**RECEP ÇAKIR**, Ph.D., LG (Licensed Geologist)

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**EDUCATION**

**Ph.D. (2005):** Department of Energy and Geo-Environmental Engineering, Earth and Mineral Sciences, The Pennsylvania State University. Thesis (Supervisors: Shelton S Alexander and Derek Elsworth): ***Effects of Site Response on Earthquake Hazard in the Eastern Marmara Region of Turkey.***

**M.Sc. (1997)**: Department of Geosciences, Earth and Mineral Sciences, The Pennsylvania State University. Thesis: ***GIS-Based Seismic Hazard Assessment around the City of Izmir, Turkey***.

**M.Sc. (1992):** Marine Geology and Geophysics, Inst. Of Marine Sciences and Technology (IMST), Dokuz Eylul University, Izmir, Turkey. Thesis: ***Marine Seismic Sources and Signals***.

**B.Sc. (1989)**: Department of Geophysical Engineering, Faculty of Engineering, Dokuz Eylul University, Izmir, Turkey. Thesis: ***Seismic Modeling with Finite-Difference Method***.

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| **REFERENCES:**  ● Mehmet Celebi, Ph.D., (Earthquake and Structural Engineering), Menlo Park, USGS. (celebi@usgs.gov) (650-329-5623)  ● Derek Elsworth, Professor in the Departments of Energy and Mineral Engineering, of Geosciences and the Center for Geomechanics, Geofluids, and Geohazards at The Pennsylvania State University. (elsworth@psu.edu) (814-865-2225)  ● Richard Parizek, Professor of Geosciences (Hydrogeology), Department of Geosciences, The Pennsylvania State University. (rrp1@psu.edu) (814-865-3012) |

**Work Experience**

**(September 2006–present) Washington State Department of Natural Resources** (WA-DNR), ***Senior Scientist (Geophysicist, Seismologist)*** at Geologic Hazards Section***,*** Washington Geological Survey (WGS), licensed geologist (license number 2773).

**Accomplished tasks at WGS, WA-DNR**

***Lead for Washington subsurface database*** (current) (critical task and data generation and dissemination for the future economic development and disaster management plans)

***Coordinated and managed an earthquake clearinghouse*** (recent) (responded to the Feb 6, 2023 M7.8 and M7.6 earthquakes, century’s disaster in Turkey, which is significant worldwide, contributed worldwide earthquake communities for the lessons learned from the significant earthquakes)

***Conducted seismological, seismic, and other integrated geophysical surveys*** in Washington and Oregon, supporting USGS-NEHRP vision and goals for understanding and determining earthquake effects in the Pacific Northwest. I also conducted projects in Washington under the FEMA-RiskMAP grant program as a Cooperating Technical Partner, which mostly focused on multi-hazard earthquake and geological risk analyses, as well as risk communication to support FEMA-Region 10 resilience activities. Parallel to these studies, I compiled and evaluated geotechnical data for subsurface data analysis (related to interpreting geophysical measurements and seismological active- and passive-source measurements) and processed active-source seismic and seismological data

***Coordinated multi-hazard risk assessment workshops*** for Washington, which focused on HAZUS-MH (Earthquake-Tsunami, Flood) and involved neighboring states and countries such as Oregon, Alaska, and Canada; these workshops coordinated under the FEMA-CERC CTP grant program. Workshop coordination was done with Kevin Mickey and his group at Polis Center - Indiana University - Purdue (https://polis.iupui.edu/members/kevin-mickey/)

***Investigated pre-instrumental era***, strongly felt earthquakes in Washington State (assisted USGS scientists (Dr. Tom Brocher) to investigate the 1935 Milton-Creek earthquake; we managed to find data in the state archive and used them for macroseismic intensity mapping of the earthquake.

***Produced Seismic Design Category Map and Evaluated GIS-based liquefaction susceptibility and earthquake site amplification maps***; prepared GIS-based statewide seismic design category map (assisting the current building codes, based on the International Residential and Building Code guidelines), and evaluated liquefaction and earthquake site amplification maps for the multi-hazard analysis of the communities in the coastal zones of Washington.

***Ran tsunami simulations in collaboration with University of Washington*** – Initiated the first tsunami simulation in Washington coastal areas with the help of Applied Mathematics group (led by Prof. Randy LeVeque) and assisted by Frank Gonzalez (NOAA). Also, joined and partnered with FEMA Region 10 for tsunami preparedness activities in Tribal areas in the coastal region of Washington, helping Tribal communities relocate based on the tsunami risk I simulated and mapped. This program later expanded at the Washington Geological Survey and became the nation-wide top ranked program.

***Extensively worked on School Seismic Safety Projects:*** The Washington School Seismic Safety Projects initiated by WA-EMD in 2010 for school districts in Gray Harbor and WallaWalla counties, I, as a follow up, conducted successful pilot school seismic safety studies in Thurston, Chelan, and Okanogan counties. For these studies, I partnered with organizations such as FEMA-Region 10, EERI, University of Washington, private civil engineering firms, county officials, and WA-EMD, and conducted geotechnical surveys to evaluate the vulnerability of school buildings using FEMA-154 (Rapid Visual Screening) and ASCE-41 guidelines, and the Hazus-MH. During these pilot projects, I also collaborated with EERI's Educational Resources Subcommittee to develop and apply earthquake educational resources for K-12 education in Washington. Running hands-on activities for earthquake science and engineering education for K-12 schools in Washington (hands on activities: seismic surveys (generate your own seismic waves) and designing structures and testing them with shake table) (reached out over ~1,500 students in 3 months). These resources became effective tools for the earthquake education program in public schools, supported by the FEMA R10 under the RiskMAP and CERC programs. The school seismic safety program was a success and was extended to all public and private schools in the state by Washington Legislators in 2017. In the process of identifying risks and developing effective mitigation strategies, my comprehensive and systematic approach was a critical asset to our multi-disciplinary team.

***Deployed seismographs and monitored active faults*** (IRIS-PASSCAL portable array experiments) - I deployed seismographs in the Entiat and western Washington areas to monitor regional and local active faults as part of the IRIS-PASSCAL portable array experiments. These efforts were supported by FEMA and USGS programs between 2015 and 2019, and the data collected will be used for dam earthquake safety projects in eastern and western Washington areas. Specifically, the data will be used to better determine the geometry and behavior of the Entiat fault, which will be input into the scenario earthquake ShakeMap used for risk assessment in the region. I also monitored noticeable earthquakes in and around Washington by running PASSCAL arrays in active fault areas between 2015 and 2019 as the principal investigator, supporting tectonic mapping efforts in Washington. This involved installing broadband and high-frequency seismographs, running services, and sending the data to IRIS via PASSCAL after QA/QC. I identified and analyzed the earthquakes, including their location, depth, and focal mechanism.

***Ran number of near-surface Ground Penetrating Radar***, single station Horizontal/Vertical ambient noise, active/passive seismic surveys in Washington and Oregon; these surveys helped understand soil earthquake amplification and presence of subsurface tsunami deposits. These surveys provided supportive data for development of seismic hazard mapping in the region.

***Prepared and submitted project proposals regarding geologic hazards in the region*** to nationally competitive grant programs such as the U.S. Geological Survey and Federal Emergency Management Agency (FEMA). I also coordinated collaborative studies and worked closely with the USGS and FEMA to better understand and prevent losses from geologic hazards in the region. Additionally, I helped prepare comprehensive response plans, including collecting and managing perishable geologic hazard data immediately after a damaging earthquake by directing and/or managing an earthquake clearinghouse in Washington from 2008-2017. ○ As a principal investigator, I conducted projects that are mostly categorized under multi-hazard risk assessments for FEMA RiskMAP. These projects were funded annually from 2012-2017 and continued under the FEMA-Cooperative Technical Partners program in terms of community engagement and risk communication. Key activities performed include 1) earthquake-flood damage assessments using HAZUS-MH, 2) earthquake-triggered hazards such as liquefaction vulnerability analysis, semi-qualitative GIS-based landslide susceptibility (deep-seated and shallow) mapping, and quantitative landslide hazard assessment using LandLab tools (University of Washington-Civil Engineering), and tsunami simulations using the GeoClaw package, 3) calculating economic impacts accounting for building-level inventory prepared in Hazus format called User Defined Facilities (UDFs) in Washington, 4) actively participating in various county public, official, and resiliency meetings to help county officials improve their mitigation plans and guide them in understanding the geological hazards around them, and 5) coordinating a few earthquake, flood, and tsunami-related Hazus workshops in Washington in close collaboration with Kevin Mickey and his group at the Polis Center, Indiana University.

***Data science activities:*** I assisted to the Landlab group at UW-Civil Engineering to educate researchers/practitioners who worked on landslide hazard assessments during the Geohack week (at Univ of Washington) (a Hackathon event for geospatial visualization problems using the open-source programing languages, software packages and platforms (ie., python, R, QGIS, Google Earth Engine, Amazon Cloud etc.)

***COSMOS activities:*** Collaborated with other geophysicist and seismologists for developing new methodologies, specifically in active and passive seismic array measurements, and earthquake site response and seismological data analyses (worked with researchers at University of Kansas and at University of Siena, Italy, Geometrics Inc science team)

***Represented Washington Department of Natural Resources*** in resiliency, ANSS, tsunami and other earthquake related meetings in Washington and Seismological Research /Earthquake communities, and worked with the Pacific Northwest Seismic Network for the strong-motion station site characterizations in Washington and Oregon.

***Processed remote sensing data (Optical and Radar images)*** and I am currently WinSAR (UNAVCO-SAR) community representative at WA-DNR, I tested SAR and Landsat data for landslide detection and mapping, I am well trained for InSAR applications and I am capable of generating InSAR products in short time following a moderate to large earthquake); I also collaborated with NASA-ARIA group (Sang-Ho Yun and Batuhan Osmanoglu) for using the new NASA SAR products (deformation and damage proxy maps) immediately after a large earthquake – we tested new products for large earthquakes in Turkey to see how effective these products. I combined these with USGS ground deformation prediction maps and found out very effective decision support data for emergency response stage of the disaster management cycle.

***Closely worked with USGS scientists for investigation of geological hazards in Washingto*n** (i.e., USGS scientists I worked with are Bill Stevenson (seismic reflection studies), Art Frankel (for earthquake basin effects), Mehmet Celebi (structural seismic monitoring in Olympia, WA), Alan Yong (for shear-wave velocity database development in Washington and Oregon), and Tom Brocher (for investigation of a historical earthquake in SE Washington and PASSCAL array experiment monitoring an active fault in central Washington). (I also consulted with/communicated to USGS scientists David Wald and Nico Luco for ShakeMap and risk assessment problems in Washington.)

***Development of high-resolution liquefaction susceptibility maps for Spokane County*** (task assigned: compile geotechnical data, run WSliq provided by University of Washington and developed GIS based methods for generating higher resolution liquefaction susceptibility mapping in urban areas) (this project later delayed due to lack of geotechnical subsurface data.

***Portland Regional Disaster Preparedness Org (PRDPO)*** – I was the lead geophysicist for Clark County, WA, site of the Oregon-Washington partnership of the project: I completed improvement existing user-defined (Hazus) data; created a new Hazus-formatted building inventory, recompiled geology maps (added recently published geology maps) in GIS, ran shallow seismic surveys to enhance the NEHRP soil classification map of the county, and reevaluated the liquefaction map based on new geology information for enhanced earthquake impact analysis project of Clark County, Washington.

***Groundwater reservoir monitoring*** in central Washington (help develop proposal to Dept of Ecology, run and assist geophysical surveys and purchasing and deployment of new seismographs.

***Co-chaired Seismological Society of America (SSA) Annual Meeting Session*:** Problem Unsolved: Knowledge Gaps at the Intersection of Earthquake Engineering Practice and Research, (Oral session) (Scheduled) SSA 2019 Annual Meeting, April 25, 2019, Seattle, WA.

***Helped develop Archeo-geophysics short course,*** SEG Annual Meeting, September 20, 2019, San Antonio, TX: I helped develop the course based on my geophysical survey experience in Penn State University Egypt archeology project sites surveyed in 2001-2006, I also joined field work in 2006 and ran seismic surveys using Betsy seismic source and developed a GIS database for the archeological data collected over the years)

***Helped improve WA Department of Natural Resources (WA-DNR) forest engineers and geologists*** to better understand and use the subsurface soil information inferred from seismic and GPR surveys. I developed a new combined geophysical-rock strength approach to find economical rock sources for forest road constructions around timber sale areas.

***Chaired Agricultural Geophysics session***, Society of Exploration Geophysics (SEG) Annual Meeting, October 14-19, 2018, Anaheim, CA.

**FEMA-CTP projects I led**:

○ Community Engagement and RiskMAP Support Activities (Support for Resiliency Meetings, Coordinating Hazus-MH Flood/Tsunami Short Course, and help organize risk database) (Project Manager, Primary Contact) FEMA-CTP (2017)

○ School Seismic Safety Project: Seismic site characterizations and Hazus risk analyses for the public schools in Chelan and Okanogan counties (PI) (FEMA-RiskMAP Project) (2016-2017)

○ Multi-hazard risk analyses for Okanogan and Chelan counties (FEMA-RiskMAP Project) (PI) (2016-2017)

○ Earthquake (active fault) Monitoring in Entiat area (Chelan and Douglas counties) (FEMA-CTP project) (PI) (2016 - Ongoing)

○ Earthquake (active fault) Monitoring in NE of Seattle and NW of Mt St. Helens areas – PASSCAL Array (Broadband) Experiments (2015-Ongoing)

○ Landslide susceptibility mapping for Okanogan and Chelan counties (PI) (funded by FEMA-CTP) (PI) (2016-2017)

○ School seismic safety project for 21 public schools in Thurston county (funded by FEMA-CTP) (PI) (2015)

○ Whatcom county Hazus landslide susceptibility analysis (PI) (funded by FEMA-CTP) (2015)

○ Mitigation and resiliency meeting, and workshop supports for FEMA Region 10 - RiskMAP program (PI) (funded by FEMA-CTP) (2012-Ongoing)

○ Hazus landslide susceptibility analysis for San Juan, Skagit and Island counties (PI) (funded by FEMA-CTP) (2014-2015)

○ Multi-hazard Risk Analysis and Mapping for coastal communities of Washington (PI) (funded by FEMA-CTP (2012-2015) (Completed for 9 Counties)

**USGS Funded projects:**

○ Shallow Seismic Site Characterizations at 25 ANSS/PNSN stations in Washington and Oregon - Project funded by the USGS-NEHRP, FY2011 (Principle Investigator (PI)) – (2012)

○ Seismic Site Characterization at Strongmotion Sites – Project funded by the USGS-NEHRP, FY2010 (PI) (2011)

○ Seismic Site Characterization at Strongmotion Sites – Project funded by the USGS-NEHRP 2009 (PI) (2010)

○ Lahar Hazard and Risk Analysis – Pilot Project for Mount Rainier – Project funded by the USGS-Volcano Hazard Program (PI) (2010-2011)

○ Washington State HAZUS-MH database enhancement - project funded by the FEMA-Washington State military Department- EMD (2009-2010) (Project Manager) –

○ Washington State schools’ seismic needs assessment - project funded by the FEMA-through the Washington State Military Department, Emergency management Division (2011) (Researcher)

***Various seismic surveys (2007- current)*** and geotechnical site characterization studies at strong-motion station, landslide, paleo-seismic trenching, dam, and critical facility sites in Washington (Lead Geophysicist) (extensively used active/passive non-invasive and invasive (downhole) seismic surveys)

***Investigation of seafloor features by using a Remotely Operated Vehicle (ROV)*** in Hood Canal, WA –collaborative project with WA-DNR Aquatics Division and WA Department of Fish and Wildlife (2008) (Leading Scientist)

***Seismicity database preparation and GIS mapping for tectonic interpretations and mapping in WA*** (supplied supportive earthquake catalog information and its evaluations for the 7.5’ Quadrangle field tectonic mapping) (generated focal mechanism plots using R (CRAN) scripting): Monitoring earthquakes in and around the 7.5 minutes quadrangle geology mapping areas: deployed seismographs, recorded earthquakes, archived and processed earthquake data

***Running active and passive seismic surveys to determine depth to bedrock*** for the geology mapping and deep/shallow sedimentary basins (i.e., Seattle and Olympia in Washington, and Portland and Tualatin in Oregon)

***Running integrated geophysical surveys*** (seismic, GPR, Electromagnetic, Electric Resistivity) surveys for exploration of economical rock sources in and around the timber sale areas (Pilot studies for forest engineers (may also be useful for DOT road construction studies)

**Actively participating,** as representative Washington State Department of Natural Resources, in the Advanced National Seismic System (ANSS) Pacific Northwest regional meetings (2007- 2016)

***Supervised total about 18 interns*** (about 2 interns per year in 2010-2020) (including College, BSc, MSc, PhD and Post-Doc students) and trained WA-DNR’s geologists and engineers in other divisions for the geophysical subsurface imaging, and helped UW-applied Geosciences Students for their field camp geophysical exploration trainings and capstone projects (ref. Kathy Troost) for investigating the tsunami deposits in various coastal sites of Washington

***Trained Geologists at DOGAMI (Oregon Dept of Geology and Mineral Industries);*** ran a field/office workshop to train DOGAMI staff for seismic/geophysical surveys in Portland.

**Selected Early Experiences (before employed at WA-DNR)**

***(2006 May-June) Lecturer and Organizing Committee Member*** - International Geothermal Summer School, May 28- June 11 2006, Izmir, Turkey.

***(2005-2006) Geospatial (GIS) Analyst* -** Center for Environmental Informatics, Earth and Environmental Systems Institute, The Pennsylvania State University (PSU)

***(2003-2004) GIS Analyst and Geoscientist*** - GIS mapping and building an integrated GIS database for geologic basement and related features in Pennsylvania. Funded by the DCNR-Geological Survey, Pennsylvania. (The data were used in this project: Borehole (deep and shallow), deep seismic sections, geology map, gravity-magnetic, earthquake, mineralogy, tectonic map, Landsat-TM Mosaic and DEM)

***(2001-2006) GIS analyst and Geoscientist*** - GIS mapping and building digital data layers of geological, hydrogeological, geophysical and archaeological information acquired at an ancient archaeological site in southern Egypt. Funded by a grant from the U.S. State Department

***(2000-2002) Researcher - GIS-based seismic microzonation*** in and around the city of Izmit (Kocaeli-Turkey). Project No. YDABCAG-100Y064, The Scientific and Technical Research Council of Turkey.

***(1999-2001) Researcher - GIS-based assessment*** of earthquake risk in Adapazari-Bolu region and its contribution to urban and regional planning. Project#: INTAG 556 -1971002, The Scientific and Technical Research Council of Turkey.

***(1998-1999) (3 semesters) Teaching Assistant* -** Introduction to Physical Geology (Geosc 20), Department of Geosciences, The Pennsylvania State University, University Park, PA– teaching involved in preparing laboratory lecture notes, laboratory materials, quizzes and tests, and field trips. [http://www3.geosc.psu.edu/~jte2/geosc20/ta\_info.html]

***(1990-1993) Researcher - Institute of Marine Science and Technology*,** Dokuz Eylul University, Izmir Turkey. Assisted various projects (such as marine geotechnical engineering, tectonic structures for oil bearing formations, waste disposal in marine sediments, new fault identification in marine environment, determination of water acoustic and flow properties) by using marine seismic (refraction and reflection), gravity, magnetic, acoustic and sediment core data acquisition methods.

***(1989 August-September) Field assistant*** - Global Positioning System (GPS) training and field campaign in western Turkey. [certificate signed by Prof. Dr. Gillian R. Foulger from University of Durham, Durham-England, and Prof. Dr Mustafa Ergun from Dokuz Eylul University, Izmir-Turkey]

***(1987-1989) Student Intern, Turkish Petroleum Corporation*,** summer seismic survey field camp in southeastern Turkey (Summer-1987), and seismic data processing center at Ankara headquarter (Ankara-Turkey) (Summer-1988)

**Completed Trainings and Short Courses**

***Participated Subduction Zone (SZ4D) Workshop in Seattle, WA*** (Jan 10-11, 2023) (for understanding how Washington Subsurface database initiative, currently I lead, can be used in solving local earthquake site effects in Washington, major focus on using actual data, rather than predictions, or using actual data to enhance prediction maps)

***Various FEMA Training and Workshops (2012-2019)*;** HAZUS-MH all courses, and later became part of workshop organizers of the GIS based solutions of the multi hazard group, funded by FEMA Region 10,

***Electric Resistivity Tomography (ERT) Course*** – 2-day AGI training for the new multi-electrode array measurement and analysis, August, 2019, Austin, TX. (important subsurface imaging method for active landslides and other groundwater studies)

***IRIS RAPID workshop* –** October, 2019, Portland, OR. (Rapid responding the disaster in PNW region and around the world)

***Pre-AGU PASSCAL Users PH5 Workshop***, December 10th, 2017, New Orleans, LA

***Computational Infrastructure for Geodynamics (2017) workshops*:** Finite-element modeling - Short term tectonic processes, June-2017 in Golden, Colorado, and Finite-element Modeling; 2D- and 3D-Wave propagation (global and basin) modeling and Obspy training (September-2017, LLNL, Livermore, CA)

*I****nSAR Processing and Theory with GMTSAR*:** (online short course) Sentinel-1A Time Series, Aug 14-18, 2017, Scripps Institution of Oceanography, La Jolla, CA.

***HAZUS MH4 Earthquake Model Workshop*** (participated as a Workshop Coordinator) (May 2017, Olympia, WA)

***Software Carpentry – workshop*** at eScience Institute (2017) – Python, Unix, Github, Anaconda

***GeoHack Week at UW - Workshop*** focusing on open source tools to analyze and visualize geospatial data, Sept 11-15, 2017, eScience Institute, University of Washington, Seattle, WA.

***GeoHack Week at UW - Workshop*** focusing on open source tools to analyze and visualize geospatial data, November 14-18, 2016, eScience Institute, University of Washington, Seattle, WA.

***NOAA-PMEL- Community Model Interface for Tsunami (ComMIT) Training*,** November 7-10, 2016 -NOAA-Pacific Marine Environmental Laboratory, Seattle, WA.

***UNAVCO - InSAR Processing and Theory with GMTSAR:*** Sentinel-1A Time Series, Aug 10-12, 2016, Scripps Institution of Oceanography, La Jolla, CA

***UNAVCO - InSAR Theory & Processing*** with ISCE, GIAnT, and StaMPS, Aug 1-5, 2016, Boulder, CO

***MALA GX Ground Penetrating Radar training*** by MALA Inc (now ABEM Inc.) (2015)

***IRIS Workshop – Active Source Seismic Short Course* –** IRIS 2016 Workshop, June 7, 2016 Vancouver, WA

***IRIS PASSCAL Instrument Center one-day Short Course* –** AGU 2015 Annual Meeting, San Francisco, CA

***Comprehensive Data Management System and advanced Hazus Inventory Data Preparation workshop*** (Aug 2015); organized by FEMA-DOGAMI, Portland, Oregon.

***FEMA-Cooperating Technical Partner project manager training; (Aug, 2014)***; FEMA Emergency Management Institute (EMI), Emmitsburg, Maryland.

***Computational Infrastructure for Geodynamics (2012, 2013) workshops;*** a) Short term tectonic processes, 2012 in Boulder, Colorado, and b) Seismological global and basin modeling (2013, Fairbanks, Alaska)

***UNAVCO-Earthscope - InSAR training***, 2012, Boulder, Colorado

***HAZUS-MH2 Flood Model*** – An advanced, 3-day intensive course, organized by the FEMA Region X, September 27-29, 2011, Bothell, Washington.

***Writing Advanced Geoprocessing Scripts Using Python***; (completed 24 hours of classroom instruction). A 3-day short course organized by ESRI (http://www.esri.com) Training Center (Oct 25-28, 2010), Olympia, Washington.

***LAHARZ–2-day training on lahar hazard modeling,*** Oct 16-18, 2009, Cascade Volcano Observatory (CVO), U.S. Geological Survey, Vancouver, WA.

***IRIS Workshop - EarthScope USArray Data Processing and Analysis Short Course***, August 15-19, 2010, Northwestern University, Evanston, Illinois. [http://www.iris.edu/hq/es\_course/content/2010.html]

***American Society of Civil Engineers (ASCE)*** Two-day short course on Seismic Site Response Analysis***,*** November 12-13, 2009, Bellevue, WA

***Earthquake Engineering Research Institute (EERI) – Next Generation Attenuation relationships;*** a technical seminar (8-hour course) (Sept 2, 2009, Seattle, WA)

***Federal Emergency Management Agency (FEMA) HAZUS-MH –*** Earthquake, Flood and Hurricane Models (April 20- May 1st, 2009), Olympia, WA,

***Comprehensive Database Management System (CDMS) (March 2009)***, FEMA office in Olympia, WA, and FEMA Training Center, Emittsburg, MD.

***The Groundwater and Hydrology Course (Princeton Groundwater Inc.),*** February 4-8, 2008, San Francisco, California.

***Introduction to Geoprocessing Scripts Using Python (completed 16 hours of classroom instruction),*** Advanced GIS Course, June 2007, ESRI Training Center, King County, Seattle, WA.

***Multichannel Analysis of Surface Waves (MASW):*** short course organized by Geometrics Inc, SAGEEP 2007 Meeting, March 31, Denver, Colorado.

***Evaluation and Mitigation of Geotechnical Seismic Hazards:*** a three-day technical short course organized by the American Society of Civil Engineers (ASCE) (Oregon and Seattle Geotechnical Engineering Section) – July 12-14, 2007, Olympia, WA)

***Geotechnical Aspects of Earthquake Engineering:*** a 4-day technical short course organized by Ameritech Engineering Inc. (intensive course on how to use SHAKE2000 software (site response, liquefaction analyses), December 4-7, 2006, Sacramento, California.

***Cooperative Institute for Dynamic Earth Research (CIDER) (funded by National Science Foundation) –*** Participant. Summer program on “The nature and dynamics of the earth’s transition zone: a multidisciplinary approach”, July 16- Aug 04, 2006, at the Kavli Institute of Theoretical Physics in Santa Barbara, University of California at Santa Barbara, CA. [http://www.deep-earth.org/2006/people2.shtml]

***Mathematical Geophysics Summer School (MGSS):*** August 1998, Seismic Imaging, NSF funded Program [http://math.stanford.edu/seminars/pastevents/mgss/index.html]

**Computation and Software Skills**

***Programming Language:*** Python/Jupyter/Ipython, Fortran 77-90+, Matlab, R, SAC Macro, Excel, VisualBasic in Excel, ARC-GIS (SQL, AML, Python, MapAlgebra, Geoprocessing Model Scripts), used PERL, C++ scripts for seismological data processing

***Operation Systems:*** Unix/Linux/MacOS/Windows/, and OpenSource Platforms: Docker/Anaconda/GitHub and AmazonCloud (AWS)

***Software Packages*** : ArcGIS-Pro, ArcGIS 10.x, ArcGIS Enterprise (Survey123, Workforce, Dashboard …), ClawPack-GeoClaw (Tsunami simulation), ERDAS/Imagine, GRASS/QGIS, Matlab, Obspy, Seismic Analysis Code (SAC), SEISAN (version12), GMT (Generic Mapping Tool), Site Response Packages (SHAKE2000 and DEEPSOIL 7.x), Wsliq (Liquefaction Potential Analysis package) SeismicImager2D/SW (shallow seismic data analysis using surface waves), SUNIX (seismic data processing), SeisImager/2D (shallow seismic refraction and surface wave data processing) (Geometrics Inc.), R-(CRAN) (Open source statistical analysis packages), Various IRIS-PASSCAL Tools (portable array measurement data handling), GeoSoft (Gravity/Mag Modeling), SuperSting (84 channel) ERT imaging and data acquisition.

**Leadership & Community Service**

***(2006-Current) Governmental (Work Environment) Trainings:*** General safety (in field and building), harassment prevention, CPR-First Aid, fire response, defensive driving, computer safety, leadership, effective communications (with presenting and writing, in office and public domains) (certificates can be presented upon any request)

***(2007-present) Member of Olympia Host Lions,*** Olympia, WA: ○ (2010-2011) President

○ (2009 – 2010) Vice President (Olympia Host Lions)

○ (2008 February) Northwest Lions Leadership Institute training certificate

○ (2007 – 2010) Apple Sale Chair (fund raising event) (Olympia Host Lions)

***(2009) Licensed Geologist (license# 2773, Washington State)*** [also qualified to enter Engineering Geologist (specialty after becoming professional geologist), California Professional Geophysicist and Professional Engineer license exams]

***(2007 April) Increasing Human Effectiveness (Certificate)***, Edge Learning Institute, 1-day course, Washington State Department of Natural Resources, Olympia, WA.

***(2005 March) AT&T Leadership Development Program*** at Penn State University.

***(2001–2005) Community Ambassador, Residence Life,*** The Pennsylvania State University (PSU) Responsibilities included: putting effort on creating a secure living-learning environment by conducting and organizing group activities in the diverse graduate residence area; being a bridge between the PSU and the students in the residence area; and representing the PSU in terms of the university’s moral standards.

***(1996-1997) Vice President***, Penn State University Turkish Student Association

***(1992-1993) Representative of city of Izmir for Chamber of Geophysical Engineers*** of Turkey; general duties: (a) dealing with environmental and earthquake/geologic hazard problems in the city of Izmir, the third biggest, highly populated city in Turkey, and (b) cooperating with other local civil and governmental groups to find solutions to the city’s needs for geologic hazards and/or environmental problems.

**Voluntary Service**

● Co-chaired Seismological Society of America (SSA) 2019 Annual Meeting – a session related to Earthquake Hazard, Risk and Earthquake Engineering Session

● Chaired for Agricultural Geophysics Session at 2018 SEG Annual Meeting, Anaheim, CA

● Served as an Associate Editor – Journal of Applied Geophysics (2016-2022)

● Served as a Reviewer – Journal of Applied Geophysics, Society of Exploration Geophysics, J. Soil Dyn. and Earthq. Engineering, SRL

● COSMOS (Guideline Project) Multi-method approach committee member for building a worldwide shear-wave velocity database and standards for methodologies

● Collaborated with USGS and UCLA/UW Civil Engineering departments and with the PNSN for earthquake seismology and earthquake site effects and seismic hazard mapping issues

● Served as a member of Geotechnical Extreme Events Reconnaissance (GEER) Association for recon efforts around the world

● Served as a EERI Earthquake and Tsunami Educational Resources Committee member

● Participated in FEMA-Region 10, Information Technology group; monthly gatherings for understanding how to adopt the new information-technology applications to the disaster management cases

**Memberships**

● American Geophysical Union (AGU) (active member) (2011-present)

● Seismological Society of America (SSA) (active member) (1999-current)

● Society of Exploration Geophysics (SEG) (active) 2017-2019

● Geological Society of America (GSA) (2011-2018)

● Association of Environmental and Engineering Geologist (AEEG) (2009 and 2013)

● Earthquake Engineering Research Institute (EERI) (2010/2013) (currently School educational Resources Initiative (SESI) Subcommittee)

**PUBLICATIONS (Papers, Abstracts, Reports, PRESENTATIONS)**

Celebi, M., **Cakir, R.,** Sozbilir, H., Ozcelik, O, and Tatar, O. (2024 – manuscript in submission to Bulletin of Earthquake Engineering). Highlights and Effects of the M6.1 Gőlyaka (Düzce), Türkiye earthquake of November 23, 2022 and Seismic Hazard Implications.

## **Cakir, R.,** Tatar, O., Sozbilir, H. et al., (2024). AFAD-Earthquake Clearinghouse established following the 6 February 2023 Mw7.8 and M7.6 Kahramanmaras Earthquakes, Turkiye: Examples of Clearinghouse Management, Data Collection and Partnership Communications. Kahramanmaraş Earthquakes Anniversary Program Plenary Session (Reconnaissance, Response, and Recovery: Lessons Learned from the 2023 Kahramanmaraş Earthquake Sequence), April 9th, 2024, Earthquake Engineering Research Institute (EERI), Seattle, WA, USA.

**Cakir, R**, Eungard, D., Cabibbo, A. and Allen, C. (2023). Enhancing Engineering Practices through Expanded Subsurface Data: A Case Study from Washington State. Associations of Engineering Geologists (AEG) 2023 Annual Meeting, Portland, OR, USA.

**2020-2022**

Sozbilir, H. and others (…, Cakir, R.) 2020; 30 EKİM 2020 SİSAM (SAMOS) DEPREMİ (Mw: 6,9) DEĞERLENDİRME RAPORU (30 October 2020 Mw6.9 Samos-Greece Earthquake Preliminary Report). Dokuz Eylul University-Earthquake Research Center, Izmir, Turkey (<https://daum.deu.edu.tr/wp-content/uploads/2020/11/Samos-Deprem-Raporu.pdf>

**R. Cakir**, S. Altun and H. Sozbilir (2021) Rapid Damage Assessments in and around the City of Izmir by using NASA-ARIA Damage Proxy Maps: Case Study for the 30 October 2020 Mw6.9 Samos Earthquake; *International Workshop on Active Tectonics and Seismicity of the Aegean Region with Special Emphasis on the Samos Earthquake struck on 30 October 2020* - ASASE2021,

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Hayashi, K. and **Cakir, R.** (2019) Application of 2D Ambient Noise Tomography for Investigation of a Major Fault in Washington. (Expanded Abstract) SAGEEP 2019 Annual Meeting, Portland, OR.

**Cakir, R.,** Alexander, S.S., Walters, E., Parizek, R., Gold, D.P., And Parizek, K. (2019) High Resolution Seismic Surveys High-Resolution Seismic Surveys for Understanding Archeological and Hydrological Conditions at Hirekonpolis Temple Site, Edfu, Egypt. (Expanded Abstract) SAGEEP 2019 Annual Meeting, Portland, OR.

Toker, E., **Cakir, R.** And Ulugergerli, E. (2019) Using Non-Derivative Filters for Tectonic Implications: A Case Study in Simav Graben In Western Turkey. (Expanded Abstract) SAGEEP 2019 Annual Meeting, Portland, OR.

Polenz, Michael; Ostrom, B. A.; Lau, T. R.; Sadowski, A. J.; Blanks-Bennett, A. L.; **Cakir, Recep**; Tepper, J. H.; Legoretta Paulín, Gabriel; Nesbitt, Elizabeth; DuFrane, S. A., 2018, Geologic map of the Violet Prairie 7.5-minute quadrangle, Thurston and Lewis Counties, Washington: Washington Geological Survey Map Series 2018-04, 1 sheet, scale 1:24,000, 41 p. text.

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