

Supporting document for Argonne experiments
1st group of simulations
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This document helps GTAP users with preliminary knowledge about RunGTAP5 program to replicate the first group of experiments developed in Tyner et al. (2010). One needs to follow all experiments and their steps according to this guideline to replicate the land use changes associated with the first group of simulations. Then the land use changes should be transferred to an Excel file (introduced in this guideline later on) to calculate the land use emissions for the first group of simulations. Before running the simulations, please read this instruction entirely.

Steps to replicate land use changes

- 1- Save archive folder name “ARG1C1” in your computer.
- 2- Launch RunGTAP5 program.
- 3- From the top menu of RunGTAP5 select: File\Version Archive\Load ZIP. Navigate the system to the folder where you saved the zip file “ARG1C1” and click on the “open” button. The system will restore the archive folder in RunGTAP5. Now the current version of RunGTAP5 is “ARG1C1”.
- 4- From the menu of RunGTAP5 select the “Solve” button.
- 5- Then click on the “Load Experiment” button. You will see the following list:
 - G1C1: Group one: 2001 to 2006,
 - G1C2: Group one: 2006 to 7 BG,
 - G1C3: Group one: 7 to 9 BG,
 - G1C4: Group one: 9 to 11 BG,
 - G1C5: Group one: 11 to 13 BG,
 - G1C6: Group one: 13 to 15 BG.

From the list click on the “G1C1” experiment and then click on the “OK” button. Now click on the “Solve” button to run the simulation. The simulation may take a long time to reach the solution. When the system is reached to the solution, then go to the next step.

6- From the top menu of the RunGTAP5 select “Version\New” and then click on “next”. You will see a new window. In this window check the “Same aggregation as current version” and “Using updated database from last simulation” options. Then type in “ARG1C2” in the box for “New version name”. Then click on the “Next” button. The system will open a new window in this window again click on the “Next” button. The system will open a new window, in this window click on the “FINISH” button and wait to see the following message: “about to switch to new version-please wait while test simulation is performed.” Now click on the “Ok” button and wait while the test is running. When the test is finished go to the next step.

7- Repeat step 5 for experiment “G1C2”.

8- Repeat step 6 and generate “ARG1C3”.

9- Repeat step 5 for experiment “G1C3”.

10- Repeat step 6 and generate “ARG1C4”.

11- Repeat step 5 for experiment “G1C4”.

12- Repeat step 6 and generate “ARG1C5”.

11- Repeat step 5 for experiment “G1C5”.

12- Repeat step 6 and generate “ARG1C6”.

13- Repeat step 5 for experiment “G1C6”.

14- Now you have the simulation results for all experiments of the first group of simulations. Results are stored in the following folders:

- C:\RunGTAP\ARG1C1\SAVESIMS
- C:\RunGTAP\ARG1C2\SAVESIMS
- C:\RunGTAP\ARG1C3\SAVESIMS
- C:\RunGTAP\ARG1C4\SAVESIMS
- C:\RunGTAP\ARG1C5\SAVESIMS
- C:\RunGTAP\ARG1C6\SAVESIMS

Updated data bases are stored in these folders. For example in the folder of

“C:\RunGTAP\ARG1C1\SAVESIMS” the updated data base for 2006 is stored in “G1C1.upd”.

This file is the updated data base obtained from the simulation for 2001-2006 with a shock for US ethanol. Open all updated data bases stored in the above folders and export their

LANDCOVER_L headers with the aggregation combination of (sum AEZ_COMM, all

LCOVER4_INDS, all REG) to an Excel file. Also open the “basedata.har” file stored in the folder of C:\RunGTAP\ARG1C1 and export its LCOVER_L header to the Excel file as well. Now calculate the following differences to obtain land use changes for all experiments of the first group of simulations:

- 2001 to 2006: LANDCOVER_L of G1C1 minus LANDCOVER_L of basedata.har,
- 2006 to 2007: LANDCOVER_L of G1C2 minus LANDCOVER_L of G1C1,
- 2007 to 2009: LANDCOVER_L of G1C3 minus LANDCOVER_L of G1C2,
- 2009 to 2011: LANDCOVER_L of G1C4 minus LANDCOVER_L of G1C3,
- 2011 to 2013: LANDCOVER_L of G1C5 minus LANDCOVER_L of G1C4,
- 2013 to 2015: LANDCOVER_L of G1C6 minus LANDCOVER_L of G1C5.

Calculate land use emissions

Finally, copy and paste the land use changes into the Excel file “Land use emissions_G1.xls” sheet “Land Use All Periods” in the following ranges:

- Time period of 2001-2006: B6-D25,
- Time period of 2006-2007: B34-D53,
- Time period of 2007-2009: B62-D81,
- Time period of 2009-2011: B90-D109,
- Time period of 2011-2013: B118-D137,
- Time period of 2013-20015: B145-D165.

Now you can go to other sheets of this Excel file and find tables of land use changes and land use emissions reported in the Tyner et al. (2010) for the first group of simulations.