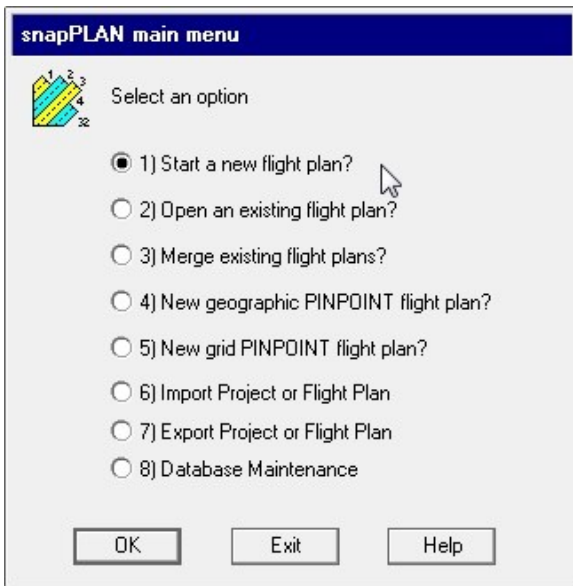


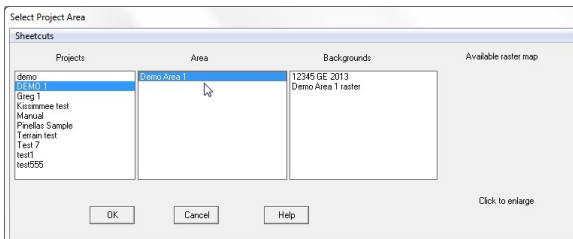
Terrain Following Flight Planning

Terrain Following in snapPLAN

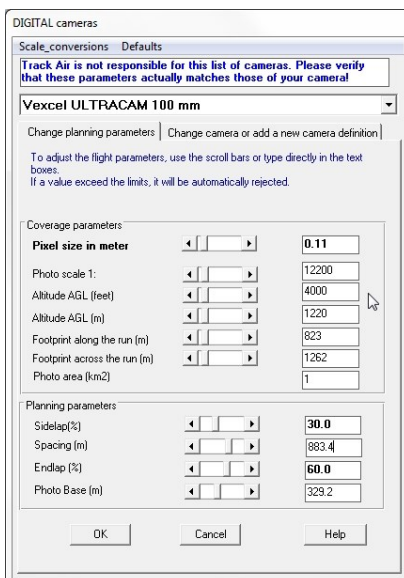
The X-Track Software includes an option to flight plan and fly a terrain following plan for the purposes of maintain a specific GSD (ground sample distance). *These instructions assume that the planner has experience in Tracker flight planning and does not go into specifics of creating the initial flight plan.*



1) To begin, you must have an area or background prepared or imported in Tracker. Open your snapPLAN module and select “**1) Start a new flight plan?**”



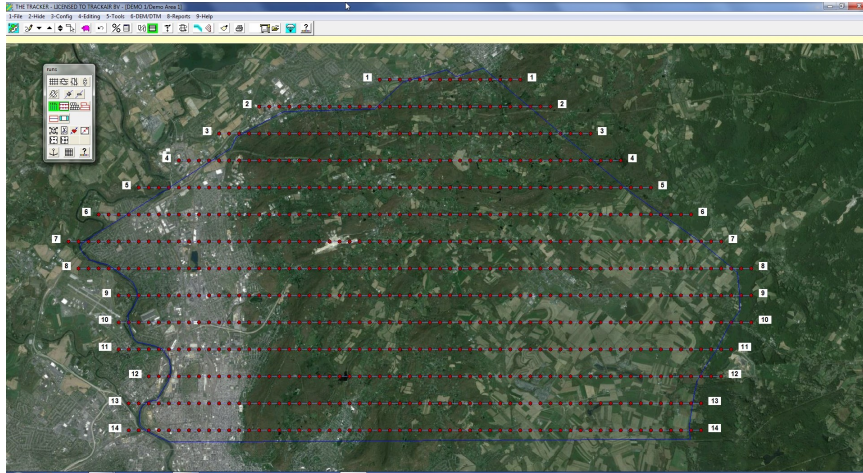
2) Select your project and area or background.



3) Select your camera and set the parameters for your flight.



Terrain Following Flight Planning



4) Create your flight plan and save it.

1-Extract DEM data for the current area
 2-DEM normal flight planning
 3-DEM create hypsometric background
 4-DEM load existing hypsometric background

5) On the tabs at the top select 6-DEM/DTM and select :

1- Extract DEM

1-Extract DEM data for the current area
 2-DEM normal flight planning
 3-DEM create hypsometric background
 4-DEM load existing hypsometric background

When complete return to the tab and select:

2- DEM normal flight planning

DEM specifications

Flight planning specs | Run splitting specs | Flight altitude restrictions and safety | Technical limitation | Geoid/ellipsoid

Planning Tolerances

SCALE/GROUND SAMPLING RESOLUTION	Scale 1/	GSR (cm/pix)	RESULTING EFFECTS ON	
	%		End lap	Side lap
Max %	15	14021	65	39
Min %	-2	11948	59	29

FORWARD OVERLAP (END LAP)	Min/max end lap	LATERAL OVERLAP (SIDE LAP)	Min/max Side lap
Max %	5 / 60	Max %	10 / 30
Min %	0 / 60	Min %	-10 / 20

Save as new tolerance defaults

Preferences (3-2-2 Bold = most common settings)

Reference datum

1-is halfway between the max and min height

2-is the average terrain height (normal planning method)

3-is computed so that the strip fits between the max min tolerances (most practical)

4-is computed so that the highest point is the at min scale tolerance (nominal reference datum may become negative)

5-is computed so that the lowest point is the at max scale tolerance

Flying altitude

1-Use a single reference flight altitude for all runs/strips (specifications are ignored; required for line spacing adjustment)

2-Use a single reference height for each run/strip (specifications are ignored)

3-Adjust flying height to meet the minimum tolerance (runs and strips will not be cut)

4-Adjust flying height to meet all the given specification (runs and strips will automatically be cut)

Forward overlap

1-Compute photo positions with the specified fixed photo base distance (the photos are aligned laterally with each other)

2-Pre-compute photo positions to achieve the given MINIMUM percentage overlap (e.g 55 0%)

Lateral overlap (BETA!! under development)

Adjust the lines spacing to keep the side lap within tolerances (only possible when a single reference flight altitude was selected for all strips)

Unlock specifications (replan) Show hypsometric background when available

6) Set your Min/Max settings for GSR and FOL and in the Preference box at the bottom you should have:

⊙ 3 - for Reference datum

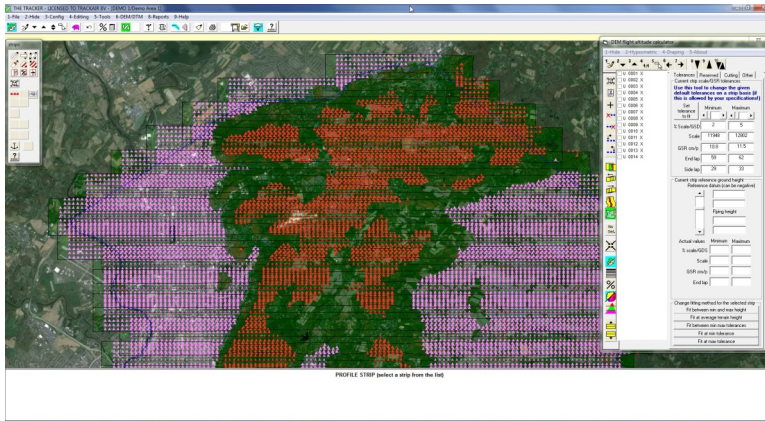
⊙ 1 - for flying altitude

⊙ 1 - for forward overlap

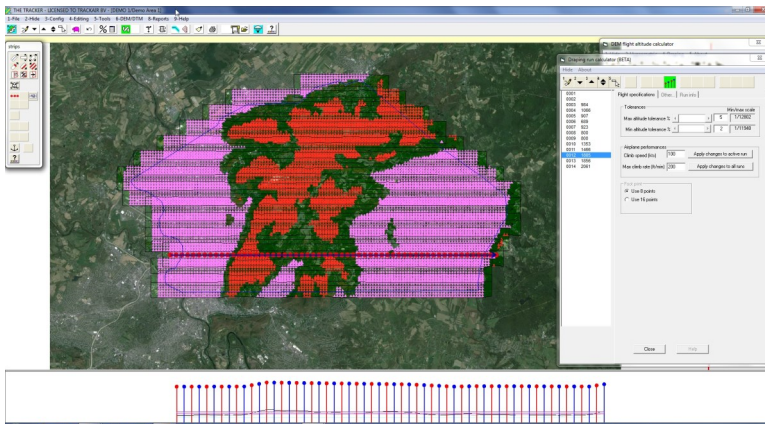
Click OK



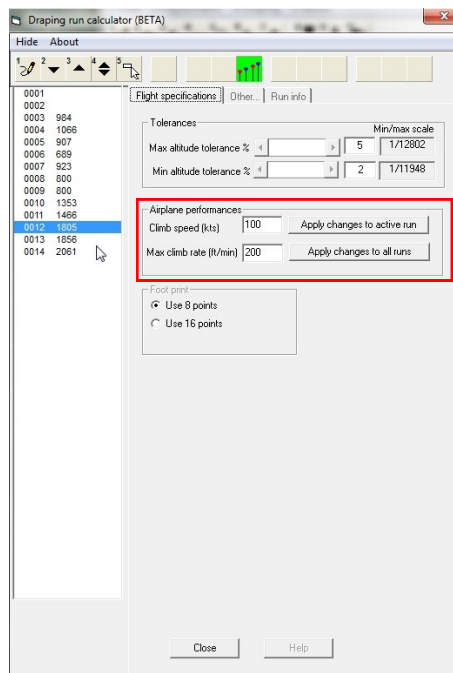
Terrain Following Flight Planning



7) Once the DEM is applied and displayed select the tab at the top of the DEM flight altitude calculator "4 -Draping" to calculate the terrain following.



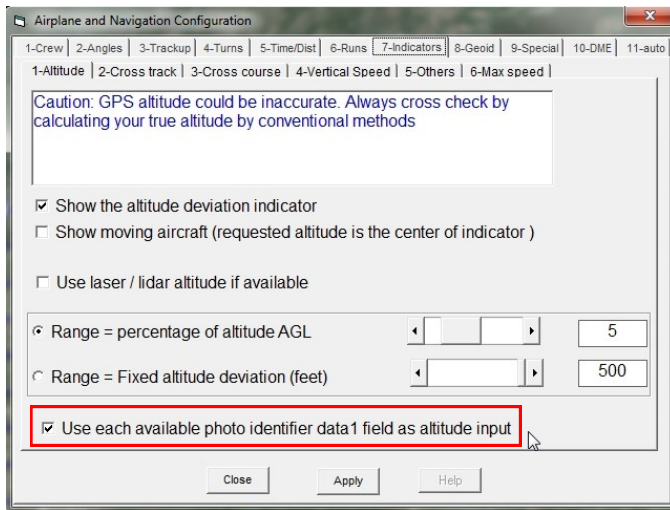
8) The Draping run calculator opens and displays the list of flight lines. Selecting each flight line will show you a profile view at the bottom of the screen. Zoom the profile view using the zoom buttons at the top of the Draping run calculator to see the full view of the profile.



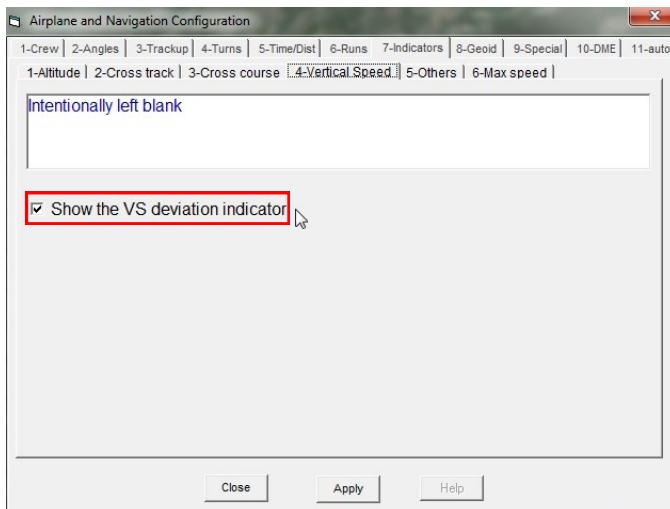
9) You can set the Climb speed and Max Climb Rate for your particular aircraft and apply the changes to each active run separately or to all runs using the buttons in the Airplane Performances box.



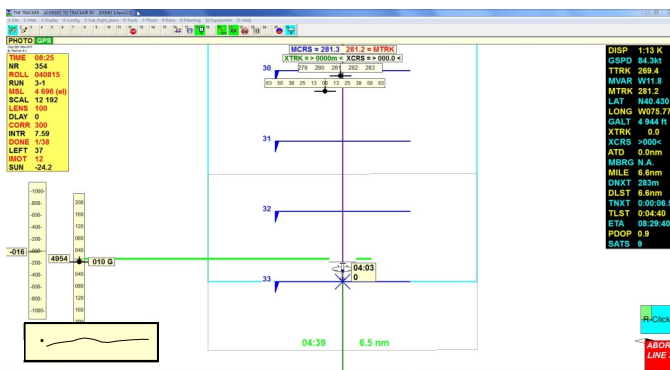
Terrain Following in SnapSHOT



10) Once the flight plan is opened go to:
Tab 4 - Config; 2 - Airplane and Nav configura-
tion; 7- Indicators and help for navigation;
1- Altitude. Check the box at the bottom of the
window as shown.



11) Click the tab 4- Vertical Speed and activate
the Vertical speed deviation indicator.



12) In flight you can view the deviation indicator
with the green line indicating you are at the cor-
rect altitude; if you deviate it will turn red. Also at
the bottom you will see the terrain profile indica-
tor that shows the plane as a black dot. The black dot
indicates where you are on the flight line and
gives an indication of the terrain changes coming,
either up or down.

