Fall Meeting, 14-18 December 2015, San Francisco, USA

Tsunami Warning System for the Eastern Mediterranean, Aegean and Black Seas; **Ocal Necmioğlu**, Nurcan Meral Ozel, Dogan Kalafat, Mustafa Comoglu, Ceren Ozer Sozdinler, Mehmet Yilmazer, and Ahmet Cevdet Yalciner, EGU2015-6059, Poster Presentation, EGU 2015, 12-17 April 2015, Vienna, Austria

Investigation of Tsunami Effects on Harbor Structures with High Resolution Tsunami Modeling: Case study in the Biggest Port of Turkey in Istanbul, Ceren Ozer Sozdinler, Taro Arikawa, Nurcan Meral Ozel, **Ocal Necmioğlu**, Ahmet Cevdet Yalciner, Andrey Zaytsev, and Takashi Tomita, EGU2015-3670, Poster Presentation, EGU 2015, 12-17 April 2015, Vienna, Austria

TRIDEC Cloud – a Web-based Platform for Tsunami Early Warning tested with NEAMWave14 Scenarios, Martin Hammitzsch, Johannes Spazier, Sven Reißland, **Ocal Necmioğlu**, Mustafa Comoglu, Ceren Ozer Sozdinler, Fernando Carrilho, and Joachim Wächter, EGU2015-9084, Poster Presentation, EGU 2015, 12-17 April 2015, Vienna, Austria

Ocal Necmioğlu and Nurcan Meral Ozel, 2015, Earthquake Scenario-Based Tsunami Wave Heights in the Eastern Mediterranean and Connected Seas, Pure and Applied Geophysics, Volume 172, Issue 12 (2015), Page 3617-3638

Earthquake and Tsunami Disaster Mitigation in The Marmara Region and Disaster Education in Turkey. (SATREPS Project: Science and Technology Research Partnership for Sustainable Development by JICA-JST); Kaneda, Y., Erdik, M., Takahashi, N., Hori, T., Hori, M., Kumamoto, K., Kalafat, D., Pınar, A., Ozel, A.O., Yalciner, A.C., Nurlu, M., Tanırca, G., Citak, S., Ariyoshi, K., **Necmioğlu, O.**, AGU 2014, 15-19 December 2014, San Francisco, U.S.A

Deterministic Tectonic Origin Tsunami Hazard Analysis for the Eastern Mediterranean and its Connected Seas; **Necmioğlu, O.** and Ozel, N.M., AGU 2014, 15-19 December 2014, San Francisco, U.S.A

Integrated Multidisciplinary Fault Observation in Marmara Through MARSite; Ozel, N.M., **Necmioğlu, O.**, Ozel, A.O., Ergintav, S., Tan, O., Geli, L., Favali, P., Guralp, C., Douglas, J., Mathieu, P.-P., Gurbuz, C., Erdik, M.; AGU 2014, 15-19 December 2014, San Francisco, U.S.A

Tsunami Risk Mitigation Infrastructure in Turkey; **O. Necmioğlu**, N. Meral Ozel, A.C. Yalciner, D. Kalafat, M. Yilmazer, M. Comoglu, C. Ozer Sozdinler, C. Gurbuz, A. Pınar and M. Erdik; Tohoku Forum for Creativity: International Workshop on Implementing of Practical Disaster Risk Reduction; 7-10 November 2014, Sendai-Japan **INVITED**

Ozer Sozdinler, C., **Necmioğlu, O.**, Meral Ozel, N., Yalciner, A.C., “24 Mayıs 2014 Mw 6.9 Gökçeada Depremi, Tsunami Modellemesi ve Mareograf Kaydı ile Karşılaştırılması”, 8. Kıyı Mühendisliği Sempozyumu Bildiriler Kitabı, İstanbul, 7-9 Kasım, 2014, sayfa 691-697.

Ozer Sozdinler, C., Meral Ozel, N., **Necmioğlu, O.**, Yalciner, A.C., Zaitsev, A., “Preparation of Inundation Maps Database for Turkish National Tsunami Warning Center”, Second European Conference on Earthquake Engineering and Seismology (2ECEES), Istanbul, Turkey, 24-29 August, 2014

Spatio-Temporal Decision Support System for Natural Crisis Management with TweetComp1; Stuart E. Middleton, Andrea Zielinski, **Öcal Necmioğlu**, Martin Hammitzsch; Lecture Notes in Business Information Processing, Volume 184 2014 Support Systems III - Impact of Decision Support Systems for Global Environments Decision

NEAMTWS Tsunami Watch Operations - Communications Perspective, **Ocal Necmioğlu**, Nikolaos Melis and Fernando Carrilho, Improving Tsunami Warning and Emergency Response in the North-Eastern Atlantic, Mediterranean and Connected Seas, IOC-UNESCO-ISESCO Workshop Rabat, Morocco 23-24 September 2014

An Earthquake Source Sensitivity Analysis for Tsunami Propagation in the Eastern Mediterranean; **Ö. Necmioğlu** and N.M. Özel. 2014. Oceanography 27(2):76–85, <http://dx.doi.org/10.5670/oceanog.2014.42>.

High Resolution Tsunami Modeling and Assessment of Harbor Resilience; Case Study in Istanbul; Ahmet Cevdet Yalciner, Betül Aytöre, Hasan Gokhan Guler, Utku Kanoglu, Sebnem Duzgun, Andrey Zaytsev, Taro Arikawa, Takashi Tomita, Ceren Ozer Sozdinler, **Ocal Necmioğlu**, and Nurcan Meral Ozel; Oral Presentation at EGU 2014, 27 April – 2 May 2014, Vienna Austria

Initial results from MARmara SuperSITE; Nurcan Meral Ozel, **Ocal Necmioglu**, Paolo Favali, John Douglas, Pierre-Philippe Mathieu, Louis Geli, Semih Ergintav, Asim Oguz Ozel, Onur Tan, Cemil Gurbuz, and Mustafa Erdik; Oral Presentation at EGU 2014, 27 April – 2 May 2014, Vienna Austria

Improving Tsunami Resilience in Europe – ASTARTE; Maria Ana Baptista, Ahmet Yalciner, Miquel Canals, Joern Behrens, David Fuhrman, Mauricio Gonzalez, Carl Harbitz, Utku Kanoglu, Nuray Karanci, Franck Lavigne, Stefano Lorito, Mustafa Meghraoui, Nikolaos S. Melis, **Ocal Necmioglu**, Gerassimos A. Papadopoulos, Alexander Rudloff, François Schindele, Pedro Terrinha, Stefano Tinti, and the ASTARTE Team; Poster Presentation at EGU 2014, 27 April – 2 May 2014, Vienna Austria

Establishing a Tsunami Warning System in the Eastern Mediterranean: Challenges and Outlook; **O. Necmioglu**, N. Meral Ozel, A.C. Yalciner, D. Kalafat, M. Yilmazer, M. Comoglu, C. Ozer, C. Gurbuz, A. Pinar and M. Erdik; invited speaker at the “TsuMaMos 2014 - Mathematical Modelling for Tsunami Early Warning Systems - An International Conference”; Malaga-Spain, 9-11 April 2014 **INVITED**

Characterization of Earthquake Source Parameters for Deterministic Tsunami Hazard Modeling in the Eastern Mediterranean and its Connected Seas; **Ocal Necmioglu** and Nurcan Meral Ozel; 9th Alexander von Humboldt Conference 2014; High Impact Natural Hazards Related to the Euro-Mediterranean Region; Istanbul | Turkey | 24 – 28 March 2014

Characterization of earthquake sources in the Eastern Mediterranean for tsunami modeling; **Ocal Necmioglu** and Nurcan Meral Ozel; International Tsunami Symposium, 25-27 September 2013, Gocek/Fethiye, Turkey

Tsunami Risk Mitigation infrastructure in Turkey; N. Meral Ozel, **O. Necmioglu**, A.C. Yalciner, D. Kalafat, M. Yilmazer, M. Comoglu, C. Ozer, C. Gurbuz, A. Pinar and M. Erdik; International Tsunami Symposium, 25-27 September 2013, Gocek/Fethiye, Turkey

An Evaluation of the Selected Tsunami Catalogs for the Eastern Mediterranean; **Ocal Necmioglu** and Nurcan Meral Ozel; International Tsunami Symposium, 25-27 September 2013, Gocek/Fethiye, Turkey

K.U. Semin, **O. Necmioglu**, S. Kocak, N.M. Ozel ,C. Destici . The Analysis of DPRK Nuclear Test of February 12, 2013 by Belbasi Nuclear Tests Monitoring Center-KOERI, Science And Technology Conference, 17-21 June 2013 Vienna, Austria

K.U. Semin, **O. Necmioglu**, S. Kocak, N.M. Ozel ,C. Destici. Investigation of P-Wave Backazimuth and Slowness Residuals at Small-Aperture Keskin Seismic Array (BRTR), Turkey, Science And Technology Conference, 17-21 June 2013 Vienna, Austria

C. Destici, K.U. Semin, N. M. Ozel, S. Kocak, **O.Necmioglu**,U.Teoman. Analysis of infrasound event of NPE 2012 at Turkish NDC using WinPMCC, ARISE Training School 3-5 June 2013, Observatoire de Haute-Provence, St.Michel l'Observatoire, France

Challenges and Outlook for NEAMTWS from a CTWP Perspective; O. Necmioglu, NEAMTIC Final Workshop, 25 April 2013, Brussels-Belgium, **INVITED**

NEAMWave12: The First Tsunami Exercise in the North-eastern Atlantic, the Mediterranean and Connected Seas **Ocal Necmioglu**, Luis Matias Matias, François Schindelé, Jörn Behrens, Stefano Tinti, Gerasimos Chouliaras, Nicos Melis, Fernando Carrilho, Francesca Santoro, Alexander Rudloff, Emilie Crochet, and Mauricio Gonzalez; EGU 2013, 7-12 April 2013, Vienna, Austria

An Evaluation of the Selected Tsunami Catalogs for the Eastern Mediterranean and its Connected Seas **Ocal Necmioglu** and Nurcan Meral Ozel; EGU 2013, 7-12 April 2013, Vienna, Austria

New Directions in Seismic Hazard Assessment through Focused Earth Observation in the MARmara SuperSITE Nurcan Meral Ozel, **Ocal Necmioglu**, Paolo Favali, John Douglas, Pierre Philippe Mathieu, Louis Geli, Onur Tan, Semih Ergintav, A. Oguz Ozel, Cemil Gurbuz, and Mustafa Erdik; EGU 2013, 7-12 April 2013, Vienna, Austria

An Earthquake Source Sensitivity Analysis for Tsunami Propagation in the Eastern Mediterranean **Ocal Necmioglu** and Nurcan Meral Ozel; EGU 2013, 7-12 April 2013, Vienna, Austria

Experiences with TRIDEC's Crisis Management Demonstrator in the Turkish NEAMWave12 exercise tsunami scenario
Martin Hammitzsch, **Ocal Necmioglu**, Matthias Lendholt, Sven Reißland, Jana Schulz, Dogan Aksari, Aysegul Koseoglu, Ceren Ozer, Mustafa Comoglu, Nurcan Meral Ozel, and Joachim Wächter; EGU 2013, 7-12 April 2013, Vienna, Austria

Hammitzsch, M., Carrilho, F.J., **Necmioglu, O.**, Lendholt, M., Reißland, S., Schulz, J., Omira, R., Comoglu, M., Ozel, N.M., Wächter, J. Meeting UNESCO-IOC ICG/NEAMTWS requirements and beyond with TRIDEC's Crisis Management Demonstrator for Tsunamis ISOPE2013 Conference Full Paper

EXERCISE NEAMWAVE 12 A Tsunami Warning and Communication Exercise for the North-eastern Atlantic, the Mediterranean, and Connected Seas Region, Exercise Manual and Evaluation Report, 2012, UNESCO Intergovernmental Oceanographic Commission Technical Series 103, Öcal Necmioglu, Luis Manuel Matias, François Schindelé, Jörn Behrens, Russell Arthurton, Stefano Tinti, Alexander Rudloff, Emilie Crochet, Mauricio Gonzalez, Francesca Santoro, Nicolas Melis, Fernando Carrilho, Gerasimos Chouliaras)

Field Survey on the Coastal Impacts of March 11, 2011 Great East Japan Tsunami; A. C. Yalciner, A. Zaytsev, A. Suppasri, E. Mas, **O. Necmioglu**, F. Imamura, C. Synolakis, N. M. Ozel, N. Kalligeris, 10th International Congress on Advances in Civil Engineering, 17-19 October 2012 Middle East Technical University, Ankara, Turkey

KOERI (Turkey) TWS: Status, Challenges, Outlook; **Ocal Necmioglu**, European Commission Early Warning Systems Expert's Meeting; 22 October 2012, Brussels-Belgium **INVITED**

Analysis and results of NDC Preparedness Exercise (NPE 2012) by Turkish NDC; K.U. Semin, C. Destici, **O. Necmioglu**, S. Kocak, N.M. Ozel; NDC Evaluation Workshop 2012, 1 October 2012, Asuncion-Paraguay

NEAMTWS Communication Test Exercises; **O. Necmioglu**, NEAMWave12 Workshop, 10 September 2012, Southampton, UK

NEAMWave12: Exercise Goals, Structure and Evaluation; **O. Necmioglu**, NEAMWave12 Workshop, 10 September 2012, Southampton, UK

Challenging Tsunami Hazard – A National Example from Turkey; N. Meral Ozel, **O. Necmioglu**, D. Kalafat, M. Yilmazer, M. Comoglu, C. Gurbuz, M. Erdik, A.C. Yalciner, U. Sanli, Symposium Proceedings of Fifth International Tsunami Symposium by Tsunami Society International, EC-JRC Ispra-Italy, 3-5 September 2012

Tsunami Early Warning in the Eastern Mediterranean, Aegean and Black Sea; Nurcan Meral Ozel, **Ocal Necmioglu**, Ahmet Cevdet Yalciner, Dogan Kalafat, Mehmet Yilmazer, Mustafa Comoglu, Ugur Sanli, Cemil Gurbuz, Mustafa Erdik; The Twenty-second (2012) International Offshore and Polar Engineering Conference, June 17-22, Rhodes (Rodos), Greece

Communication Tests Exercises of NEAMTWS; **O. Necmioglu**, 9th PPRD South “prevention and preparedness” workshop for staff-level officials: “Tsunami emergency preparedness in Mediterranean coastal zones”; Stromboli (Messina) – Italy, 28 May -3 June 2012 **INVITED**

NEAMWave12 – Exercise goals and scenarios; **O. Necmioglu**, 9th PPRD South “prevention and preparedness” workshop for staff-level officials: “Tsunami emergency preparedness in Mediterranean coastal zones”; Stromboli (Messina) – Italy, 28 May -3 June 2012 **INVITED**

Tsunami Warning Center in Turkey : Status Update 2012

N. Meral Ozel (1), **O. Necmioglu** (1), A.C. Yalciner (2), D. Kalafat (1), M. Yilmazer (1), M. Comoglu (1), U. Sanli (3), C. Gurbuz (1), and M. Erdik (1); EGU2012-7346; EGU 2012 General Assembly, Vienna-Austria, 22-27 April 2012

NEAMTWS-ECTE1: The First Enlarged Communication Test Exercise of the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and connected seas

O. Necmioglu, A. Rudloff, L.M. Matias, F. Schindele, M. Comoglu, and N. Meral Ozel; EGU2012-7213; EGU 2012 General Assembly, Vienna-Austria, 22-27 April 2012

TRIDEC Natural Crisis Management Demonstrator for Tsunamis

M. Hammitzsch, **O. Necmioglu**, S. Reißland, M. Lendholt, M. Comoglu, N.M. Ozel, and J. Wächter; EGU2012-7275; EGU 2012 General Assembly, Vienna-Austria, 22-27 April 2012

Field survey of the coastal impact of the March 11, 2011 great East Japan tsunami; A. Yalciner (1), F. Imamura (2), E. Mas (2), **O. Necmioglu** (3), C. Ozer (1), A. Zaytsev (4), S. Takahashi (5), T. Tomita (5), G. Yon (5), N. Kalligeris (6), H. Fritz (7), V. Skanavis (6), C. Synolakis (6,8,9), and N. Meral Ozel (4); Geophysical Research Abstracts Vol. 14, EGU2012-11588-1, 2012 EGU General Assembly 2012

Intergovernmental Oceanographic Commission Technical Series 98
TSUNAMI EARLY WARNING AND MITIGATION SYSTEM IN THE NORTH-EASTERN ATLANTIC, THE
MEDITERRANEAN AND CONNECTED SEAS
First Enlarged Communication Test Exercise (ECTE1) - Exercise Manual & Evaluation Report, 2011
Necmioglu, O., Rudloff, A.

Meral Özel, Nurcan; **Necmioglu, Öcal**; Yalçiner, Ahmet Cevdet; Erdik, Mustafa
Tsunami Threat to Anatolian Coasts: Establishing a Tsunami Warning System in Turkey, PEER Report 2011/07,
January 2012.

11 Mart 2011 Büyük Doğu Japonya Tsunamisinin Ardından Hasar Görmüş Kıyı Bölgelerinde Alan Çalışması;
Ahmet Cevdet Yalçiner, Anawat Suppasri, Erick Mas, Nikos Kalligeris, **Ocal Necmioglu**, Fumihiko Imamura, Ceren
Özer, Andrey Zaytsev, Nurcan M. Özel, Costas Synolakis; 7. Kıyı Mühendisliği Sempozyumu, TMMOB İnşaat
Mühendisleri Odası Trabzon Şubesi; Trabzon – Türkiye, 21-23 Kasım 2011

NPE10 from the Perspective of Turkish NDC; **O. Necmioglu**, K.U. Semin, C. Destici, N. Meral Ozel, S. Kocak, U.
Teoman; 2011 NDC Evaluation Workshop; 3-7 October 2011; Bucharest - Romania

IOC/NEAMTWS-First Enlarged Communication Test Exercise; Manual, Technical details, Requirements;
UNESCO/IOC Tsunami and Civil Protection Workshop: “Tsunami hazard in the North-eastern Atlantic, the
Mediterranean and connected seas (NEAM region) – A challenge for Science and Civil protection”; **Ocal Necmioglu**
and Luis Manuel Matias, 15-16 June 2011, JRC, Ispra, Italy

Amplifications of Nearshore Tsunami Parameters during Great East Japan Tsunami; A.C. Yalciner, C. Ozer, A.
Supprasri, E. Mas, N. Kalligeris, **O. Necmioglu**, A. Zaytsev, F. Imamura, C. Synolakis; IASPEI JS01/JS01S7
Advances in Tsunami Science, Warning, and Mitigation; IUGG 2011-International Union of Geodesy and
Geophysics (IUGG) 2011 General Assembly; 28 June-7 July 2011, Melbourne-Australia

Meral Özel, Nurcan; Cevatoğlu, Melis; Yalçiner, Ahmet Cevdet; Kamer Yaver; **Necmioglu, Öcal**; Erdik, Mustafa,
X24 EUROPE: HOW CAN KOERI CONTRIBUTE AS A CANDIDATE RTWC, X24 Europe Virtual Online
Natural Disasters Exercise, 2011.

Long Term – Real time Background Noise monitoring Around BR235; Nurcan Meral Ozel, Serdar Kocak, Korhan U.
Semin, **Ocal Necmioglu**, T. Cem Destici, Ugur Teoman, Robert Kemerait; CTBT: Science and Technology 2011 (S&T
2011), 8-10 June 2011, Vienna-Austria

Korhan Umut Semin, Nurcan Meral Ozel, **Ocal Necmioglu**; Detection and identification of low-magnitude seismic
events near Bala, central Turkey; CTBT: Science and Technology 2011 (S&T 2011), 8-10 June 2011, Vienna-Austria
(2011)

Nurcan Meral Ozel, **Ocal Necmioglu**, Korhan Umut Semin, Serdar Kocak, Tahir Cem Destici, Ugur Teoman; CTBT related
activities of Turkish National Data Center; CTBT: Science and Technology 2011 (S&T 2011), 8-10 June 2011, Vienna-
Austria (2011)

Establishing a Tsunami Warning Center in Turkey; Nurcan Meral Özel, **Öcal Necmioglu**, Ahmet Cevdet Yalçiner,
Doğan Kalafat, Uğur Şanlı, Mehmet Yilmazer, Mustafa Çomoğlu, Cemil Gürbüz, and Mustafa Erdik; EGU 2011
General Assembly, Vienna-Austria, 7 April 2011

Establishing a Tsunami Warning System for Eastern Mediterranean and its Connected Seas: KOERI Contribution;
Meral Özel, N., **Necmioglu, Ö.**, Yalçiner, A. C., Kalafat, D., Yilmazer, M., Çomoglu, M., Şanlı, U., Erdik, M.; Oral
presentation at the International Workshop on Seismicity and Earthquake Engineering in the Extended
Mediterranean Region (RELEMR 2011); Nicosia, Cyprus 28 February – 3 March 2011

Scientific Activities of Turkish National Data Center (CTBTO); oral presentation at the International Workshop on
Seismicity and Earthquake Engineering in the Extended Mediterranean Region (RELEMR 2011); Nicosia, Cyprus 28
February – 3 March 2011

Tsunami hazard in the Eastern Mediterranean and its connected seas: Toward a Tsunami warning center in Turkey;
Meral Ozel, N., **Necmioglu, O.**, Yalciner, A.C., Kalafat, D., Mustafa, E.; Soil Dynamics and Earthquake
Engineering, Volume 31, Issue 4, April 2011, Pages 598-610

Detection and Identification of Low-magnitude Seismic Events near Bala, Central Turkey, Using Array-based
Waveform Correlation; Semin, K.U., Meral Ozel, N., **Necmioglu, O.**, Seismological Research Letters Volume 82,
Number 1, January/February 2011

15th General Assembly of Wegener; Oral Presentation: Establishing a Tsunami Warning System in Turkey; **Ocal Necmioglu**, Nurcan Meral Ozel, Ahmet Cevdet Yalciner, Dogan Kalafat, Mustafa Erdik; Bogazici University; 14-17 September 2010; Istanbul-Turkey

ESC 2010; Oral Presentation: Towards a Tsunami Warning Center in Turkey; **O. Necmioglu**, N. Meral Ozel, A. Cevdet Yalciner, M. Erdik; 6-10 September 2010; Montpellier-France

ESC 2010; Poster Presentation: Bala, Turkey Earthquake and its Aftershocks Analysis Using Array-based Waveform Correlation and Standard Array Processing (STA/LTA) Methods; K. Semin, N. ÖZEL, **O. Necmioglu**; 6-10 September 2010; Montpellier-France

Geophysics, Geodesy and Tectonics of the North Africa Plate Boundary for Better Earthquake and Tsunami Hazard Assessments; The Abdus Salam International Centre for Theoretical Physics (ICTP); Oral Presentation: Towards a Tsunami Warning Center in Turkey; **Ocal Necmioglu**, 15-21 May 2010; Algiers - Algeria

Development of Tsunami Simulation Structure for Tsunami Warning System in Turkey (Poster); Mustafa Erdik, Ahmet Cevdet Yalciner, Nurcan Meral Ozel, Dogan Kalafat, **Ocal Necmioglu**, Mehmet Yilmazer, Utku Kanoglu, Ceren Ozer, Andrey Zaytsev, Anton Chernov; Geophysical Research Abstracts, Vol. 12, EGU2010-10717-3, 2010, EGU General Assembly 2010

AGU Fall 2009 Meeting, An Evaluation of North Korea's Nuclear Test by Belbasi Nuclear Tests Monitoring Center-KOERI; **Necmioglu, O.**, Meral Ozel, N., Semin, K. U. (Poster Presentation S31C-1734); San Fransisco – USA; 14-18 December 2009

An Evaluation of North Korea's Nuclear Test by Belbaşı Nuclear Tests Monitoring Center-KOERI (Poster) **Necmioglu, O.**, Meral Ozel, N., Semin, K., Kocak, S., Destici, C., Teoman, U. International Earthquake Symposium Kocaeli 2009, 17-19 August 2009, Kocaeli - Turkey

Seismic Monitoring of the Quarry Activities and Earthquake Data Analysis Using BRTR-PS43 Seismic Array (Poster); Meral Ozel, N., Semin K., **Necmioglu, O.**, Kocak, S., Destici, C., Teoman, U.; NDC Evaluation Workshop 2009 18-23 May 2009, Beijing, P. R. China

Observation and Evaluation of Turkish NDC (BRTR-PS43) for Further Development (Poster); Semin, K., Meral Ozel, N., Kocak, S., Destici, C., Teoman, U., **Necmioglu, O.;** (CTBTO) NDC Evaluation workshop 2008 5-8 May 2008, Baden, Austria

Other work-related activities

Staff Representative at the CTBTO Provident Fund Management Board, 2002-2005
Vice-President of the CTBTO Staff Council, 2004

Professional Memberships

AGU	American Geophysical Union
EGU	European Geosciences Union
SSA	Seismological Society of America
TSI	Tsunami Society International

IT Qualifications

ARS	Analyst Review Station; advanced user
Geotool	Global Seismology – Seismogram Analysis Software; basic user
GMT	Generic Mapping Tool; basic user
HTML	Web Page Language; basic user
Matlab	Technical Computing Language; intermediate user
NAMI DANCE	Tsunami Simulation and Visualization Software; user
Omega	Seismic Data Processing software; intermediate user
Oracle SQL	Structured Query Language for Oracle database; basic user
SAC	Seismic Analysis Code; basic user
sed & awk	Programming languages; basic user
Word, Excel, Power Point	Microsoft Office Applications; advanced user
Unix	Operating System; basic user

References

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