

LOREN CHEEWEI CHANG (張起維)

Highest Education: Ph.D., University of Colorado. USA (2010)

Present Position: Associate Professor (2015--)

Joined NCU Faculty: 2012.8

Research Speciality: Upper & Middle Atmosphere Dynamics, Mesosphere, Lower Thermosphere, Atmosphere-Ionosphere Coupling, Satellite Data Analysis, Satellite Remote Sensing, Small Spacecraft Design and Operations

E-mail: loren@ncu.edu.tw

A. Refereed Papers

Chang, L.C.\*, J. Yue, W. Wang, Q. Wu, R.R. Meier,

Quasi-two day wave related variability in the background dynamics and composition of the mesosphere / thermosphere, and the ionosphere,

*J. Geophys. Res. Space Physics*, 119, doi:10.1002/2014JA019936. 2014 (SCI)

Chen, Y.T., C.H. Lin, C.H. Chen\*, J.Y. Liu, J.D. Huba, L.C. Chang, J.T. Lin,

Theoretical study of the ionospheric plasma cave in the equatorial ionization anomaly region,

*J. Geophys. Res. Space Physics*, 119, doi:10.1002/2014JA020235. 2014 (SCI)

Chang, L.C.\*, H. Liu, Y. Miyoshi, C.-H. Chen, F.-Y. Chang, C.-H. Lin, J.-Y. Liu, Y.-Y. Sun,

Structure and origins of the Weddell Sea Anomaly from tidal and planetary wave signatures in FORMOSAT-3/COSMIC observations and GAIA GCM simulations,

*J. Geophys. Res. Space Physics*, 120, doi:10.1002/2014JA020752. 2015 (SCI)

Gan, Q.\*, J. Yue, L.C. Chang, W.B. Wang, S.D. Zhang, and J. Du,

Observations of thermosphere and ionosphere changes due to the dissipative 6.5-day wave in the lower thermosphere,

*Ann. Geophys.*, 33, doi:10.5194/angeo-33-913-2015. 2015 (SCI)

Chang, F.Y., J.Y. Liu, C.H. Lin, C.H. Chen, L.C. Chang, Eastward phase shift of electron densities in the middle and high latitude ionosphere, *Earth Planets Space*, 67, DOI:10.1186/s40623-015-0326-8. 2015 (SCI).

Yue, J.\*, W. Wang, H. Ruan, L. Chang, J. Lei, Impact of the interaction between the quasi two-day wave and tides on the ionosphere and thermosphere, *J. Geophys. Res. Space Physics*, 121, doi:10.1002/2016JA022444. 2016 (SCI)

Liu, J\*, L.C. Chang, C.K. Chao, M.Q. Chen, Y.H. Chu, L.N. Hau, C.M. Huang, C.L. Kuo, L.C. Lee, L.H. Lyu, C.H. Lin, C.J. Pan, J.H. Shue, C.L. Su, L.C. Tsai, Y.H. Yang, C.H. Lin, R.R. Hsu, and H.T. Su, The fast development of solar terrestrial sciences in Taiwan, *Geosci. Lett.*, 3:18., doi:10.1186/s40562-016-0049-0. 2016 (SCI).

Sun, Y.-Y., J.-Y. Liu, C.-Y. Lin, H.-F. Tsai, L. C. Chang, C.-Y. Chen, and C.-H. Chen, Ionospheric F2 region perturbed by the 25 April 2015 Nepal earthquake, *J. Geophys. Res. Space Physics*, 121, doi:10.1002/2015JA022280. 2016 (SCI)

Chang, L. C.\*, Y.-Y. Sun, J. Yue, J. C. Wang, and S.-H. Chien, Coherent seasonal, annual, and quasi-biennial variations in ionospheric tidal/SPW amplitudes, *J. Geophys. Res. Space Physics*, 121, 1–16, doi:10.1002/2015JA022249. 2016 (SCI).

Chang, L.C.\*, J. Salinas, J.C. Wang, J.Y. Su, D. Yi, J. Hong, Y.C. Chiu, S.C.R. Chen, A. Chandran, M. McGrath, D. Fritts, L. Gordley, and J. Fisher, A Preliminary Design for the INSPIRESat-1 Mission and Satellite Bus: Exploring the Middle and Upper Atmosphere with CubeSats, *Proceedings of the AIAA/USU Conference on Small Satellites*, LEO Missions, SSC16-WK-02. <http://digitalcommons.usu.edu/smallsat/2016/all2016/2/>. 2016.

Gan, Q., W. Wang, J. Yue, H.-L. Liu, L. Chang, S. Zhang, J. Du, A. Burns, Numerical simulation of the 6-day wave effects on the ionosphere: dynamo modulation, *J. Geophys. Res. Space Physics*, 121, doi: 10.1002/2016JA022907. 2016 (SCI).

Salinas, C.C.J.H., L.C. Chang\*, M.-C. Liang, J. Yue, J. Russell III, and M. Mlynczak, Impacts of SABER CO<sub>2</sub>-based Eddy Diffusion Coefficients in the Lower Thermosphere on the Ionosphere/Thermosphere, *J. Geophys. Res. Space Physics*, 121, doi:10.1002/2016JA023161. 2016 (SCI).

Wang, J.C., L.C. Chang, J. Yue, W. Wang, D.E. Siskind, The Quasi-Two-day Wave Response in TIME-GCM nudged with NOGAPS-ALPHA, *J. Geophys. Res. Space Physics*, doi:10.1002/2016JA023745. 2017 (SCI).

Chen, S.-P., D. Bilitza, J.-Y. Liu, R. Caton, L.C. Chang, W.-H. Yeh (2017), An Empirical Model of L-band Scintillation S4 index Constructed by Using FORMOSAT-3/COSMIC Data, *Adv. Space Res.*, 60, doi:10.1016/j.asr.2017.05.031 (SCI).

Chou, M.Y., C. H. Lin, J. Yue, L. C. Chang, H.F. Tsai, and C.H. Chen (2017), Medium-scale traveling ionospheric disturbances triggered by Super Typhoon Nepartak (2016), *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL073961.

Chang, L.C.\*, A. Chandran, C.-K. Chao, J.-Y. Liu, C.-H. Lin, and T.-W. Fang (2017), “Scintillation and Ionosphere Network (SCION) - A Proposed CubeSat Constellation for Space Weather Monitoring”, 2017 AASRC Conference, 31-01.

Wang, J.C., R. Tsai-Lin, L.C. Chang\*, Q. Wu, C.C.-H. Lin, J. Yue (2018), Modeling Study of the Ionospheric Responses to the Quasi-biennial Oscillations of the Sun and Stratosphere, *J. Atmos. Sol.-Terr. Phys.*, 171, doi:10.1016/j.jastp.2017.07.024.

Salinas, C.C.J.H. and L. Chang\* (2018), EOF analysis of COSMIC observations on the global zonal mean temperature structure of the Upper Troposphere and Lower Stratosphere from 2007 to 2013, *J. Atmos. Sol.-Terr. Phys.*, 171, doi:10.1016/j.jastp.2017.08.021.

Chang, L.C.\*, P.-Y. Chiu, C.C.J.H. Salinas, S.-P. Chen, Y. Duann, J.-Y. Liu, C.-H. Lin (2018), On the Relationship between E Region Scintillation and ENSO Observed by FORMOSAT-3/COSMIC, *J. Geophys. Res. Space Physics*, 123, doi:10.1029/2018JA025299.

Sun, Y.-Y., H. Liu, Y. Miyoshi, L. Liu, and L.C. Chang (2018), El Niño–Southern Oscillation effect on quasi-biennial oscillations of temperature diurnal tides in the mesosphere and lower thermosphere, *Earth Planets Space*, 70, doi:10.1186/s40623-018-0832-6.

Chen, C.Y., J.Y. Liu, I.T. Lee, H. Rothkaehl, D. Przepiorka, L.C. Chang, B. Matyjasiak, K. Ryu, and K.-I. Oyama (2018), The mid-latitude trough and the plasmopause in the nighttime ionosphere simultaneously observed by DEMETER during 2006-2009, *J. Geophys. Res. Space Physics*, doi:10.1029/2017JA024840.

Chou, M.-Y., C.C.H. Lin, J.D. Huba, C.-P. Lien, C.H. Chen, J. Yue, L.C. Chang, and P.K. Rajesh (2018), Numerical modeling of the concentric gravity wave seeding of low-latitude nighttime medium-scale traveling ionospheric disturbances, *Geophys. Res. Lett.*, doi:10.1029/2018GL077959, accepted.

## B.三年內執行之研究計畫

學年度	研究計畫名稱	計畫經費	補助單位
104	中層大氣准二年震盪與背景風場對高層大氣變化之機制與呈現	1,874,000	科技部
	氣象立方衛星國際合作可行性評估計畫	580,000	
105	高層大氣酬載之國際合作立方體衛星任務開發與作業	4,587,000	科技部
	中層大氣准二年震盪與背景風場對高層大氣變化之機制與呈現(3/3)	1,944,000	科技部
106	高層大氣酬載之國際合作立方體衛星任務開發與作業	1,569,000	科技部
	大氣波動與電磁耦合整合計畫(I)-子計畫:渦流擴散對熱氣層電離層氣候影響與變遷	2,340,000	科技部
107	姿態控制軌道推算技術研發與分析	438,700	國家太空中心
	臺俄(RU)國合計畫一以創新觀測開發太空天氣預報與研究用之經驗、資料同化與物理模型	2,700,000	科技部

## C.三年內開授課程

學年度	(必/選)課程名稱	選修人數
104	上學期 (選)服務學習課程	37 人
	(選)軌道運動學	7 人
	(選)高等太空科學 I	11 人
	(選)大氣波耦合 I	2 人
	(選)太空任務設計 I	8 人
	下學期 (選)服務學習課程	35 人
	(必)向量分析	41 人
	(選)太空物理學 II	36 人
	(選)太空任務設計 II	9 人
	105	上學期 (選)服務學習課程
(必)高等太空科學 I		23 人
(選)大氣波耦合 I		2 人
(選)太空任務設計 I		2 人
(必)力學 I		41 人
下學期 (選)服務學習課程		34 人
(選)太空任務設計 II		3 人
(必)力學 II		42 人

106	上學期	(選)大氣波耦合 I	3 人
		(選)太空任務設計 I	7 人
		(必)力學 I	35 人
	下學期	(選)太空任務'設計 II	4 人
		(必)力學 II	39 人

D.三年內指導研究生狀況

學年度	博士班(人)	碩士班(人)	畢業人數	
			博士	碩士
104	1	5	0	2
105	1	5	0	0
106	2	5	0	2

E.三年內之學術性服務工作項目(請註明校內或校外)

學年度	校內/校外
104	<p>擔任 2016 年 JpGU-AGU Joint Meeting 會議 Session P-EM-3: Mesosphere-Thermosphere-Ionosphere Coupling in the Earth's Atmosphere 研討會共同招集人。</p> <p>擔任 2016 INSPIRE Workshop 及 6<sup>th</sup> IAGA/ICMA/SCOSTEP Workshop on Vertical Coupling in the Atmosphere-Ionosphere System 招集人、在地籌備委員。</p> <p>International Association of Geomagnetism and Aeronomy (IAGA) 國家委員。</p>
105	<p>擔任 Journal of Atmospheric and Solar-Terrestrial Physics Vertical Coupling 特特刊客座編輯。</p> <p>擔任 2017 年 JpGU-AGU Joint Meeting 會議 Session P-EM-11: Mesosphere-Thermosphere-Ionosphere Coupling in the Earth's Atmosphere 研討會招集人。</p>
106	<p>擔任 CEDAR Science Steering Committee 國際代表。</p> <p>擔任 2017 年 COSPAR Symposium 會議 Session 6-2: Education and Capacity Building in Science and Engineering Using Small Satellites 研討會招集人。</p> <p>擔任 SCOSTEP Next Scientific Program Committee 委員。</p> <p>擔任科技部大氣科學學門複審委員。</p> <p>擔任 2018 年 JpGU Meeting 會議 Session P-EM-10: Coupling Processes in the Atmosphere-Ionosphere System 研討會招集人。</p> <p>擔任 2018 年 AOGS Meeting 會議 Session ST-04: Mesosphere-Thermosphere-Ionosphere Coupling Processes 研討會招集人。</p>

## F.三年內之教研獎勵事蹟

學年度	國科會	其他(請證明)
102		Young Scientist Award, Asia Pacific Radio Science Conference 中大新聘傑出教研人員獎勵
103		中央大學新聘傑出教研人員獎勵
104	吳大猷先生紀念獎	中大學術研究傑出獎勵「研究傑出獎」
105		中研院年輕學者著作獎
106		中大學術研究傑出獎勵「研究傑出獎」