

# EMSEV 2024

## WORKSHOP ON ELECTROMAGNETIC STUDIES OF EARTHQUAKES AND VOLCANOES

[emsev2024.org](http://emsev2024.org)

Sunday, October 6<sup>th</sup> | Wednesday, October 9<sup>th</sup>, 2024

CHANIA Crete | Greece

### SECRETARIAT INFORMATION



**TBC MON IKE**  
15, Mesogeion Av.  
11526, Athens-Greece  
Tel.: +30 210 7499309  
e-mail: [albinag@triaenatours.gr](mailto:albinag@triaenatours.gr)  
C/O: Mrs Gegaj Albina

### ORGANIZED BY



**EMSEN**  
IUGG Inter Association



# Sunday, October 6<sup>th</sup>, 2024

18.00 – 19.00 Registration

19.00 – 21.00 Welcome Cocktail

# Monday, October 7<sup>th</sup>, 2024

09.00 – 10.00 Registration

**10.00 – 11.30 Opening Ceremony – Welcome Addresses**

10.00 – 10.30 Welcome Addresses Congress Chairs

10.30 – 11.00 **TBA**

11.00 – 11.30 In memory of Professor Seiya Uyeda, founder of EMSEV working group  
**T. Nagao**, Tokai University

11.30 – 12.00 Coffee Break

**12.00 – 13.30 SATELLITE REMOTE SENSING FOR VOLCANIC AND SEISMIC HAZARD ASSESSMENT AND MONITORING**

Chair: **Jann-Yenq Liu**, Center for Astronautical Physics and Engineering National Central University

12.00 – 12.30 **Keynote Lecture**

**THE POSSIBLE CONTRIBUTE OF TIR OBSERVATIONS FROM GEOSTATIONARY SATELLITES TO A MULTI-PARAMETRIC T-DASH SYSTEM FOR SEISMIC PRONE AREA MONITORING**

**Tramutoli V.<sup>1,2</sup>, Colonna R.<sup>1,2</sup>, Filizzola C.<sup>3,2</sup>, Genzano N.<sup>4,2</sup>, Kazemi Garajeh M.<sup>1,2</sup>, Pergola N.<sup>3,2</sup>**

<sup>1</sup>School of Engineering, University of Basilicata, Potenza, Italy

<sup>2</sup>Space Technologies and Application Centre, Potenza, Italy

<sup>3</sup>Institute of Methodologies for Environmental Analysis of the National Research Council, Tito Scalo (PZ), Italy

<sup>4</sup>Department of Architecture, Built Environment and Construction Engineering, Politecnico di Milano, Milano, Italy

12.30 – 12.50 **001 GROUND DEFORMATION MONITORING OF NISYROS VOLCANO (GREECE) BASED ON SATELLITE INSAR AND GNSS TECHNIQUES**

**Sakkas V., Tzanis A., Lagios E.**

Section of Geophysics, Department of Geology and Geoenvironment, National and Kapodistrian University of Athens, Athens, Greece

12.50 – 13.10 **002 THE NHI (NORMALIZED HOTSPOT INDEX) TOOL: THE FIRST GOOGLE EARTH ENGINE APP FOR THE MONITORING OF ACTIVE VOLCANOES AT A GLOBAL SCALE FROM SPACE**

**Marchese F.<sup>1</sup>, Pergola N.<sup>1</sup>, Genzano N.<sup>2</sup>**

<sup>1</sup>Institute of Methodologies for Environmental Analysis – National Research Council, C.da Santa Loja, 85050 Tito Scalo (Pz).

<sup>2</sup>Department ABC (Architecture, Built Environment and Construction Engineering), Politecnico di Milano, Via Ponzio 31, 20133 Milano, Italy

13.10 – 13.30 **003 METHODS OF REMOTE SENSING TO IDENTIFY ACOUSTIC GRAVITY AND SEISMO-ELECTROMAGNETIC WAVES ANOMALY FOR EARTHQUAKE PRECURSORS**

**Choudhary S.<sup>1</sup>, Gwal A.K.<sup>2</sup>**

<sup>1</sup>Department of Engineering Physics, LNCT College, Bhopal, India

<sup>2</sup>Department of Physics, RNTU, Raisen, India

13.30 – 15.30 Lunch Break

**15.30 - 17.20 INTEGRATION OF ELECTROMAGNETIC AND OTHERS GEOPHYSICAL OBSERVATIONS (MECHANICAL, GEOCHEMICAL, SEISMOLOGICAL, GEODETIC, ETC.) FOR THE STUDY OF EARTHQUAKES AND VOLCANOES**

Chair: **Nicholas Sarlis**, *National and Kapodistrian University of Athens*

**15.30 – 16.00 Keynote Lecture**

**MULTIFACETED MONITORING AIMED AT IMPROVING THE ACCURACY OF ERUPTION PREDICTIONS FOR MT. FUJI USING TOTAL MAGNETIC FIELD OBSERVATIONS AND SEISMOLOGICAL MATCHED FILTERS**

**Nagao T.<sup>1,2</sup>, Kamogawa M.<sup>2</sup>, Nanjo K. Z.<sup>2</sup>, Uyeshima M.<sup>3</sup>**

<sup>1</sup>*Institute of Oceanic Research & Development, Tokai University, Shizuoka, Japan*

<sup>2</sup>*Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*

<sup>3</sup>*Earthquake Research Institute, the University of Tokyo, Tokyo, Japan*

**16.00 – 16.20 O04 DETECTION OF COMPARABLE LOCAL CRUSTAL DEFORMATION ANOMALY PRECEDING THE 2011 TOHOKU-OKI EARTHQUAKE WITH EXISTING REPORTED IONOSPHERIC TEC ANOMALIES**

**Tanaka H., Umeno K.**

*Kyoto University, Kyoto, Japan*

**16.20 – 16.40 O05 EARTHQUAKE PROBABILITY GAIN BY A COMBINATION OF TWO OR MORE ELECTROMAGNETIC OBSERVABLES**

**Fidani C.<sup>1,2</sup>, Piscini A.<sup>1</sup>**

<sup>1</sup>*Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy*

<sup>2</sup>*Central Italy Electromagnetic Network (CIEN), Fermo, Italy*

**16.40 – 17.00 O06 MULTIDISCIPLINARY AND COMPARATIVE ANALYSIS OF THE PREPARATION PHASE OF THE 2023 KAHRAMANMARAŞ (TURKEY) MAJOR EARTHQUAKES**

**Cianchini G.<sup>1</sup>, Calcara M.<sup>1</sup>, De Santis A.<sup>1</sup>, Piscini A.<sup>1</sup>, D’Arcangelo S.<sup>1,2</sup>, Fidani C.<sup>1</sup>, Sabbagh D.<sup>1</sup>, Orlando M.<sup>1,2</sup>, Perrone L.<sup>1</sup>, Campuzano S. A.<sup>1,2</sup>, De Caro M.<sup>1</sup>, Nardi A.<sup>1</sup>, Soldani M.<sup>1</sup>**

<sup>1</sup>*Istituto Nazionale di Geofisica e Vulcanologia (INGV), 00143, Rome, Italy*

<sup>2</sup>*Departamento de Física de la Tierra y Astrofísica, Universidad Complutense de Madrid (UCM), 28040, Madrid, Spain*

<sup>3</sup>*Dipartimento di Scienze, Università Roma TRE, 00154, Rome, Italy*

**17.00 – 17.20 O07 EARTHQUAKE MODELING INCORPORATING PRECURSORY INFORMATION OF NON-SEISMIC OBSERVATIONS**

**Han P.<sup>1</sup>, Chen H.<sup>1</sup>, Miao M.<sup>1</sup>, Hattori K.<sup>2</sup>, Huang Q.<sup>3</sup>**

<sup>1</sup>*Southern University of Science and Technology, Shenzhen, China*

<sup>2</sup>*Chiba University, Chiba, Japan*

<sup>3</sup>*Peking University, Beijing, China*

**17.20 – 17.50 Coffee Break / Poster Session 1 (please provide chair name)**

17.50 – 19.20 **ELECTROMAGNETIC IMAGING AND MODELING OF SEISMIC AND VOLCANIC STRUCTURES**

Chair: **Makoto Uyeshima**, *Earthquake Research Institute, the University of Tokyo*

17.50 – 18.20 **Keynote Lecture**

**SEISMOGENIC STRUCTURE OF STRONG EARTHQUAKES REVEALED BY  
MAGNETOTELLURIC DATA IN WESTERN YUNNAN**

**Huang Q.**

*Department of Geophysics, Peking University, Beijing, China*

18.20 – 18.40 **O08 HIGH-RESOLUTION 3-D IMAGING OF THE NISYROS CALDERA AND GEOTHERMAL RESOURCE (DODECANESE, GREECE)**

**Tzanis A., Sakkas V.**

*Section of Geophysics, Department of Geology and Geoenvironment, National and Kapodistrian University of Athens, Athens, Greece*

18.40 – 19.00 **O09 ANALYZING THE STATISTICAL FEATURES OF 2024 NOTO PENINSULA EARTHQUAKE, JAPAN, BASED ON ETAS MODEL**

**Li W.<sup>1</sup>, Zhuang J.<sup>5</sup>, Yoshino C.<sup>2</sup>, Hattori K.<sup>2,3,4</sup>**

<sup>1</sup>*Graduate School of Science and Engineering, Chiba University, Japan*

<sup>2</sup>*Graduate School of Science, Chiba University, Japan*

<sup>3</sup>*Center for Environmental Remote Sensing, Chiba University, Japan*

<sup>4</sup>*Research Institute of Disaster Medicine, Chiba University, Japan*

<sup>5</sup>*Institute of Statistical Mathematics, Tokyo, Japan*

19.00 – 19.20 **O10 GEOELECTRICAL AND GPR GEOPHYSICAL METHODS FOR FAULT SYSTEM CHARACTERIZATION: BUDOIA-AVIANO (NE ITALY) THRUST SYSTEM EXAMPLE**

**Rizzo E.<sup>1,2</sup>, Giampaolo V.<sup>2</sup>, DeMartino G.<sup>2</sup>, Poli M.E.<sup>3</sup>, Patricelli G.<sup>1,3</sup>, Marchesini A.<sup>3</sup>, Caputo R.<sup>1</sup>**

<sup>1</sup>*Dipartimento di Fisica e Scienze della Terra, University of Ferrara, Italy*

<sup>2</sup>*Consiglio Nazionale delle Ricerche, Istituto di Metodologie per l'Analisi Ambientale (CNR-IMAA), Tito Scalo (PZ), Italy*

<sup>3</sup>*Dipartimento di Scienze Agroalimentari, Ambientali e Animali, University of Udine, Italy*



**EMSEV 2024**

# Tuesday, October 8<sup>th</sup>, 2024

09.00 – 09.30 Registration

## 09.30 – 12.00 MAGNETOSPHERIC, IONOSPHERIC AND ATMOSPHERIC PHENOMENA ASSOCIATED WITH SEISMIC AND VOLCANIC ACTIVITIES

Chair: **Katsumi Hattori**, *Chiba University*

### 09.30 – 10.00 **Keynote Lecture**

#### SEISMO-IONOSPHERIC DISTURBANCES ASSOCIATED WITH THE 1 JANUARY 2024 NOTO PENINSULA M7.6 EARTHQUAKE

**Liu J.Y.**<sup>1,2,3</sup>, **Hattori K.**<sup>4</sup>, **Chen C.H.**<sup>5</sup>, **Chang F.Y.**<sup>1,2</sup>, **Lin C.Y.**<sup>1,2</sup>, **Chen Y.I.**<sup>6</sup>, **Wen Y.C.**<sup>2</sup>

<sup>1</sup>*Center for Astronautical Physics and Engineering National Central University*

<sup>2</sup>*Department of Space Science and Engineering, National Central University*

<sup>3</sup>*Center for Space and Remote Sensing Research, National Central University*

<sup>4</sup>*Center for Environmental Remote Sensing, Chiba University*

<sup>5</sup>*Department of Earth Sciences, National Cheng Kung University*

<sup>6</sup>*Graduate Institute of Statistics, National Central University*

### 10.00 – 10.20 **O11 THE SPACE WEATHER OF A QUIET SUN AS A SYRGETIC ENERGY SOURCE CAUSING GREAT TO GIANT EARTHQUAKES**

**Anagnostopoulos G.**

*Demokritos University of Thrace, Thrace, Greece*

### 10.20 – 10.40 **O12 STUDY OF THE RELATIONSHIP BETWEEN THE INITIAL PULSE OF TSUNAMI-GENERATED IONOSPHERIC DISTURBANCES AND THE MAXIMUM HEIGHT OF THE INITIAL TSUNAMI SOURCE**

**Otani K.**<sup>1</sup>, **Kamogawa M.**<sup>2</sup>, **Yamazaki M.**<sup>1</sup>

<sup>1</sup>*Nihon University, Chiba, Japan*

<sup>2</sup>*University of Shizuoka, Shizuoka, Japan*

### 10.40 – 11.00 **O13 CAPACITIVE COUPLING OF A FRACTURED LAYER WITH SUPERCRITICAL WATER IN THE CRUST AND THE IONOSPHERE**

**Mizuno A.**, **Kao M.**, **Umeno K.**

*Graduate School of Informatics, Kyoto University, 36-1 Yoshida-Honmachi, Sakyo-ku, Kyoto 606-8501 JAPAN*

### 11.00 – 11.20 **O14 FIRST RESULTS OF THE ENVIRONMENTAL MONITORING OF ETNA VOLCANO: ANOMALIES RELATED TO GEOPHYSICAL ACTIVITY**

**Soldani M.**<sup>1</sup>, **Perrone L.**<sup>1</sup>, **De Santis A.**<sup>1</sup>, **D'Arcangelo S.**<sup>1,2</sup>, **Cianchini G.**<sup>1</sup>, **Bonforte A.**<sup>1</sup>, **Catania R.**<sup>3</sup>, **Maugeri S.R.**<sup>1</sup>, **Del Corpo A.**<sup>1</sup>, **Di Mauro D.**<sup>1</sup>, **Lepidi S.**<sup>1</sup>, **Calcara M.**<sup>1</sup>, **Campuzano S.A.**<sup>2,1</sup>, **De Caro M.**<sup>1</sup>, **Fidani C.**<sup>1</sup>, **Ippolito A.**<sup>1</sup>, **Nardi A.**<sup>1</sup>, **Orlando M.**<sup>1,4</sup>, **Regi M.**<sup>1</sup>, **Sabbagh D.**<sup>1</sup>

<sup>1</sup>*Istituto Nazionale di Geofisica e Vulcanologia (INGV), Rome, Italy*

<sup>2</sup>*University Complutense of Madrid (UCM), Madrid, Spain*

<sup>3</sup>*ST Microelectronics, Catania, Italy*

<sup>4</sup>*Università Roma TRE, Rome, Italy*

### 11.20 – 11.40 **O15 RE-OCCURRENCE OF PRE-EARTHQUAKE SIGNALS: CASE STUDIES FOR THE M6.4 EARTHQUAKES OF OCTOBER 12, 2021, IN CRETE, GREECE**

**Ouzounov D.**<sup>1</sup>, **Kafatos M. C.**<sup>1</sup>, **Karastathis V.**<sup>2</sup>

<sup>1</sup>*Institute for Earth, Computing, Human and Observing (Institute for ECHO), Chapman University, Orange, CA, USA*

<sup>2</sup>*Institute of Geodynamics at the National Observatory of Athens (NOA), Athens, Greece*

### 11.40 – 12.00 **O16 IMPACT OF TONGA VOLCANIC ERUPTION ON LAND, OCEAN, AND AIR QUALITY USING GROUND AND MULTI-SATELLITE DATA**

**Chauhan A.**<sup>1</sup>, **Jing F.**<sup>2</sup>, **Singh R. P.**<sup>3</sup>, **Zlotnicki J.**<sup>4</sup>

<sup>1</sup>*Department of Safety, Health and Environmental Engineering, Ming Chi University of Technology, 84 Gungjuan Rd., Taishan Dist., New Taipei City 24301, Taiwan*

<sup>2</sup>*Institute of Earthquake Forecasting, China Earthquake Administration No. 63 Fuxing Avenue, Beijing, 100036, China*

<sup>3</sup>School of Life and Environmental Sciences, Chapman University, Orange, CA 92866, USA

<sup>4</sup>Centre National de la Recherche Scientifique, Observatoire de Physique du Globe de Clermont-Ferrand (UMR6524), France

12.00 – 12.30 Coffee Break

12.30 – 13.50 **THEORETICAL AND LABORATORY STUDIES FOR UNDERSTANDING SEISMIC AND VOLCANIC PHENOMENA. SIGNAL RECOGNITION, DATA PROCESSING AND MODELING.**

Chair: **Valerio Tramutoli**, *University of Basilicata*

12.30 – 13.00 **Keynote Lecture**

**RECENT ADVANCES BASED ON THE COMBINATION OF NATURAL TIME ANALYSIS WITH TSALLIS NON-EXTENSIVE STATISTICAL MECHANICS**

**Sarlis N.V.**, Skordas E.S., Varotsos P. A.

*Section of Condensed Matter Physics and Solid Earth Physics Institute, Physics Department, National and Kapodistrian University of Athens, Panepistimiopolis, Zografos, Athens, 15784, Greece*

13.00 – 13.20 **O17 SEVERAL-DAY VARIATIONS OF ELECTRON DENSITY SENSED BY SWARM SATELLITES OVER TECTONIC PLATE JUNCTIONS**

**Jarmołowski W.**, **Wielgosz P.**,

*University of Warmia and Mazury in Olsztyn, Olsztyn, Poland*

13.20 – 13.30 **O18 MACHINE LEARNING FOR DETECTING TIME-TRANSIENT PHENOMENA IN THE IONOSPHERE AND CORRELATION WITH SEISMO-INDUCED EVENTS**

**Babu M.**<sup>1,2</sup>, **Cristoforetti M.**<sup>2</sup>, **Iuppa R.**<sup>1</sup>

<sup>1</sup>*University of Trento, Trento, Italy*

<sup>2</sup>*Bruno Kessler Foundation, Trento, Italy*

13.30 – 13.50 **O19 MATHEMATICAL TOOLS FOR THE DETECTION AND LOCALIZATION OF SEISMIC PRECURSORS USING VLF-LF RADIO DATA**

**Nico G.**<sup>1</sup>, **Biagi P.F.**<sup>2</sup>, **Eichelberger H.U.**<sup>3</sup>, **Boudjada M.Y.**<sup>3</sup>, **Nina A.**<sup>4</sup>

<sup>1</sup>*Institute of Applied Mathematics, Italian National Research Council, Bari, Italy*

<sup>2</sup>*Department of Physics, University of Bari, Bari, Italy*

<sup>3</sup>*Space Research Institute, Austrian Academy of Sciences, Graz, Austria*

<sup>4</sup>*Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia*

13.50 – 15.20 Lunch Break

15.20 – 16.30 **RELIABILITY OF PRECURSOR SIGNALS OF EARTHQUAKES AND VOLCANIC ERUPTIONS**

Chair: **Toshiyasu Nagao**, *Tokai University*

15.20 – 15.50 **Keynote Lecture**

**ASSESSMENT OF PRECURSOR SIGNATURE OF ULF MAGNETIC ANOMALIES AND HINDCAST USING THE OPTIMAL PARAMETER**

**Hattori K.**<sup>1,2,3</sup>, **Kaneko S.**<sup>4</sup>, **Yoshino C.**<sup>1</sup>, **Hanr P.**<sup>5</sup>

<sup>1</sup>*Graduate School of Science, Chiba University, Japan*

<sup>2</sup>*Center for Environmental Remote Sensing, Chiba University, Japan*

<sup>3</sup>*Research Institute of Disaster Medicine, Chiba University, Japan*

<sup>4</sup>*Graduate School of Science and Engineering, Chiba University, Japan*

<sup>5</sup>*Southern University of Science and Technology, China*

15.50 – 16.10 **O20 STATISTICAL REANALYSIS OF DEMETER VLF PRECURSOR**

**Kamogawa M.**

*Natural Disaster Research Section, Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*

16.10 – 16.30 **O21 PRESIDIOPROJECT- SEISMIC PRECURSOR AND TERRITORY SAFETY**

**Rafanelli C.**<sup>1</sup>, **Zolesi B.**<sup>2</sup>, **Braun T.**<sup>2</sup>, **Chiappini M.**<sup>2</sup>, **Cianchini G.**<sup>2</sup>, **De Luca G.**<sup>2</sup>, **De Santis A.**<sup>2</sup>, **Ippolito A.**<sup>2</sup>, **Perrone L.**<sup>2</sup>, **Piscini A.**<sup>2</sup>, **Poscolieri M.**<sup>5</sup>, **Sabbagh D.**<sup>2</sup>, **Soldani M.**<sup>2</sup>, **Teramo A.**<sup>3</sup>, **Zimatore G.**<sup>4</sup>



<sup>1</sup>CNR and INGV Associated Researcher - Rome, Italy

<sup>2</sup>INGV – National Institute of Geophysics and Volcanology, Rome, Italy

<sup>3</sup>HENSE SCHOOL Consortium, Messina, Italy

<sup>4</sup>eCampus University - Department of Theoretical and Applied Sciences, Rome, Italy

<sup>5</sup>CNR Associated Researcher - Rome, Italy

16.30 – 17.30 EMSEV General Assembly

17.30 – 18.30 **“MINOAN CRETE FROM MYTHOLOGY TO HISTORY”**  
**G. Owens**, *Center Mediterranean Architecture*

18.30 – 20.00 **“HISTORICAL WALKING TOUR OF CHARMING CHANIA/KYDONIA”**

20.30 Gala Dinner

**Sunday, October 6<sup>th</sup> | Wednesday, October 9<sup>th</sup>, 2024**

**CHANIA Crete | Greece**



# Wednesday, October 9<sup>th</sup>, 2024

09.00 – 09.30 Registration

## 09.30 – 11.30 ELECTROMAGNETIC SIGNALS ASSOCIATED WITH EARTHQUAKES AND VOLCANIC ERUPTIONS (OCCURRENCE AND PREPARATORY PROCESSES)

Chair: **Sergey Pulinets**, *Space Research Institute (IKI) Russian Academy of Sciences*

09.30 – 10.00 **Keynote Lecture**

### ELECTROMAGNETIC SIGNALS RELATED TO VOLCANIC ACTIVITY - FORE-RUNNER ELECTRIC SIGNALS TO ERUPTIONS

**Zlotnicki J.<sup>1</sup>, Johnston M.J.S.<sup>2</sup>, Sasai Y.<sup>3</sup>, Nagao T.<sup>4</sup>, Uyeshima M.<sup>5</sup>**

<sup>1</sup>*National Scientific Research Centre, France*

<sup>2</sup>*Earthquake Science Center, U.S. Geological Survey, Menlo Park, CA. 94025, U.S.A.*

<sup>3</sup>*Previously at Earthquake Research Institute, the University of Tokyo, 1-1-1 Yayoi, Bunkyo, Tokyo, 113-0032 Japan*

<sup>4</sup>*Institute of Oceanic Research & Development, Tokai University, Shizuoka, Japan*

<sup>5</sup>*Earthquake Research Institute, the University of Tokyo, 1-1-1 Yayoi, Bunkyo, Tokyo, 113-0032 Japan*

10.00 – 10.20 **O22 ULTRA-LOW FREQUENCY SEISMO-MAGNETIC SIGNAL EXTRACTION AND EVALUATION BASED ON INTERSTATION TRANSFER FUNCTION**

**Chen H.<sup>1</sup>, Han P.<sup>1</sup>, Hattori K.<sup>2</sup>, Wang P.<sup>1</sup>, Wang R.<sup>1</sup>, Zeng Z.<sup>1</sup>**

<sup>1</sup>*Southern University of Science and Technology*

<sup>2</sup>*Chiba University*

10.20 – 10.40 **O23 COMBINED NATURAL HAZARDS INVESTIGATIONS WITH SUB-IONOSPHERIC VLF/LF ELECTRIC FIELDS AND SATELLITE MAGNETIC MEASUREMENTS**

**Eichelberger H.U.<sup>1</sup>, Boudjada M.Y.<sup>1</sup>, Schwingenschuh K.<sup>1</sup>, Besser B.P.<sup>1</sup>, Solovieva M.<sup>2</sup>, Biagi P.F.<sup>3</sup>, Galopeau P.H.M.<sup>4</sup>, Nina A.<sup>5</sup>, Nico G.<sup>6</sup>, Stachel M.<sup>1</sup>, Voller W.<sup>1</sup>, Jernej I.<sup>1</sup>, Magnes W.<sup>1</sup>**

<sup>1</sup>*Space Research Institute, Austrian Academy of Sciences, Graz, Austria*

<sup>2</sup>*Institute of Physics of the Earth, Russian Academy of Sciences, Moscow, Russia*

<sup>3</sup>*Department of Physics, University of Bari, Bari, Italy*

<sup>4</sup>*LATMOS-CNRS, UVSQ Université Paris-Saclay, Guyancourt, France*

<sup>5</sup>*Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia*

<sup>6</sup>*Institute of Applied Mathematics, Italian National Research Council, Bari, Italy*

10.40 – 11.00 **O24 EARTHQUAKE VLF RADIO PRECURSORS: MULTI-TERMINATORS METHOD AS A TOOL TO INVESTIGATE SUBIONOSPHERIC TRANSMITTER SIGNALS ABOVE SEISMIC REGIONS**

**Boudjada M.Y.<sup>1</sup>, Eichelberger H.U.<sup>1</sup>, Biagi P.F.<sup>2</sup>, Schwingenschuh K.<sup>1</sup>, Solovieva M.<sup>3</sup>, Galopeau P.H.M.<sup>4</sup>, Nina A.<sup>5</sup>, Nico G.<sup>6</sup>, Besser B.P.<sup>1</sup>, Lammer H.<sup>1</sup>, Stachel M.<sup>1</sup>**

<sup>1</sup>*Space Research Institute, Austrian Academy of Sciences, Graz, Austria*

<sup>2</sup>*Department of Physics, University of Bari, Bari, Italy*

<sup>3</sup>*Institute of Physics of the Earth, Russian Academy of Sciences, Moscow, Russia*

<sup>4</sup>*LATMOS-CNRS, UVSQ Université Paris-Saclay, Guyancourt, France*

<sup>5</sup>*Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia*

<sup>6</sup>*Institute for Applied Mathematics (IAC), CNR, Bari, Italy*

11.00 – 11.30 Coffee Break



**11.30 – 13.00 ELECTROMAGNETIC SIGNALS ASSOCIATED WITH EARTHQUAKES AND VOLCANIC ERUPTIONS (OCCURRENCE AND PREPARATORY PROCESSES)**

Chair: **Dimitar Ouzounov**, *Institute for ECHO/ Chapman University*

**11.30 – 12.00 Keynote Lecture**

**ELECTROMAGNETIC EFFECTS OF VOLCANO ERUPTIONS (SHIVELUCH VOLCANO ERUPTION ON 10 APRIL 2023 AS EXAMPLE)**

**Pulinets S.A.<sup>1</sup>, Smirnov S.E.<sup>2</sup>, Hegai V.V.<sup>3</sup>**

<sup>1</sup>*Space Research Institute, Russian Academy of Sciences, Moscow, Russia*

<sup>2</sup>*Institute of Cosmophysical Research and Radio Wave Propagation FEB RAS, Russia*

<sup>3</sup>*Pushkov Institute of Terrestrial Magnetism and Radiowave Propagation RAS, Russia*

**12.00 – 12.20 O25 INFLUENCE OF THE TENSION OF ADRIATIC TECTONIC MICROPLATE ON THE LOCAL MAGNETIC FIELD**

**Čop R.**

*Institute Terra Viva, Sv. Peter 115, 6333 Sečovelje - Sicciole, Slovenia*

**12.20 – 12.40 O26 EXPLORATION OF THE 2021 MW7.3 MADUO EARTHQUAKE BY FUSING THE ELECTRON DENSITY AND MAGNETIC FIELD DATA OF SWARM SATELLITES**

**Zhu K.<sup>1</sup>, Fan M.<sup>1</sup>, De Santis A.<sup>2</sup>, Marchetti D.<sup>1,2</sup>, Cianchini G.<sup>2</sup>, Wang T.<sup>1</sup>, Zhang Y.<sup>1</sup>, Chen W.<sup>1</sup>, Zhang H.<sup>1</sup>, Zhang D.<sup>1</sup>, Cheng Y.<sup>1</sup>**

<sup>1</sup>*College of Instrumentation and Electrical Engineering, Jilin University, Changchun, China*

<sup>2</sup>*Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy*

**12.40 – 13.00 O27 EVALUATION OF EARTHQUAKE PREDICTION PERFORMANCE USING AN ANOMALY MODEL OF IONOSPHERIC ELECTROMAGNETIC WAVE INTENSITY FLUCTUATIONS**

**Sone N.<sup>1</sup>, Kamogawa M.<sup>2</sup>, Yamazaki M.<sup>1</sup>, Otani K.<sup>1</sup>**

<sup>1</sup>*Nihon University, Chiba, Japan*

<sup>2</sup>*Natural Disaster Research Section, Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*

**13.00 – 15.00 Lunch Break**

**15.00 – 16.50 ELECTROMAGNETIC SIGNALS ASSOCIATED WITH EARTHQUAKES AND VOLCANIC ERUPTIONS (OCCURRENCE AND PREPARATORY PROCESSES)**

Chair: **Zlotnicki Jacques**, *French National Research Centre (CNRS)*

**15.00 – 15.30 Keynote Lecture**

**STUDY THE IMPACT OF THE GEOSPACE ENVIRONMENT ON MAJOR EARTHQUAKES. CASE STUDIES FOR THE M6.4 EARTHQUAKES OF OCTOBER 12, 2013, AND 2021 IN CRETE (GREECE).**

**Ouzounov D.<sup>1</sup>, Khachikyan G.<sup>2</sup>**

<sup>1</sup>*Institute for Earth, Computing, Human and Observing, Chapman University, Orange, USA*

<sup>2</sup>*National Scientific Center for Seismological Observations and Research, Almaty, Kazakhstan*

**15.30 – 15.50 O28 ON THE (IM)PLAUSIBILITY OF ELECTRIC EARTHQUAKE PRECURSORS (EEP)**

**Tzanis A.**

*Section of Geophysics, Department of Geology and Geoenvironment, National and Kapodistrian University of Athens, Athens, Greece*

**15.50 – 16.10 O29 DETRENDED FLUCTUATION ANALYSIS (DFA) OF SELF-POTENTIAL TIME SERIES PRIOR TO THE M 6.5 OCTOBER 24, 1993 EARTHQUAKE IN MÉXICO**

**Cervantes-De-La-Torre F., González-Trejo J., Real-Ramírez C., Ruslan Gabbasov.**

*Departamento de Sistemas, Universidad Autónoma Metropolitana, CDMX 02200, México*

**16.10 – 16.30 O30 ON GEOMAGNETIC TOTAL INTENSITY VARIATION ASSOCIATING WITH THE ERUPTIONS OF SHINMOE AND IWOYAMA VOLCANOES OF THE KIRISHIMA VOLCANO GROUP, IN S KYUSHU, SE JAPAN**

**Uyeshima M.<sup>1</sup>, Koyama T.<sup>1</sup>, Aizawa K.<sup>2</sup>, Kagiya T.<sup>3</sup>**

<sup>1</sup>*Earthquake Research Institute, the University of Tokyo, Tokyo, Japan*

<sup>2</sup>*Institute of Seismology and Volcanology, Faculty of Science, Kyushu University, Shimabara, Japan*

<sup>3</sup>*Aso Volcano Museum, Aso, Japan*

16.30 – 16.50 **O31 EARTHQUAKE-RELATED ELECTROMAGNETIC SIGNALS IN SOUTHERN ITALY: ACQUISITION, ANALYSIS, THEORY'S VALIDATION, APPLICATIONS.**

**Ventola I.<sup>1</sup>, Balasco M.<sup>2</sup>, Romano G.<sup>1</sup>, Siniscalchi A.<sup>1</sup>**

<sup>1</sup>*University of Bari Aldo Moro*

<sup>2</sup>*CNR - Potenza (Italy)*

16.50 – 17.20 Coffee Break / Poster Session 2 (please provide chair name)

17.20 – 18.00 **THEORETICAL AND LABORATORY STUDIES FOR UNDERSTANDING SEISMIC AND VOLCANIC PHENOMENA. SIGNAL RECOGNITION, DATA PROCESSING AND MODELING.**

Chair: **Vincenzo Lapenna**, *CNR-IMAA*

17.20 – 17.50 **Keynote Lecture**

**PRINCIPLES OF EARTHQUAKE PHYSICS IN TERMS OF COMPLEXITY AND TSALLIS ENTROPY. QUO VADEMUS?**

**Vallianatos F.<sup>1,2</sup>**

<sup>1</sup>*National and Kapodistrian University of Athens, Faculty of Geology and Geoenvironment, Department of Geophysics–Geothermics, University Campus, Panepistmiopolis – Athens 157 84, Greece,*

<sup>2</sup>*Institute of Physics of Earth's Interior and Geohazards, UNESCO Chair on Solid Earth Physics & Geohazards Risk Reduction, Hellenic Mediterranean University Research and Innovation Center, Crete, Greece*

17.50 – 18.10 **O32 CHANGES IN VLF SIGNAL AS NEW POSSIBLE EARTHQUAKE PRECURSORS: NOISE REDUCTIONS AND WAVE EXCITATIONS AND ATTENUATIONS AT SMALL WAVE PERIODS**

**Nina A.<sup>1</sup>, Biagi P.F.<sup>2</sup>, Pulinets S.<sup>3</sup>, Nico G.<sup>4</sup>, Popović L.Č.<sup>5,6</sup>, Eichelberger H.U.<sup>7</sup>, Boudjada M.Y.<sup>7</sup>**

<sup>1</sup>*Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia*

<sup>2</sup>*Physics Department, University of Bari, Bari, Italy*

<sup>3</sup>*Space Research Institute, Russian Academy of Sciences, Moscow, Russia*

<sup>4</sup>*Institute for Applied Mathematics "Mauro Picone" (IAC), Italy's National Research Council (CNR), Bari, Italy*

<sup>5</sup>*Astronomical Observatory, Belgrade, Serbia*

<sup>6</sup>*Department of Astronomy, Faculty of Mathematics, University of Belgrade, Belgrade, Serbia*

<sup>7</sup>*Space Research Institute, Austrian Academy of Sciences, Graz, Austria*

18.10 – 18.30 **O33 SEISMICITY AND SEISMIC HAZARD ASSESSMENT IN WEST AFRICA**

**Kadiri A. U.<sup>1</sup>, Kijko A.<sup>2</sup>**

<sup>1</sup>*National Space Research and Development Agency, PMB 11, Toro, Bauchi State, Nigeria,*

<sup>2</sup>*Natural Hazard Centre, University of Pretoria, Pretoria, Republic of South Africa*

18.30 – 19.00 Closing Ceremony

# POSTER LIST

*Monday, October 7<sup>th</sup>, 2024*

- P01 APPLICATION OF LOW-FREQUENCY GROUND PENETRATING RADAR IN AREA OF ACTIVE TECTONICS: THE 1688 SANNIO EARTHQUAKE EPICENTRAL AREA (SOUTHERN ITALY)**  
**Colangelo G.<sup>1</sup>, Famiglietti N.A.<sup>2</sup>, Massa B.<sup>3</sup>, Memmolo A.<sup>2</sup>, Vicari A.<sup>2</sup>**  
*<sup>1</sup>Regione Basilicata, Direzione Generale dell'ambiente del Territorio e dell'Energia, Potenza, Italy*  
*<sup>2</sup>Istituto Nazionale di Geofisica e Vulcanologia – Sezione Irpinia, Grottaminarda, Italy*  
*<sup>3</sup>Dipartimento di Scienze e Tecnologie, Università degli Studi del Sannio, Benevento, Italy*
- P02 ELECTRICAL RESISTIVITY TOMOGRAPHIES FOR THE STRUCTURAL AND SEISMOTECTONIC SETTING ANALYSIS OF THE PANTANO DI SAN GREGORIO MAGNO (SA).**  
**Bellanova J.<sup>1</sup>, Calamita G.<sup>1</sup>, Guidetti G.<sup>2</sup>, Montano P.<sup>2</sup>, Perrone A.<sup>1</sup>, Piscitelli S.<sup>1</sup>, Prosser G.<sup>2</sup>**  
*<sup>1</sup>Institute of Methodologies for Environmental Analysis (IMAA) - CNR, Tito Scalo (PZ), Italy*  
*<sup>2</sup>Department of Science (DIS) - Università degli Studi della Basilicata, Potenza, Italy*
- P03 CORRELATION ANALYSIS BETWEEN GEOMAGNETIC STORM AND GLOBAL EARTHQUAKE**  
**Wang R., Chen H., Han P., Miao M.**  
*Southern University of Science and Technology, China*
- P04 SEISMICITY AS A MAJOR AGENT OF ELECTRON PRECIPITATION IN THE IONOSPHERE**  
**Anagnostopoulos G.**  
*Demokritos University of Thrace, Thrace, Greece*
- P05 MICROSEISMICITY, ULF RADIATION AND MENTAL DISORDERS IN CRETE, GREECE, IN THE YEARS 2008-2010: IMPLICATIONS FOR SCIENCE AND SOCIETY**  
**Anagnostopoulos G.<sup>1</sup>, Basta M.<sup>2</sup>, Vgontzas A.<sup>2</sup>, Vassiliadis V.<sup>1</sup>, Rigas A.<sup>1</sup>**  
*<sup>1</sup>Department of Electrical & Computer Engineering, Demokritos University of Thrace, Thrace, Greece*  
*<sup>2</sup>Department of Psychiatry, School of Medicine, University of Crete, Heraklion, Greece*
- P06 PRELIMINARY OBSERVATIONAL STUDY OF THE MECHANISM OF SEISMIC PRECURSOR VLF ELECTRIC FIELD STRENGTH DECREASE OBSERVED AT SATELLITE ALTITUDE: THE CASE OF THE 2024 NOTO PENINSULA EARTHQUAKE.**  
**Kamogawa M., Nagao T.**  
*Natural Disaster Research Section, Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*
- P07 EARLY TSUNAMI PREDICTION SYSTEM USING COMBINED METHODS IN NANO-SATELLITE SWARM OBSERVATIONS**  
**Otani K.<sup>1</sup>, Kamogawa M.<sup>2</sup>, Yamazaki M.<sup>1</sup>, Suzuki T.<sup>1</sup>, Miura R.<sup>1</sup>, Nakamura S.<sup>1</sup>, Otsuka Y.<sup>1</sup>, Honjo Y.<sup>1</sup>, Kanda K.<sup>1</sup>**  
*<sup>1</sup>Nihon University, Chiba, Japan*  
*<sup>2</sup>University of Shizuoka, Shizuoka, Japan*
- P08 SEISMO-ELECTROMAGNETIC OBSERVATIONS IN NORTHERN ALGERIA**  
**Kasdi A.S.<sup>1</sup>, Bouzid A.<sup>1</sup>, Hamoudi M.<sup>2</sup>**  
*<sup>1</sup>Research Center in Astronomy, Astrophysics and Geophysics, Algiers, Algeria*  
*<sup>2</sup>University of Science and Technology Houari Boumediene, Algiers, Algeria*



# POSTER LIST

**Tuesday, October 8<sup>th</sup>, 2024**

- P09 THE OBSERVATION OF THE IONOSPHERIC TURBULENCE MODULATION BY INTENSE SEISMIC ACTIVITY AS A TOOL OF EARTHQUAKE RISK MITIGATION**  
**Contadakis M. E.**  
*Department of Geodesy and Surveying, Aristotle University of Thessaloniki*
- P10 PLANS FOR DISASTER MANAGEMENT IN VIEW OF THE RECENT VOLCANOES**  
**Choudhary S.**  
*Department of Scientific Strategy Management, IPER, Bhopal, India*
- P11 ON LONG-BASELINE SELF-POTENTIAL MONITORING ON THE IZU-OSHIMA ISLAND**  
**Uyeshima M.<sup>1</sup>, Matsushima N.<sup>2</sup>, Gresse M.<sup>2</sup>, Koyama T.<sup>1</sup>**  
*<sup>1</sup>Earthquake Research Institute, the University of Tokyo, Tokyo, Japan*  
*<sup>2</sup>Geological Survey of Japan, AIST, Tsukuba, Japan*
- P12 REMOTE SENSING ANALYSIS OF ACTIVE FAULTS IN KURDISTAN, NORTHERN IRAQ**  
**Doski J.**  
*Department of Highway and Bridge Engineering, Technical College of Engineering, Duhok Polytechnic University, Duhok, Kurdistan, Iraq*
- P13 SATELLITE THERMAL MONITORING OF GAS EMISSION AT CAMPI FLEGREI SOLFATARA BY ECOS- TRESS TIME SERIES ANALYSIS**  
**Piscini A., Fidani C.**  
*Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy*
- P14 THE RELATIONSHIP OF EARTHQUAKE-RELATED THERMAL ANOMALIES AND COSEISMIC CRUSTAL DEFORMATION: INSIGHTS FROM SELECTED MEDITERRANEAN STRONG EARTHQUAKE EVENTS**  
**Peleli S.<sup>1,2</sup>, Kouli M.<sup>1,2</sup>, Vallianatos F.<sup>1,3</sup>**  
*<sup>1</sup>Institute of Physics of the Earth's Interior & Geohazards, UNESCO Chair on Solid Earth Physics and Geohazards Risk Reduction, Hellenic Mediterranean University Research & Innovation Center, Crete, Greece*  
*<sup>2</sup>Hellenic Mediterranean University, Department of Electronic Engineering, Crete, Greece*  
*<sup>3</sup>National and Kapodistrian University of Athens, Faculty of Geology and Geoenvironment, Department of Geophysics and Geothermics, Athens*
- P15 DETECTION OF TIR ANOMALIES PRECEDING LAVA ERUPTIONS USING GEOSTATIONARY SATELLITE**  
**Hattori K.<sup>1,2,3</sup>, Kitade A.<sup>4\*</sup>, Yoshino C.<sup>1</sup>**  
*<sup>1</sup>Graduate School of Science, Chiba University, Japan*  
*<sup>2</sup>Center for Environmental Remote Sensing, Chiba University, Japan*  
*<sup>3</sup>Research Institute of Disaster Medicine, Chiba University, Japan*  
*<sup>4</sup>Graduate School of Science and Engineering, Chiba University, Japan*  
*\*Now at SCSK corporation, Japan*
- P16 AN ADAPTIVE PARAMETER-FREE SEISMIC DATA DENOISING APPROACH BY COMBINING GENERAL CROSS-VALIDATION THRESHOLDING AND PIXEL CONNECTIVITY IN SYNCHROSQUEEZED DOMAIN**  
**Zeng Z., Han P.**  
*Department of Earth and Space Sciences, Southern University of Science and Technology, Shenzhen 518055, China*

# POSTER LIST

**Wednesday, October 9<sup>th</sup>, 2024**

- P17 LAIC AND SPACE WEATHER MODELS' SIMILARITY PROVIDED BY ATMOSPHERE IONIZATION EFFECTS**  
**Pulinets S.A.<sup>1</sup>, Ouzounov D.P.<sup>2</sup>**  
<sup>1</sup>*Space Research Institute, Russian Academy of Sciences, Moscow, Russia*  
<sup>2</sup>*Institute for Earth, Computing, Human and Observing, Chapman University, Orange, USA*
- P18 FOLLOWING UP DEMETER'S VLF ELECTRIC FIELD PRECOR USING CSES DATA**  
**Kamogawa M.**  
*Natural Disaster Research Section, Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*
- P19 VALIDATION OF PRE-SEISMIC VLF BAND ELECTROMAGNETIC FIELD INTENSITY DECREASE PHENOMENA OBSERVED AT SATELLITE ALTITUDES BY MONITORING NAVIGATIONAL VLF BAND ELECTROMAGNETIC WAVES.**  
**Iida T.<sup>1</sup>, Yamazaki M.<sup>1</sup>, Kamogawa M.<sup>2</sup>**  
<sup>1</sup>*Department of Aerospace Engineering, Nihon University, Chiba, Japan*  
<sup>2</sup>*Natural Disaster Research Section, Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*
- P20 INTEGRATED ELECTRICAL, ELECTROMAGNETIC, AND SEISMIC METHODS FOR GEO-HAZARDS EVALUATION IN URBAN AREAS: FIRST ACTIVITIES IN THE FRAME OF THE ITINERIS PROJECT.**  
**Giampaolo V.<sup>1</sup>, De Martino G.<sup>1</sup>, Gallipoli M. R.<sup>1</sup>, Gangone G.<sup>1,2</sup>, Martino L.<sup>1,2</sup>, Perrone A.<sup>1</sup>, Serlenga V.<sup>1</sup>, Stabile T. A.<sup>1</sup>, Lapenna V.<sup>1</sup>**  
<sup>1</sup>*Institute of Methodologies for Environmental Analysis, National Research Council (CNR-IMAA), 85050 Tito Scalo (PZ), Italy.*  
<sup>2</sup>*School of Engineering, University of Basilicata, 85100 Potenza, Italy.*
- P21 INVESTIGATION OF THE 2021 ARKALOCHORI FORESHOCK SWARM: NEW INSIGHTS FOR INSTABILITIES THROUGH AUTOMATIC DATA PROCESSING WITH A MACHINE-LEARNING MODEL**  
**Kapetanidis V.<sup>1</sup>, Michas G.<sup>1</sup>, Karakonstantis A.<sup>1,2</sup>, Vallianatos F.<sup>1,2</sup>**  
<sup>1</sup>*Section of Geophysics – Geothermics, Department of Geology and Geoenvironment, National and Kapodistrian University of Athens, Athens, Greece*  
<sup>2</sup>*Institute of Physics of Earth's Interior and Geohazards, UNESCO Chair on Solid Earth Physics and Geohazards Risk Reduction, Hellenic Mediterranean University Research Center, Crete, Greece*
- P22 A NEW NATIONAL LIGHTNING DETECTION AND WARNING NETWORK**  
**Hloupis G.<sup>1</sup>, Bhagat S.<sup>2</sup>**  
<sup>1</sup>*University of West Attica, Egaleo, Greece*  
<sup>2</sup>*Dartmouth College, Hanover, NH, USA*
- P23 FROM ELECTRICAL OSCILLATIONS TO BALLS LIGHTNING ASSOCIATED WITH STRONG EARTHQUAKES**  
**Fidani C.**  
*Central Italy Electromagnetic Network (CIEN), Fermo, Italy*  
*Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy*
- P24 DESIGN OF THE PRELUDE CUBESAT FOR MONITORING ELECTROMAGNETIC DISTURBANCES RELATED TO SEISMIC PHENOMENA**  
**Sone N.<sup>1</sup>, Yamazaki M.<sup>1</sup>, Kamogawa M.<sup>2</sup>**  
<sup>1</sup>*Nihon University, Chiba, Japan*  
<sup>2</sup>*Natural Disaster Research Section, Global Center for Asian and Regional Research, University of Shizuoka, Shizuoka, Japan*