

Announcing the Release of PRODAS Version 3.6.10

In this latest release of PRODAS, we have included something “fun”, in a business kind of way. We have added a tab to the cross plot window, so when you cross plot trajectory results, you now have the option to produce a KML file. This file can then be opened in Google Earth to visualize your projectiles flying on a 3D landscape. Great for proposals and communicating with non-technical types. Enjoy !

Spring may almost be here!

Mark Steinhoff
VP Software Products
Arrow Tech Associates

Visualize Trajectories in Google Earth

I have always wanted to see how the projectiles I have been working on, fly. Since we can't hitch a ride, the next best thing is visualization. And what is a neater visualization than Google Earth?

Now when you fly a trajectory (doesn't matter if it is a 4DOF, 6DOF, GN&C Prototype Tool or MATLAB trajectory) you can easily produce a file to be imported into Google Earth.

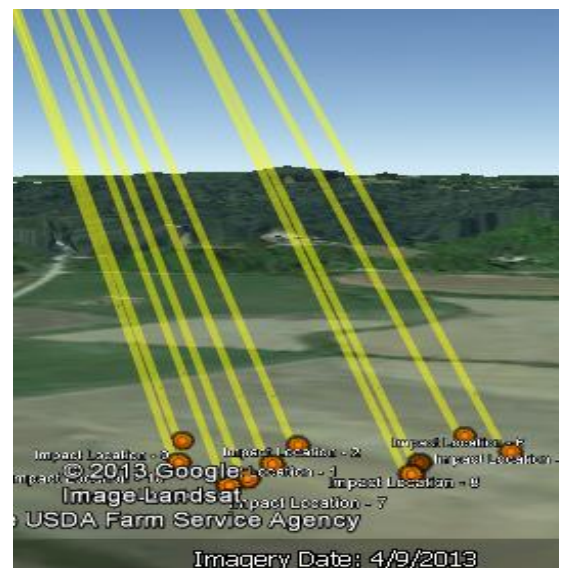
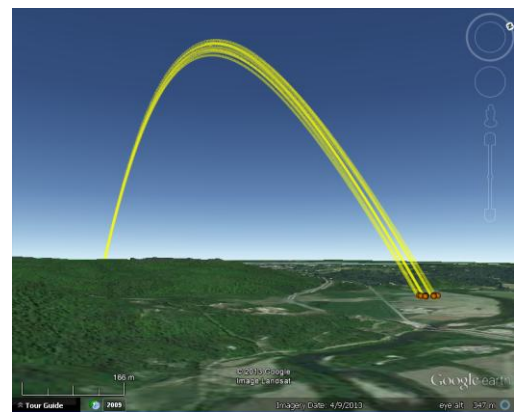
Since all trajectories in PRODAS are gun/launcher centric, the only information you need to add to produce these files are the LLA (latitude, longitude and altitude) of the gun.

We have even added a reference book for you to add your own test site coordinates for quick setup. It is initially populated with the coordinates of the Arrow Tech offices. We don't mind being the gun site, but please don't make us the target. ;-)

Just like cross plots, you can plot a single trajectory or hundreds.

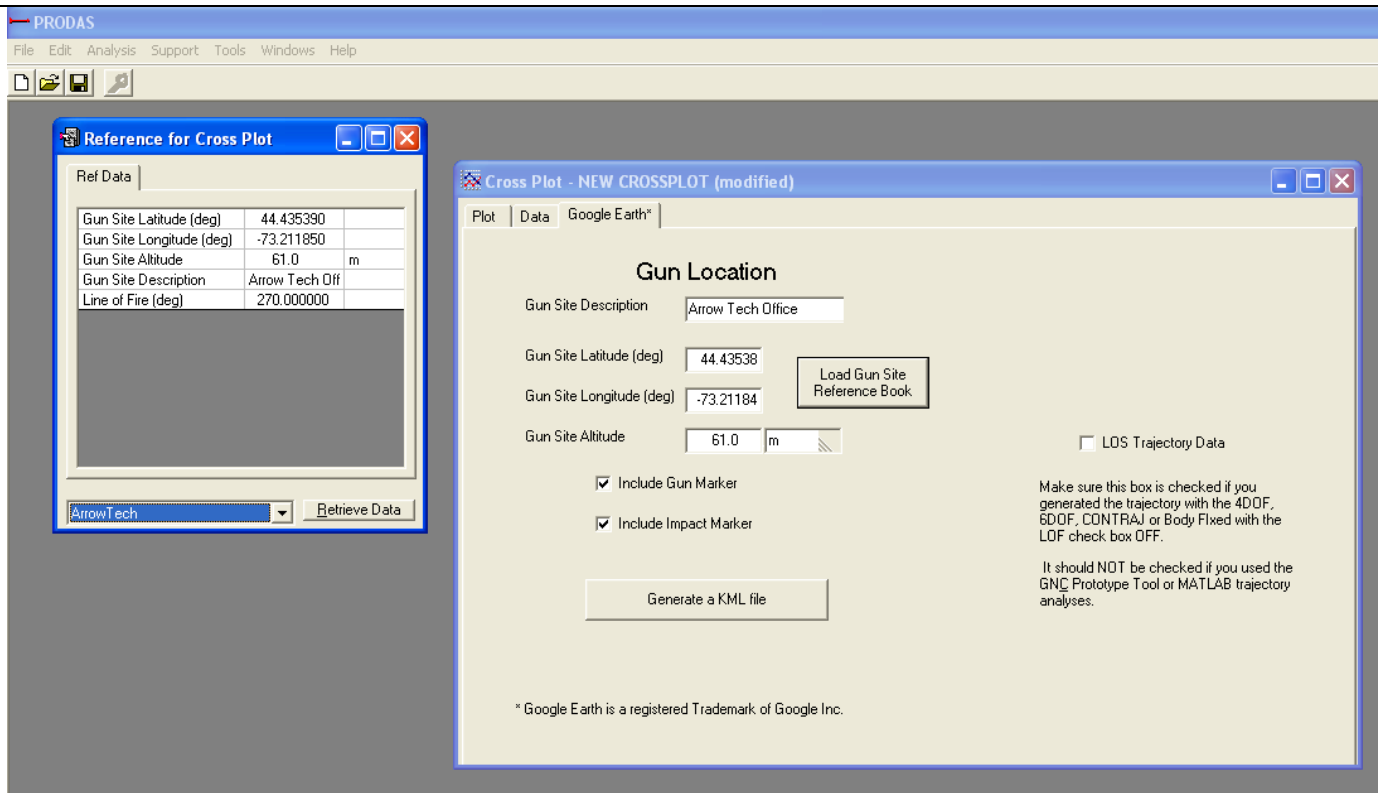
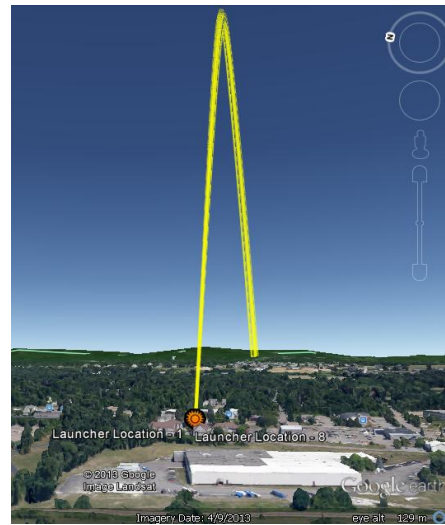
Step by Step Instructions

1. If you haven't installed Google Earth on your computer, you can download it here: [Download Google Earth](#)
2. Create a cross plot from a Trajectory Output Table from one of the trajectory modules.
3. Click on the “Google Earth” tab in the cross plot window.
4. Enter either the LLA of the gun or click on the “Load



Gun Site Reference Book” button and retrieve the data.

5. If the simulation is a LOS trajectory (all are except GN&C prototype tool and MATLAB Trajectory), select the “LOS Trajectory Data” check box. This will use the azimuth entered in the initial conditions to direct the shot.
6. Click on the “Generate a KML file” button.
7. Type in a name for the file to be generated.
8. Using the Windows Explorer, find the file and double click on it. Google Earth should start and display your trajectories.



Gun Site Reference Book and new tab for Trajectory Results Cross-Plot

How Did We Make The Pictures?

We produced the graphics in the front of this newsletter the way we do many things in PRODAS, using a macro. We thought it might be interesting to include the source with some comments to show just how easy it is to do. If you aren't using Macros yet, it's time to give them a try.

The first thing to do is to pull up the Macro Editor, which is accessed from the **Tools – Edit/Run VB Script** option on the main menu. From the editor, click on the New Script button.

Delete the text that is in the editor window and then copy and paste from the text below.

You will have to make one change to make the macro work with your computer. It is highlighted in yellow

below. After you have changed the path, click on the Run Script button. You should now have a fully populated cross plot.

To find out more about scripting, check out the Macro Language Reference in PRODAS Help.

```
SUB MAIN()      'ALL SCRIPTS MUST HAVE A SUB MAIN
  DIM PROJ

  ' CHANGE THE PATH BELOW TO REFLECT A PR3 FILE THAT EXISTS ON YOUR COMPUTER
  TESTPROJ = "C:\PROGRAM FILES\PRODASV35\PROJECTILEDATA\EXAMPLES\155M107.PR3"

  '===== MAIN LOOP =====
  SET PROJ = MACROSYSTEM.INITIALIZEPROJECTILE 'INIT A PROJECTILE OBJECT
  IOPEN= PROJ.OPENDATAFILE(TESTPROJ)        'LOAD THE PROJECTILE FILE
  'FOR EACH PROJECTILE
  IF IOPEN = TRUE THEN
    PROJ.FORCEUNLOCKPROJECTILE              'MAKE SURE YOU CAN CHANGE IT
    FOR I = 1 TO 10

      'GENERATE SOME RANDOM ERRORS
      AZ= 90 + (RND() - 0.5) * 0.5
      EL= 42 + (RND() - 0.5) * 2.0
      'CONVERT TO RADIANS
      AZ = AZ / (180/3.1416)
      EL= EL / (180/3.1416)
      'SET THE INPUT PARAMETERS
      PROJ.SETDATAPOINTVALUE "TRAJECTORY", "AZIMUTH", AZ
      PROJ.SETDATAPOINTVALUE "TRAJECTORY", "QE", EL
      PROJ.SETDATAPOINTVALUE "TRAJECTORY", "ALTITUDEFINAL", 30 ' APPROX TARGET DELTA FROM GUN
      PROJ.SETDATAPOINTVALUE "TRAJECTORY", "PLOTOUTINCRTIME", 0.1 ' OUTPUT INC

      PROJ.EXECUTEANALYSIS "TRAJ20006D"      'RUN THE 6DOF ANALYSIS

      LEGENDTEXT = I      ' SET UP LEGEND
      PROJ.DATATABLETOCROSSPLOT "TRAJECTORY", "TRAJRESULTSDATA", LEGENDTEXT 'COPY TO A X-PLOT

    NEXT
    PROJ.CLOSEDATAFILE          'CLOSE IT SINCE YOU ARE DONE
  ELSE                          'CAN'T FIND THE FILE SO TELL THEM AND EXIT
    MSGBOX "CAN'T FIND " & TESTPROJ
  END IF

  SET PROJ = NOTHING

END SUB
```

PRODAS V3.6.10 Enhancements

There are numerous changes in V3.6.10 in addition to the most obvious discussed above.

- Both the Air-To-Ground and Ground-To-Ground System Effectiveness modules have improvements to the user interface including the addition of new options for the troop targets.
- Error checking in 6DOF trajectory modules has been enhanced to improve detection of dynamically unstable projectiles. This stops trajectory runs when instability has caused the numerical solution to also go unstable.
- The Ballistic Match 6DOF solution now runs much faster
- MissileDatCom now interfaces with version 903 rather than version 306.

Arrow Tech has a new Address

We made a big move across the hall! Please note our new mailing address. Only the Suite number changed.

Arrow Tech Associates, Inc.
1233 Shelburne Road; Suite D-7
So. Burlington, VT 05403

How can I get PRODAS V3.6.10 now?

Current PRODAS maintenance customers can go to our support site and download!

If you would like to purchase PRODAS please contact John Whyte (jwhyte@prodas.com).

My Product Support has expired, how can I bring it up to date?

PRODAS product support is paid on an annual basis and covers all PRODAS Software on a per site basis. Per our published PRODAS Maintenance Agreement product support can be re-instated if there has been a lapse in coverage with defined penalties. To access the Maintenance Agreement terms click on the following link:

[Maintenance Agreement](#)

For a quote to reinstate your product support please contact John Whyte (jwhyte@prodas.com).

To remove your name from our mailing list, please [click here](#)

Questions, comments or to request the latest pricing information please email us at: jwhyte@prodas.com or call 802-865-3460

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