Curriculum Vitae

2019/10/20

**Name:** Liu, Jann-Yenq (Tiger) 劉正彥

**Date of Birth:** 27 February 1958

**Citizenship:** TAIWAN

**Position and Institution:** Chair Professor, Graduate Institute of Space Science, National Central University

Director, Center for Astronautical Physics and Engineering, National Central University

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**Education**

1988-1990 PhD Physics Utah State University USA

1983-1988 MS Physics Utah State University USA

1976-1980 BS Atmospheric Physics National Central University TAIWAN

**Specialized Field**

1. Ionospheric Radio Sciences

2. GPS Geosciences Applications

3. Seismo-ionospheric Precursors and Disturbances

4. Ionospheric Space Weather and Climate

**Professional Background**

1997/8-present Professor Institute of Space Science (ISS), National Central University (NCU)

2016/8-present Senior Consultant National Space Organization (NSPO)

2017/5-2017/6 Visiting Professor Faculty of Sciences, Chiba University

2017/3-2017/4 Visiting Professor Dept. of Civil & Enviro. Engineering, National Univ. of Singapore

2017/1 Visiting Professor Institut de Physique du Globe de Paris (IPGP)

2011/1-2015/6 Chief Scientist National Space Organization (NSPO)

2011/1-2011/12 Director Earth Sci. Res. Promotion Center (ESRPC)

2009/7-2010/7 Visiting Scholar National Center for Atmosphere Res. (NCAR)

2008/4-2009/5 Director GPS Sci. Application Res. Center (GPSARC)

2006/2 Visiting Professor Faculty of Sciences, Kyushu University

2002/8-2005/7 Director Institute of Space Science, NCU/ISS

2001/6-2001/9 Visiting Professor RASC, Kyoto University

2001/2-2001/5 Visiting Professor Academia Sinica

1994/8-1995/2 Visiting Scientist EISCAT, Tromsø, Norway

1990/8-1997/7 Associ. Professor NCU/ISS

1992 Trainee FAIS, Toulouse Center, France

1992 Trainee JHU/APL

1988-1990 RA/TA CASS/Phys. Dept., USU

1987-1988 Instructor HAFB, Ogden Area Center, USU

1985-1986 RA NASA, Marshall Space Flight Center

1983-1985 RA/TA CASS/Phys. Dept., USU

**Academic Awards or Honors**

International Space Science Institute (ISSI-Bern), Team Leader of Ionospheric Space Weather Studied by RO and Ground-based GPS TEC Observations: International Teams selected in 2016

National Taitung University Distinguish Chair Professor (2016/9-2019/7)

NCU Chair Professor (2015/8-2018/7)

Ministry of Science and Technology Outstanding Research Award (2014/8-2017/7)

NCU Distinguish Professor for Outstanding Research (2013/1-2015/12)

National Science Council Outstanding Research Award (2010/8-2013/7)

NCU Distinguish Professor for Outstanding Research (2010/1-2012/12)

NCAR Advanced Study Program- Faculty Fellowship Program (2009/8-2010/7)

National Science Council Outstanding Research Award (2006/8-2009/7)

NCU Distinguish Professor for Outstanding Research (2006/8-2009/7)

USU Presidential Fellowship (1989-1990)

**Memberships**

1. American Geophysical Union (AGU)

2. Chinese Geoscience Union (CGU)

3. European Geosciences Union (EGU)

4. Asia Oceania Geosciences Society (AOGS)

5. Japanese Geoscience Union (JpGU)

6. American Metrology Society (AMS)

**Academic Activity and Service**

AOGS ST (Solar Terr.) Vice President (President Elected 2017/8): 2017/8-2021/7

IAGA-Taiwan President: 2016/6-present

EMSEV- Secretary in General: 2018-present

EMSEV- Bureau/IAGA Liaison: 2007-present

CGU Secretary in General: 2011/2-2014/2

COSPAR-Taiwan President: 2008/1-2012/7

AOGS STI (Solar Terr. Ionosphere) Secretary: 2003/7-2005/6

URSI (International Union of Radio Science)-SRS Secretary: 2002-2004

Invited Member of 2014 International Team: 298 Multi-instrument Space-Borne Observations and Validation of the Physical Model of the Lithosphere-Atmosphere-Ionosphere-Magnetosphere Coupling (team leader: Pulinets S. (RU) & D. Ouzounov (US)) granted by International Space Science Institute, ISSI-Bern.

Invited Member of 2015 International Team: 10 Validation of Lithosphere-Atmosphere- Ionosphere-Magnetosphere Coupling (LAIMC) (team leader: Ouzounov D. (US) & Zhang X. (CN)) granted by International Space Science Institute, ISSI-Beijing.

Invited Member of 2015 International Team: 345 Understanding Solid Earth/Ocean-Ionosphere Coupling: Improving Models and Observational Capabilities for Monitoring Tsunamis from Space (2016-2017, (team leader: Makela J. (US) & Rolland L. (FR)) granted by International Space Science Institute, ISSI-Bern.

Terrestrial, Atmospheric and Oceanic Sciences (TAO) special issue: FORMOSAT-5, Guest Editor 2016

Journal of Asian Earth Sciences (JAES) special issue: iSTEP, Guest Editor: 2014-2015

Atmospheric Measurement Techniques (AMT) special issue Observing Atmosphere and Climate with Occultation Techniques - Results from the OPAC-IROWG 2013 Workshop, Guest Editor: 2014-2015

Physics and Chemistry of the Earth (PCE) special issue: Electromagnetic phenomena associated with Earthquakes and Volcanoes, Guest Editor 2009

Journal of Asian Earth Sciences (JAES) special issue: Validation of earthquake precursors-VESTO, Guest Editor 2009

Terrestrial, Atmospheric and Oceanic Sciences (TAO) special issue: FORMOSAT-3/COSMIC, Guest Editor 2007

Terrestrial, Atmospheric and Oceanic Sciences (TAO) special issue: Earthquake precursor, Guess Editor 2005

Journal Referee: JGR, GRL, JAES, JASTP, EPS, AG, EPS, PCE, TAO, ASR.

Selected Publications. Liu, Jann-Yenq (Tiger) is the author of 270+ publications, all in peer-reviewed scientific journals.

\*Corresponding Author

Sun, Y. Y., J. Y. Liu\*, C. H. Lin, C. Y. Lin, M. H. Shen, C. H. Chen, and M. Y. Chou (2018). Ionospheric bow wave induced by the moon shadow ship over the continent of United States on 21 August 2017, *GRL*, **45**. [doi.org/10.1002/2017GL075926](https://doi.org/10.1002/2017GL075926).

Chen S. P., D. Bilitza, J. Y. Liu\*, R. Caton, Loren C. Chang and W. H. Yeh (2017). An empirical model of L-band scintillation S4 index constructed by using FORMOSAT-3/COSMIC data, *Adv. Space Res.*, **60**, Issue 5, 1015-1028.

Sun, Y. Y., J. Y. Liu\*, H. F. Tsai, A. Krankowski (2017). Global ionosphere map constructed by using total electron content from ground-based GNSS receiver and FORMOSAT-3/COSMIC GPS occultation experiment, *GPS Solutions*, 1583-1591, doi:10.1007/s10291-017-0635-4.

Liu, J. Y.\*, and C. K. Chao (2017). An observing system simulation experiment for FORMOSAT-5/AIP detecting seismo-ionospheric precursors, *Terr. Atmo. Ocean. Sci.*, **28**, 117-127, doi:10.3319/TAO.2016.07.18.01(EOF5).

Sun, Y. Y., J. Y. Liu, C. Y. Lin, H. F. Tsai, Loren C. W. Chang, C. Y. Chen, and C. H. Chen (2016). Ionospheric F2 region perturbed by the 25 April 2015 Nepal earthquake, *JGR: Space Physics*, **121**, 5778–5784, doi:10.1002/2015JA022280.

Liu, J. Y.\*, C. H. Chen, Y. Y. Sun, C. H. Chen, H. F. Tsai, H. Y. Yen, J. Chum, J. Lastovicka, Q. S. Yang, W. S. Chen, S. Wen (2016). The vertical propagation of disturbances triggered by seismic waves of the 11 March 2011 M9.0 Tohoku Earthquake over Taiwan, *GRL*, **43**, 1759-1765, doi:10.1002/2015GL067487.

Liu, J. Y.\*, Y. I. Chen, C. H. Huang, Y. Y. Ho, C. H. Chen (2015). A Statistical Study of Lightning Activities and M ≥ 5.0 Earthquakes in Taiwan During 1993–2004, *Surveys in Geophysics*, 36:851-859, doi:10.1007/s10712-015- 9342-2.

Liu, J. Y.\*, C. Y Lin, and H. F. Tsai (2015). Electron density profiles probed by radio occultation of FORMOSAT-7/COSMIC-2 at 520 and 800 km altitude, *Atmo. Measur. Tech.*, **8**, 3069-3074, doi:10.5194/amt-8-3069-2015.

Liu, J. Y.\*, Y. I. Chen, C. C. Huang, M. Parrot, X. H. Shen, S.A. Pulinets , Q. S. Yang, and Y. Y. Ho, (2015). A spatial analysis on seismo-ionospheric anomalies observed by DEMETER during the 2008 M8.0 Wenchuan earthquake, *J. Asian Earth Sci.*, **114**, 414-419, doi:10.1016/j. jseaes.2015.06.012.

Liu, J. Y.\*, F. Y. Chang, K. I. Oyama, Y. Kakinami, H. C. Yeh, T. L. Yeh, S. B. Jiang, and M. Parrot (2014). Topside ionospheric electron temperature and density along the Weddell Sea latitude, *JGR: Space Physics*, **119**, 1-6, doi:10.1002/2014JA020227.

Liu, J. Y.\*, K. Wang, C. H. Chen, W. H. Yang,Y. H. Yen, Y. I. Chen, K. Hatorri, H. T. Su, R. R. Hsu, and C. H. Chang (2013). A statistical study on ELF-whistlers/emissions and M ≥ 5.0 earthquakes in Taiwan, *JGR: Space Physics*, **118**, 3760-3768, doi:10.1002/ jgra.50356.

Lee, I. T., J. Y. Liu\*, C. H. Lin, K.-I. Oyama, C. Y. Chen, and C. H. Chen (2012). Ionospheric plasma caves under the equatorial ionization anomaly, *JGR*, **117**, A11309, doi:10.1029/2012JA017868.

Liu, J. Y.\*, C. H. Chen, C. H. Lin, H. F. Tsai, C. H. Chen, and M. Kamogawa (2011). Ionospheric disturbances triggered by the 11 March 2011 M9.0 Tohoku Earthquake, *JGR*, **116**, A06319, doi:10.1029/2011JA016761.

Liu, J. Y.\*, Y. I. Chen, C. H. Chen, and K. Hattori (2010). Temporal and spatial precursors in the ionospheric global positioning system (GPS) total electron content observed before the 26 December 2004 M9.3 Sumatra-Andaman Earthquake, *JGR*, **115**, A09312, doi:10.1029/ 2010JA015313.

Liu, J. Y.\*, H. F. Tsai, C. H. Lin, M. Kamogawa, Y. I. Chen, C. H. Lin, B. S. Huang, S. B. Yu, Y. H. Yeh (2010). Coseismic ionospheric disturbances triggered by the Chi-Chi earthquake, *JGR*, **115**, A08303, doi:10.1029/2009JA014943.

Liu, J. Y.\*, C. Y. Lin, C. H. Lin, H. F. Tsai, S. C. Solomon, Y. Y. Sun, I. T. Lee, W. S. Schreiner, and Y. H. Kuo (2010). Artificial plasma cave in the low-latitude ionosphere results from the radio occultation inversion of the FORMOSAT-3/COSMIC, *JGR*,**115**, A07319, doi:10.1029/2009JA015079.

Liu, J. Y.\*, Y. I. Chen, C. H. Chen, C. Y. Liu, C. Y. Chen, M. Nishihashi, J. Z. Li, Y. Q. Xia, K. I. Oyama, K. Hattori, and C. H. Lin (2009). Seismo-ionospheric GPS total electron content anomalies observed before the 12 May 2008 Mw7.9 Wenchuan earthquake, *JGR,* **114**, A04320, doi:10.1029/2008JA013698.

Lin, C. H., C. C. Hsiao, J. Y. Liu\*, and C. H. Liu (2007). Longitudinal structure of the equatorial ionosphere: Time evolution of the four-peaked EIA structure, *JGR*, **112**, A12305, doi:10.1029/2007JA012455.

Liu, J. Y.\*, Y. B. Tsai, K. F. Ma, Y. I. Chen, H. F. Tsai, C. H. Lin, M. Kamogawa, and C. P. Lee (2006). Ionospheric GPS total electron content (TEC) disturbances triggered by the 26 December 2004 Indian ocean tsunami, *JGR*, **111**, A05303, 10.1029/2005JA011200.

Liu, J. Y.\*, Y. I. Chen, Y. J. Chuo, and C. S. Chen (2006) A statistical investigation of pre-earthquake ionospheric anomaly, *JGR*, **111**, A05304, doi:10.1029/2005JA 011333.

Liu, J. Y.\*, Y. B. Tsai, S. W. Chen, C. P. Lee, Y. C. Chen, H. Y. Yen, W. Y. Chang, and C. Liu (2006). Giant ionospheric disturbances excited by the M9.3 Sumatra earthquake of 26 December 2004, *GRL*, **33**, L02103, doi:10.1029/ 2005GL023963.

Liu, J. Y.\*, Y. J. Chuo, S. J. Shan, Y. B. Tsai, Y. I. Chen, S. A. Pulinets, and S. B. Yu (2004). Pre-earthquake ionospheric anomalies registered by continuous GPS TEC measurement, *Ann. Geophys.*, 1585-1593.

Liu, J. Y.\*, Y. I. Chen, Y. J. Chuo, and H. F. Tsai (2001). Variations of ionospheric total electron content during the Chi-Chi earthquake, *GRL,* **28**, 1383-1386.

Liu, J. Y.\*, Y. I. Chen, S. A. Pulinets, Y. B Tsai, and Y. J. Chuo (2000).Seismo-ionospheric signatures prior to M>6.0 Taiwan earthquakes, *GRL,* **27**, 3113-3116**.**

Liu, J. Y.\*, K. Hattori, and Y. I. Chen (2018) Application of the GNSS total electron content (TEC) for detecting earthquake precursors, Chapter 17, *Pre-Earthquake Processes: A Multidisciplinary Approach to Earthquake Prediction Studies*, Ed. D. Ouzounov, S. Pulinets, K. Hattori, P. Taylor, ISBN: 978-1-119-15693-2, 414 pages, June 2018, American Geophysical Union.