LSGI Distinguished Lecture Series

GNSS for Atmosphere, Weather and Climate – A New Frontier of Geospatial Innovation

Date: 14 December 2017 (Thu)
Time: 10:00am - 11:00am
Venue: Z414

Prof. Kefei ZHANG

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GNSS for Atmosphere, Weather and Climate – A New Frontier of Geospatial Innovation

This presentation will present selected results of our research in this regards in the past ten years, in particular GNSS for near real-time monitoring and forecasting of severe weather and nowcasting. The March 2010 Melbourne/Australia storm was used as a case study and GPS observations from the most advanced Victorian state-wide CORS network in Australia are used. Different GPS data processing strategies are also investigated for the most robust precipitable water vapour estimation. In addition to the ground-based GNSS, a large range of state-of-the-art observations including satellite to satellite tracking (e.g. GPS radio occultation), radiosonde, radar refractivity, synoptic weather station measurements and Australian numerical weather forecasting models are used to investigate the spatio-temporal variability of the troposphere.

Our recent research effort, major international collaboration and primary achievements are introduced first. This is followed by the fundamentals of the emerging GNSS-based new technologies for atmosphere, weather and climate studies which is regarded as an innovative earth observation system. The past, current status and future trend as a new dimension of the GNSS innovation are presented. Built upon the EU COST Action Programme (GNSS4WEC project), future significant research in this respect through the recently awarded State Key Program of National Natural Science Foundation of China project will be briefly touched to conclude the talk.

Biography

Professor Kefei Zhang is the founder and director of the Satellite Positioning for Atmosphere, Climate and Environment (SPACE) Research Centre at RMIT University. He has over 30 years research experience in satellite positioning and geospatial sciences. His current research interest is primarily in algorithm development and innovative applications of satellite technologies for high-accuracy positioning, atmospheric studies, space situational awareness (e.g. space debris tracking, surveillance and collision warning and orbit determination) and people mobility and object tracking. He is an inventor of eight patents and has authored over 300 peer-reviewed publications in these fields and has attracted in excess of 50 million dollars (incl in-kind contributions) in funding from the Australian Research Council, and national and international governments and industries since 1990. He is a regular reviewer of various national and international funding agencies and journals, a member of journal editorial boards and a frequent guest speaker at various international events.

Prof Zhang is an Australian pioneer in cutting-edge technologies for smart tracking, weather and climate, atmosphere and space environment management applications. His satellite to satellite tracking frontier research has led to over 10 hours weather forecast improvement and successful integration of the GPS radio occultation data into the Australian weather forecasting system in 2012 and the technology is now considered one of the top 5 of the 30+ data sources used in reducing forecast error.

The research he led was ranked as “outstanding“ in the Excellence in Innovation for Australia (EIA) trial 2012 and was featured in the ATN of Universities “50 solutions that count“. Prof Zhang’s research was also presented in the showcase of the “Partners for a Better Future –Australia and China: Science and Technology Week“ at the Shanghai World Expo 2010. RMIT SPACE was also selected as a finalist in “The Australian Innovation Challenge Award“ 2014.

All interested are WELCOME!
To register, please go to: https://goo.gl/XZFjWJ
For enquiries, please contact Ms. Anna Choi at anna.choi@polyu.edu.hk or 3400 8158.

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