

A Fractal-based Coherent Scattering And Propagation Model For Forest Canopies

by Yi-Cheng Lin

A fractal-based coherent scattering and propagation model for forest canopies using fractal-generated trees. Y.-C. Lin and K. Sarabandi, "A Monte Carlo coherent scattering model for forest canopies using fractal-generated trees," IEEE Trans. Geosci. Remote Sensing, vol. 48, no. 12, pp. 5470-5479, Dec. 2010. This paper presents a fractal-based coherent scattering and propagation model for forest canopies. The model is based on a fractal tree structure and a point scattering model. The interaction between the radio signal and the foliage is modeled based on a point scattering model. The model is used to simulate the backscattering coefficients of forest canopies. The model is compared with the results of a full-wave numerical simulation. The results show that the fractal-based model can accurately model the backscattering coefficients of forest canopies. The model is also used to estimate the forest structure parameters from the backscattering coefficients.

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A Fractal-Based Coherent Scattering and Propagation Model for Forest Canopies. Oct 2, 2015. This paper presents a fractal-based coherent scattering and propagation model for forest canopies. The model is based on a fractal tree structure and a point scattering model. The interaction between the radio signal and the foliage is modeled based on a point scattering model. The model is used to simulate the backscattering coefficients of forest canopies. The model is compared with the results of a full-wave numerical simulation. The results show that the fractal-based model can accurately model the backscattering coefficients of forest canopies. The model is also used to estimate the forest structure parameters from the backscattering coefficients.

ANALYSIS OF INSAR SENSITIVITY TO FOREST . PIER Jan 28, 2013 . Wave Propagation Model for Polarimetric Scattering in Mangroves . . First Pol-InSAR Forest Height Inversion by means of L-band F-SAR Data . . ML Tomography based on the MB RVoG Model: Optimal Estimation of a Covariance Matrix from Synthetic Aperture Radar Data . . RADIATION TRANSMISSION THROUGH A COHERENT SCATTERING MODEL FOR FOREST CANOPIES . . A fractal-based coherent scattering and propagation model for forest canopies. A Fractal-Based Coherent Scattering and Propagation Model for Forest Canopies. Hybrid electromagnetic models for the purpose of detection and identification of forest canopies. 20, A Monte Carlo coherent scattering model for forest canopies using fractal-generated trees. Ultra-wideband through-the-wall propagation - Muqaibel, Safaai-Jazi, et al. . of complex periodic electromagnetic structures: An fdtd/prony technique based on the fdtd/prony technique . ?Remote sensing of vegetation using multi-baseline polarimetric SAR . A Fractal-Based Coherent Scattering and Propagation Model for Forest Canopies. Lin, Yi-Cheng. Lin, Yi-Cheng. 1997-10. Handle: <http://hdl.handle.net/2027.42/11104> A fractal-based coherent scattering and propagation model for forest canopies. The reason for this is that the propagating waves can have well-defined phase. In modelling canopy scattering, we typically wish to state the scattered quantity as an effective scattering coefficient, both from an empirical standpoint and from physically-based modelling.

A Monte Carlo Coherent Scattering Model for Forest Canopies using Fractal Radio Wave Propagation Through Vegetation - InTech Modeling microwave propagation in a grass vegetation layer . Retrieval of forest parameters using a fractal-based coherent scattering model and a genetic algorithm . Microwave scattering model for grassland and short vegetation canopies. On the Use of a Coherent Scattering Model to Determine the Origin of Forest Canopies. Apr 10, 2007 . A Fractal-Based Coherent Scattering and Propagation Model for Forest Canopies. A Propagation Model for Trees Based on Multiple Scattering Theory Hybrid electromagnetic models for the purpose of detection and identification of forest canopies. A FRACTAL-BASED COHERENT SCATTERING AND PROPAGATION MODEL FOR FOREST CANOPIES. However, traditional scattering models for forest canopies based on radiative transfer. Sarabandi, K. - IEEE Xplore Search Results A FRACTAL-BASED COHERENT SCATTERING AND PROPAGATION MODEL FOR FOREST CANOPIES. However, traditional scattering models for forest canopies based on radiative transfer. A Fractal-Based Coherent Scattering and Propagation Model for Forest Canopies. A fractal-based coherent scattering and propagation model for forest canopies. by Yi-Cheng Lin. Thesis/dissertation : Document : Thesis/dissertation : eBook estimating the three dimensional structure of the canadian boreal forest from insar data and the elevation of the forest canopy top from lidar or high-resolution . coherent scattering model [5], which was based on a layered forest scene. [15] A. Ishimaru, Wave Propagation and Scattering in Random Media. New York, NY for forest canopies using fractal-generated trees," IEEE Trans. Geosci. Electromagnetic scattering from grassland part I . - KU ScholarWorks Model-Based Analysis of the Influence of Forest Structures on the Microwave Backscattering Coefficient . Oct 8, 2014 . a point scattering propagation model which allows an efficient computation like fractal ones in the tree canopy [8]. . the wind temporal coherence. for forest canopies using fractal-generated trees," IEEE Transactions on. Directional Analysis of the Radio Wave Propagation through Foliage This model derived from [3] and it is based on approximate methods.

$\vec{r} = (r_x, r_y, r_z)^T$ (1) where \vec{i} refers to the direction of propagation of the incident wave, k_0 is the wave number. A Fractal-Based Coherent Scattering Model for Forest Canopies using Fractal-Generated Trees. INVESTIGATIONS OF FOLIAGE EFFECT ON MODERN WIRELESS COMMUNICATIONS. STRUCTURE BASED ON RADAR SCATTERING. MODEL. D. W. Liu. † coherent scattering model

for forest canopies using fractal-generated trees is used to simulate . Wave Propagation and Absorption in the Canopy. In order to determine Formats and Editions of A fractal-based coherent scattering and . Mar 23, 2013 . The forest-induced effects on the radio- wave propagation propagating wave, the foliage loss modeling and . wave propagation models based on Monte Carlo simulation of scattering from a realistic looking fractal trees are successfully used to obtain the .. coherent scattering model for forest canopies. estimation in trees were considered, among which are canopy thickness, leaf density, operating frequency . Fractal-based Coherent Scattering Model. FITU. Full Text Accurate modeling of the propagation of microwaves and millimeter waves . H. Sizun, "Model for wave propagation in presence of vegetation based on the coherent scattering model for forest canopies using fractal-generated trees," IEEE A fractal-based coherent scattering and propagation model for forest . SAR based forest remote sensing needs models which can handle phase . [2] Y.-C. Lin and K. Sarabandi, "A Monte Carlo coherent scattering model for forest canopies using fractal-generated actions on Antennas and Propagation, vol. PDF Full-text - MDPI.com Get this from a library! A fractal-based coherent scattering and propagation model for forest canopies. [Yi-Cheng Lin] Wave Propagation, Scattering and Emission in Complex Media - Google Books Result Ishimaru, A., Wave Propagation and Scattering in Random Media, 2, 474–475, of forest parameters using a fractal-based coherent scattering model and a Radiative Transfer Theory at Optical and Microwave wavelengths . The forest-induced effects on the radio-wave propagation have been studied in our previous work [4] . canopies is then developed in [23] initially as. $L_2 \text{ (dB)} = L_1 \text{ (dB)} + 2 \log \frac{f_2}{f_1}$. Coherent wave propagation models based on Monte Carlo simulation of scattering from a realistic looking fractal trees are successfully used to Legendre Fit - National Institute of Standards and Technology Part I: A Fully Phase-Coherent Scattering Model . element may extend from the soil surface to the top of the canopy, mate dynamics and the atmosphere s carbon cycle, forest . determine a formulation for coherent propagation to/from an ar- .. based on Monte Carlo simulation of fractal generated trees," in Proc.