The 3rd Asia Research Node Symposium on Humanosphere Science
Present and Future of Humanosphere Science

Date: September 25-27, 2018
Venue: International Conference Hall
Agricultural and Environmental Science Building 10th Floor
National Chung Hsing University
(Poster Session: 9th and 10th Floors, Banquet: Park City Hotel Central Taichung)

September 25 (Tue)		September 26 (Wed)		September 27 (Thu)	
08:30-09:30	Registration	08:30-10:10	Session II-b	08:30-10:10	Session I-d
09:30-10:10	Opening Ceremony	10:10-12:00	Poster Session	10:30-12:10	Session II-c
10:30-12:10	Session I-a	12:00-	Excursion	13:10-14:50	Session I-c
13:10-14:50	Session II-a			15:20-17:00	Session II-d
15:20-17:00	Session I-b			17:00-17:10	Closing Remarks
17:00-18:00	Elevator Speech				
19:00-	Banquet				

September 25 (Tue)

09:30- **Opening Ceremony**

Chair: Hiroyuki Hashiguchi (RISH, Kyoto University)

Opening address

Takashi Watanabe
Director of Research Institute for Sustainable Humanosphere (RISH), Kyoto University, Japan

Chou Chi-Chung
Dean of Office of Research and Development, National Chung Hsing University, Taiwan

Photo Session

Coffee break

Session I-a: Atmospheric Observations with MST radars
Chairs: Hiroyuki Hashiguchi (RISH, Kyoto University, Japan)
Jenn-Shyong Chen (China Medical University, Taiwan)

10:30-10:55 O-Ia-1
Recent Progress of Chung-Li VHF Radar Group in Lower and Upper Atmospheric Researches
Yen-Hsyang Chu

10:55-11:20 O-Ia-2
25 years of Indian MST radar at NARL, Gadanki
Thota N. Rao and Amit K. Patra

11:20-11:45 O-Ia-3
An overview of results from ShUREX campaigns (2015-2017) at Shigaraki MU Observatory
Hubert Luce, Hiroyuki Hashiguchi, and Lakshmi Kantha

11:45-12:10 O-Ia-4
Status of Equatorial MU Radar project in 2018
Mamoru Yamamoto, Hiroyuki Hashiguchi, and Toshitaka Tsuda

Lunch

Session II-a: Energy Transfer and Conversion in Geospace
Chairs: Yoshiharu Omura (RISH, Kyoto University, Japan)
Lou-Chuang Lee (Academia Sinica, Taiwan)

13:10-13:30 O-IIa-1
Auroras and precipitating particles above the high-latitude boreal forests
Jih-Hong Shue

13:30-13:50 O-IIa-2
Geospace Exploration by the ERG/Arase satellite; collaborations on space physics between Japan and Taiwan
Yoshizumi Miyoshi

13:50-14:10 O-IIa-3
Parameters of magnetospheric locations associated with occurrences of aurora and comparison with their ionospheric counterparts
Sunny W. Y. Tam, Chih-Yu Chiang, Tzu-Fang Chang, Wun-Jheng Syugu, Shiang-Yu Wang, Yoichi Kazama, Bo-Jhou Wang, Satoshi Kasahara, Shoichiro Yokota, Yoshizumi Miyoshi, and Iku Shinohara

14:10-14:30 O-IIa-4
Energy flow from the solar wind to the Earth during substorm: Simulation results
Yusuke Ebihara, and Takashi Tanaka

14:30-14:50 O-IIa-5
Magnetic explosion in the Sun-Earth system: Magnetic reconnection
Seiji Zenitani

Coffee break

Session I-b: Plants for Sustainable Humanosphere - Biomass and Bioactive Compounds -
Chairs: Yuki Tobimatsu (RISH, Kyoto University, Japan)
Ying-Hsuang Sun (National Chung Hsing University, Taiwan)

15:20-15:50 O-Ib-1
Genetics and Genomic Analysis of the Heartwood Traits in Taiwania cryptomerioides
Ying-Hsuan Sun, Nai-Wen Tsao, Shih-Yin Chen, Shin-Hung Pan, Joy H Ding, Hung Lin, Cheng-De Chung, Fang-Hua Chu, Ting-Feng Yeh, and Sheng-Yang Wang

15:50-16:20 O-Ib-2
Reciprocal cross-regulation of VND and SND multigene TF families for wood formation in Populus trichocarpa
Ying-Chung Jimmy Lin

16:20-16:40 O-Ib-3
Biosynthesis of Heartwood and Antitumor Lignans
Masaomi Yamamura, Masato Kumatani, Keisuke Kobayashi, and Toshiaki Umezawa

16:40-17:00 O-Ib-4
Dynamics and functions of plant bioactive compounds in the rhizosphere
Akifumi Sugiyama

17:00-18:00 **Short Poster Presentation – Elevator Speech (Chair: Chin-Cheng Yang)**

19:00- **Banquet at Park City Hotel Central Taichung**

September 26 (Wed)

Session II-b: Integrated Vector Management: a Strategy for Sustainable Humanosphere
Chairs: Wu-Chun Tu (National Chung Hsing University, Taiwan)
Lee-Jin Bong (National Health Research Institute, Taiwan)

08:30-08:50 O-IIb-1
Establishment of an early warning system for malaria in Southern Africa, incorporating climate predictions-the iDEWS project
Noboru Minakawa, Neville Sweijd, Swadhin Behera, Masahiro Hashizume, Takeshi Ikeda, Yoonhee Kim, Peter Witbooi, Gbenga Abiodun, Eric Mabunda, Francois Engelbrecht, Willem

Landman, Philip Kruger, Raj Maharaj Yushi Morioka, Masami Nonaka, and Ataru Tsuzuki

08:50-09:10 O-IIb-2

Plant-based repellents to control mosquitoes

Theeraphap Chareonviriyaphap

09:10-09:30 O-IIb-3

Dengue Vector Control and Aedes aegypti resistance to insecticides from Indonesia

Intan Ahmad

09:30-09:50 O-IIb-4

Dengue Prevention: Alternative Approaches in Managing Aedes Mosquitoes

Wan Fatma Zuharah, Ahbi Rami Rattanam, Thiagaletchumi Maniam, and Rohaiyu Rodzay

09:50-10:10 O-IIb-5

Mosquito reproduction control and the effects of mosquito host factors to dengue virus replication

Shin-Hong Shiao

10:10-12:00 **Poster Session**

12:00- **Excursion** (Muh Sheng Museum of Entomology and Sun Moon Lake)

September 27 (Thu)

Session I-d: Our Footprints on Global Environment: Threats to Ecosystem Sustainability
Chairs: Chin-Cheng Yang (RISH, Kyoto University, Japan)
Shaw-Yhi Hwang (National Chung Hsing University, Taiwan)

08:30-08:55 O-Id-1

Globalization and invasive ants: polydomy as an enigmatic characteristics

Kazuki Tsuji, and Aye Thanda Win

08:55-09:20 O-Id-2

The importance of urban pest management on the sustainable future of urban ecosystem

Chow-Yang Lee

09:20-09:45 O-Id-3

How sublethal neonicotinoid insecticides weaken honey bee colonies?

En-Cheng Yang, Ming-Cheng Wu, Kuang-Hui Lu, and Yun-Ru Chen

09:45-10:10 O-Id-4

How will climate change affect a crop system that includes soybeans (crop), aphids (pest), and ladybugs (biocontrol agent)?

Hsin-Yi Lee, Ying-Jie Wang, and Chuan-Kai Ho

Coffee break

Session II-c: Wireless Power Transfer for Sustainable Electronics
Chairs: Naoki Shinohara (RISH, Kyoto University, Japan)
Heng-Ming Hsu (National Chung Hsing University, Taiwan)

10:30-10:50 O-IIc-1

Wirelessly-Powered CMOS Electrochemical Sensing Interface Design

Yu-Te Liao, Shao-Yung Lu, Yi-Chia Cheng

10:50-11:10 O-IIc-2

Some preliminary theoretical and experimental research results of WPT system between two points using Microwave power beam at 2.45 GHz

Dao Khac An, Nguyen Chung Dong, and Nguyen Tien Thanh

11:10-11:30 O-IIc-3

Design of a 13.56-MHz Active Rectifier with Digital Offset Compensation for Implantable Medical Devices

Fu-Bin Yang and Po-Hung Chen

11:30-11:50 O-IIc-4

Signal Communication in Wireless Power Transfer For Internet of Things

Heng-Ming Hsu

11:50-12:10 O-IIc-5

Recent Research of Wireless Power Transfer at RISH for a Smart, Happy, and Resilient Society

Naoki Shinohara

Lunch

Session I-c: Water, carbon, and nutrient cycling in forest under climate change
Chairs: Guo-Zhang Song (National Chung Hsing University, Taiwan)
Masayuki Itoh (Hyogo Prefecture University, Japan)

13:10-13:35 O-Ic-1

Are the evapotranspiration and canopy photosynthesis of Asian tropical rainforests affected by climate change?

Yoshiko Kosugi, Satoru Takanashi, Shoji Novughi, Tatsuro Nakaji, Mai Kamakura, Wakana Azuma, Siti Aisha Shumsuddin, and Marryanna Lion

13:35-14:00 O-Ic-2

Effects of inter-annual climate difference on hydrologic and biogeochemical controls on methane dynamics in forest ecosystems

Masayuki Itoh, Ayaka Sakabe, Yoshiko Kosugi, and Takashi Hirano

14:00-14:25 O-Ic-3

T.B.D.

Shih-Chieh Chang

14:25-14:50 O-Ic-4

The linkage between fine root dynamics and community structure in subtropical evergreen forest

Jyh-Min Chiang

Coffee break

Session II-d: Atmospheric and ionospheric studies with new instruments and technology
Chairs: Mamoru Yamamoto (RISH, Kyoto University, Japan)
Charles Lin (National Cheng Kung University, Taiwan)

15:20-15:45 O-IId-1

Lessons Learned from the Ongoing Development of the Ionospheric Dynamics Explorer and Attitude Subsystem Satellite (IDEASSat)

Loren Chang, Chi-Kuang Chao, Amal Chandran, Cheng-Ling Kuo, and Jann-Yenq Liu

15:45-16:10 O-IId-2

Convective-scale assimilation with the GPS-zenith total delay and radar data and its impact on heavy rainfall prediction in Taiwan

Shu-Chih Yang, Zih-Mao Huang, Ching-Yuan Huang, and Chih-Chieh Tsai

16:10-16:35 O-IId-3

Equatorial Plasma Bubble for Space Weather Monitoring in Malaysia

Suhaila M Buhari

16:35-17:00 O-IId-4

The development of data assimilation in the ionospheric space weather

Chia-Hung Chen, Charles Lin, Tomoko Matsuo, and J. Y. Liu

17:00- **Closing Remarks**

Presentation of Student Poster Award

Closing Address

Hwang Shaw-Yhi

Associate Dean of College of Agriculture and Natural Resources, National Chung Hsing University, Taiwan

Poster Session (September 26 (Wed) 10:10-12:00)

P01 Development of Software-Defined Multi-Channel Receiver System for the Equatorial Atmosphere Radar (EAR)
Nor Azlan bin Mohd Aris, Hiroyuki Hashiguchi, and Mamoru Yamamoto

P02 Study on real-time adaptive aircraft clutter suppression using the MU radar
Hiroyuki Hashiguchi, Kohsuke Kubota, and Mamoru Yamamoto

P03 Multi-Frequency Observation of Wind Velocity and Turbulence in Troposphere
Zhao-Yu Chen, Ching-Lun Su and Yen-Hsyang Chu

P04 The Effect of the Acoustic Source Location on the Height Profiles of Virtual Temperature in the Tropical Troposphere
Ina Juaeni, Hiraku Tabata, Noersomadi, Halimurrahman, Hiroyuki Hashiguchi, and Toshitaka Tsuda

P05 Variation of Turbulence Kinetic Energy in the Tropical Tropopause from Long-term Observation of Equatorial Atmosphere Radar (EAR)
Noersomadi and Hiroyuki Hashiguchi

P06 Observations of Meteor Echoes Using VHF Interferometric Radar
Jenn-Shyong Chen

P07 Observation of diurnal precipitation over complex topography in Bandung basin using X-band radar
Tiin Sinatra, Ginaldi Ari Nugroho, Ibnu Fathrio, and Asif Awaludin

P08 New calibration method of system phase offsets at Chung-Li VHF radar
Ting-Han Lin, and Yen-Hsyang Chu

P09 Transparent Polymer Nanocomposites Reinforced with Immiscible Nanocelluloses Fabricated via a Water-Based Pathway
Subir Kumar Biswas, and Hiroyuki Yano

P10 NMR analysis of Non-productive Binding of Carbohydrate Binding Module of Cellobiohydrolase with Lignin
Yuki Tokunaga, Takashi Nagata, Keiko Kondo, Masato Katahira, and Takashi Watanabe

P11 Analysis of santopine, an Amadori compound, in rhizosphere
Tomohisa Shimasaki, Takashi Kawasaki, Kazufumi Yazaki, and Akifumi Sugiyama

P12 A cytosol-localized geranyl diphosphate synthase involved in shikonin biosynthesis in Lithospermum erythrorhizon
Hayato Ueoka, Kanako Sasaki, Tatsuya Miyawaki, Takuji Ichino, Nozomu Sakurai, Hideyuki Suzuki, Daisuke Shibata, and Kazufumi Yazaki

P13 Studies on lytic polysaccharide monooxygenase (LPMO) from the selective white rot fungus, Ceriporiopsis subvermispora
Yu Iseki, Satoshi Oshiro, Takashi Nagata, Keiko Kondo, Masato Katahira, and Takashi Watanabe

P14 Reconstitution of cellulose synthase to know its molecular assembly machinery
Tomoya Imai

P15 Improved biomass digestibility of rice mutants deficient in tricin-lignins
Pui Ying Lam, Yuki Tobimatsu, Toshiaki Umezawa, and Clive Lo

P16 Production of Antiviral Compounds from Sugarcane Bagasse by Microwave Reactions
Chihiro Kimura, Ryota Ouda, Ruibo Li, Hiroshi Nishimura, Takashi Fujita, and Takashi Watanabe

P17 Altered lignocellulose molecular assembly in lignin-modified rice mutants
Andri Fadillah Martin, Yuki Tobimatsu, Naoyuki, Matsumoto, Ryosuke Kusumi, Takuji Miyamoto, Masaomi Yamamura, Taichi Koshiba, Masahiro Sakamoto, and Toshiaki Umezawa

P18 Downregulation of p-*COUMAROYL ESTER 3-HYDROXYLASE* in rice leads to altered cell wall structures and improves biomass saccharification
Yuri Takeda, Yuki Tobimatsu, Steven D. Karlen, Taichi Koshiba, Shiro Suzuki, Masaomi Yamamura, Shinya Murakami, Mai Mukai, Takefumi Hattori, Keishi

Osakabe, John Ralph, Masahiro Sakamoto, and Toshiaki Umezawa

P19 Fractionation and analysis of lignin-carbohydrate complex in wood cell wall
Saho Kashima, Hiroshi Nishimura, Shizuka Sakon, Misato Yamada, Yukari Ohta, Keiko Kondo, Yudai Yamaoki, Takashi Nagata, Masato Katahira, and Takashi Watanabe

P20 Preparation of Castor Oil-based Polyurethane Resin for Manufacturing of Low-density Particleboard with Bamboo Charcoal
Yi-Chun Chen and Wei Tai

P21 Isoprene Emission Fux from Moso Bamboo Leaves in Central Taiwan
Tingwei Chang, Motonori Okumura, Yoshiko Kosugi, and Tomonori Kume

P22 Influence of Place Attachment and Socio-demographic Characteristics on Environmental Attitude-Evidence from a Top University in Central Taiwan
Ching Chuang, and Wan-Yu Liu

P23 Latent Preferences of Tourists for the Service Quality of Taichung Calligraphy Greenway in Taiwan
Ching Chuang, and Wan-Yu Liu

P24 Estimating the Amenity Value of Forest Recreation Areas: Evidence from Huisun National Forest Recreation Area
Yen-Yu Lin, and Wan-Yu Liu

P25 In a forest with tall overstory trees, the spatial distribution of recruits is determined by living trees rather than canopy gaps created by dead trees
Ku Chen-Chia, Song Guo-Zhang Michael, Chao Kuo-Jung, Chao Wei-Chun

P26 Canopy tree species may cause more infiltration than do short-statured tree species in terms of individual trees with the same diameters at breast height
Prapasiri Tongsiri, Guo-Zhang Song , Li-Wan Chang, and Jyh-Min Chiang

P27 The Effects of the Pests and diseases on the Optimal Forest Rotation and Land Expected Value Considering the Payment of Environmental Services
Yow-Ru Lin, and Wan-Yu Liu

P28 Evaluating the Recreation Value of Huisun National Forest Recreation Area
Ping-Zheng Chen, and Wan-Yu Liu

P29 The effects of coarse woody debris on the natural regeneration of Chamaecyparis obtusa var. formosana and broadleaved species
Liao Chi-Cheng

P30 Stand Structure and Short-term Dynamics of Abies kawakamii (Hayata) Ito in Mt. Xue, Taiwan
Pei Hua Li, Min Chun Liao, Wei Wang, Jia Rong Yang and Hsy Yu Tzeng

P31 Prediction models for landslide spatial distribution can perform better through including data of pre-landslide basal area of trees
Jian-Hong Yang, Guo-Zhang Michael Song, and Li-Wan Chang

P32 Study the Function of Soil Nutrients Conservation in Forest from Soil Solution of Vegetation Engineering
Kai-Lin Chen, Tzu-Hao Su, and Chiung-Pin Liu

P33 A case study on the impact of climate change on forest vegetation in Taiwan
Huan-Yu Lin, Ching-Feng Li, Tze-Ying Chen, Chang-Fu Hsieh, Tongli Wang, and Jer-Ming

P34 Forest carbon balance in tropical Taiwan
Chao Kuo-Jung, Pin-Siou Liao, Guo-Zhang M. Song, Wei-Chun Chao, and Hsing-Juh Lin

P35 A Case Report of Termite Attack on Mango Fruit: Flexibility of Feeding Habbit Underlining Coptotermes gestroi Status as Potential Urban Pest in Indonesia
Bramantyo Wikantyoso, S. Khoirul Himmi, Sulaeman Yusuf, and Tsuyoshi Yoshimura

P36 Horizontal transfer of Wolbachia in longhorn crazy ant
Shu-Ping Tseng, Tsuyoshi Yoshimura, and Chin-Cheng Yang

P37 An analysis on geomagnetic activity related with Formosat-2 and Formosat-3 anomalies for space weather operations
Han-Wen Shen, Jih-Hong Shue, and Tsung-Ping Lee

P38 Response of electrons in near-Earth space to solar wind, and possible region where electromagnetic waves are excited
Takuya Ikeda, Yusuke Ebihara, Takashi Tanaka, and Fok Mei-ching

P39 Drift-bounce resonance between Pc5 pulsations and ions at multiple energies in the nightside magnetosphere: Arase and MMS observations
S. Oimatsu, M. Nosé , M. Teramoto, K. Yamamoto, A. Matsuoka, S. Kasahara, S. Yokota, K. Keika, G. Le, R. Nomura, A. Fujimoto, D. Sormakov, O. Troshichev, Y.-M. Tanaka, M. Shinohara, I. Shinohara, Y. Miyoshi, J. A. Slavin, R. E. Ergun, and P.-A. Lindqvist

P40 Turbulences in the geospace, solar wind and interstellar medium
K. H. Lee and L. C. Lee

P41 Performance Evaluation of Magneto Plasma Sail with Magnetic Nozzle by using MPD Arcjet
Tatsumasa Hagiwara, Yoshihiro Kajimura, Yuya Oshio, Ikkoh Funaki, Hiroshi Yamakawa, and Hirotsugu Kojima

P42 Dynamics of energetic protons interacting with electromagnetic ion cyclotron waves
Tomohiro Sekine, Yoshiharu Omura, Danny Summers, and Yikai Hsieh

P43 Interaction between energetic electrons and whistler mode chorus waves in 1-D, 2-D and 3-D magnetic fields
Keita Takahashi, Yoshiharu Omura, Danny Summers, and Yikai Hsieh

P44 Preliminary results of behavioral responses of 10 strains Aedes aegypti (L.) from Taiwan exposed to permethrin residual treatment
Jin-Jia Yu and Kok-Boon Neoh

P45 Assessing the Current Insecticides Resistance Status on Dengue Vector, Aedes albopictus (Diptera: Culicidae)
Wan Fatma Zuharah and Ahmad Mohiddin

P46 Biological Characteristics of Inherited Permethrin Resistance of Field Collected Male Aedes aegypti
Hadian Iman Sasmita, Kok-Boon Neoh, and Wu-Chun Tu

P47 A New Dengue Vector Monitoring Strategy in Southern Taiwan
Chin-Gi Huang, Hui-Ching Cheng, Tsung-Ju Tsai, Pei-Qi Chen, Ya-Zhe Lee, Yu-En Chiu, Yu-Ting Huang, Tzu-Ying Chuang, Tzu-Chen Lin, Kun-Ta Chuang, and Wu-Chun Tu

P48 Excito-repellency activity of neem extract and oil-based liquid soap formulations against Culex quinquefasciatus, Anopheles minimus, and Aedes aegypti (Diptera: Culicidae)
Amonrat Panthawong, Theeraphap Chareonviriyaphap, and Unchalee Sanguanpong

P49 Force oviposition technique of Anopheles minimus (Diptera: Culicidae), a vector of malaria in Thailand
Pairpailin Jhaiaun, and Theeraphap Chareonviriyaphap

P50 Temephos resistance in Aedes aegypti
Manop Saeung and Theeraphap Chareonviriyaphap

P51 Strong dayside aurorae and precipitations for radial interplanetary magnetic fields
Hsien-Ming Li, Jih-Hong Shue, Satoshi Taguchi, Masahito Nosé, Keisuke Hosokawa, Yongliang Zhang, and Simon Wing

P52 A new algorithm of ionogram scaling for the Chung-Li Ioosondne
Kai-Jun Ke, Kang-Hung Wu, Ching-Lun Su, and Yen-Hsyang Chu

P53 Simulation study on the generation of geomagnetically induced current (GIC) in terms of ground-transmission line coupling
Kazuki Kurisu, Yusuke Ebihara, and Satoko Nakamura

P54 Study on 3 D Simulation for Shape Estimation of Space Debris Using MU Radar
Takuto Ueno, Hiroshi Yamakawa, Hiroyuki Hashiguchi, and Mamoru Yamamoto

P55 Orbit Determination of Unidentified Space Debris by Using MU Rader
Takuya Torii, Hiroshi Yamakawa, Hiroyuki Hashiguchi, and Mamoru Yamamoto

P56 Toward ionosphere forecast using FORMOSAT-7/COSMIC-2
Charles Lin, Chia-Hung Chen, P. K. Rajesh and C. Y. Lin

P57 Achievements and future plan for study of low-latitude ionosphere by using satellite-ground

beacon experiments
Mamoru Yamamoto

P58 Remediation of Ectomycorrhiza in Heavy-Metal Soil and the Shift on Bacterial Community Structure in Rhizosphere
Ying-Ping Sung and Yu-Ting Wu

Organizing Committee

RISH, Kyoto University

[General Chair] Hiroyuki Hashiguchi

Yusuke Ebihara, Akihisa Kitamori, Yoshiharu Omura, Naoki Shinohara, Akifumi Sugiyama, Yuki Tobimatsu, Kenji Umemura, Takashi Watanabe, Mamoru Yamamoto, Chin-Cheng Yang, Tsuyoshi Yoshimura

[Administrative Staff]

Junko Fujiwara, Rika Kusakabe, Yukiko Mizushima, Michiko Okazaki

National Chung Hsing University

[Chair] Hwang Shaw-Yhi

Lee-Jin Bong, Shan-Min Chen, Hooi-Kuan Chong, I-Hsuan Hu, Kuan-Ling Liu, Kok-Boon Neoh, Ming-Hsiao Peng, Hadian Iman Sasmita, Chieh-Yen Tsai, Jin-Jia Yu