# Run\_DSSAT – Program notes

## General description

This program has been written to run DSSAT v4.5 for a range of sites selected by the user. In particular the code takes account of the numbering system used by Johanes for the sites in the generation of the MarkSim data for the 18,862 sites in the TOR project.

The numbering system is at two levels and lacks coherence and logic:

|  |  |  |
| --- | --- | --- |
| Primary directories | Secondary directories | Files |
| 101 – 118 | For 101  x001 – x999  For 102 – 109  x000 – x999 where x is the last character of the name of the primary directory,  For 110 – 118  xx000 – xx999 where xx are the last two characters of the name of the primary directory, | For 101 – 109  xxxxyy01.WTG where xxxx are the four characters of the secondary directory name and yy is the year 01 – 99.  For 110 – 118  xxxxyy01.WTG where xxxx are the FIRST four characters of the secondary directory name and yy is the year 01 – 99. For this reason, the units character of the site identifier is lost, and all the year files for 11500 – 11509, for example have the same set of names, 1150yy01.WTG. This means that it is impossible to use the first four characters of the name of the .WTG files as a unique site identifier. |

The program Rename\_MarkSim\_Output applied the following renumbering:

|  |  |  |
| --- | --- | --- |
| Primary directories | Secondary directories | Files |
| 101 – 118 | For 101  x001 – x999  For 102 – 109  x000 – x999 where x is the last character of the name of the primary directory,  For 110 – 118  x000 –x999 where x is one of the characters A – I substituting in order for 10 – 18 for the last two characters of the name of the primary directory, | For 101 – 118  xxxxyy01.WTG where xxxx are the four characters of the secondary directory name and yy is the year 01 – 99. |

## Operation outline

The program asks the user to select the CLXGEN.LOG file within the directory for the first site and the CLXGEN.LOG file within the directory for the last site. From these names, the program calculates the sequence number of the first and last sites.

The program then asks the user to select the appropriate .BNX file in the DSSAT45\Drybean. Finally the user is asked to select the directory into which it will copy the output. In this case the user is required to create the output file (it can be located anywhere and can be any name, BUT it MUST contain a dummy file with the extension .TXT. You can make such a file by simply saving a blank document in Notebook to the chosen directory.

With these four pieces of information, the program loops over the sites defined by the user. For each site it:

* Calculates the path for each site, and checks that there are 99 years’ data for each site.
* If not, it abandons the site and writes a diagnostic in the file Run\_DSSAT\_Errors.LOG file.
* If the weather data are complete, it changes the site name (WSTN) and its latitude, longitude, and altitude, which it reads from the .DAT file for the site.
* It then creates and runs a .BAT file that:
  + Copies the .WTG data files to the DSSAT45\Weather\Gen\ directory;
  + Runs DSSAT45;
  + Creates a subdirectory named with the sitename (the four character mnemonic for WSTN), and moves the \*.OUT files into it; and
  + Deletes the site’s weather files from the DSSAT45\Weather\Gen\ directory.

## Procedure

Copy the executable to a convenient folder, usually in the Run\_DSSAT folder in the data disk, e.g., e:\Run\_DSSAT\DLL\.

Make a directory to receive the output data wherever and named whatever you choose. In this directory create a dummy .TXT file with any sort of content, or simply a blank file. The name of the file is unimportant, but the file must exist.

Run the executable by navigating to its directory and clicking on its name. The executable runs in a console window. It will

Display a Windows Explorer Open file dialogue that asks for the “Clxgen.log FIRST site”, and displays the .LOG files. Use the normal Windows procedures to select the directory of the first site of the desired sequence and select the CLXGEN.LOG file (the actual file you select is irrelevant; it is the directory that is important).

When you select the file, the executable proceeds and asks for the “Clxgen.log LAST site”, and displays the .LOG files. Use the normal Windows procedures to select the directory of the last site of the desired sequence and select the CLXGEN.LOG file (the actual file you select is irrelevant, it is the directory that is important).

When you select the file, the executable proceeds and asks for the “DSSAT .BNX file”, and displays the .BNX files. Use the normal Windows procedures to select the .BNX file that you want to use in the DSSAT45\Drybean directory. This time the file itself is the critical component.

When you select the file, the executable proceeds and asks for the “OUTPUT Directory”, and displays the .TXT files. Use the normal Windows procedures to select the directory for the output select a .TXT file (the actual file you select is irrelevant, it is the directory that is important).

The executable now has all the information that it needs and will proceed to run DSSAT for all the sites in the selected range. The output will be moved to directories named for each site in the output directory selected in the last step above.

The executable will display the normal DSSAT console output for each site followed by the output of the .BAT file of the make directory, move the \*.OUT files to it and delete the weather files (\*.WTG) displayed momentarily after the DSSAT simulation finishes for each site.

The executable takes about 21 seconds for each site.