22-26 August

EMSEV 2022

ElectroMagnetic Studies of Earthquakes and Volcanoes

International Workshop

National Central University, Taoyuan, Taiwan

PROGRAM

http://irsl.ss.ncu.edu.tw/emsev2022

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Agenda

22August 2022, Monday

(Location：R2-116, Center for Space and Remote Sensing Research, National Central University)		
Time	**Title**	**Author**
08：30~09：30	**Registration and Opening Remark**	**T. Nagao, and Tiger JY Liu**
09：30~11：45	**Keynote speech**	**Tiger JY Liu**
09：30~10：15	Earthquake precursor research in Taiwan: observations, deep learning and an electric coupling model of lithosphere, atmosphere and ionosphere	Lou-Chuang Lee
10：15~11：00	Studies to evaluate seismicity using statistical methods	Kazu Z. Nanjo
11：00~11：45	Dynamics of volcanic eruptions: Understanding volcanoes for monitoring their activity. Electromagnetic field contribution	Jacques Zlotnicki
11：45~12：00	**Group Photo**	
12：00~13：00	**Lunch Break**	
Special Session	**Hunga Tonga-Hunga Ha'apai volcano eruption on 15 January 2022 (Chair: Cheng-Horng Lin and Tiger JY Liu)**	
13：00~13：20	Physical theory and TEC correlation analysis linking Tonga-Hunga Ha'apai volcano eruption on 15 January 2022 and the ionospheric anomaly immediately preceding it **(invited)**	Ken Umeno
13：20~13：40	How can a shock wave with a 2 cm pressure disturbance lead to a tsunami larger than 40 cm in the Tonga Volcanic Tsunami Event in 2022? **(invited)**	Tso-Ren Wu
13：40~14：00	Explosive eruption of the Tonga underwater volcano induced large-scales disturbances in the ionosphere on 15 January 2022 **(invited)**	Yang-Yi Sun
14：00~14：20	Significant Earth's response to the 2022 Tonga eruption shock wave across Taiwan from various instrument observations **(invited)**	Bor-Shouh Huang
14：20~14：40	Observations of ionospheric disturbances - from space weather events to Tonga Volcano eruptions **(invited)**	Charles C.H. Lin
14：40~15：00	**Coffee Break**	
15：00~15：20	Study of the precursors and the secondary effects of Hunga Tonga-Hunga Ha'apai main eruption with a multi-parametric and multi-layer approach **(invited)**	Serena D'Arcangelo

15：20~15：40	Tsunami traveling ionospheric disturbances triggered by the Tonga Volcano eruption on 15 January 2022 **(invited)**	Chi-Yen Lin
15：40~16：00	The far-field LAI coupling associated with the Hunga Tonga-Hunga Ha'apai eruption **(invited)**	Chieh-Hung Chen
16：00~16：20	Observations of traveling ionospheric disturbances induced by the 15 January 2022 Tonga Volcano eruption **(invited)**	Tien-Chi Liu
16：20~16：40	Resonator-wave disturbances in the Earth-Atmosphere-Ionosphere system caused by the powerful (Hunga-Tonga) volcano: influence of sources "from below" on space weather **(invited)**	Yuriy Rapoport
16：40~17：00	Open-ocean tsunami waves generated by the 2022 Hunga-Tonga volcanic eruption **(invited)**	Emmy Chang
17：00~17：20	Earth's magnetic field disturbances by the 15 January 2022 Tonga volcano eruption observed in Taiwan **(invited)**	Tiger JY Liu

23 August 2022, Tuesday

(Location：R2-116, Center for Space and Remote Sensing Research, National Central University)		
Time	**Title**	**Author/Chair**
09：00~11：00	**Plenary section**	**Tiger JY Liu**
09：00~09：25	Taiwan **Mi**lun fault **D**rilling and **A**ll-inclusive **S**ensing (MiDAS) project: downhole optical fiber through frequent slip active fault zone, and co-site hydrological well for the opportunity of deciphering the co-seismic behaviors and precursors	Kuo-Fong Ma
09：25~09：50	Statistical study of correlations of earthquakes and particle bursts in the electron fluxes measured by the CSES and NOAA-POE19 satellites	R. Battiston
09：50~10：15	Assessment of Earthquake Precursors and Short-term Earthquake Forecast	Katsumi Hattori
10：15~10：40	Earthquake precursors in the atmosphere and ionosphere: New concepts	Sergey Pulinets
10：40~10：55	**Coffee Break**	
Session 1	**ELM1：Electromagnetic methods for seismicity and volcano monitoring (Chair: Chi-Yen Lin and Fu-Yuan Chang)**	
10：55~11：10	The ionospheric TEC monitoring system and the ionospheric properties before earthquakes in Taiwan **(invited)**	Koichi C. H. Chen
11：10~11：25	MODIS approach to monitor volcanic activity; detection of lava activity in the 2011 and 2018 Mt. Shinmoedake	Akitsugu Kitade
11：25~11：40	Deep learning and statistical analyses on seismo-ionospheric precursors of the total electron content associated with the 11 March 2011 M9.1 Tohoku earthquake	Yun-Cheng Wen
11：40~11：55	Deep learning of detecting ionospheric precursors associated with $M \geq 6.0$ earthquakes in Taiwan	H. K. Jhuang
11：55~12：10	Extraction and evaluation of seismo-magnetic signal based on transfer function and Molchan's error diagram	Hongyan Chen
12：10~13：00	**Lunch Break**	
Session 2	**TLS1：Theoretical and laboratory studies for understanding seismic and volcanic phenomena (Chair: Chi-Yen Lin and Fu-Yuan Chang)**	
13：00~13：20	Recent advances in natural time analysis of seismicity **(invited)**	Nicholas V. Sarlis

13：20~13：35	Temporal variation of b value with statistical test in Wenchuan area, China prior to the 2008 Wenchuan earthquake and the 2003 Tokachi earthquake, Japan	Katsumi Hattori
13：35~13：50	Google Earth Engine Apps for the monitoring of active volcanoes at a global scale **(invited)**	Nicola Genzano
13：50~14：05	Study of local radon gas ionization for Alaska earthquake	Suryanshu Choudhary
14：05~14：20	Analysis of the possible mechanism of electromagnetic earthquake triggering	Victor Novikov
14：20~14：35	Numerical simulation of seismoelectric wave field due to a shallow or ground source in stratified porous media	Xu-Zhen Zheng
Session 3	**SAT2：Satellite observations for volcanic and seismic hazard assessment and monitoring (Chair: Chi-Yen Lin and Fu-Yuan Chang)**	
14：35~14：50	Analysis of Swarm satellite magnetic field data for the 2015 Mw7.8 Nepal earthquake based on non-negative tensor decomposition **(invited)**	Mengxuan Fan
14：50~15：05	Understanding the transfer entropy peak between West Pacific earthquakes and NOAA electron bursts **(invited)**	Cristiano Fidani
15：05~15：20	The lightning whistler observation by the China Seismo-Electromagnetic Satellite (CSES)	Qiao Wang
15：20~15：35	Statistical research on seismo-ionospheric ion density enhancements observed via DEMETER	Rui Yan
15：35~15：50	**Coffee Break**	
Session 5	**MIA1：Magnetospheric, ionospheric, atmospheric, and lithospheric coupling (Chair: Chi-Yen Lin and Fu-Yuan Chang)**	
15：50~16：05	The 3-D ionospheric Ne changes related to the M9.0 Tohoku Earthquake on March 11, 2011 **(invited)**	Rui Song
16：05~16：20	Spatial analyses of the M7.1 earthquake precursors observed by FORMOSAT-7/COSMIC-2 on 14 November 2019 **(invited)**	Fu-Yuan Chang
16：20~16：40	Strong variations of geomagnetically induced currents in the Earth crust as a possible trigger of earthquakes	Victor Novikov
16：40~16：55	Analysis of seismic waves modulation in the upper atmosphere for earthquake precursor	Ashok Kumar Sharma
16：55~17：10	Intensified dynamo electric field associated with large earthquakes	Koichiro Oyama
Session 6	**ELM2：Electromagnetic signals associated with earthquakes and volcanic eruptions (Chair: Chi-Yen Lin and Fu-Yuan Chang)**	

17：10~17：25	A comprehensive multiparametric and multilayer approach to search for precursory lithospheric, atmospheric and ionospheric signals of the June 15 2019, M7.2 Kermadec Islands (New Zealand) earthquake **(invited)**	Dario Sabbagh
17：25~17：40	Development and performance of MSSA (Multi-channel Singular Spectrum Analysis) based signal discrimination method for MT/ULF electromagnetic data observed in the Boso Peninsula, Japan	Shu Kaneko
17：45~18：00	Hidden Markov Modelling between Geo-electromagnetic Data and Earthquake Catalogue	Hong-Jia Chen
18：00~18：15	Study of geomagnetic observations associated with earthquakes	Horng-Yuan Yen

24 August 2022, Wednesday

(Location：R2-116, Center for Space and Remote Sensing Research, National Central University)		
Time	**Title**	**Author/Chair**
09：00~11：50	**Plenary section**	**Tiger JY Liu**
09：00~09：30	Active volcanoes in Taiwan	Cheng-Horng Lin
09：30~10：00	Current status and main scientific outcomes of the CSES mission	Xuhui Shen
10：00~10：30	Spatial features of pre-earthquake signatures in the Atmosphere/Ionosphere connected with the earthquake preparation zone	Dimitar Ouzounov
10：30~10：50	**Coffee Break**	
10：50~11：20	The MVP-LAI instrumental array in Sichuan, China	Chieh-Hung Chen
11：20~11：50	25 years of long-term analyses of TIR satellite radiances: lesson learnt and implications toward a multi-parametric t-DASH system	Valerio Tramutoli
11：50~13：00	**Lunch Break**	
Session 4	**MP1：Earthquake and volcano related phenomena investigation by multidisciplinary and multi-parametric approaches (Chair: Chi-Yen Lin and Fu-Yuan Chang)**	
13：00~13：20	Advances on detecting pre-earthquake electromagnetic signals from ground to space: some evidence from single case studies and from systematic worldwide analyses **(invited)**	Angelo De Santis
13：20~13：35	Spatial features of pre-earthquake signatures in the Atmosphere/Ionosphere connected with the earthquake preparation zone	Dimitar Ouzounov
13：35~13：50	Possible lithosphere, atmosphere and ionosphere couplings observed before large earthquakes in the last years	Dedalo Marchetti
13：50~14：05	Multi-parameter anomalies before 2021 Maduo earthquake in China	Zhi-qiang Mao
14：05~14：25	The precursor information mining from multiple observations by source separation tracing associated with earthquake preparation **(invited)**	Kaiguang Zhu
14：25~14：40	Multi-channel singular spectrum analysis of soil radon concentration data at Asahi station, Japan: relation between soil radon flux and precipitation and the local seismic activity	Katsumi Hattori
14：40~14：55	**Coffee Break**	

14：55~15：10	Spatial and temporal analysis of CO anomalies in the preparation phase of the 2008 Wenchuan Ms 8.0 earthquake	Kaiguang Zhu
15：10~15：25	The ionospheric perturbations around 2021 Yangbi Ms6.4 and Maduo Ms7.4 earthquakes in China	Xuemin Zhang
15：25~15：40	Detecting earthquake-related anomalies of borehole strain based on environmental response removal	Kaiguang Zhu
15：40~16：00	Ground motion to modify ionosphere before large earthquakes - new findings **(invited)**	Koichiro Oyama
16：00~16：15	Coupling phenomena due to the solar eclipse on 21 June 2020	Yang-Yi Sun
16：15~16：30	Ionospheric precursors of the 12 November 2017 Iran-Iraq Border M7.3 earthquake observed by FORMOSAT-5/AIP	Tiger JY Liu
16：30~17：00	**Closing Remark**	