Chandra Mouli Pavuluri

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Biography

Chandra Mouli Pavuluri received PhD in Chemistry from Sri Venkateswara University, Tirupati, India in 2005. He worked as Postdoctoral Researcher at abroad (Korea, USA and Japan), before joining the Institute of Surface-Earth System Science, Tianjin University as Full Professor in 2016. He has more than 15 years' experience in atmospheric chemistry and isotope chemistry and authored 29 research papers in reputed research journals apart from a review article, two monographs and many conference contributions. His research has been cited in more than 800 publications with an h-index 16. He is a member of several scientific organizations, and serving as an Editorial Board Member for "Scientific Reports" and as frequent referee for many other journals.

Academic Honors & Awards

2006.01 : JSPS Postdoctoral Fellowship, Japan Society for the Promotion of Science (JSPS), Japan

2003.01 : Senoir Research Fellowship, Council of Scientific and Industrial Research (CSIR), India

2002.01 : Junior Research Fellowship, Indian Space Research Organization (ISRO), India

1998.01 : Karuri Gopala Krishnan Memorial Prize for university rank in M.Sc., S. V. University, Tirupati, India

Education/Employment

2016.03~Now, Institute of Surface-Earth System Science, Tianjin University, Professor,.

2005.07~2015.04, Seoul National Univ., Korea; Kent State Univ., USA; and Hokkaido Univ., Japan, Postdoc Researcher,.

1999.09~2005.04, Sri Venkateswara University, Tirupati, India, PhD,.

1999.01~1999.08, Sri Venkateswara College of Engg. & Tech. (JNTU), Chittoor, India, Asst. Professor,.

1996.07~1998.08, Sri Venkateswara University, Tirupati, India, MS,.

1993.07~1996.04, Sri Venkateswara University, Tirupati, India, BS,.

Research

Atmospheric aerosols are a complex mixture of inorganic and organic material that directly emitted into the atmosphere (primary) from natural and anthropogenic sources and formed in the atmosphere (secondary) from the gaseous species of both the origins. Aerosols affect the Earth's climate system, air quality and human health and play an important role in atmospheric chemistry. The current understanding of regional and global climate changes is suffering from large uncertainties in estimation of aerosol budget and their impacts due to lack of quantitative understanding of their properties, origins and transformations. To improve the understanding of aerosol sources and properties and thus their interactions with climate system, his group focuses on atmospheric chemistry and isotope geochemistry with a special emphasis on physicochemical characteristics, origins and secondary formation and transformations of atmospheric aerosols. The specific topics of research include: (i) Field experiments on chemical components, organic molecular species, number size distributions and stable carbon (^{13}C), nitrogen (^{15}N) and radiocarbon (^{14}C) isotope ratios of atmospheric aerosols and precipitation. (ii) Laboratory studies on production, transformation and degradation of secondary organic aerosols (SOA) and subsequent changes in their ^{13}C and ^{15}N isotopic compositions, and role of radicals and catalysts abundances on aerosol chemical processes in gaseous and aqueous phases under atmospherically relevant conditions.

Research Projects

(1) 2018.01~2021.12, Investigation of anthropogenic and biogenic contributions and atmospheric processing of organic aerosols and their seasonal changes in Tianjin, National Natural Science Foundation of China (NSFC), China,.

(2) 2017.01~2018.12, Studies on diacids and related compounds and stable isotopic compositions of atmospheric aerosols from Tianjin, National Natural Science Foundation of China (NSFC), China,.

(3) 2017.01~2019.12, Aqueous phase formation and processing of secondary organic aerosols: insights from stable isotopes studies, Co-investigator, National Natural Science Foundation of China (NSFC), China,.

(4) 2016.03~2018.12, Molecular characterization and stable carbon isotopic compositions of organic aerosols in northeastern China: Implications for primary and secondary sources, Key construction program of the National 985 project, Tianjin University, Tianjin, China,.

Teaching

"Atmospheric Chemistry" for graduates (MS & PhD) since 2016. Taught Engineering Chemistry for undergraduates (B. Tech.) during 1998-99.

Selected Publications

(1) C. M. Pavuluri, & K. Kawamura, 2017, Seasonal changes in TC and WSOC and their 13C isotope ratios in Northeast Asian aerosols: land surface –biosphere–atmosphere interactions, Acta Geochimica, doi:10.1007/s11631-017-0157-3,.

(2) C. M. Pavuluri, & K. Kawamura, 2016, Enrichment of 13C in diacids and related compounds during photochemical processing of aqueous aerosols: New proxy for organic aerosols aging, Scientific Reports, 6:36467; DOI: 10.1038/srep36467,.

(3) C. M. Pavuluri, K. Kawamura, N. Mihalopoulos, & T. Swaminathan, 2015, Laboratory photochemical processing of aqueous aerosols: formation and degradation of dicarboxylic acids, oxocarboxylic acids and α-dicarbonyls, Atmospheric Chemistry and Physics, 15, 7999-8012,.

(4) C. M. Pavuluri, K. Kawamura, N. Mihalopoulos, & P.Q. Fu, 2015, Characteristics, seasonality and sources of inorganic ions and trace metals in Northeast Asian aerosols, Environmental Chemistry, 12, 338-349, doi:org/10.1071/EN14186,.

(5) C. M. Pavuluri, K. Kawamura, & P. Q. Fu, 2015, Atmospheric chemistry of nitrogenous aerosols in Northeast Asia: biological sources and secondary formation, Atmospheric Chemistry and Physics, 15, 9883-9896,.

(6) C. M. Pavuluri, K. Kawamura, M. Uchida, M. Kondo, & P. Q. Fu, 2013, Enhanced radiocarbon and organic tracers in Northeast Asian aerosols during spring/summer, Geophysical Research, 118, 2362-2371, doi: 10.1002/jgrd.50244,.

(7) C. M. Pavuluri, & K. Kawamura, 2012, Evidence for 13-carbon enrichment in oxalic acid via iron catalyzed photolysis in aqueous phase, Geophysical Research Letters 39, L03802, doi:10.1029/2011GL050398,.

(8) C. M. Pavuluri, K. Kawamura, T. Swaminathan, & E. Tachibana, 2011, Stable carbon isotopic compositions of total carbon, dicarboxylic acids and glyoxylic acid in the tropical Indian aerosols: Implications for sources and photochemical processing of organic aerosols, Journal of Geophysical Research 116, D18307, doi:10.1029/2011JD015617,.

(9) C. M. Pavuluri, K. Kawamura, S. G. Aggarwal, & T. Swaminathan, 2011, Characteristics, seasonality and sources of carbonaceous and ionic components in the tropical aerosols from Indian region, Atmospheric Chemistry and Physics 11, 8215–8230,.

(10) C. M. Pavuluri, K. Kawamura, & T. Swaminathan, 2010, Water-soluble organic carbon, dicarboxylic acids, ketoacids and α-dicarbonyls in the tropical Indian aerosols,, Geophysical Research 115, D11302, doi:10.1029/2009JD0012661,.

(11) C. M. Pavuluri, K. Kawamura, E. Tachibana, & T. Swaminathan, 2010, Elevated nitrogen isotope ratios of tropical Indian aerosols from Chennai: Implication for the origins of aerosol nitrogen in South and Southeast Asia, Atmospheric Environment 44, 3597–3604,.

(12) P. Chandra Mouli, S. Venkata Mohan, & S. Jayarama Reddy, 2005, Rainwater chemistry at a regional representative urban site: Influence of terrestrial sources on ionic composition, Atmospheric Environment 39, 999–1008,.