

Curriculum Vitae

Mao-Chang Liang

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Personal Information

1. B.S. in Physics in 1998 (1994-1998), National Tsing Hua University
2. M.S. in Physics in 2000 (1998-2000), National Tsing Hua University
3. Ph.D. in Planetary Science (Astronomy minor) in 2005 (2002-2005), California Institute of Technology

Honors and Awards

1. Phi Tau Phi Scholarship (2005)
2. Li Foundation Heritage Prize (2007): Excellence in Creativity
3. National Science Council Ta-You Wu Memorial Award (2009)
4. Academia Sinica Career Development Award (2010)
5. National Science Council Project for Excellent Junior Research Investigators (2012)
6. Academia Sinica Research Award for Junior Research Investigators (2016)
7. Academia Sinica Investigator Award (2020)
8. Ministry of Science and Technology Outstanding Research Award (2019)

Editorial Board Services

1. Nature Scientific Reports
2. Geosciences

Professional Research Activities

1. Referee for Science, Astrophysical Journal, Astrophysical Journal and Letters, Journal of Geophysical Research, Geophysical Research Letters, Geochimica et Cosmochimica Acta, Terrestrial, Atmospheric and Oceanic Sciences, Aerosol and Air Quality Research, Atmospheric Chemistry and Physics, RCM, Geosciences, Journal of Hydrology, PNAS, etc.

Professional Experience

1. Research Assistant, Institute of Astronomy and Astrophysics, Academia Sinica (2000-2002)
2. Research Assistant, Division of Geological and Planetary Sciences, California Institute of Technology (2002-5)
3. Teaching Assistant, Division of Geological and Planetary Sciences, California Institute of Technology (2003-5)
4. Staff, Division of Geological and Planetary Sciences, California Institute of Technology (2006-2006)

5. Visiting Scholar (Staff), Division of Geological and Planetary Sciences, California Institute of Technology (2006-2007)
6. Assistant Research Fellow, Research Center for Environmental Changes, Academia Sinica (2006-2008)
7. Assistant Professor (joint appointment), Graduate Institute of Astronomy, National Central University (2008-2009)
8. 8 Associate Research Fellow (adjunct), Institute of Astronomy and Astrophysics, Academia Sinica (2009-2016)
9. Associate Research Fellow, Research Center for Environmental Changes, Academia Sinica (2008-2018)
10. Associate Professor (adjunct), Graduate Institute of Astronomy, National Central University (2009-2018)
11. Research Assistant Professor (adjunct), Department of Physics, University of Houston (2013-2018)
12. Associate Research Fellow, Institute of Earth Sciences, Academia Sinica (2018-2018)
13. Research Fellow, Institute of Earth Sciences, Academia Sinica (2018-)

National Committee

1. Committee on Space Research (COSPAR)
2. International Association of Geomagnetism and Aeronomy (IAGA)

Professional Membership

1. American Astronomical Society (AAS and DPS)
2. American Geophysical Union

Journal Publications

1. H.-K. Chang, T. Guo, **M.-C. Liang**, C. Ho, Determining Emission Location and Mechanisms of High Energy Emission from Pulsars -- the Role of INTEGRAL, *Astrophysical Letters and Communications*, 38, 53, 1999.
2. **Liang, M.C.***; Geballe, T.R.; Lo, K.Y.; Kim, D.-C., Infrared Line Emission in the Interacting Region of Arp 244 (the Antennae): Colliding Molecular Cloud Complexes?, *Astrophysical Journal Letters*, 549(1), 59, 2001.
3. Zhi-Qiang Shen, **M. C. Liang**, K. Y. Lo, M. Miyoshi, Searching for Structural Variability in Sgr A*, *Astronomische Nachrichten*, 324(S1), DOI: 10.1002/asna.200385090, 2003.
4. Blake, G.A., **Liang M.C.**, Morgan C.G., and Yung Y.L., A Born-Oppenheimer photolysis model of N₂O fractionation, *Geophysical Research Letters*, 30(12), 58, 1656, doi:10.129/2003GL016932, 2003.
5. **Liang, Mao-Chang***; Parkinson, Christopher D.; Lee, Anthony Y.-T.; Yung, Yuk L.; Seager, Sara, Source of Atomic Hydrogen in the Atmosphere of HD 209458b, *Astrophysical Journal Letters*, 596, 247, 2003.

6. Morgan, C., M. Allen, **M.C. Liang**, R.L. Shia, G.A. Blake, and Y.L. Yung, Isotopic Fractionation of Atmospheric Nitrous Oxide, Journal of Geophysical Research, 109(D4), D04305, 2004.
7. **Liang, Mao-Chang***; Seager, Sara; Parkinson, Christopher D.; Lee, Anthony Y.-T.; Yung, Yuk L., On the Insignificance of Photochemical Hydrocarbon Aerosols in the Atmospheres of Close-in Extrasolar Giant Planets, Astrophysical Journal Letters, 605, 61, 2004.
8. **Liang, Mao-Chang***, Blake, Geoffrey A., and Yung, Yuk L., A Semi-Analytic Model for Photo-Induced Isotopic Fractionation in Simple Molecules, Journal of Geophysical Research, 109(D10), D10308, 2004.
9. Yung, Yuk L., **Liang, Mao-Chang**, Blake, Geoffrey A., Richard P. Muller, and Charles E. Miller, Evidence for O-Atom Exchange in the O(¹D)+N₂O Reaction as the Source of Mass-Independent Isotopic Fractionation in Atmospheric N₂O, Geophysical Research Letters, 31(19) 19106, doi: 10.1029/2004GL020950, 2004.
10. **Liang, Mao-Chang**, Benjamin F. Lane, Robert T. Pappalardo, Mark Allen, and Yung, Yuk L., Atmosphere of Callisto, Journal of Geophysical Research, 110(E2) E02003, 10.1029/2004JE00232, 2005.
11. Yung, Yuk L., **Liang, Mao-Chang**, Blake, Geoffrey A., Richard P. Muller, and Charles E. Miller, Reply to comment by Röckmann & Kaiser on “Evidence for O-Atom Exchange in the O(¹D) + N₂O Reaction as the Source of Mass-Independent Isotopic Fractionation in Atmospheric N₂O”, Geophysical Research Letters, 32(11), L11808 10.1029/2005GL022669, 2005.
12. Charles E. Miller, Robert M. Onorato, **Mao-Chang Liang**, and Yuk L. Yung, Extraordinary Isotopic Fractionation in Ozone Photolysis, Geophysical Research Letters, 32(14), L14814, 10.1029/2005GL023160, 2005.
13. Zhi-Qiang Shen, K. Y. Lo, **M.-C. Liang**, Paul T. P. Ho & J.-H. Zhao, A size of ~1 AU for the radio source Sgr A* at the center of the Milky Way, Nature, 438, 62, 2005.
14. **Mao-Chang Liang***, Run-Lie Shia, Anthony Y.-T. Lee, Mark Allen, A. James Friedson, and Yuk L. Yung, Meridional Transport in the Stratosphere of Jupiter, Astrophysical Journal Letters, 635(2), 177, 2005.
15. **Mao-Chang Liang***, Fredrick W. Irion, Jason D. Weibel, Charles E. Miller, Geoffrey A. Blake, and Yuk L. Yung, Isotopic Composition of Stratospheric Ozone, Journal of Geophysical Research, 111, D02302, doi:10.1029/2005JD006342, 2006.
16. Run-Lie Shia, **Mao-Chang Liang**, Charles E. Miller, and Yuk L. Yung, CO₂ in the Upper Troposphere: Influence of Stratosphere-Troposphere Exchange, Geophysical Research Letters, 33, L14814, doi:10.1029/2006GL026141, 2006.
17. Cheng, B.-M, Lu, H.-C., Chen, H.-K., Bahou, M., Lee, Y.-P., Mebel, A. M., **Liang, M.-C.**, & Yung, Y. L., Absorption Cross Sections of NH₃, NH₂D, NHD₂, and ND₃ in the Spectral Range 140-220 nm and its Implication for Planetary Isotopic Fractionation, Astrophysical Journal, 647(2), 1535, 2006.

18. **Mao-Chang Liang***, Hyman Hartman, Robert E. Kopp, Joseph L. Kirschvink, and Yuk L. Yung, Production of Hydrogen Peroxide in the Atmosphere of a Snowball Earth and the Origin of Oxygenic Photosynthesis, Proceedings of the National Academy of Sciences, [10.1073/pnas.0608839103](https://doi.org/10.1073/pnas.0608839103), 2006
19. **Mao-Chang Liang***, Geoffrey A. Blake, Brenton R. Lewis, and Yuk L. Yung, Oxygen Isotopic Composition of Carbon Dioxide in the Middle Atmosphere, Proceedings of the National Academy of Sciences, [10.1073/pnas.0610009104](https://doi.org/10.1073/pnas.0610009104), 2007.
20. Giovanna Tinetti, **Mao-Chang Liang**, Alfred Vidal-Madjar, David Ehrenreich, Alain Lecavelier des Etangs, Yuk L. Yung, Infrared Transmission Spectra for Extrasolar Giant Planets, Astrophysical Journal Letters, *654*(1), 99, 2007.
21. Christopher D. Parkinson, **Mao-Chang Liang**, Hyman Hartman, Candice J. Hansen, Giovanna Tinetti, Victoria Meadows, Yuk L. Yung, Enceladus: Cassini Observations and Implications for the Search of Life, Astronomy and Astrophysics, *463*, 353-357, 2007.
22. **Mao-Chang Liang***, Bing-Ming Cheng, Hsiao-Chi Lu, Hong-Kai Chen, M. S. Alam, Yuan-Pern Lee, Yuk L. Yung, Isotopic Fractionation of Nitrogen in Ammonia in the Troposphere of Jupiter, Astrophysical Journal Letters, *657*(2), 117-120, 2007.
23. **Mao-Chang Liang***, Yuk L. Yung, and Donald E. Shemansky, Photolytically Generated Aerosols in the Mesosphere and Thermosphere of Titan, Astrophysical Journal Letters, *661*(2), 199-202, 2007.
24. **Mao-Chang Liang*** and Yuk L. Yung, Sources of the Oxygen Isotopic Anomaly in Atmospheric N₂O, Journal of Geophysical Research, *112*, D13307, doi:10.1029/2006JD007876, 2007. [NSC 95-2111-M001-009-]
25. Giovanna Tinetti, Alfred Vidal-Madjar, **Mao-Chang Liang**, Jean-Philippe Beaulieu, Yuk Yung, Sean Carey, Robert J. Barber, Jonathan Tennyson, Ignasi Ribas, Nicole Allard, Gilda E. Ballester, Jean-Michel Desert, David Ehrenreich, Roger Ferlet, Guillaume Hebrard, Alain Lecavelier des Etangs, David K. Sing, & Franck Selsis, Water vapour in the atmosphere of a transiting extrasolar planet, Nature, *448*, 169-171, 2007.
26. **Mao-Chang Liang**, Alan N. Heays, Stephen T. Gibson, Brenton R. Lewis, and Yuk L. Yung, Source of Nitrogen Isotope Anomaly in HCN in the Atmosphere of Titan, Astrophysical Journal Letters, *664*(2), 115-118, 2007.
27. **Mao-Chang Liang**, Geoffrey A. Blake, and Yuk L. Yung, Seasonal Cycle of C¹⁶O¹⁶O, C¹⁶O¹⁷O, and C¹⁶O¹⁸O in the Middle Atmosphere: Implications for mesospheric dynamics and biogeochemical sources and sinks of CO₂, Journal of Geophysical Research, *113*, D14S09, doi:10.1029/2007JD009659, 2008. [NSC 96-2628-M-001-018-]
28. Christopher D. Parkinson, Amy C. Barr, **Mao-Chang Liang**, and Yuk L. Yung, Habitability of Enceladus: Planetary Conditions for Life, Origins of Life and Evolution of Biospheres, *38*(4), doi:10.1007/s11084008-9135-4, 355-369, 2008.

29. **Mao-Chang Liang**, King-Fai Li, Run-Lie Shia, and Yuk L. Yung, Short-period solar cycle signals in the ionosphere observed by FORMOSAT-3/COSMIC, Geophysical Research Letters, *35*, L15818, doi:10.1029/2008GL034433, 2008. [NSC 96-2628-M-001-018-]
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31. V. S. Meadows, G. Orton, M. Line, **M.-C. Liang**, Y. L. Yung, J. Van Cleve, M. Burgdorf, First Spitzer Observations of Neptune: Detection of New Hydrocarbons, Icarus, *197*, 585-589, 2008.
32. **Mao-Chang Liang***, J. Tang, Zunyu Chan, X. D. Zheng, and Yuk L. Yung, Signature of Stratospheric Air at the Tibetan Plateau, Geophysical Research Letters, *35*, L20816, doi:10.1029/2008GL035246, 2008. [NSC 97-2628-M-001-001-]
33. Xun Jiang, Qinbin Li, **Mao-Chang Liang**, Run-Lie Shia, Moustafa T. Chahine, Edward T. Olsen, Luke L. Chen, Jame Randerson, and Yuk L. Yung, Simulation of Upper Tropospheric CO₂ From Twodimensional and Three-dimensional Chemistry and Transport Models, Global Biogeochemical Cycles, *22*, GB4025, doi:10.1029/2007GB003049, 2008. [NSC 97-2628-M-001-001-]
34. **Mao-Chang Liang*** and Yuk L. Yung, Modeling the Distribution of H₂O and HDO in the Upper Atmosphere of Venus, Journal of Geophysical Research, *114*, E00B28, doi:10.1029/2008JE003095, 2009. [NSC 97-2628-M-001-001-]
35. Yuk L. Yung, **M. C. Liang**, X. Jiang, R. L. Shia, C. Lee, B. Bezard and E. Marcq, Evidence for OCS Conversion to CO in the Lower Atmosphere of Venus, Journal of Geophysical Research, *114*, E00B34, doi:10.1029/2008JE003094, 2009. [NSC 97-2628-M-001-001-]
36. Xibin Gu, Ralf I. Kaiser, Alexander M. Mebel, Vadim V. Kislov, Stephen J. Klippenstein, Lawrence B. Harding, **Mao-Chang Liang**, and Yuk L. Yung, A Crossed Molecular Beams Study on the Formation of the Exotic Cyanoethynyl Radical in Titan's Atmosphere, Astrophysical Journal, *701*, 1797-1803, 2009. [NSC 97-2628-M-001-001-]
37. X. Gu, Y.S. Kim, R.I. Kaiser, A.M. Mebel, **M.C. Liang**, Y.L. Yung, Chemical dynamics of triacetylene formation and implications to the synthesis of polyynes in Titan's atmosphere, Proceedings of the National Academy of Sciences, *106*, 16078-16083, 2009. [NSC 97-2628-M-001-001-]
38. M. R. Line, **M. C. Liang**, Y. L. Yung, HIGH TEMPERATURE PHOTOCHEMISTRY IN THE ATMOSPHERE OF HD189733B, Astrophysical Journal, *717*, 496-502, 2010. [NSC 98-2111-M-001014-MY3]
39. Li Zhou, Weijun Zheng, Ralf I. Kaiser, Alexander Landera, Alexander M. Mebel, **Mao-Chang Liang**, Yuk L. Yung, Cosmic-Ray Mediated Formation of Benzene on the Surface of Saturn's Moon Titan, Astrophysical Journal, *718*, 1243-1251, 2010. [NSC 98-2111-M-001-014-MY3]

40. Xi Zhang, **Mao-Chang Liang**, Franck Montmessin, Jean-Loup Bertaux, Christopher Parkinson, Yuk L. Yung, Photolysis of H₂SO₄ as the Source of Sulfur Species in the Venus Mesosphere, Nature Geoscience, **3**, 834-837, 2010. [NSC 98-2111-M-001-014-MY3]
41. J.P. Beaulieu, D.M. Kipping, V. Batista, G. Tinetti, I. Ribas, S. Carey, J. A. Noriega-Crespo, C. A. Griffith, G. Campanella, S. Dong, J. Tennyson, R.J. Barber, P. Deroo, S.J. Fossey, **D. Liang**, M. R. Swain, Y. Yung, N. Allard, Water in HD 209458b's atmosphere from 3.6 - 8 um IRAC photometric observations in primary transit, Monthly Notices of the Royal Astronomical Society, **409**, 963-974, 2010. [NSC 98-2111-M-001014-MY3]
42. Philip Croteau, John B. Randazzo, Oleg Kostko, Musahid Ahmed, **Mao-Chang Liang**, Yuk L. Yung, and Kristie A. Boering, Experimental determination of isotope effects in the non-dissociative photoionization of molecular nitrogen and implications for Titan's atmosphere, Astrophysical Journal Letters, **728**, L32, 2011. [NSC 98-2111-M-001-014-MY3]
43. Jingqian Wang, Steven Pawson, Baijun Tian, **Mao-Chang Liang**, Run-Lie Shia, Yuk L. Yung, and Xun Jiang, El Niño-Southern Oscillation in Tropical and Mid-Latitude Column Ozone, J. Atmos. Sci., **68**, 1911-1921, 2011.
44. Yu-Jong Wu, C. Y. Robert Wu and **Mao-Chang Liang**, Quantum Chemical Calculation on the Potential Energy Surface of H₂CO₃ and its Implication for Martian Chemistry, Icarus, **214**, 228-235, 2011. [NSC 98-2111-M-001-014-MY3]
45. Jingqian Wang, Xun Jiang*, Moustafa T. Chahine, **Mao-Chang Liang**, Edward T. Olsen, Luke L. Chen, Stephen Licata, Thomas Pagano, and Yuk L. Yung, The Influence of Tropospheric Biennial Oscillation on Mid-tropospheric CO₂, Geophysical Research Letters, **38**, L20850, 2011.
46. Li, K.-F., X. Jiang, **M.-C. Liang**, and Y. L. Yung, Impacts of SORCE Irradiance on the Simulation of 11-year Solar-Cycle in Total Column Ozone, Atmos. Chem. Phys. Discuss., **12**, 1–26, doi:10.5194/acpd-121867-2012, 2012.
47. Zhang X., **Liang, M. C.**, Mills, F. P., Belyaev D. A. and Yung, Y. L, Sulfur Chemistry in the Middle Atmosphere of Venus, Icarus, **217**(2), 714-739, DOI:10.1016/j.icarus.2011.06.016, 2012. [NSC 98-2111M-001-014-MY3]
48. I-Chun Tsai, **Mao-Chang Liang**, and Jen-Ping Chen*, Methane-nitrogen binary nucleation: A new microphysical mechanism for cloud formation in Titan's atmosphere, Astrophysical Journal, **747**, DOI: 10.1088/0004-637X/747/1/36, 2012. [NSC 98-2111-M-001-014-MY3]
49. Sasadhar Mahata, S. K. Bhattacharya¹, Chung-Ho Wang, **Mao-Chang Liang***, An improved CeO₂ method for high precision measurements of ¹⁷O/¹⁶O ratio for atmospheric carbon dioxide, Rapid Communications in Mass Spectrometry, **26**(17), 1909-1922, DOI:10.1002/rcm.6296, 2012. [NSC 982111-M-001-014-MY3]
50. Shih-Chieh Hsu, Chih-An Huh, Chuan-Yao Lin, Wei-Nai Chen, Shaw Chen Liu, C.C.K. Chou, **MaoChang Liang**, Chuen-Jinn Tsai, Yi-Tang Huang, Fei-Jan Lin, Jen-Ping Chen, Transport of

- biomass burning aerosols and non-East Asian dust to Pacific, Geophysical Research Letters, L12804, DOI:10.1029/2012GL051962, 2012. [NSC 98-2111-M-001-014-MY3]
51. Xun Jiang, Moustafa T. Chahine, Qinbin Li, **Maochang Liang**, Edward T. Olsen, Luke L. Chen, Jingqian Wang, and Yuk L. Yung, CO₂ Semi-annual Oscillation in the Middle Tropospheric and at the Surface CO₂, Global Biogeochemical Cycles, 26, GB3006, DOI: 10.1029/2011GB004118, 2012. [NSC 98-2111-M001-014-MY3]
52. Kathleen Mandt, David Gell, Mark Perry, Jack Waite, Frank Crary, David Young, Brian Magee, Joseph Westlake, Thomas Cravens, Wayne Kasprzak, Greg Miller, Jan-Erik Wahlund, Karin Ågren, Niklas Edberg, Alan Heays, Brenton Lewis, Stephen Gibson, Virginie De La Haye, **Mao-Chang Liang**, Ion densities and composition of Titan's upper atmosphere derived from the Cassini Ion Neutral Mass Spectrometer: Analysis methods and comparison of measured ion densities to photochemical model simulations, Journal of Geophysical Research, 117, E10006, DOI:10.1029/2012JE004139, 2012.
53. Xun Jiang*, Jingqian Wang, Edward T. Olsen, **Maochang Liang**, Thomas S. Pagano, Luke L. Chen, Stephen J. Licata, and Yuk L. Yung, Influence of El Nino on Mid-tropospheric CO₂ from Atmospheric Infrared Sounder and Model, J. Atmos. Sci., 70(1), 223-230, doi:10.1175/JAS-D-11-0282.1, 2012.
54. Shuhui Wang, King-Fai Li, Thomas J. Pongetti, Stanley P. Sander, Yuk L. Yung, Mao-Chang Liang, Nathaniel J. Livesey, Michelle L. Santee, Jerald W. Harder, Marty Snow, and Franklin P. Mills, Midlatitude Atmospheric OH Response to the Most Recent 11-year Solar Cycle, Proceedings of the National Academy of Sciences, 110(6), 2023-2028, 2013.
55. **Mao-Chang Liang**, Li-Ching Lin, Ka-Kit Tung, Yuk L. Yung, Shan Sun, Transient Climate Response in Coupled Atmospheric-Ocean General Circulation Models, J. Atmos. Sci., 70(4), 1291-1296, 2013. [NSC 101-2628-M-001-001-MY4]
56. Sasadhar Mahata, S. K. Bhattacharya, Chung-Ho Wang, **Mao-Chang Liang***, Oxygen isotope exchange between O₂ and CO₂ over hot platinum: an innovative technique for measuring $\Delta^{17}\text{O}$ in CO₂, Analytical Chemistry, 85(14), 6894-6901, 2013. [NSC 101-2628-M-001-001-MY4]
57. **Mao-Chang Liang**, Li-Ching Lin, Ka-Kit Tung, Yuk L. Yung, Shan Sun, Impact of Climate Drift on 21st Century Projection in a Coupled Atmospheric-Ocean General Circulation Model, J. Atmos. Sci., 70(10), 3321-3327, 2013. [NSC 101-2628-M-001-001-MY4]
58. Lin, Yu-Chi, Huh, Chih-An, Hsu, Shih-Chieh, Lin, Chuan-Yao, **Liang, Mao-Chang**, Lin, Po-Hsiun, Stratospheric influence on the concentration and seasonal cycle of lower tropospheric ozone: Observation at Mount Hehuan, Taiwan, Journal of Geophysical Research, 119, DOI: 10.1002/2013JD020736, 2014.
59. Shih-Chieh Hsu, Celine Siu Lan Lee, Chih-An Huh, Robina Shaheen, Fei-Jan Lin, Shaw Chen Liu, **MaoChang Liang**, Jun Tao, Ammonium deficiency caused by heterogeneous reactions during a

- super Asian dust episode, Journal of Geophysical Research, 119, DOI: [10.1002/2013JD021096](https://doi.org/10.1002/2013JD021096), 2014.
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61. Cheng Li, Xi Zhang, Joshua A. Kammer, **Mao-Chang Liang**, Run-Lie Shia, Yuk L. Yung, A nonmonotonic eddy diffusivity profile of Titan's atmosphere revealed by Cassini observations, Planetary and Space Science, 104, 48-58, 2014.
62. Sourendra Bhattacharya, Joël Savarino, Greg Michalski, and **Mao-Chang Liang**, A new feature in the internal heavy isotope distribution in ozone, Journal of Chemical Physics, 141(13), 134301, 2014.
63. Laskar, A. H., Huang, J. C., Hsu, S. C., Bhattacharya, S. K., Wang, C. H., & **Liang, M. C.***, Stable isotopic composition of near surface atmospheric water vapor and rain–vapor interaction in Taipei, Taiwan, Journal of Hydrology, 519, 2091-2100, 2014.
64. C. S. Boxe, J. S. Francisco, R.-L. Shia, Y. L. Yung, H. Nair, **M.-C. Liang**, A. Saiz-Lopez, New insights into martian atmospheric chemistry, Icarus, doi:10.1016/j.icarus.2014.07.023, 2014.
65. **Mao-Chang Liang*** and Sasadhar Mahata, Oxygen anomaly in near surface carbon dioxide reveals deep stratospheric intrusion, Scientific Reports, 5, 11352, doi: 10.1038/srep11352, 2015.
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67. Chih-Chung Chang, Jia-Lin Wang, Chih-Yuan Chang, **Mao-Chang Liang**, Ming-Ren Lin, Development of a multicopter-carried whole air sampling apparatus and its applications in environmental studies, Chemosphere, 114, 484-492, doi:10.1016/j.chemosphere.2015.08.028, 2016.
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69. Sasadhar Mahata, Chung-Ho Wang, S. K. Bhattacharya, **Mao-Chang Liang***, Triple oxygen isotope composition of near surface CO_2 , TAO, doi:10.3319/TAO.2015.09.16.01(A), 2016. [NSC 98-2111-M001-014-MY3]
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