

# IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING

A PUBLICATION OF THE IEEE GEOSCIENCE AND REMOTE SENSING SOCIETY



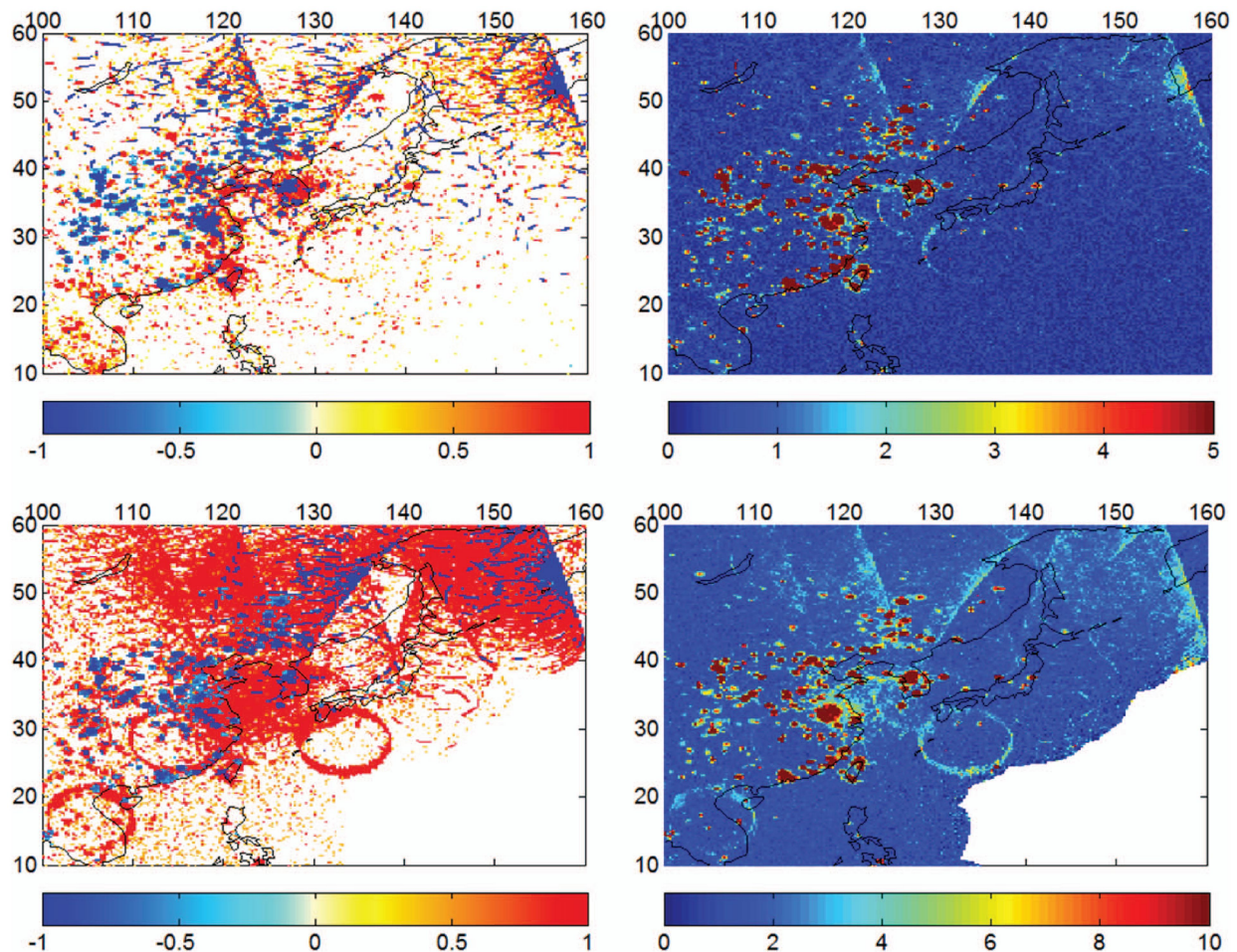
OCTOBER 2016

VOLUME 54

NUMBER 10

IGRSD2

(ISSN 0196-2892)



Excess kurtosis values and associated RFI detection rates in East Asia and Japan, as measured by the SMAP mission 1400–1427 MHz radiometer for the period June 3, 2015 to June 9, 2015. The top two figures are excess kurtosis values (left) and kurtosis detection rate (right) over East Asia derived from the full-bandwidth data stream. The bottom two figures show similar information obtained from the channelized data stream.

# IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING

A PUBLICATION OF THE IEEE GEOSCIENCE AND REMOTE SENSING SOCIETY



OCTOBER 2016

VOLUME 54

NUMBER 10

IGRSD2

(ISSN 0196-2892)

---

PAPERS

**Atmosphere**

- Water Vapor Pressure Model for Cloud Vertical Structure Detection in Tropical Region . . . . .  
. . . . . *F. Yuan, Y. H. Lee, Y. S. Meng, and J. T. Ong* 5875

**Vegetation and Land**

- Large-Scale Biomass Classification in Boreal Forests With TanDEM-X Data . . . . .  
. . . . . *A. Toraño Caicoya, F. Kugler, I. Hajnsek, and K. P. Papathanassiou* 5935

**Electromagnetics**

- A Frequency-Hopping Subspace-Based Optimization Method for Reconstruction of 2-D Large Uniaxial Anisotropic Scatterers With TE Illumination . . . . .  
. . . . . *Y. Liu, Z. Zhao, Y. Yang, B. Wang, X. Zhu, Z. Nie, and Q. H. Liu* 6091

**Hyperspectral Data Processing**

- A Deterministic Method for Profile Retrievals From Hyperspectral Satellite Measurements . . . . .  
. . . . . *P. K. Koner, A. R. Harris, and P. Dash* 5657
- A Computationally Efficient Algorithm for Fusing Multispectral and Hyperspectral Images . . . . .  
. . . . . *R. Guerra, S. López, and R. Sarmiento* 5712
- A Tensor Decomposition-Based Anomaly Detection Algorithm for Hyperspectral Image . . . . .  
. . . . . *X. Zhang, G. Wen, and W. Dai* 5801
- Spectral Unmixing Using a Sparse Multiple-Endmember Spectral Mixture Model . . . . .  
. . . . . *F. Chen, K. Wang, and T. F. Tang* 5846
- Hyperspectral Image Compression Optimized for Spectral Unmixing . . . . . *A. Karami, R. Heylen, and P. Scheunders* 5884
- Iterative Curve Fitting: A Robust Technique to Estimate the Wavelength Position and Depth of Absorption Features From Spectral Data . . . . .  
. . . . . *S. Asadzadeh and C. R. de Souza Filho* 5964
- Robust Collaborative Nonnegative Matrix Factorization for Hyperspectral Unmixing . . . . .  
. . . . . *J. Li, J. M. Bioucas-Dias, A. Plaza, and L. Liu* 6076
- Statistical Volume Analysis: A New Endmember Extraction Method for Multi/Hyperspectral Imagery . . . . .  
. . . . . *X. Geng, L. Ji, F. Wang, Y. Zhao, and P. Gong* 6100
- Multidomain Subspace Classification for Hyperspectral Images . . . . . *L. Zhang, X. Zhu, L. Zhang, and B. Du* 6138

---

(Contents Continued on Page 5630)

---

Semisupervised Sparse Manifold Discriminative Analysis for Feature Extraction of Hyperspectral Images . . . . .	6197
Deep Feature Extraction and Classification of Hyperspectral Images Based on Convolutional Neural Networks . . . . .	6232
<b>Image Processing and Analysis</b>	
Extinction Profiles for the Classification of Remote Sensing Data . . . . .	5631
A Robust Method to Generate a Consistent Time Series From DMSP/OLS Nighttime Light Data . . . . .	5821
Ship Detection in Spaceborne Optical Image With SVD Networks . . . . .	5832
Development of a Large-Format UAS Imaging System With the Construction of a One Sensor Geometry From a Multicamera Array . . . . .	5925
Object-Based Morphological Profiles for Classification of Remote Sensing Imagery . . . . .	5952
A Three-Layered Graph-Based Learning Approach for Remote Sensing Image Retrieval . . . . .	6020
Multiscale and Multifeature Normalized Cut Segmentation for High Spatial Resolution Remote Sensing Imagery . . . . .	6061
<b>Microwave Radiometry</b>	
SMAP L-Band Microwave Radiometer: RFI Mitigation Prelaunch Analysis and First Year On-Orbit Observations . . . . .	6035
<b>Radar Systems</b>	
Radar Sounding Using the Cassini Altimeter: Waveform Modeling and Monte Carlo Approach for Data Inversion of Observations of Titan's Seas . . . . .	5646
Adaptive Beamspace Processing for Phased-Array Weather Radars . . . . .	5688
Analysis and Validation of High-Resolution Wind From ASCAT . . . . .	5699
A Technique to Improve Copolar Correlation Coefficient Estimation . . . . .	5776
Airborne Co-polarization and Cross-Polarization Observations of the Ocean-Surface NRCS at C-Band . . . . .	5975
Vertical Air Motions and Raindrop Size Distributions Estimated Using Mean Doppler Velocity Difference From 3- and 35-GHz Vertically Pointing Radars . . . . .	6048
Investigation of Azimuthal Variations From X-Band Medium-Grazing-Angle Sea Clutter . . . . .	6110
<b>Synthetic Aperture Radar</b>	
Phase Estimation for Distributed Scatterers in InSAR Stacks Using Integer Least Squares Estimation . . . . .	5671
Fast and Accurate Target Detection Based on Multiscale Saliency and Active Contour Model for High-Resolution SAR Images . . . . .	5729
Wrapped Staring Spotlight SAR . . . . .	5745
Coherent Change Detection Using InSAR Temporal Decorrelation Model: A Case Study for Volcanic Ash Detection . . . . .	5765
Polarimetric Analysis of Compact-Polarimetry SAR Architectures for Sea Oil Slick Observation . . . . .	5862
SAR Image Change Detection Based on Correlation Kernel and Multistage Extreme Learning Machine . . . . .	5993
Single-Look SAR Tomography as an Add-On to PSI for Improved Deformation Analysis in Urban Areas . . . . .	6119
SAR Raw Data Simulation for Ocean Scenes Using Inverse Omega-K Algorithm . . . . .	6151
First Airborne Demonstration of Holographic SAR Tomography With Fully Polarimetric Multicircular Acquisitions at L-Band . . . . .	6170
Spatial Resolution Improvement in GNSS-Based SAR Using Multistatic Acquisitions and Feature Extraction . . . . .	6217

---

---

<b>Global Navigation Satellite System</b>	
Array-Aided Multifrequency GNSS Ionospheric Sensing: Estimability and Precision Analysis . . . . .	A. Khodabandeh and P. J. G. Teunissen 5895
A Statistical Model and Simulator for Ocean-Reflected GNSS Signals . . . . .	J. L. Garrison 6007
<b>Satellite Systems</b>	
Radiometric Characteristics of KOMPSAT-3 Multispectral Images Using the Spectra of Well-Known Surface Tarps . . . . .	J.-M. Yeom, J. Hwang, C.-G. Jin, D.-H. Lee, and K.-S. Han 5914
Suomi NPP VIIRS Solar Diffuser BRDF Degradation Factor at Short-Wave Infrared Band Wavelengths . . . . .	N. Lei and X. Xiong 6212

---

About the Cover: The cover illustrates radio-frequency interference (RFI) detected by the SMAP (Soil Moisture Active Passive) mission over East Asia and Japan. Values for the kurtosis statistic, which is used as an RFI detector in the SMAP L1B\_TB ground processing algorithm, are shown, using either the fullband (upper plots) or subband (lower plots) datasets provided by SMAP. For more information please see “SMAP L-Band Microwave Radiometer: RFI Mitigation Prelaunch Analysis and First Year On-Orbit Observations,” by Mohammed *et al.*, which begins on page 6035.