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Orhan Eroglu, Dylan R. Boyd, Mehmet Kurum

Infor**M**ation **PR**oc**ES**sing and **S**ensing (IMPRESS) Lab

http://impress.ece.msstate.edu/

SCoBi Simulator
Quick Start Guide

v1.0

Table of Contents

Quick Start Purpose

The purpose of this document is to familiarize the user by generating example SCoBi output values from the simulator user environment. It is suggested that the user consultss the **SCoBi User's Manual** if the user wishes to learn about the physical representation and definitions of the SCoBi simulator's inputs.

This document has its own version number convention regardless of that of the SCoBi simulator software. The two-digit version number of this document represents the major updates (to the document) in the first digit and minor changes in the second digit. On the other hand, the three-digit version number of the SCoBi software represents the major updates to the framework in the first digit, minor changes in the second digit, and bug-fixes in the third digit.

Example 1
Forest Analysis

1. Run the script ***runSCoBi.m*** file located in ***.\source\ib***.
2. Select the ***Forest*** icon from the ***Analysis Selection Window***.
3. Make sure the ***default-forest.mat*** system input file from ***.\source\input\system*** has been loaded.
   a. On the initial run, this input will be loaded.
   b. If the values have been loaded correctly, the GUI should be filled with the values depicted in **Figure 1**. (If the user runs or saves custom user inputs, the window will be filled with those inputs when opened.)
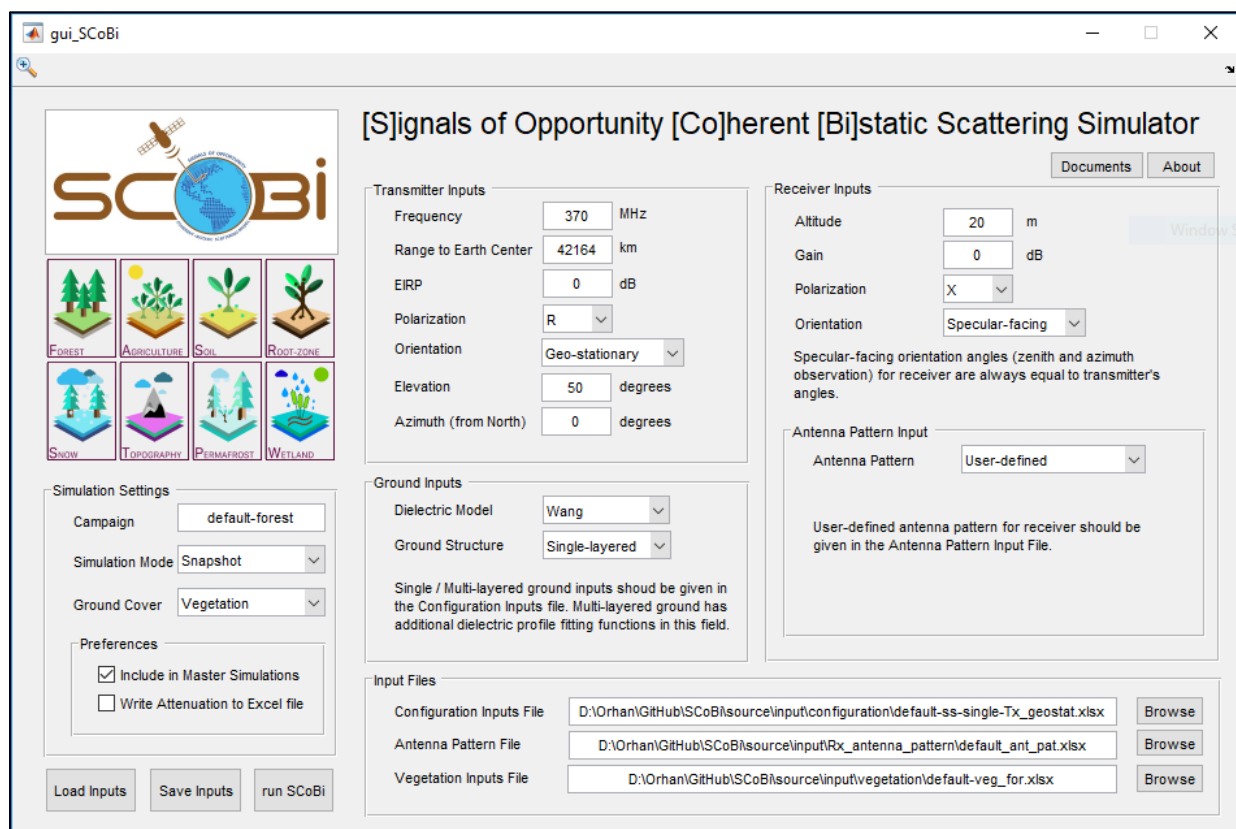

Figure 1*: Default Input Files Loaded from default-forest.mat*

4. Select the ***run SCoBi*** button in the bottom left corner of the GUI.
5. After completion, the output files will be located in ***.\source\sims\master*** with a timestamp indicating when the program was run and the corresponding campaign title (e.g., "default_forest-16-Aug-2016_05_08_20.")
6. Plot the output product using the scripts ***plotReflectivityVsVSM.m*** located in ***.\source\ib\scobi\plot\scobi***. It will save the generated plot entitled ***Reflectivity_vs_VSM-EL_50-PHI_0-RMSH_1dot5.tif*** under ***.\master\default_forest<time_stamp>\figure\specular\reflectivity\vs_VSM***

Example 2
Agriculture Analysis

1. Run the script **runSCoBi.m** file located in **.\source\ib**.
2. Select the **Agriculture** icon from the **Analysis Selection Window**.
3. Make sure the **default-agriculture.mat** system input file from **.\source\input\system** has been loaded.
   a. On the initial run, this input file will be loaded.
   b. If the values have been loaded correctly, the GUI should be filled with the values depicted in **Figure 2**. If the user runs or saves custom user inputs, the window will be filled with those inputs when opened.
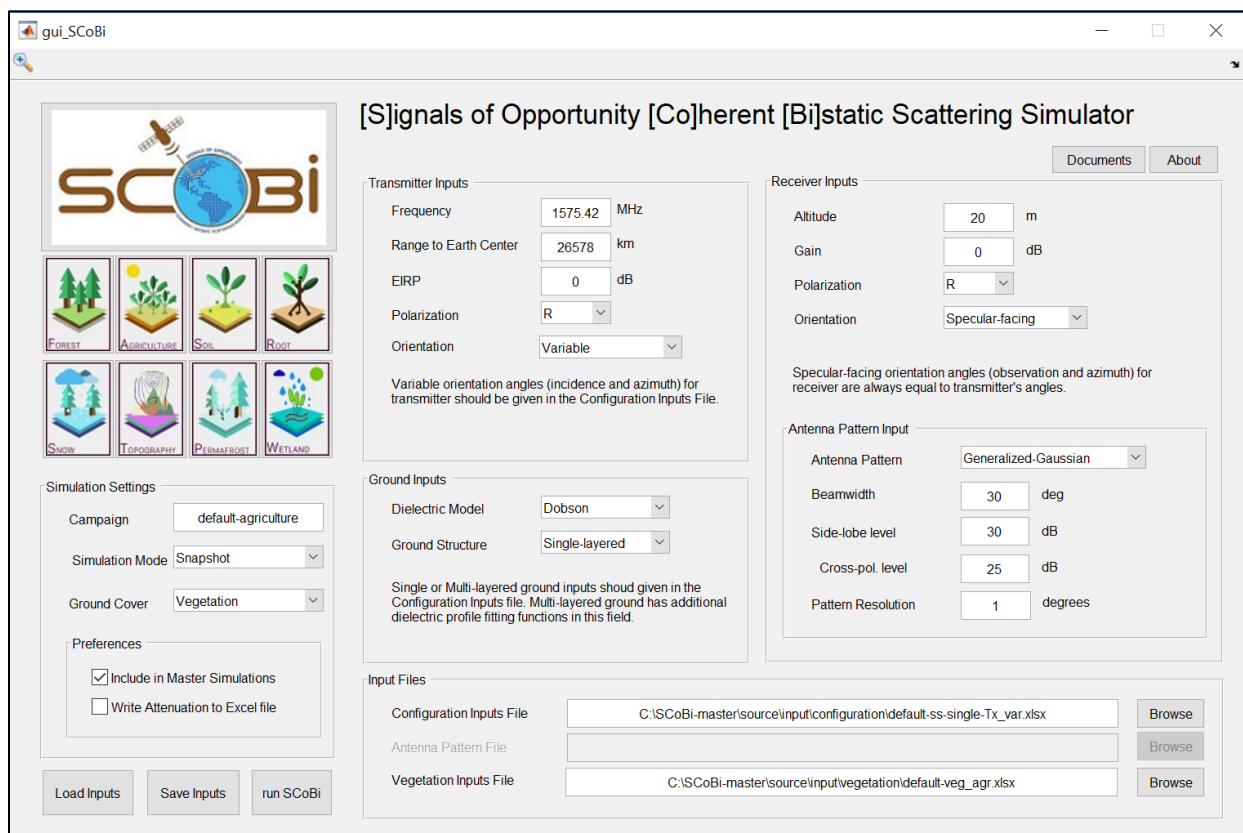

Figure 2: *Default Input Files Loaded from default-agriculture.mat*

4. Select the **run SCoBi** button in the bottom left corner of the GUI.
5. After completion, the output files will be located in **.\source\sims\master** with a timestamp indicating when the program was run and the corresponding campaign title (e.g., "default_agriculture-16-Aug-2016_05_45_19.")
6. Plot the output product using the scripts **plotReflectivityVsEL.m** located in **.\source\ib\scobi\plot\scobi**. It will save the generated plot entitled **Reflectivity_vs_EL-PH_15-VSM_0dot15-RMSH_1.tif** under **.\master\default_agriculture<time_stamp>\figure\specular\reflectivity\vs_EL**

Example 3
Soil Analysis

1. Run the script ***runSCoBi.m*** file located in ***.\source\lib***.
2. Select the ***Soil*** icon from the ***Analysis Selection Window***.
3. Make sure the ***default-soil.mat*** system input file from ***.\source\input\system*** has been loaded.
   a. On the initial run, this input file will be loaded.
   b. If the values have been loaded correctly, the GUI should be filled with the values depicted in **Figure 3**. If the user runs or saves custom user inputs, the will be filled with those inputs hen opened.
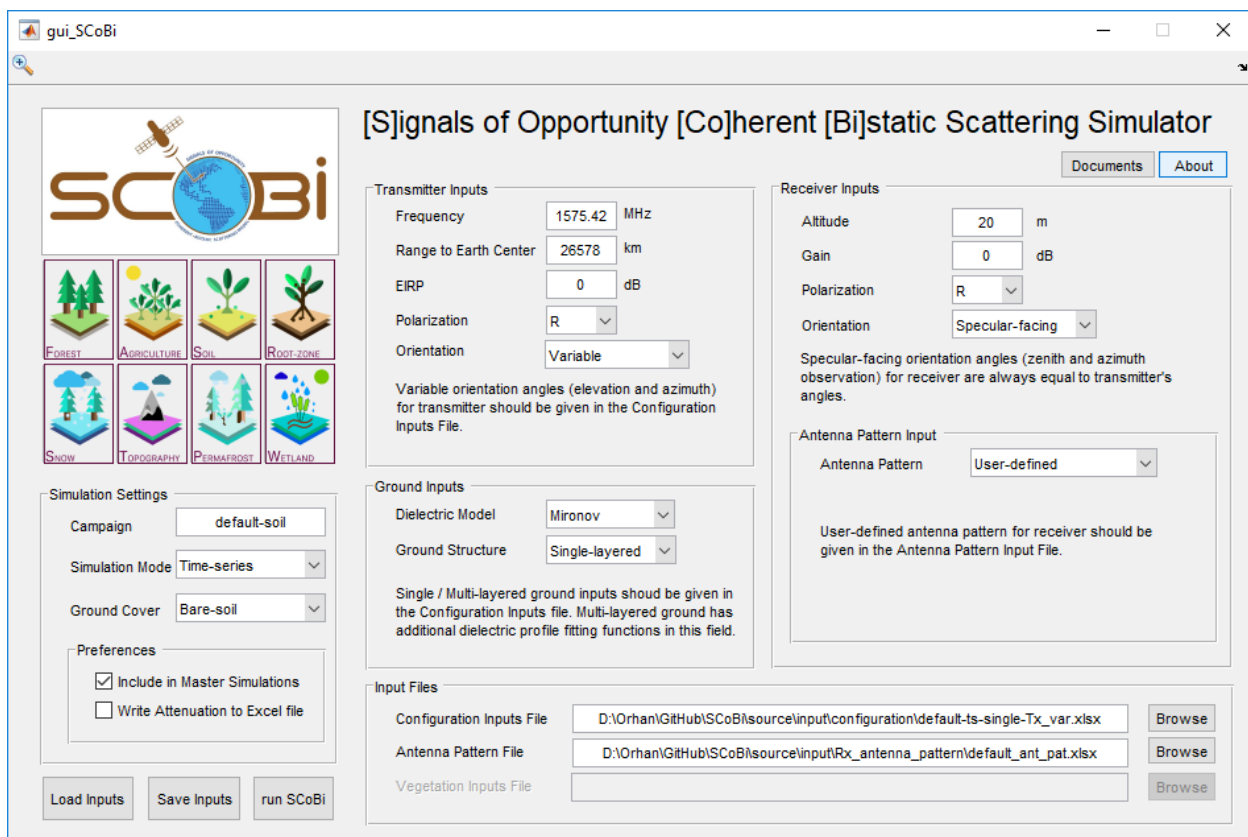

Figure 3: *Default Input Files Loaded from default-soil.mat*

4. Select the ***run SCoBi*** button in the bottom left corner of the GUI.
5. **After** completion, the output files will be located in ***.\source\sims\master\output*** with a timestamp indicating when the program was run and the corresponding campaign title (e.g., "default-soil-16-Aug-2016_05_49_19.")
6. Currently, there is no released plotting functions for this type of analysis (*Time-series*). It will be available in the near-future versions.

Example 4
Root-Zone Analysis

1. Run the script *runSCoBi.m* file located in *.\source\lib*.
2. Select the *Root* icon from the *Analysis Selection Window*.
3. Make sure the *default-root_zone.mat* system input file from *.\source\input\system* has been loaded.
   a. On the initial run, this input file should be loaded.
   b. If the values have been loaded correctly, the GUI should be filled with the values depicted in **Figure 4**. If the user runs or saves custom user inputs, the will be filled with those inputs hen opened.
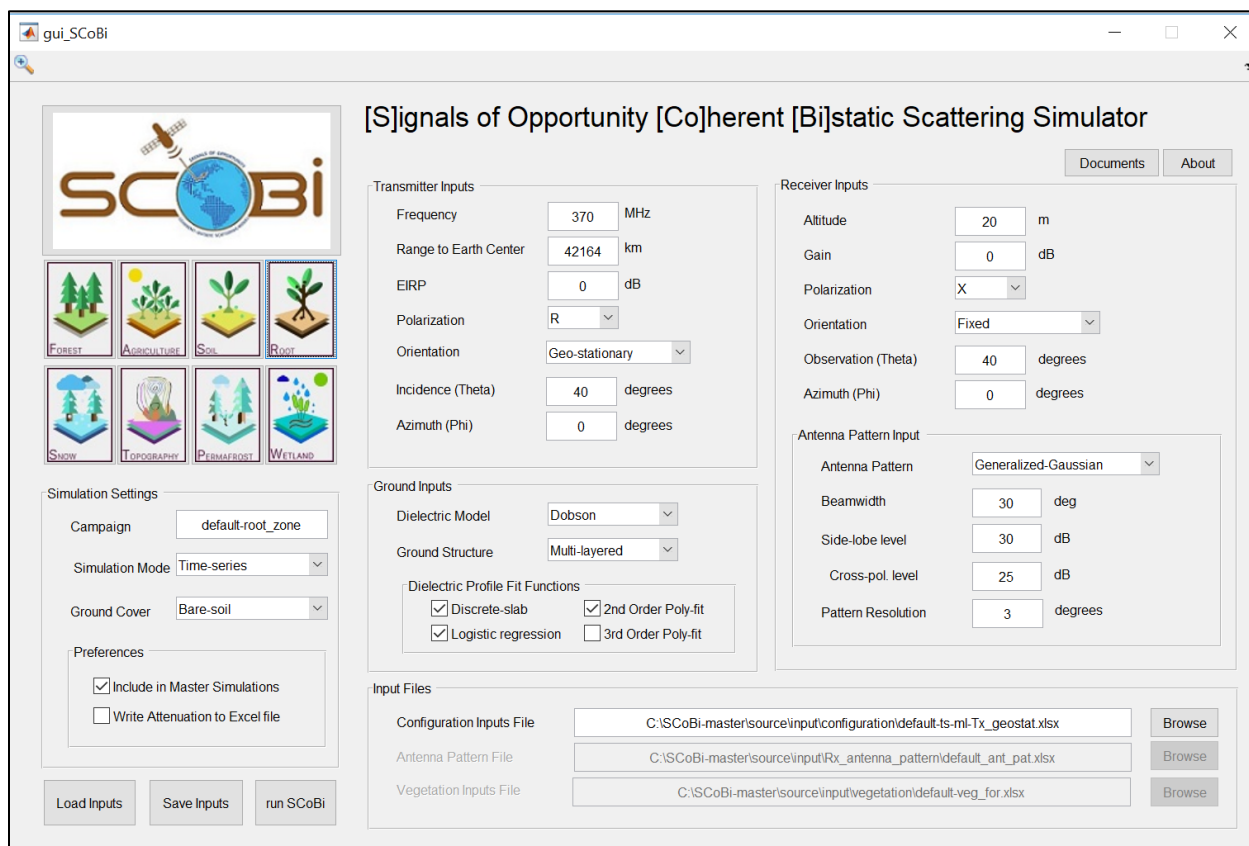

Figure 4: *Default Input Files Loaded from default-root_zone.mat*

4. Select the *run SCoBi* button in the bottom left corner of the GUI.
5. After completion, the output files will be located in *.\source\sims\master\output* with a timestamp indicating when the program was run and the corresponding campaign title (e.g., "default-root_zone-16-Aug-2016_05_49_19.")
6. Currently, there is no released plotting functions for this type of analysis (*Time-series* over *Multi-layered* ground). It will be available in the near-future versions.