

Updates to NMSim

There are a number of changes and improvements made to the most recent Alpha version of the NPS's NMSim program. The largest and most significant change is the addition of the Nord2000 propagation algorithms to the program. The following will provide a list of the changes made and how to access them.

Program Defaults:

One of the new features in NMSim is the ability to specifically select default directories to aid in the creation of new cases. This is reached through the File menu. Simply select File->Program Defaults and select the default directories to look in for each case. In addition, this section allows the user to select a default maximum distance for calculating the noise. The distance is compared against propagation distance. If the propagation distance is larger, the program does not do any calculations and returns a -999.9 dB as the answer.

Elevation Files:

NMSim can now accept terrain data directly from the Seamless Data Warehouse (<http://seamless.usgs.gov>). There are many different types of terrain data available. NMSim will accept any of the NED data, provided it is in the GridFloat format. This requires that the user specifically request that data format, but that is easily done from the Seamless website. Resolutions come in 1 arc second, 1/3 arc second, and, for some areas, 1/9 arc second. For almost all applications the 1 arc second should be sufficient for any NMSim cases. The GridFloat NED data can be selected directly as an elevation file within NMSim.

Impedance Files:

NMSim can now accept Land Cover Data as a viable impedance file. The Land Cover Data can be downloaded from the Seamless Data Warehouse as well. The specific file to download is the 'National Land Cover Dataset 2001 - Land Cover', in GridFloat format. NMSim will read that file and convert the different land cover types into ground impedance. The specific conversion is identified in a file within the RND directory. This file is called 'GroundImpedance.csv' and can be edited to suit the needs of a particular case. A set of sample impedances has been provided, but these probably need review before they can be considered final. The GridFloat Land Cover file can be selected directly as a valid impedance file within NMSim.

Ground Track Builder

The ground track builder has been modified to allow the import of a Shapefile that contains the definition for a road. If within the DBF file there is a 'Speed' property, the ground track builder will import that as well. The speed listed within the DBF file must be in MPH. When importing a Shapefile, the user will be asked for an elevation file. This can be either a normal NMSim *.elv file, or a Seamless Data Warehouse NED file (in GridFloat format). The user will also be asked for the height above the ground for the source, and they will be asked to select a beginning for the road. To select the beginning,

the user must click on the road, close to the end that will be the start of the track. The program will then build a standard NMSim ground track file. This ground track, however, will not be able to be edited by the NMSim Ground Track Builder once it has been imported.

Weather Files

If the user would like to access the new Nord2000 algorithms, all that is required is to select a weather file (*.wea). The weather file is a simple ASCII file that identifies the primary weather parameters needed for Nord2000. A file can be built directly from the interface, or edited by hand. If a valid weather file is selected, the program will automatically select the Nord2000 algorithms over the standard NMSim algorithms. This will be identified by 'Nord2k' identified in the model type within the interface.

Tree Files

If the user would like to use the tree-scattering feature within Nord2000, they need to select (or build) a valid tree file. The tree file (*.tre) provides the basic parameters needed by the Nord2000 algorithm to compute the scattering from trees. Currently it is an all-or-nothing parameter, meaning that either the entire area has the same tree cover, or there is no tree cover.

Site File

NMSim can now accept a simple csv file for identifying receiver locations. The file should have one line of header information, then each line after that should have the following format:

X (utm), Y (utm), Z(feet AGL), Name

If the name will have any spaces in it, it should be surrounded by quotation marks. The UTM coordinates should be in the same zone as the main part of the study area. This file will be read in by NMSim, but it will not be able to be edited by the Site Builder.