2011 3rd International Asia-Pacific Conference on Synthetic Aperture Radar

(APSAR 2011)

Seoul, South Korea 26-30 September 2011



IEEE Catalog Number: ISBN:

CFP1141C-PRT 978-1-4577-1351-4

Table of Contents

TU3.R3.3

TU3.R1:	Modern SAR Missions and Technologies in Europe I	
TU3.R1.1	The Sentinel-1 SAR Instrument: Current Status and Outlook Michael Ludwig, Ramon Torres, Allan Ostergaard, Friedhelm Rostan, Christoph Schaefer and Renato Croci	1
TU3.R1.2	Active SAR Antennas Development in Italy Pasquale Capece and Arnaldo Capuzi	5
TU3.R1.3	The TanDEM-X Mission - Bi-static SAR for a Global DEM Markus Bachmann and Manfred Zink	10
TU3.R1.4	PAZ Instrument Design and Performance Andres Solana González, Massimo Labriola, Josep Closa Soteras and Javier Sánchez Palma	14
TU3.R1.5	TERRASAR-X, TANDEM-X, TERRASAR-X2 and Their Applications Steffen Gantert, Gertrud Riegler, Frank Teufel, Oliver Lang, Lutz Petrat, Wolfgang Koppe and Jörg Herrmann	18
TU3.R2:	Advancement of Fully Polarimetric POL-IN-SAR and its Application	S
TU3.R2.1	Polarimetric Interferometric Studies of the Harvard Forest Using L-Band UAVSAR Data Repeat Pass Data	22
	Scott Hensley, Bruce Chapman, Maxim Neumann, Marco Lavalle, Thierry Michel,	

	Sanchez Painta	
TU3.R1.5	TERRASAR-X, TANDEM-X, TERRASAR-X2 and Their Applications	18
	Steffen Gantert, Gertrud Riegler, Frank Teufel, Oliver Lang, Lutz Petrat, Wolfgang Koppe and Jörg Herrmann	
TU3.R2:	Advancement of Fully Polarimetric POL-IN-SAR and its Applications	S
TU3.R2.1	Polarimetric Interferometric Studies of the Harvard Forest Using L-Band UAVSAR Data Repeat Pass Data	22
	Scott Hensley, Bruce Chapman, Maxim Neumann, Marco Lavalle, Thierry Michel, Shadi Oveisgharan, Ron Muellerschoen, Paul Siqueira and Razi Ahmed	
TU3.R2.2	Exploring the Potential of POL-INSAR Techniques at X-Band First Results and Experiments from TANDEM-X	24
	Konstantinos Papathanassiou, Florian Kugler and Irena Hajnsek	
TU3.R2.3	On Polarimetric, Interferometric, Polarimetric-Interferometric & RP-Differential-POL-In-SAR Sensing & Imaging of the Terrestrial Covers	26
	Wolfgang Martin Boerner	
TU3.R2.4	Wetland Monitoring Using ALOS Dual-Pol SAR Interferometry Sang-Wan Kim, Sang-Hoon Hong and Shimon Wdowinski	28
TU3.R2.5	Three-Dimensional Surface Deformation Mapping by Convensional Interferometry and Multiple Aperture Interferometry	30
	Hyung-Sup Jung, Zhong Lu and Chang-Wook Lee	
TU3.R3:	Numerical Linear Algebra in Detection and Estimation	
TU3.R3.1	The LLL Algorithm Using Fast Givens	32
	Yimin WEI, Wen Zhang and Sanzheng Qiao	
TU3.R3.2	An Analysis on Motion Error Effect in ISAR Imaging Systems Sanghyouk Choi and Joohwan Chun	34

An interference estimation algorithm using multi-element array sensors

37

	Heesun Park and Joohwan Chun	
TU3.R3.4	Waveform Diversity in Multi Sensor Systems : Orthogonal Pulse Compression Waveforms	40
	Namyoon Lee, Hoonkyung Cho and Joohwan Chun	
TU3.R4:	High Resolution SAR Processing	
TU3.R4.1	Semi-Parametric Statistical Analysis of High-Resolution SAR Images Based on Generalized Gamma Distribution	44
	Heng-Chao Li, Ping-Ping Huang and Ping-Zhi Fan	
TU3.R4.2	A Stepped Frequency Chirp Scaling Algorithm for High Resolution SAR Imaging Wenshuai Zhai and Yunhua Zhang	48
TU3.R4.3	Range Resolution Improvement of Pulse Compression Radar	52
	Stanislav Tshe, Dmitry Purik and Seung Hoon Han	
TU3.R4.4	A New Wide-Band Noise Radar Signal and Its Compression	56
	Xiao Dong, Yunhua Zhang and Xiang Gu	
TU3.R4.5	Stepped Frequency Random Noise UWB Radar Signal	60
	Xiang Gu, Yunhua Zhang and Xiangkun Zhang	
TU3.R5 :	Target Recognition, Classification and Segmentation I	
TU3.R5.1	CFAR Ship Detection in SAR Images Based on Lognormal Mixture Model Yi Cui, Jian Yang and Yoshio Yamaguchi	64
TU3.R5.2	Multi-layer Graph Model based SAR Image Segmentation with Geometric Interaction Prior	67
	Yongmin Shuai, Wen Yang and Hong Sun	
TU3.R5.3	Point-Based Rigid Registration Using Geometric Topological Inference Algorithm Wei Wang, Li Liu, Na Wang, Yongmei Jiang and Gangyao Kuang	72
TU3.R5.4	A Vessel Structure Feature Recognition Method Based on High Resolution TerraSAR-X Image	75
	Xiong Yin, Chao Wang, Hong Zhang and Fan WU	
TU3.R5.5	Ship Features and Classification in Hi-Resolution SAR Images with Object Backscattering Part and Surf Array	77
	chao wang, Hong Zhang, Fan Wu and Bo Zhang	
TU4.R1 :	Modern SAR Missions and Technologies in Europe II	
TU4.R1.1	Contribution of TerraSAR-X to Digital Beamforming Experiment for Future SAR Techniques	80
	Jung-Hyo Kim, Marwan Younis, Maritna Gabele, Pau Prats and Gerhard Krieger	
TU4.R1.2	Advances in Radar Imaging at Fraunhofer-FHR	84
	Joachim H. G. Ender, Andreas R. Brenner, Helmut Essen, Helmut Wilden, Delphine Cerutti-Maori, Alfred Wahlen and Winfried Johannes	

TU4.R1.3	TerraSAR-X Next Generation	86
	Christoph Heer and Christoph Schaefer	
TU4.R1.4	Advanced RF Sensors for SAR Earth Observation Using High Precision T/R Modules	90
	Michael Loercher and Hans Brugger	
TU4.R1.5	Challenges of Automated Processing of Spaceborne High Resolution SAR Data Gunnar Triltzsch	96
TU4.R1.6	The SmartRadar SAR and MTI Sensor Rudolf Zahn and Martin Kirscht	98
TU4.R2:	SAR Applications to Ocean and Ice	
TU4.R2.1	Synthetic Aperture Radar Observation of Ocean Surface Akitsugu Nadai, Toshihiko Umehara, Makoto Satake, Tatsuharu Kobayashi, Shoichirou Kojima, Jyunpei Uemoto and Seiho Uratsuka	102
TU4.R2.2	Extraction of Ocean Wave Parameters by ALOS/PALSAR Osamu Isoguchi and Masanobu Shimada	106
TU4.R2.3	Estimating Shirase Glacier Outflow Using ASTER DEM and PALSAR Data Kazuki Nakamura, Tsutomu Yamanokuchi, Koichiro Doi and Kazuo Shibuya	110
TU4.R2.4	Sea Ice Area Detection in the Sea of Okhotsk Using PALSAR Polarimetric Data Hiroyuki Wakabayashi and Shoji Sakai	114
TU4.R2.5	Monitoring of Marine Laver Cultivation Using Two ALOS-PALSAR PLR Acquisition Mode Data	118
	Chan-Su Yang, Jung-Hawn Song, Kazuo Ouchi and Sudhir Kumar Chaturvedi	
TU4.R2.6	Preliminary Technique to Integrate SAR and AIS for Ship Detection and Identification	121
	Sudhir Kumar Chaturvedi, Jung-Hawn Song, Chan-Su Yang, Kazuo Ouchi and Shanmugam Palanisamy	
TU4.R3:	Short Distance Radar and Signal Processing	
TU4.R3.1	An Improved Classification method of Concealed Obstacles using UWB Radar and Stereo Cameras	125
	Dong-Won Yang, Seok-Jae Lee, Tae-Ha Kang, Joo-Hong Yoon and Jung Ho Ko	
TU4.R3.2	3D Microwave Breast Imaging Based on Multistatic Radar Concept System	129
	N. A. Simonov, S. I. Jeon, S.H. Son, J.M. Lee and H.J. Kim	
TU4.R3.3	Desing of a Low Resolution FMCW Radar for Small Target Detection under Ground Clutter	133
	Sang-Gyu Park and Yong-Hoon Kim	
TU4.R3.4	A Design of Phase Nonlinear Chirp Waveform using FPGA for Pulse Compression Radar	134
	Hoon Lee, Yong-Hoon Kim and Jaw-Wook Jung	

TU4.R4 : Advanced SAR Signal Processing

TU4.R4.1	Omega-K Algorithm – A Generalization for Highly Squinted Spotlight SAR Imaging with Dechirp-on-Receive	137
	Minh Phuong Nguyen	
TU4.R4.2	One-Active Linear Array SAR 3-D High Resorution Imaging via Compressed Sensing	141
	Wei Shunjun, Xiaoling Zhang and Shi Jun	
TU4.R4.3	Forward Imaging Radar Data Processing Using Scaling Factor	145
	Jong soo Ha, Gyu Churl Park, Jung Soo Lee, Byung Lae Cho, Sun Gu Sun, Dong Hyun Kim and Sangho Nam	
TU4.R4.4	Some Aspects of General Azimuth Spectrum Algorithm Using Series Reversion	149
	Liu Gao Gao, Zhang Lin Rang, Wang Chun, Liu Nan, Liu Xin and Zhang Bo	
TU4.R4.5	Recognition-Oriented Bayesian SAR Imaging	153
	Sha Zhu, Peng You, Hongqiang Wang, Xiang II and Ali Mohammad-djafari	
TU4.R5:	Target Recognition, Classification and Segmentation II	
TU4.R5.1	An Efficient SAR Target Recognition Algorithm Based on Contour and Shape Context	157
	Wei Zhou, Jie Wang and Jian Guan	
TU4.R5.2	Study on the Imaging and Location of the Bistatic-SAR Based on the LRD Algorithm Ya Li, Yong Li, GongBo Chen and Kui Bi	161
TU4.R5.3	Ocean Disturbance Feature Detection from SAR Images – An Adaptive Statistical Approach	163
	Abhai Mishra, Debasis Chaudhuri, Chinmoy Bhattacharya and Yalamanchili Subrahmanyeswara Rao	
TU4.R5.4	Demonstration and Analysis of the Applications of S-Band SAR	167
	Raffaella Guida, Antonio Natale, Rachel Bird, Philip Whittaker, David Hall and Martin Cohen	
TU4.R5.5	Urban Land Cover Classification from Multi-Sensor Images by Decision Fusion Based on Weights of Evidence Model	171
	Peijun Li and Benqin Song	
TUP.3 : P	Poster Session: SAR Systems / SAR Technology	
TUP.3.1	Research on the Resolution of Bistatic SAR with Geostationary Illuminator and LEO Receiver	174
	Yanfei Wang, Jingen Wang, Jianming Zhang and Jialong Ge	
TUP.3.2	Ambiguous Scattering Points Detection of Bistatic Forward-Looking SAR with Geostationary Illuminator and UAV Receiver	178
	Jingen Wang, Yanfei Wang, Jialong Ge, Yanyu Wang and Renyuan Chen	
TUP.3.3	Explanation of Synthetic Aperture 3-D Imaging Technique via EFIE	182
	SHI JUN, Xiaoling Zhang, Sun Han and Yang Jianyu	

TUP.3.4	Tomographic Linear Array SAR Down-looking 3-D Imaging Based on Multi-Pass Trajectory	186
	Wei Shunjun, Xiaoling Zhang and Shi Jun	
TUP.3.5	Performance Analysis of Toward Ground Forward-looking Bistatic SAR Liu Huan, Zhou jian Xiong and Fu Qiang	190
TUP.3.6	Results from An Airship-mounted Ultra-wideband Synthetic Aperture Radar for Penetrating Surveillance	194
	Qian Song, Hanhua Zhang, Fulai Liang, Yanghuan Li and Zhimin Zhou	
TUP.3.7	Ultra Wide Band Synthetic Aperture Radar Real Time Processing with a Subaperture Nonlinear Chirp Scaling Alg	orithm198
	Li Yueli, YAN Shaoshi, ZHU Guofu, LI Jiangyang and ZHOU Zhimin	
TUP.3.8	An Improved Method Without Approximation for SAR Raw Signal SimulationI Based on 2D Fourier Transform	202
	Pengfei Gao, Jun-jie Wu, Yu-lin Huang and Jian-yu Yang	
TUP.3.9	Investigation on the Wide-Band GB-SAR Polarimetric Calibration	206
	Jing-Jing Zhang, Yang Li, Wen Hong and Qiang Yin	
TUP.3.10	The Synthetic Aperture Radar Transmitter Used in an Unmanned Vehicle Yilong Yao and Xuezheng Sun	210
TUP.3.11	A Broadband Dual-Polarized Microstrip Array	214
	Wei Wang, Lei Li, Xiaodi Song and Zhihui Zhang	
TUP.3.12	A Conformal Microstrip Patch Antenna Array	216
	Mouping Jin, Meiqing Qi and Wei Wang	
TUP.3.13	Analysis of SAR Radiometric Calibration Accuracy with Practical Point Targets Taebong Oh, Chul H. Jung, HORYUNG JEONG and Hyosuk Lim	218
TUP.3.14	GPU Acceleration of 3D SAR Imaging Using Range Migration Techniques	220
101.0.11	Xueming Peng, Yanping Wang, Weixian Tan, Wen Hong and Yirong Wu	220
TUP.3.15	Real-Time Motion Compensation Strategy of a P Band Airborne UWB SAR	224
	Yan Shaoshi, Li Yueli, Zhou Zhimin and zhu guofu	
TUP.3.16	Terrain Scattered Interference Suppression for Multichannel SAR	228
	Yu Chunrui, Zhang Yongsheng, Yu Anxi, Dong Zhen and Liang Diannong	
TUP.3.17	Super-Resolution SAR Tomographic Imaging Using Envisat-ASAR Data	232
	Sun Xilong, Dong Zheng, Yu Anxi and Liang Diannong	
WE1.R1 :	SAR Polarimetry I	
WE1.R1.1	Iceberg Detection using full-polarimetric RADARSAT-2 Data in West Antarctica	236
	Jin-Woo Kim, Duk-jin Kim, Seung-Hee Kim and Byong-Jun Hwang	
WE1.R1.2	Polarimetric SAR Image Decomposition Using the Degree of Polarization and the Co-polarized Phase Difference	240
	Jongchul Shin, Kyung-Yup Lee and Yisok Oh	
WE1.R1.3	4-CSPD with Unitary Transformation of Coherency Matrix	244
	Gulab Singh, Yoshio Yamaguchi and Sang-Eun Park	
WE1.R1.4	FDTD Polarimetric Scattering Analysis for Detection of Stricken Man-Made Object	248

	Ryoichi Sato, Yoshio Yamaguchi and Hiroyoshi Yamada	
WE1.R1.5	Plantation Based Natural Forests Biomass Estimation for REDD Policies Implementation in Cambodia	252
	Ram Avtar, Wataru Takeuchi and Haruo Sawada	
WE1.R2 :	SAR Applications to Forest Monitoring	
WE1.R2.1	Generation of 10M-Resolution PALSAR and JERS-SAR Mosaic and Forest/Non-Forest Maps for Forest Carbon Tracking	256
	Masanobu Shimada, Osamu Isoguchi, M. Watanabe, Takeshi Motooka, Tomohiro Shiraishi, Akira Mukaida, Hayato Okumura, T. Okumura and Takuya Itoh	
WE1.R2.2	Combining ALOS AVNIR-2 and PALSAR for Land Cover Classification Hasi Bagan and Yoshiki Yamagata	260
WE1.R2.3	Above Ground Biomass Mapping of Mangrove Forest in Vietnam by ALOS PALSAR Wataru Takeuchi, Dien Vu Tien, Vu Tan Phuong, An Ngoc Van and Kyaw San Oo	262
WE1.R2.4	Moisture & Roughness Map in Arctic National Wildlife Refuge/Alaska Manabu Watanabe, Keiji Kushida, Masami Fukuda and Motoyuki Sato	265
WE1.R2.5	Assessment of Typhoon-Damaged Forest by Multi-Temporal and Multi-Frequency POLSAR and InSAR Datasets	269
	Kazuo Ouchi and Haipeng Wang	
WE1.R3 :	Student Paper Contest I	
WE1.R3.1	A Noval Polarimetric SAR Ship Detection Method Na Wang, Li Liu, LIngjun Zhao and Jun Lu	271
WE1.R3.2	Nonparametric UWB Radar Imaging Algorithm for Moving Target Using Multi-static RPM Approach	275
	Ryo Yamaguchi, Shouhei Kidera and Tetsuo Kirimoto	
WE1.R3.3	Localization Methods of Multi-Targets for UWB Radar Sensor Networks Dae-Hyun Kim, Dong-Woo Lim, Lan Shen, Hyung-Myung Kim, Sung Chul Woo and Hyun-Kyu Yu	279
WE1.R3.4	Comparison of Ship Detection Algorithms Using ALOS-PALSAR, Ground-Based Maritime Radar, and AIS	283
WE1.R3.5	Eun-Sung Won and Kazuo Ouchi Extraction of Accurate Three-Dimensional Ground Coordinates from Interferometric Radar Altimeter (IRA)	287
	Dong-Taek Lee, Hyung-Sup Jung, Geun-Won Yoon, Du-Ra Kim and Woong Sun	
WE1.R4 :	Enhanced SAR Image Processing	
WE1.R4.1	Amplitude-Phase Compensation Based Parallel Implementation of Real-Time SAR/ISAR	291
	Yu Hui and Lei Wanming	

WE1.R4.2	Bayesian Wavelet-Based Shrinkage for SAR Images Despeckling Using Generalized Gamma Distribution	295
	Ping-Ping Huang, Heng-Chao Li and Ping-Zhi Fan	
WE1.R4.3	ISAR Echoes Coherent Processing and Imaging Using PSO-Based Adaptive Joint Time-Frequency Method	299
	Long Zhuang and Wanming Lei	
WE1.R4.4	Accurate 3-Dimensional Image Reconstruction Algorithm Extending RPM Method to ISAR Model	303
	Shouhei Kidera, Hiroyuki Yamada and Tetsuo Kirimoto	
WE1.R4.5	SAR Data Characterization and Engineering Algorithms: COSMO-SkyMed Image Performance Frontier	307
	Fabrizio Impagnatiello	
WE1.R5:	Urban and Land Surface Remote Sensing I	
WE1.R5.1	Bryza-1RM/Bis - multimission Polish Navy plane with SAR sensor dedicated to sea and ground monitoring	308
	Mateusz Malanowski, Maciej Smolarczyk, Krzysztof Kulpa, Andrzej Gados, Anna Jarzebska, Piotr Samczynski and Jacek Misiurewicz	
WE1.R5.2	Comparison and Incident Angle Dependency for a Relation between Sigma-0 and Biomass Derived from PALSAR	312
	Chinatsu YONEZAWA, AYA KITAMURA, Takashi Ogawa, Manabu Watanabe and Yukio Haruyama	
WE1.R5.3	Extraction of Urban Areas in HR SAR Images Based on an Iterated Foreground/ Background Separation Framework	316
	Huanyu Wang, Bin Liu, Xingzhao Liu, Wenxian Yu and Chengli Jia	
WE1.R5.4	Analysis of Radar Human Gait Signal Based on Fractional Fourier Transforms Jun Zhang	320
WE2.R1 :	SAR Polarimetry II	
WE2.R1.1	Spectral-Spatial Classification of Polarimetric SAR Data Using Morphological Profiles	324
	Prashanth Reddy Marpu, Kun-Shan Chen, Chih-Yuan Chu and Jon Atli Benediktsson	
WE2.R1.2	Methodology Development For Snow Discrimination Using SAR Polarimetry Techniques	327
	Gopalan Venkataraman, Gulab Singh, Yoshio Yamaguchi and SE. Park	
WE2.R1.3	Monitoring and Retrieval of Vegetation Parameter Using Multi-Frequency Polarimetric SAR Data	330
	Shiv Mohan, Anup Das, Dipanwita Haldar and Saroj Maity	
WE2.R1.4	Assessment of Forest Information Derived from the Interoperability of Radar and Optical Data	334
	Tony Milne, Anthea L. Mitchell, Ian Tapley, Kim Lowell, Peter Caccetta, Eric Lehmann and Zheng-Shu Zhou	

WE2.R2 : Application of Random Signals for SAR

WE2.R2.1	Historical overview and current research on Noise Radar	337
	Konstantin A. Lukin	
WE2.R2.2	2D and 3D Imaging Using S-Band Noise Waveform SAR	339
	Konstantin A. Lukin, Pavlo Vyplavin, Sergiy Yarovoy, Volodymyr Kudriashov, Vladimir Palamarchuk, Jong-Min Lee, Youn-Sik Kang, Kyu-Gong Cho, Jong-Soo Ha, Sun-Gu Sun and Byung-lae Cho	
WE2.R2.3	L-Band Stepped Frequency Noise SAR on the Basis of Arbitrary Waveform Generator	343
	Konstantin A. Lukin, Jong Phill Kim, Cheol Hoo Kim, Pavlo Vyplavin, Oleg Zemlyaniy and Vladimir Palamarchuk	
WE2.R2.4	Stepped Frequency Ground-Based Noise SAR Demonstrator	347
	Lukasz Maslikowski, Mateusz Malanowski and Krzysztof Kulpa	
WE2.R2.5	Software Defined Noise Radar on the Basis of FPGA based SPOS board	349
	Konstantin A. Lukin, Sergii Lukin, Joao Moreira and Reiner Spielbauer	
WE2.R3 :	Student Paper Contest II	
WE2.R3.1	Estimation of Ocean Surface Velocity in Tropical Cyclones Using Radarsat-1 ScanSAR Raw Data	351
	Ki-mook Kang and Duk-jin Kim	
WE2.R3.2	ICA-Based Super Resolution Pulse Compression Algorithm Incorporated by MUSIC Algorithm	355
	Tetsuhiro Okano, Shouhei Kidera and Tetsuo Kirimoto	
WE2.R3.3	Fast and Accurate Permittivity Estimation Algorithm for UWB Internal Imaging Radar	359
	Ryunosuke Souma, Shouhei Kidera and Tetsuo Kirimoto	
WE2.R3.4	ISAR Imaging of Uniformly Rotating Targets via Parametric Weighted L1 Minimization	363
	Wei Rao, Gang Li, Xiqin Wang and Xiang-Gen Xia	
WE2.R3.5	Performance Enhancement of Direction Finding for Multiple Baseline Interferometry	367
	Hee J. Yang and Young K Kwag	
WE2.R4 :	Image Filtering, Correction and Enhancement	
WE2.R4.1	Accelaerated SAR Image Generation on GPGPU Platform	371
	AK Agrawal, C Bhattacharya, P Somawanshi, M Khadtare and SK Karandikar	
WE2.R4.2	New Approach of Processing for Ultra Wide Band One Stationary Bistatic SAR System	375
	Dong Hyun Kim, Tae Hwa Kim, Wook Hyun Choi, Seon Gu Seon, Jong Soo Ha and Seung Hoon Han	
WE2.R4.3	SAR Image Processing Using Super Resolution Spectral Estimation with Annihilating Filter	379

WE2.R4.4	CFAR Detection Algorithm for Ground Target in Heterogeneous Clutter Using High Resolution SAR Image	383
	Chul H. Jung, Woo Y Song and Young K Kwag	
WE2.R5 :	Modeling and Simulation	
WE2.R5.1	The Comparison between Synthetic Aperture Radar Observations and Simulation Results of WAVEWATCH III with and without Adopting Spectral Partition Xiahan Suo	387
WE2.R5.2	A High-Efficiency SAR Simulator for Ocean Waves Imaging Yesheng Gao, Zhenlin Wang, Kaizhi Wang, Xingzhao Liu and Wenxian Yu	390
WE2.R5.3	Research on Estimation of Mass-to-Drag of Reentry Vehicle chong-yi Li, Shi-guo Li, Jun Sun and Su Daoxie	393
WE2.R5.4	Stationary Targets Imaging and Moving Targets Detection Based on Airship Conformal Sparse Array Xiu-min TENG and Dao-jing LI	396
WEP.1 : F	Poster Session: SAR Signal Processing / Invited	
WEP.1.1	Lever Arm Rotation Compensation Method for UAV Mounted SAR Yanghuan Li, Fulai Liang, Qian Song and Zhinmin Zhou	400
WEP.1.2	SAR Image Matching Based on Sift Keypoints and Multi-Subregions Information Wentao Lv, Wenxian Yu, Junfeng Wang and Kaizhi Wang	403
WEP.1.3	GPU-accelerated SAR Backprojection in JACKET for MATLAB Fulai Liang, Xiaojiang Qu, Yanghuan Li, Qian Song and Hanhua Zhang	407
WEP.1.4	Improving Goldstein Filter by Image Entropy for InSAR Interferogram Filtering Shi Xiaojin and Zhang Yunhua	411
WEP.1.5	ASR & RD-RCFB Joint Method for Forward-Looking Ground-Penetrating Radar Clutter Suppression Jian Wang, Lu Huang and Zhimin Zhou	415
WEP.1.6	Moving Target Imaging via the High Squint SAR Zhigang Su, Guixian Wang and Renbiao Wu	419
WEP.1.7	A Novel Two-Dimensional Spectrum for Bistatic SAR Processing Based on Range Equation Approximation	423
WEP.1.8	Chunyang Dai and Xiaoling Zhang Unambiguous Parameter Estimation of Radial Velocity Approach for Airborne SAR-GMTI	426
	Ruipeng Xu, Dandan Zhang, Lijia Huang, Donghui Hu and Chibiao Ding	
WEP.1.9	Equivalent Transformation Error Analysis for Monostatic-Bistatic SAR Echo Yuan-quan TAN and Ke ZHANG	430
WEP.1.10	Geo-location Error Correction for Synthetic Aperture Radar Image Sunho Song and Young K Kwag	434

Binhee Kim, Artem Muchkaev and Seunghyun Kong

WEP.1.11	A Novel Mean Filter Based on the Partial Distribution for SAR Images Speckle Reduction	438
	Wang Guoli, Zhou Wei and Guan Jian	
WEP.1.12	A Novel Target Feature Extraction Method in High-Resolution SAR Image	442
	Jun Lou, Tian Jin and Zhimin Zhou	
WEP.1.13	Virtual Aperture Ground Penetrating Radar Subsurface Image Formation	446
	Tian Jin, Jun Lou, Qian Song and Zhimin Zhou	
WEP.1.14	ISAR Image Fusion Based on Mutual Information Techinque Used Multi-Receiver	450
	Long zhang, Yachao Li and Mengdao Xing	
WEP.1.15	A Back-Projection Fast Autofocus Algorithm Based on Minimum Entropy for SAR Imaging	451
	Liu Min, Li Chunsheng and Shi Xinhua	
WEP.1.16	Real-Time Adaptive Ground Clutter Cancellation Algorithm	455
	Jaehoon Jung, Y.K. Kong, S.H. Kim and B.Y. Kho	
WEP.1.17	Numerical Study of Radar Backscattering from Sea Surface Contaminated by Oil Seong-Min Park, Dong-Gyu Kim and Yisok Oh	457
WEP.1.18	Edge Detection of SAR Images Based on Edge Localization with Optical Images	461
	Wei Wang, Huaping Xu and Xianghua Liu	
WE3.R1:	ALOS /PALSAR and Monitoring the Earth Environment I	
WE3.R1.1	Conjugate Earthquake Rupture Associated with Two Recent Intraplate Strike-Slip Earthquakes	465
	S. Sun, N. Serizawa and Masato Furuya	
WE3.R1.2	ALOS/PALSAR Has Changed the Earthquake Science Manabu Hashimoto	467
WE3.R1.3	Project for Development of Application Using Satellite Image to Measure Paddy Rice Planted Area in Japan -Case of PALSAR-	471
	Naoki ISHITSUKA, Nobuhiro TOMIYAMA, Tsutomu Yamanokuchi, Genya SAITO, Chinatsu YONEZAWA and Shigeo OGAWA	
WE3.R1.4	Temporal Variation of RCS from a Tree Trunk	475
	Manabu Watanabe, Masanobu Shimada and Motoyuki Sato	
WE3.R1.5	Polarimetric Decomposition Based on Particle Swarm Optimization and Its Data Analysis	479
	Toshifumi Moriyama	
WE3.R2:	High Resolution SAR Application	
WE3.R2.1	Urban Monitoring Using TERRASAR-X SAR Data	483
	Sang-Wan Kim, Geun-Won Yoon and Joong-Sun Won	
WE3.R2.2	Interferometric Coherence Analysis with High Resolution Space-Borne Synthetic Aperture Radar	485
	Sang-Hoon Hong and Shimon Wdowinski	

WE3.R2.3	Antarctic Ocean Tide Signal Restoration using Differential InSAR Technique Sang-Ho Baek and C.K. Shum	487
WE3.R2.4	Using X-Band Synthetic Aperture Radar Data to Monitor Salt Marsh YoonKyung Lee and Joong-Sun Won	491
WE3.R2.5	Velocity Retrieval of Moving Object from A Single Channel High Resolution SAR Data	495
	Jeong-Won Park and Joong-Sun Won	
WE3.R3:	Advanced SAR Concepts and Interference Suppression	
WE3.R3.1	An Ameliorative Method of Zero Doppler Steering	499
	Chipan Lai, Dong Mu, Aifang Liu, Nan Wu, Guangfeng Qiu and Youquan Lin	
WE3.R3.2	An Omega-K Imaging Algorithm for Bistatic Forward-Looking SAR with Stationary Transmitter	503
	Junjie Wu, Yulin Huang, Jianyu Yang, Pengfei Gao, Zhe Liu, Wenchao Li and Haiguang Yang	
WE3.R3.3	Imaging Ka-Band SAR Interferometer	505
	Michael Ludwig, Salvatore D'Addio, Miguel Aguirre, Jean Christoph Angevain, E Saenz and Kilian Engel	
WE3.R3.4	Interference Effect Analysis from Ground Based Rader in High Resolution Spaceborne SAR Image	509
	Jung Kim and Young K Kwag	
WE3.R3.5	Radar Target Recognition Based on Some Invariant Properties of the Polarization	513
	Fuyou Wang, Rujiang Guo and Yinhe Huang	
WE3.R4 :	SAR/GMTI/STAP	
WE3.R4.1	Analysis of Frequency Number and Frequency Offset on STAP for Spaceborne Sparse Array GMTI Radar with Multiple Carrier-Frequencies	517
	Xueyan Kang and Yunhua Zhang	
WE3.R4.2	Target Radial Velocity Estimation Based on Data Reconstruction and Signal Fitting	521
	Shu Yuxiang, Liao Guisheng and Yang Zhiwei	
WE3.R4.3	Monitoring Floodplain Area of Tonle Sap Lake, Cambodia Using Multi-temporal ALOS PALSAR Data	524
	Nguyen Van Trung, Jung-Hyun Choi and Joong-Sun Won	
WE3.R4.4	The Experiment Results of GMTI in Low Frequency SAR with Dual Channels	531
	Chongyi FAN, Xiaotao HUANG, Daoxiang AN and Hong ZHOU	
WE3.R4.5	Improved Calibration Method of the Airborne Polarimetric SAR	535
	Feng MING, Jun HONG and Lintao Zhang	
WE3.R5:	Ground Penetration Radars	
WE3.R5.1	Multi-Feature based Landmine Identification Using Ground Penetrating Radar Gyubin Jang, Kangwook Kim and Kwanghee Ko	538

WE3.R5.2	Void-Layer Thickness Determination Using Spectrum Optimization Inversion Method	541
	HE WEI KUN, WU RENBIAO and LIU JIAXUE	
WE3.R5.3	Estimation of Airfield Pavement Void Thickness using GPR	544
	Changmiao Duan, Renbiao Wu and Jiaxue Liu	
WE3.R5.4	Time-frequency Feature Extraction and Discrimination of Targets in Airport Runway Using GPR	548
	Yuzhong Zhong, Renbiao Wu and Jiaxue Liu	
WE4.R1 :	ALOS /PALSAR and Monitoring the Earth Environment II	
WE4.R1.1	Ship Detection BY ALOS-PALSAR: An Overview Kazuo Ouchi	552
WE4.R1.2	Monitoring of East Antarctic Marginal zone Using ALOS / PALSAR data	554
	Tsutomu Yamanokuchi, Kazuo Shibuya, Koichiro Doi and Shigeru Aoki	
WE4.R1.3	Ship Detection from Full Polarimetric SAR Data at Different Incidence Angles Motofumi Arii	558
WE4.R1.4	Seasonal Velocity Changes at Duofeng Glacier in West Kunlun Shan, China, Detected by ALOS/PALSAR	562
	Takatoshi Yasuda and Masato Furuya	
WE4.R2 :	SAR Tomography	
WE4.R2.1	Tomo and Diff-Tomo SAR Methodologies: Recent Advances for Urban and Forest Applications	564
	Francesco Cai, Fabrizio Lombardini, Davide Pasculli and Federico Viviani	
WE4.R2.2	Near Field 3D Circular SAR Imaging	567
	Domenico Olivadese, Elisa Giusti, Fabrizio Berrizzi, Marco Martorella and Fabrizio Lombardini	
WE4.R2.3	On the Sensitivity of Measured Backscattering Properties to Variations of Incidence Angle and Baselines in Tomographic SAR Data	571
	Othmar Frey, Erich Meier and Irena Hajnsek	
WE4.R2.4	Radar Sounding and Imaging of Fast-Flowing Glaciers in Greenland	575
	Prasad Gogineni, John Paden, C. Leuschen, Jilu Li, Fernando Rodriguez-Morales, Emily Arnold, Kyle Byers, Logan Smith, Kevin Player, Daniel Gomez, Ayyangar Harish and Rick Hale	
WE4.R2.5	Persistent Scatterers Detection by Multi-Pass SAR Interferometric Data	576
	Vito Pascazio, Gilda Schirinzi and Alessandra Budillon	
WE4.R3:	UWB and High Resolution SAR Systems and Calibration	
WE4.R3.1	High Resolution UWB SAR Based on OFDM Architecture	578
-	Md Anowar Hossain, Ibrahim Mohamed Elshafiey, Majeed A. Alkanhal and Md Anowar Hossain	

WE4.R3.2	A Method of Measuring SAR Calibration Constant using Ocean Feng MING and Jun HONG	582
WE4.R3.3	A Fast and Precise Registration Method for Repeat-Pass Interferometric ALOS PALSAR Data Through Baseline Estimation	586
	Boli Xiong, Qi Chen, Jun LU, Yongmei Jiang and Gangyao Kuang	
WE4.R3.4	High Precision Autometric Geocoding Method of SAR Image Using GSHHS	590
	Jung-Soo Jung, Jung-Hwan Song and Young-Kil Kwag	
WE4.R3.5	Small Satellite SAR Mission Definition and Analysis for Taiwan	594
	James Yu-Chen Yaung, Jih-Run Tsai, Ru-Muh Yang, I-Young Tarn, Nai-Chen Liu, Kun-Shan Chen, Hao-Lun Hung, Chi-Wen Tao, Chih-Yuan Chu, Chih-Tien Wang, Ting-Yu Li, Hsiao-Ning Wang, Fu-Chiarng Chen, Chung-Hsing Han and Shyh-Jong Chung	
WE4.R4:	Applications of Polarimetry and Interferometry I	
WE4.R4.1	Rotation of Polarimetric Matrices and Its Effects on Classification Accuracy of Man- Made Structures by Synthetic Aperture Radar	598
	Mitsunobu Sugimoto and Kazuo Ouchi	
WE4.R4.2	Accuracy Assessment of DEMs Derived from Multi-Frequency SAR Images	602
	Neeraj Parihar, Anup Das, M. S. Nathawat and Shiv Mohan	
WE4.R4.3	Soil Moisture Mapping using ALOS PALSAR and ENVISAT ASAR Data over India G. G. Ponnurangam and Y. S. Rao	606
WE4.R4.4	Persistence Scatterer Inteferometry for Surface Movement Mapping over Himalayan Region	610
	Yalamanchili Subrahmanyeswara Rao, Chandrakanta Ojha and Rinki Deo	
WE4.R4.5	Antenna Aperture Design Scheme for the Bistatic Forward Looking SAR Applications	614
	Sangho Nam, Jung Soo Lee and Jong Soo Ha	
WE4.R5:	Ultra Wideband Radars	
WE4.R5.1	Q-band VCO and Injection-locking Buffer for 77-GHz Automotive Radar System in 0.13-µm CMOS	618
	Jae-hoon Song, Sangwook Nam, Seong-Kyun Kim and Byung-Sung Kim	
WE4.R5.2	Obstacle Detection Radar System for Highway Safety	621
	Jung-Soo Jung, JinMan Bak, Hee J. Yang, Young Ho Seo and Young K Kwag	
WE4.R5.3	Detection and Tracking Algorithm for 77GHz Automtoive FMCW Radar	625
	Eugin Hyun, Woojin Oh and Jong-Hun Lee	
WE4.R5.4	UWB Forward Imaging Radar for an Unmanned Ground Vehicle	629
	Sun-Gu Sun, Byunglae Cho, Gyu Churl Park, Youn Sik Kang and Seung Hoon Han	
WE4.R5.5	Scatering Analysis of Separated Aperture Sensor GPR for Buried Targets Detection	633
	Hong-Xing Zheng and Zhi–Feng Li	

WEP.3 : Poster Session: SAR Applications

WEP.3.1	Study on Radar Imaging Simulation of Ocean Current and Waves Ying Yu, Anhong Chen, Xingli Huang and Minhui Zhu	636
WEP.3.2	Resolution and Bistatic Configuration in Through Wall SAR Imaging Xin LI, Xiao-tao HUANG, Shi-rui PENG, Guo fu ZHU and Dao xiang AN	640
WEP.3.3	A New SAR Image Change Detection Algorithm Based on Texture Feature Guangxue Wang, Daoxiang An, Xiaotao Huang and Zhimin Zhou	645
WEP.3.4	New Phase-Difference for Polarimetric SAR Images	649
	Kyung-Yup Lee, Youn-soo Kim and Yisok Oh	
WEP.3.5	Plane HRRP Rejection Based on SVDD Technology	651
	Li Qing, Li Bin and Yang Zhenglong	
WEP.3.6	An Analysis about the Effect of Reflection Asymmetry Compensation on the Freeman-Durden/Wishart Classification	655
	Peng Wang, Yang Li, Wen Hong and Feng Ming	
WEP.3.7	Noise Reduction of L-Band ScanSAR Mode Images for Sea Surface Wind Retrieval	659
	Tai-Sung Kim and Kyung-Ae Park	
WEP.3.8	Preliminary Results of VFGPVR 3D Imaging of Shallow Buried Targets	663
	Jian Wang, Qian Song and Zhimin Zhou	
WEP.3.9	Unsupervised Segmentation with CUDA for SAR Imagery Based on Loop Belief Propagation	667
	Ge XU, You-Lin WANG and Qi YE	
WEP.3.10	Modeling for High Resolution SAR Image Data Wang Hai-tao and Xu Tao	671
WEP.3.11	Earthquake Damage Detection for Building by Fusion of the High-Resolution Optical and SAR Images Based on the Correlation Coefficient for the 2008 Wenchuan Earthquake	675
	Xi Chen, Jingfa Zhang and Bin Liu	
WEP.3.12	Three Dimensional Displacement Maps of the Bam, Iran, Earthquake by Applying DINSAR and MAI Methods	679
	Bin Liu, Jingfa Zhang and Yongsheng Li	
WEP.3.13	Ground Subsidence Investigated in Changzhou, China Based on SBAS Approach Wei Liu, Bin Liu, Jingfa Zhang, Anye Hou, Yi Luo and Yongsheng Li	682
WEP.3.14	A Novel SAR Imaging Processing Algorithm Based on Compressive Sensing Qinghu Meng, Chunsheng Li and Huaping Xu	684
WEP.3.15	An Efficient Automatic Geo-Regestration Technique for High Resolution Spaceborne SAR Image Fusion	688
	AhLeum Kim, Wookyung Lee and Seul-Ki Lee	
WEP.3.16	DEM-Assisted Analysis of ALOS PALSAR Backscatter in Kwangneung Experiment Forest	690
	MinGee Hong, JoonSoo Choi and Choen Kim	
WEP.3.17	A Vehicle Based SFCW SAR for Differential Interferometry	691
	Biying Lu, Xiang Zhang, Qian Song, Zhimin Zhou and Jian Wang	

WEP.3.18	A New Visual Attention-Based Method for Water Detection in SAR Images Biao Hou, Yang Wei, Shuang Wang and L.C. Jiao	695
WEP.3.19	Landmine Detection Using FLGPVAR Images	697
	Yunfei Shi, Qian Song, Tian Jin and Zhimin Zhou	•
TH1.R1:	KOMPSAT-5: Systems and Applications I	
TH1.R1.1	KOMPSAT-5 Calibration and Validation Processor	701
	Manuela Di Salvo, Francesca Temussi, Ornella Bombaci, J.M. Shin, J.C. Yoon, J. H. Keum, J.H. Kim, S. R. Lee and Antonio Bauleo	
TH1.R1.2	KOMPSAT-5 SAR P/L On-Ground Verification Campaign	705
	Antonio Bauleo, Yong-Jin Won, Hong-Youl Mun, Sung-Hyun Woo, Jin-Hee Kim, Sang-Ryool Lee, Corrado Farina, Chiara Germani, Pierluigi Petrini, Gianfranco Sirocchi and Aldo Torrini	
TH1.R1.3	KOMPSAT-5 SAR Design and Performance	709
	Antonio Bauleo, Jae-Chul Yoon, Jung-Hoon Keum, Jae-Min Shin, Jin-Hee Kim, Sang-Ryool Lee, Corrado Farina, Chiara Germani, Marco Mappini and Roberto Venturini	
TH1.R1.4	Orbit Maintenance for Calibration of KOMPSAT-5	713
	Byoung-Sun LEE, Yoola Hwang, Ok-Cheol Jung and Jae-Cheol Yoon	
TH1.R1.5	RCS Measuremet and Analysis of Corner Reflector and ITS Background for KOMPSAT-5 Calibration and Validation	718
	HORYUNG JEONG, JINHEE KIM, DONGHAN LEE, TAEBONG OH, JAEMIN SHIN, JAECHEOL YOON, HYOSUK LIM and YONGSIK CHUN	
TH1.R2:	Electromagnetic Scattering Models and Applications	
TH1.R2.1	Simulation of Complex Target RCS with Application to SAR Image Recognition	722
	Cheng-Yen Chiang and Kun-Shan Chen	
TH1.R2.2	Characteristics of Time-Reversal(TR) SAR Image of Point Target Hyung-Ha Yoo, Il-Suek Koh and Bo-Yeon Koh	726
TH1.R2.3	Development of a Simple Scattering Model for Bean Fields and Verification with Scatterometer Measurements at X-Band	730
	Soon-Gu Kwon, Ji-Hwan Hwang and Yisok Oh	
TH1.R2.4	Some Extensions to the Integral Equation Method for Electromagnetic Scattering from Rough Surfaces Yang Du	734
TH1.R2.5	Electromagnetic Scattering from a Corn Canopy at L and C Bands Yang Du, Wenzhe Yan, J.C. Shi, Zeng-Yuan Li and Er-Xue Chen	736
TH1.R3:	Interferometric and Polarimetric Techniques	
TH1.R3.1	A Fast Normalized Cross Correlation Algorithm for InSAR Image Fine Registration Dong Li and Yunhua Zhang	738

TH1.R3.2	Classification of Forest Vegetation Species Based on Parameters of Tomography Peifeng Ma, Zhang Hong, Chao Wang and Jiehong Chen	742
TH1.R3.3	Indoor Experiment on Vegetation Permittivity Measurement Using Brewster's Angle	746
	Takuma Watanabe, Hiroyoshi Yamada, Hirokazu Kobayashi, Yoshio Yamaguchi and Motofumi Arii	
TH1.R3.4	X-Band T/R Module Based on GaN MMICs Power Amplifier	750
	Zhu Jun, Zhou Zhipeng, Shi Henian, Guo Qing and Yao Xiaojiang	
TH1.R3.5	Design of X-Band Receiver of Airborne SAR/GMTI Multi-Model Reconnaissance Radar	754
	Cheng Yan ping, Yuantong Li, Zhang-yun Chuan and Yaowu Sheng	
TH1.R4:	Applications of Polarimetry and Interferometry II	
TH1.R4.1	Ice Sheet Motion in Inland Antarctica from ALOS PALSAR Interferometry	758
	Hiroshi Kimura and Fumihiko Nishio	
TH1.R4.2	Identification of Rice Fields in a Complex Land-use Region Using RADARSAT-2 Data	762
	Kim-Huong Hoang, Monique Bernier and Minh Y Tran	
TH1.R4.3	A Resynthesis Framework for PolSAR Images Based on Feature Selection Mengling LIU, Jiayu CHEN and Hong SUN	766
TH1.R4.4	Change Detection in Urban Areas of High-Resolution Polarization SAR Images Using Heterogeneous Clutter Models	770
	Meng Liu, Hong Zhang and Chao Wang	
TH1.R5:	Clutter Rejection Techniques	
TH1.R5.1	Detection of Ship Targets Near Coastline by Using Doppler Beam Sharpening Technique	774
	KwangHee Kim, SookGyeong Kim and JaeWoong Yi	
TH1.R5.2	Limits of Target Tracking in Heavy Clutter	778
	Zvonko m Radosavljevic and Darko Mušicki	
TH1.R5.3	Target Detection and Angle Estimation using 3 channel Sigma Delta STAP Eunjung Yang and Joohwan Chun	782
TH1.R5.4	Control about Sea Clutter Level of Marine RADAR.	786
	Moon Kwang Jang and ChoonSik Cho	
TH1.R5.5	SAR and Optical Data Utilization for Soil Moisture Retrieval in Vegetated Region	790
	Dharmendra Singh, Rishi Prakash, N. P. Pathak, Shiv Mohan and K. P. Singh	
TH2.R1 :	KOMPSAT-5: Systems and Applications II	
TH2.R1.1	Development of Active Transponder for KOMPSAT-5 Mission	794
	Durk-Jong PARK, Sang-II AHN, Yong-Sik CHUN, Jae-Min SHIN, Jae-Cheol YOON and Jin-Hee KIM	

TH2.R1.2	KOMPSAT-5 SAR Data Processing: Design Drivers and Key Performance	798
	Roberto Episcopo, Daniele Scaranari, Julien Marini, Danilo Vicari, Mauro Guelfi, Fabrizio Impagnatiello, J. H. Keum, J. H. Kim, S. R. Lee, J. M. Shin and J. C. Yoon	
TH2.R1.3	Monitoring of coastal wind and oil spill using KOMPSAT-5	802
	Duk-jin Kim	
TH2.R1.4	KOMPSAT-5 SAR Application	806
	Sang-Hoon Hong, Kyung-Yup Lee and Youn-Soo Kim	
TH2.R1.5	Soil Moisture Detection Algorithm at X-Band	808
	Yisok Oh, Soon-Gu Kwon and Ji-Hwan Hwang	
TH2.R2:	Applications of SAR Techniques to Special Radars	
TH2.R2.1	A Modified Time-Domain Back Projection Algorithm for Penetration Imaging Radar	812
	Pilwon Jeong, Seunghoon Han and Kangwook Kim	
TH2.R2.2	Concealaed Object Detection with Radiometric Imaging	816
	Seowkon Yeom, Dong-Su Lee, Jung-Young Son, Min-Kyoo Jung, Yushin Jang, Sang-Won Jung and Seok-Jae Lee	
TH2.R2.3	Frequency and Polarization Characteristics in Vegetaion for Ground Based Penetrating Radar	820
	Sangho Nam, Sun-Gu Sun and Gyu Churl Park	
TH2.R2.4	Optical True Time-Delay Beamformer Based on Microwave Photonics for Phased Array Radar	824
	Byung-Min Jung, Dong-Hyun Kim, In-Pyung Jeon, Sang-Jin Shin and Hyoung-Joo Kim	
TH2.R2.5	Multi-Input Multi-Output Synthetic Aperture Radar Technology for Urban Area Surveillance	828
	Fauzia Ahmad, Moeness Amin and Yeo-Sun Yoon	
TH2.R3:	SAR Application - Natural Disaster Monitoring	
TH2.R3.1	A Time-Series Deformation Analysis from TERRASAR-X SAR Data Over New Orleans, USA	832
	Sang-Wan Kim, Timothy H. Dixon, Falk Amelung and Shimon Wdowinski	
TH2.R3.2	A Time-Series Observation of Ground Subsidence at Ulsan Area Using SAR Interferometry	834
	Min-jeong Jo, Joong-Sun Won and Sang-Wan Kim	
TH2.R3.3	Inundation Mapping Using Time Series Sattelite Images	837
	Jung hyun Choi, Joong-Sun Won and Nguyen Van Trung	
TH2.R3.4	Motion of Campbell Glacier, East Antarctica, Observed by Satellite and Ground- Based Interferometric Synthetic Aperture Radar	840
	Hyangsun Han and Hoonyol Lee	
TH2.R3.5	DEM Generation and Time Series Analysis of InSAR using Kalman Filters	844
	Osmano ັ glu Batuhan, Wdowinski Shimon and H. Dixon Timothy	

TH2.R4 : Airborne SAR

TH2.R4.1	PLIS : An Airborne Polarimetric L-Band Interferometric Synthetic Aperture Radar	845
	Douglas Andrew Gray, Ruiting Yang, Heath Yardley, Jeffrey Walker, Bevan Bates, Rocco Anciera, Jorg Hacker, Andrew McGrath and Nick Stacy	
TH2.R4.2	SAR Motion Compensation for Korean MUAV	849
	SangHong Park, Dong-Hyun Kim and Kyung-Tae Kim	
TH2.R4.3	Near-Filed-To-Far-Field Transformation Using Wavenumber Migration Technique for a 3D Spotlight SAR	853
	Jae-Choon Woo, Byoung-Gyun Lim, Sang-Min Lee, Ji-Hee Yoo and Young-Soo Kim	
TH2.R4.4	Geo-Location Error Correction Method for SAR Image Using Ground Control Point	857
	Soo H Rho, Jung Kim, Woo Y Song and Young K Kwag	
TH2.R4.5	Automatic Bridge Detection Scheme Using CFAR Detector in SAR Images	861
	Woo Y Song, Soo H Rho and Young K Kwag	
TH2.R5:	Advanced Radar Signal Porcessing	
TH2.R5.1	SAR Radiometric Calibration Based on Vectors of DCT	865
	Yiding Wang and Yuanshu Li	
TH2.R5.2	Resolution Analysis of Airborne 3-D SAR via Generalized Ambiguity Function	869
	Gao Xiang, Xiaoling Zhang and Jun Shi	
TH2.R5.3	Role of Polarimetric Indices Based on Statistical Measures to Identify Various Land Cover Classes in ALOS PALSAR Data	873
	Pooja Mishra and Dharmendra Singh	
TH2.R5.4	A Real Time FMCW Short Range Radar System	877
	Dong-hun Shin, Jee-hoon Lee and Seong-ook Park	
TH2.R5.5	X-Band Isoflux Pattern Antenna for SAR Data Transmission	881
	Kyung-Jin Jeon, Kyoil Lee, Jae-gi Son, Taek-Kyung Lee, Jae W. Lee and Woo-Kyung Lee	
THP.1 : F	Poster Session: Radar Technology	
THP.1.1	24GHz Stacked Power Amplifier with Optimum Interstage Matching Using 0.13um CMOS Process	885
	Jiyoung Chang, Kihyun Kim, Sungho Lee and Sangwook Nam	
THP.1.2	A Pedagogical Passive Radar Using DVB-S Signals	888
	Paulo A Marques, A. Ferreira, F. Fortes, P. Sampaio, H. Rebelo and L. Reis	
THP.1.3	Near-Field to FAR-Field RCS Transformation by Using Antenna Array Factor	892
	Hirokazu Kobayashi, Dharmendra Singh and Yoshio Yamaguchi	
THP.1.4	A TBD Method Using Multi-Frame Coherent Integration	896
	Kun Wang and Xiaoling Zhang	
THP.1.5	Stride Rate Estimation Using UWB Impulse Radar	900

	Dong-Woo Lim, Dae-Hyun Kim, Lan Shen, Hyung-Myung Kim, Seongdo Kim and Hyun-Kyu Yu	
THP.1.6	Human Detection Based on the Excess Kurtosis in the Non-Stationary Clutter Environment Using UWB Impulse Radar	903
	Lan Shen, Dae-Hyun Kim, Jae-Hwan Lee, Hyung-Myung Kim, Pil-Jae Park and Hyun-Kyu Yu	
THP.1.7	A Simple Simulation Method For Switching Controllers Used In Radar System Xuezheng Sun and Yilong Yao	907
THP.1.8	1kW Solid State Power Amplifier for L-Band RADAR System Ki won Kim, Ju young Kwack and Samuel Cho	911
THP.1.9	An Acceleration Technique for the Electromagnetic Scattering from Objects above a Rough Surface	915
	Wei Yang, Zhiqin Zhao, Wei Liu and Zaiping Nie	
THP.1.10	Very Low Phase Noise Voltage Controlled Oscillator Using High-Q Double H-Shape Metamaterial Resonator	919
	Chongmin Lee and Chulhun Seo	
THP.1.11	A Study on Jamming Performance Evaluation of Noise and Deception Jammer Against SAR Satellite	923
	YoungJoong Lee, JooRae Park, WookHyun Shin, Kwangll Lee and HeeChang Kang	
THP.1.12	A Pulse-Doppler and FMCW Radar Signal Processor for Surveillance YUN-TAEK IM, Jee-Hoon Lee and Seong-Ook Park	926
THP.1.13	UWB Radar Receiver Architecture Based on Range Gates Sang-Dong Kim, Yeong-Hwan Ju and JONGHUN LEE	930
THP.1.14	Three-Dimensional EyeSafe Laser RADAR SYSTEM • based on InGaAs/InP 4x4 APD array	934
	Bongki Mheen, Jae-Sik Shim, Ki Soo Kim, Myoungsook Oh, Yong-Hwan Kwon and Ensoo Nam	
THP.1.15	Self-Adapting Control Parameters in Dynamic Differential Evolution on Inverse Scattering Problems	937
	Chi-Hsien Sun, Chien-Hung Chen, Chung-Hsin Huang, Chien-Ching Chiu and Ching-Lieh Li	
THP.1.16	Research Progress of Noise Radar Technologies	941
	Ya'nan Duan, Ze Yu and Yinsheng Zhang	
THP.1.17	Experiments for Ultra-Wideband Imaging Radar with One-Dimentional Synthetic Aperture	945
	Daeman kim and Shangyoual Shin	
THP.1.18	Analysis of Polarimetric Scattering in a Paddy Rice Canopy Using an Automatic Radar Scatterometer System	949
	Yihyun Kim, Sukyoung Hong and Hoonyol Lee	