Digital Mapping with OziExplorer / oziTarget

Part 3 by Sean Kavanagh

Going Digital 3 - Navigation with computers for the masses

In the last article I talked about all your file management and dealing with waypoints and making PZ plot files etc. Now it is time to get all that data loading automatically so you can get off and flying with the least amount of work.

Putting it all together on your map

So by now you have your map, you have your waypoints and you have all your PZ's drawn and saved. The only problem is that you open your map and need to go through and load all the bits and pieces every time.

There are two ways to manage this, you can set up projects using the PROJECT MANAGER which will load all your waypoints and track files for you or you can embed all the separate parts into the map calibration file.

The problem with using the project manager for track files is that all your track files are loaded into the TRACK CONTROL window where you can accidently mess with them.

Worse still, track 1 will be filled with one of these loaded tracks making it a pain if you need make a new track at any time during the flight.

If you are using an add on like oziTarget for drawing rings and wind lines etc. then you may also run into problems like over writing your loaded PZ tracks.

Therefore I only use the project manager for auto loading maps and waypoints. Track files can and in my opinion, should be embedded in the map calibration file as follows.

Advanced Map options

A not so well documented feature and by far the best way to auto load track files with a map is buried in the map calibration menu.

There is the option to select all the items you want to load with your map an include it in the calibration file. When track files are loaded this way they are invisible to the TRACK CONTROL list and just exist as part of the map.

The instant advantage is that for details like PZ's that you do not move or change during a flight, they are now locked away and not cluttering your track list.

Waypoint files on the other hand behave as normal when loaded this way so you can edit and change them once the map is opened . As mentioned in a previous article, I would have my map open the "Working" waypoint file then save it as today's flight waypoint file so the working master does not get altered.

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To incorporate any details into the map file for auto loading do the following;

1) Load your map - do not load any other data at this time to save confusion.
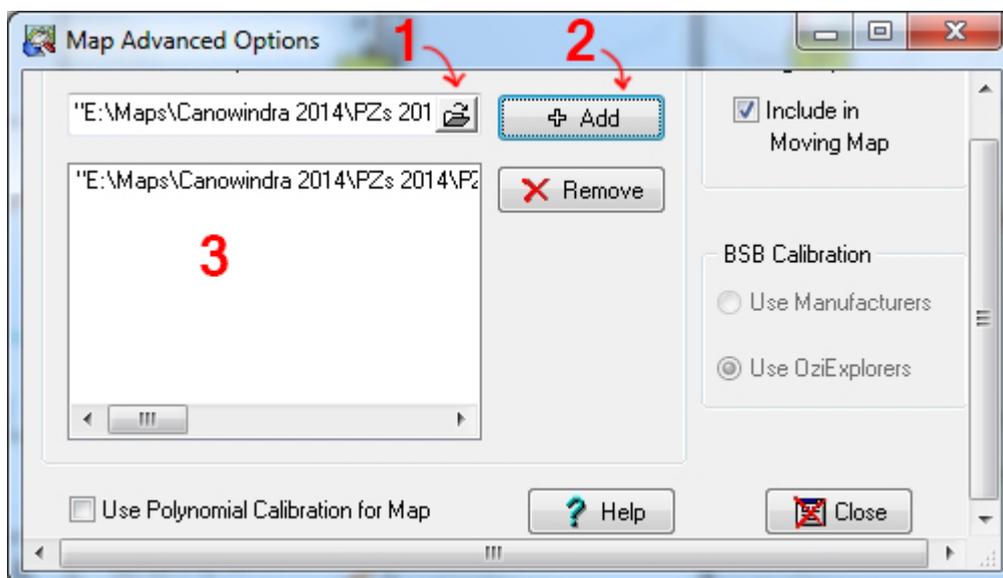
2) Select FILE > CHECK CALIBRATION OF MAP

A pane will open on the right hand side of the map with a OPTIONS button.

3) Select OPTIONS to open the MAP ADVANCED OPTIONS window

4) use the file selector - marked as (1) in the screen capture - to select your track file.

5) Click the ADD button to add it to the list - marked as (2) in the screen capture. The file will be listed in (3)

6) Repeat for all files you want to open with the map.

7) Close the MAP ADVANCED OPTIONS window.

8) Select SAVE from the calibration pane on the right of your map. You may want to choose another file name for this version of the map such as "mapXYZ_withPZ.map"

9) Load the new map file to see all of your additions automatically loaded. Note: make sure you clear any track files on the map to see that the map has loaded your PZ track files in as expected.

If new PZ files need to be added or removed you will need to go back into the MAP ADVANCED OPTIONS screen and add or remove them, save the map and then re-load it to see the changes.

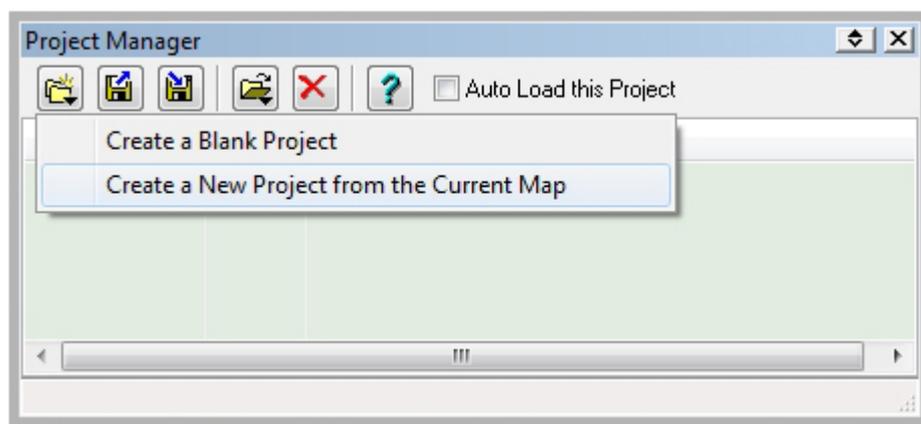# Digital Mapping with OziExplorer / oziTarget

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Project Manager

Creating map projects is a great way to automatically load a map with your waypoints and have the map both positioned where you want to start most times and at a zoom level that is convenient.

It is a little thing but saves time every time you open Ozi Explorer. Even if your map file has the waypoint file embedded so it loads automatically, a project will help by auto loading a map to a specific scale and position for you.

To create a project do the following;

1) Load your map file and load any waypoint files needed. Hopefully all your track files have been dealt with in the map advanced options above.

2) Pan and zoom to the point that you would like the map to open at every time.

3) Select VIEW > PROJECT MANAGER

4) Select >CREATE A NEW PROJECT FROM THIS MAP from the first icon on the top left.

The list should populate with the details for the map file, the starting location and zoom level and any other files like your waypoint file that you want loaded as part of the project.

5) Save the project using the third button along. Give the project an obvious name and probably easiest to save the project in with the map and other data files for this flying area.

6) Check the box for AUTO LOAD THIS PROJECT if you want this map to open every time you start Ozi Explorer.

7) Save the project again and close the PROJECT MANAGER window.

8) Load the project from the > LOAD > LOAD PROJECT FILE to update your map or restart Ozi Explorer to make sure everything loads as expected.

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It is worth noting that one confusing little detail here is that the project manager is for making and editing and saving project files. When you load a project from here it does not actually load the map etc. It only loads the project details so you can edit it!

To actually load a project so it loads the map and waypoint files etc. you need to do it via the LOAD menu as set out in step 8.

Getting even more from Ozi Explorer

As it stands Ozi Explorer can do a lot of what most people want and need. There are tools for measuring distances and bearings between waypoints and a ruler tool that will give you information on bearing and distances too.

The problem is that Ozi Explorer is not set up for quickly plotting this sort of information in the way you would be used to doing on a paper map. It means that where you may draw a number of wind lines or minimum and maximum distance rings on a paper map you would struggle to get the same information on your digital map.

Until now.

Fortunately Ozi Explorer has what is known as an API or Application Programming Interface that allows another program to access and control many aspects of Ozi Explorer.

One such external program is oziTarget that I have written specifically to do many of the things that I need to see while I am flying competition.

oziTarget and competition flying

oziTarget was started many years ago because I did not like the moving map and navigation windows in Ozi Explorer. I wanted a way to customise the layout of the fields to show exactly the information I wanted and if possible have it take up less space on the screen.

There was no way to do this directly in Ozi Explorer so I was pointed in the direction of the API and started to learn how to write software.

After getting the basics working, the next goal was to draw rings that were not filled in and if possible multiple rings. It kept growing from there.

Development continued because every time I tried other software, none of them could do all the things I needed and it was becoming obvious that Ozi Explorer could be made much more powerful through a custom tool like

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oziTarget.

The public release of oziTarget now extends Ozi Explorer so that you can do all of the following;

1) Fully customise the layout of data such as Bearing, Heading, Distance to Go, Speed etc. in a much more compact and easy to read display.

2) Draw and customise the appearance of rings around waypoints - 4 rings per waypoint and 8 tasks worth of rings.

3) Enter and draw wind lines from a wind reading.

4) Quickly draw scoring areas and highlight multiple lines of Easting or Northing.

5) Track multiple goals at the same time for tasks such as a Hesitation Waltz

6) Record, display and draw live wind data during a flight so you know what wind speed and direction you had been in previously.

7) Calculate and draw the closest point you will achieve to a goal - fantastic for checking distances for Fly On goals for example.

8) Display ground elevation and your height above ground (If 3d Elevation Data is loaded for your map)

9) Quickly enter new waypoints from their 8 figure grid reference.

10) Marker drop angle calculations.

There are more details in there and more features being worked on all the time.

A demo version is available at www.ozitarget.blogspot.com.au

Drawing rings and wind lines with oziTarget

Because there are so many features in oziTarget I am just going to run through a few here.

After the custom layout of your data fields for Ozi Explorer, probably the single most important tool is the ability to draw wind lines and minimum and maximum distance rings on your map.

To draw rings with oziTarget, go to the DATA menu and select TASK RINGS. A new window will open.

The window automatically opens on Task 1. To select another task simply select T2, T3, T4 etc.

A numeric keypad is included to make data entry easy when using a tablet so you don't have to bring up the on screen keyboard.

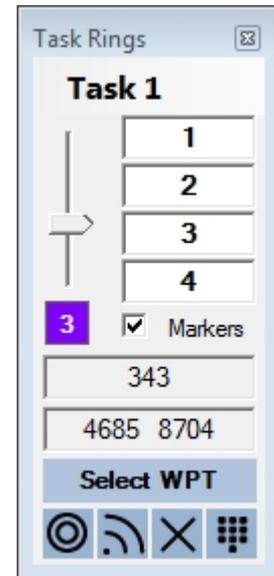# Digital Mapping with OziExplorer / oziTarget

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To make rings the basic process is as follows;

1) enter the radius of the rings in each of the four fields using Kilometres. In the example, I have 1, 2, 3 and 4 Km rings. A maximum of 4 rings can be drawn around the one waypoint which will cover 3D tasks like a wedding cake.

2) You can draw a small marker around the waypoint to help identify which waypoint is the centre of your rings. Put a check in the "Wpt Markers" if you want this.

3) Click SELECT WAYPOINT then click on the target waypoint on your map. The name and the 8 figure grid reference of that waypoint will be filled out to confirm you have the correct goal. In this case I chose WPT 343 at 4685/8704

4) Click DRAW RINGS button to draw the full rings. Alternately you can draw a 120 degree arc

of each circle in a particular direction from the selected waypoint by clicking DRAW ARC button and then clicking on the map again on the side of the waypoint you want the arcs drawn.

5) Adjust the line thickness using the slider on the far left of the Task Rings window and click on the colour box to change the colour of the line.

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Wind Lines

Quickly being able to draw wind data obtained during briefing or from a wind reading is key to planning any flight. From the DATA menu, select WIND LINES to open the windreader window.

Add rows using the "+" button.

Go through and fill out the Altitude, Speed and Direction fields for each layer you are interested in.

You can enter as much or as little data here as you want as the direction is really the key information for drawing the lines.
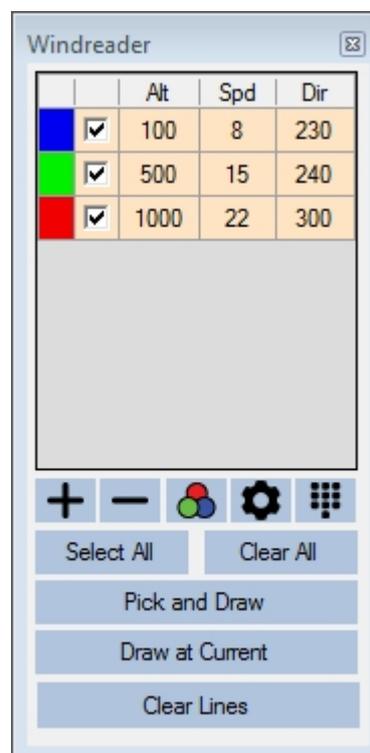
You can customise the colour of each wind line as need using the colour picker next to each row or auto set all the colours with the little colour icon.

To draw the lines, simply put a check in the box next to the lines you want to draw (or select all) then click Pick and Draw and then select a waypoint or point on the map to draw all the wind lines at.

If you are currently navigating with a GPS you can select DRAW AT CURRENT to draw the wind lines from your current location.
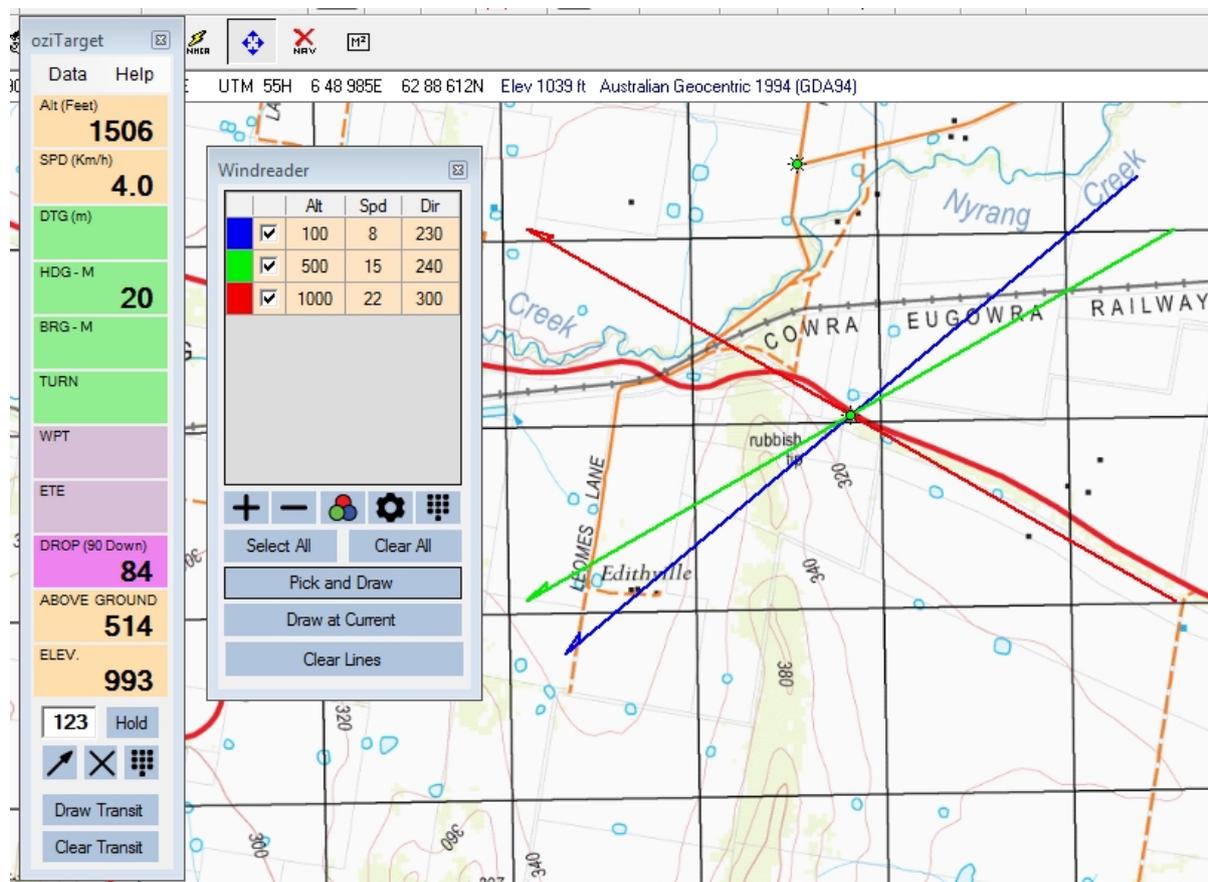
All wind lines are drawn with a barb on the end to indicate the direction.

The settings icon will give you options such as whether the winds are true or magnetic and the directions are To or From.

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To wrap up

As you can see there is a lot that can be done with Ozi Explorer and even more when extended with tools like oziTarget.

There are more features that I can cover about oziTarget or you can just read the blog and watch the demo videos as I post them on Youtube. Links are on the oziTarget blog.

The main thing is that all of this needs lots of practice to become familiar and reliable when you are flying. You need to know how all the tools fit together and what their limitations are before you turn up to a flight or an event like the Nationals.

The good news is that it is easier than ever before for you go digital and the latest generation of tablets have better screens and longer battery life and when combined with the right software make navigation easier than ever before.

End of Part 3