SIMULATOR OPERATIONS MANUAL
CGC MINTEL SIMULATOR

INTRODUCTION

The commercial and military worlds have both been employing powerful full flight simulators for many years with a high degree of success. Recently there has been a move away from the prohibitively expensive "full motion" simulators and towards an increased use of equally effective fixed base "Flight Simulation Training Device's" (FSTD's). With the advent of powerful home computers, high specification graphics cards and flexible software packages the fixed base training option is now becoming an affordable training solution for even modest sized Gliding Clubs.

The benefits of integrating FSTD's into gliding training are numerous. It is hoped that we can use FSTD's to improve both the safety and efficiency of our training however to do so will require us to embrace some new methods and disciplines.

The purpose of this manual is to introduce the Gliding Instructor to teaching in the simulator. The guide is very much a work in progress. Simulators represent a significant change to the way we teach and we will undoubtably learn much over the coming years as the technology and our experience matures. For the time being a gradual, phased approach to the syllabus will be employed as it is hoped that this will still provide plenty of value whilst minimising the risks of "unintended consequences".

A few words on fidelity. The gliding movement is at risk of trying to repeat a journey upon which the commercial and military worlds have already been embarked for many years, that of striving for higher and higher levels of fidelity. However in recent years commercial and military users have learnt to challenge the following assumptions:

- Simulation is ALL that you need

- More fidelity is better

- A device is good only IF aviators like it.

It seems we now have sufficient levels of fidelity, even with simple glider fixed based simulators so it is hoped that by developing use of simulators our training can move away from a rule based methodology focusing instead on the development of competencies which may be employed in a variety of complex scenarios. Even the most basic gliding simulator can be used to develop many a pilots skill set and whilst high levels of fidelity may seem

essential in fact it is the more scenario based approach to teaching which simulators offer that is the real benefit.

Throughout this manual Instructor Threat and Error Management (TEM) points are made, highlighted in BLUE. These notes are simply initial thoughts around how to adapt our established teaching methods to suit our new training environment. They are open to adaptation, criticism and expansion and will no doubt be modified considerably as our experience grows. Also included in these TEM notes will be guidance on typical simulator training traps and threats which may not be immediately obvious.

GUIDANCE FOR INSTRUCTORS

Why Use a Simulator at All?

There are many benefits to simulator training. Some are obvious but a few applications of FSTD training may be less obvious. Listed below are some of the benefits and risks of simulator use.

Simulator Strengths

- Significant reductions in training risk

- Scenario based training allows for development of key competencies rather than a purely rule based skill set.

- Ability to modify turbulence to suit the training objectives (albeit visual turbulence only) which improves clarity of some demonstrations.

- Pausing and repositioning allows for detailed focus on specific training objectives without wasting time or launches.

- Safely Simulating failures (Instrument failures, launch failures, weather changes etc)

- Reinforcing good habits

- Procedural Training

- Improved root cause analysis of trainee errors

- Individual site and local area training

- Instructor training

What the Simulator Is Not So Good for

- Exploring the aerodynamic qualities of a specific model of glider at the far reaches of the flight envelope

- Upset recovery training such as stalling and spinning due to the lack of physical sensation (although avoidance and specific recovery techniques may be effectively taught)

SIMULATOR THREATS

Simulator Sickness

One of the limitations of all simulator systems, whether they be fixed base (as in the case of our Mintel sim) or full motion sims, is their propensity to induce a variety of motion sickness symptoms for some pilots.

The causes or aetiology of simulator sickness is still not fully understood, however one of the most widely accepted theories is that mismatches occur between the sensory stimulation provided by the simulator and the stimulation that would normally be expected in the real world. These expected stimulations are recorded in very well established neural pathways so when conflicting information is received from one or more sensory systems a conflict may be created. Our Mintel simulator uses five screens to project a very large and dominant field of view and thus the conflicts it sets up in our minds may be significant. The result can be motion sickness displaying any of the following symptoms:

- Disorientation

- Nausea

- Oculomotor problems (difficulty controlling eye movement or trouble tracking and stabilising images we walk or trouble scanning lines of text on a page)

- Sleepiness

These effects can be quite pervasive and symptoms can persist for some time after exposure.

The Mintel simulator has an extensive field of view which allows us to teach a wide variety of scenarios. It does however mean that we create a very large and powerful visual image which strongly conflicts with what our bodies are sensing. We therefore need to be vigilant to the onset of motion sickness and take some sensible precautions.

The good news is that most pilots can, over time, adapt and thus reduce their susceptibility to simulator motion (or, as in our case lack of motion!) sickness.

The following protocols should help this adaptation:

1. Before entering the simulator, instructors should warn trainees that those suffering from severe susceptibility to motion sickness, seizures, migraines and colds might experience an adverse reaction during the training session.

2. Trainees should be advised that a period of adaptation to the sim is to be expected.

3. Initial exposure should be of short duration and then repeated a few days later. 10-15 mins may be sufficient for the first session.

4. Session length should usually be kept to no more than 30-45 mins after which a break should be taken.

5. Instructors must be vigilant for trainee sickness and stop the session if the trainee reports feeling unwell.

6. After the session trainees should be advised not to fly or drive until a period of approximately twice the session length has elapsed. For example a training session of 30 minutes suggests not driving or flying for at least an hour after the completion of the session.

Inappropriate Transference of Skills

We must remain vigilant that the training we deliver in the simulator and the skill sets practised in the simulator transfer appropriately across to the physical aircraft. This will require careful monitoring by instructors and particularly the club's senior instructor team. The importance of accurately recording trainee performance both in the simulator and the aircraft is vital for this.

Trainee Performance in the Simulator

An individual's performance in the simulator does not necessarily reflect how an individual will react in the real world. This is usually for 4 reasons:

1. The lack of potential for a real accident reduces the trainee's stress levels.

2. If a trainee is being checked or evaluated it is reasonable to expect them to have undergone some pre-training study or review and thus be better prepared than they might have been in the real world.

3. Trainee vigilance is much higher as they have the expectation of training events occurring. There may therefore be less "startle effect" to the introduction of a failure or emergency. A skilled instructor can introduce an unexpected failure which results in the trainee suffering startle effect, however this can only be achieved a very few times before the trainee starts to anticipate the instructor introducing unexpected failures. Trainee behaviour can even become over aroused and result in inappropriate response to stimulus. Try creating a loud bang after the trainee has undergone a number of cable breaks in the sim, they may just pull the release in response or lower the nose even though the launch is actually proceeding normally!

4. If there are consequences to the check such as promotion to instructor or being returned to flight status after a lay off or incident this may have the effect of significantly increasing the trainees stress levels.

GOLDEN RULES

The "Golden Rules" below are created to help manage some of the threats which simulator training may impose. They are designed primarily with pre-solo training in mind. There may be occasions, outside of pre-solo training, where these rules are less appropriate and so for anything other than pre-solo training instructors may depart from specific rules in order to achieve clearly defined training objectives. An example of this might be the teaching of field landings to an early cross-country pilot where the "No Deliberate Crashing" rule might be broken in order to allow using a deliberate ground loop for collision avoidance in a field landing. Instructor training may also require similar such departures from a "Golden Rule".

•Instructor Intervention

The instructor MUST always intervene as he would in the actual aircraft. To allow the trainee to continue past the instructor's personal limits and thus considerably past the trainee's limit should be considered "negative" training as it incorrectly teaches that, under some conditions, it is acceptable to deliberately pass well beyond one's limitations. There is also the risk that the trainee may then "get away with" an action or manoeuvre in the simulator and thus be persuaded that they can safely behave in a similar fashion in the real aircraft.

Furthermore, an instructor should avoid having two personal limits, one for the aircraft and another for the simulator.

The instructor should continue to apply the normal discipline of clearly identifying who has control of the glider with conventional "I have control" and "You have control" statements.

When "Flight Freezing" or pausing the simulator to make a training point the instructor should also state "I have control" prior to selecting "Pause" and "you have control" prior to releasing "Pause".

• No Substitution

Training in the simulator should always be considered as supplementary or complimentary to training in the actual glider. It is not acceptable to substitute actual aircraft training with simulator training.

The pre-solo trainee must demonstrate all competencies required for solo flight in the actual glider before being allowed to fly solo.

The simulator cannot be used to replace flights needed to maintain currency. For example if a pilot has not actually flown for some time and would normally be expected to have a check flight, that check flight must be flown in an actual glider and cannot be conducted in the simulator.

• No Deliberate Crashing

Deliberately allowing the student to crash or managing the training session in such a way to make a crash unavoidable is prohibited. The simulator is a very powerful tool and the effects of exposing the student to violent or shocking crash events may have far reaching, unintended consequences especially if repeated.

The training focus must always be on teaching "prevention" rather than exposing the trainee to the final consequences of the mishandled scenario.

• Disciplined Lesson Format

In the simulator it is very easy to become sidetracked and depart from the briefed training plan so all training sessions should follow a standardised format with simple training objectives clearly defined prior to commencing the training session.

1. Formal Briefing using whiteboard, videos etc (exactly as we currently do)

2. Fly the training exercise with appropriate short breaks to test for understanding and clarification.

3. Formal debrief

4. A log book record should be made of the training session. (See appendix for examples)

• Max Lesson Duration 30-45 Mins

The concept of "time compression" must be considered carefully. Out on the airfield, whilst waiting for retrieval after landing, waiting for new cables or waiting in the launch queue natural breaks are created throughout the training session. These breaks give time for the instructor to collect their thoughts and facilitate an effective debrief of the trainee's latest efforts.

In the simulator these breaks do not occur so naturally. The normal debrief processes should still be applied in the simulator, however the time between the trainee's attempts will still be considerably reduced. Potentially one could conduct a significant number of training events in a very short period. To manage this a maximum period of 30 to 45 mins should be allocated for the training exercise. The instructor should take care to build in sufficient short breaks between events such that the trainee can assimilate the learning points made.

Sessions in excess of 30-45 mins run the risk of the trainee becoming fatigued with a consequent reduction in performance. Furthermore, recall of important points made earlier in the training session may be forgotten at the expense of later ones.

• Minimal Pausing, Slewing and Repositioning

The PAUSE, SLEW and REPOSITION functions are powerful tools but they should be used sparingly for three reasons:

1. Slewing, particularly if done rapidly, can easily induce nausea and disorientation.

2. The trainee's situational awareness may be negatively impacted by the act of slewing and/or repositioning.

3. Overuse of PAUSE disrupts the natural flow of the flight and lesson.

After repositioning or slewing it is vital that the instructor ensures the trainee is aware of their new location in time and space. If there have been configuration changes (flaps/gear) these should also be confirmed.

It is good practice to conduct a quick re-brief or reminder of the training objectives before releasing pause on the simulator after repositioning. This need only be a short statement, for example;

You are now re-positioned at the correct height and location for your final approach. The wind is from the right at 10 knots. Check the airbrakes are closed and when I release you I want you to check your airspeed and then wait until your reference point begins to move under the nose before extending your airbrakes.

Instructor TEM

The example "hot brief" above is NOT just for the trainee's benefit. It also helps the instructor check that he has set up the scenario correctly. It's really embarrassing to have the trainee fly a perfect approach for the first time but for it to end with a gear up landing or for the conflicting traffic used in an earlier exercise to still be loaded and destabilise the trainee's next best effort.

•Time and Simulator Management

Employing a well defined lesson plan makes managing the simulator throughout the session much more straightforward. Before briefing the trainee on the exercise the instructor should set up the simulator with his preplanned scenarios including weather and be clear how to arrange any planned failures. Failing to organise oneself prior to commencing the training session can lead to periods of inactivity for the trainee whilst the instructor works out how to set up the next part of the lesson plan. It can also lead to simulator input or set up errors which may subsequently confuse the trainee. Typical faults are neglecting to select the pre-briefed wind or forgetting to remove instrument failures.

If the session runs particularly well the pre-briefed exercises may be completed well within the allotted time. It is very tempting to then fill the remaining time with an additional un-briefed exercise. This may seem like a great way to offer additional value but care should taken as the trainee may be left with only a partial understanding of the exercise flown, particularly if there is insufficient time to cover all of the vital learning points. A better use of additional time is to repeat or consolidate previous exercises. However, best practice is to:

"Brief the exercise to be flown, demonstrate and teach the exercise and then debrief the exercise flown"

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THE TRAINING SYLLABUS

Introduction

The BGA Instructor Manual should be used as a reference for the teaching of all exercises whether they be taught in the simulator or in the glider. However, as previously discussed there are both benefits and limitations to each platform. With this in mind we plan a phased introduction of the various exercises.

The glider selected for the purposes of the current training plan is the ASK 21. The aerodynamic model in our Mintel Simulator has been significantly improved over the original, commercially available one. We are constantly improving this model and it is hoped that eventually nearly all exercises will be teachable with this model, however for the moment, we are restricting training to those exercises that are more faithfully reproduced and can be taught safely without negative consequences.

The exercises below are arranged into two groups, "Approved" and "Prohibited". The numbering of the exercises is based on the BGA Instructor Manual Chapters. Guidance on the suggested scenario selection and the training objectives achievable in the simulator will also be provided.

It must be stressed that these notes apply ONLY to the Cambridge Gliding Centre Mintel Simulator G-OSIM. Whilst they may give valid guidance for other sims they have only be en tested on the Mintel simulator and as such results may be very different on other club's simulators.

Approved Exercises

(subject numbering refers to the BGA Instructor Manual)

Section 1

4. Checklists

As a procedural trainer the simulator is an excellent tool for reinforcing the correct and disciplined use of checklists.

Instructor TEM

It is very easy as an instructor to fall in to the trap of repositioning or repeating exercises without insisting that the trainees carry out the required checks. This degrades the trainee's appreciation of the importance of diligently completing their checks. Launch failures in the simulator are a good example of this trap. As an additional benefit, insisting the trainee completes the required checks has the effect of "resetting" the trainee's situational awareness (SA) in preparation for the next attempt.

5. Lookout

Excellent for reinforcing a diligent and disciplined lookout.

Instructor TEM

Do not allow the trainee(s) to skip the lookout because they perceive no risk of collision in the simulator. They must fly exactly as they would in the actual glider. If they start a turn without looking out intervene as you would if you were in the back seat of an actual glider in flight. We have the facility to add "traffic" to our scenarios. This is a very powerful tool for instructors to use in order to reinforce this discipline. However, instructors should take care not to degrade the realism of a scenario by overusing this function.

Section 2

7. Effects of Controls

Can be taught.

Primary effects are well represented.

Secondary effects:

Adverse yaw with aileron input is well represented.

Changing effect of rudder with speed is **not** well represented. At 40 kts there is some roll with yaw however at speeds in excess of 50 kts initially the glider yaws with no roll. After approximately 30 degrees change in heading a gradual roll to a bank angle of approximately 30 degrees with an increasing nose down pitch occurs. It. is hoped that with future changes to the aircraft model this behaviour will be modified to become more representative of the actual glider.

Instructor TEM

The exercise briefing should make clear to the trainee that the fidelity of the simulator is not perfect with respect to the glider. The exercises flown are to demonstrate principles and characteristics which will later be demonstrated in the actual glider and the trainee should not be surprised by any handling differences experienced. The basic handling characteristics however are accurately replicated in most cases. Where the handling characteristics are not accurately replicated this will indicated in these notes.

8. Use of the Trimmer

Principles can be taught effectively.

Instructor TEM

Currently the trim range is too large. It is possible to trim beyond Vne. It is possible to trim to execute continual loops. Trim lever full forward leaves 5cm forward stick movement available. Trim lever fully back puts stick on backstop.

9. The Straight Glide

Can taught effectively.

Instructor TEM

Refer to the BGA guidance for lesson structure. The simulator provides an excellent platform for reinforcing the scan cycle prior to teaching this exercise and as such the BGA syllabus can be followed closely.

10. Turning

Can be taught effectively.

Instructor TEM

Avoid repeated use of "pause" if the trainee fails to lookout before turning. Better to use the conventional method of intervention by preventing the stick from being moved and a firm "I have control" command.

11. Airbrakes and Spoilers

May be taught effectively.

Instructor TEM

The simulator is excellent for demonstrating and teaching these exercises. Make sure to start the exercise high enough to complete the demonstrations and still allow the trainee plenty of time for practice. This will avoid multiple repositioning which may disrupt the flow of the exercise.

12. Approach Control

Can be effectively taught.

Instructor TEM

Scenarios have been added to place the glider at approximately 800ft on the approach for RWY 22 and RWY 04. These scenarios may be used for teaching the reference point exercise very effectively.

13. Landing

Can be taught effectively.

Instructor TEM

The basic landing technique can be taught effectively however the simulator appears to sit on the ground slightly higher than the actual glider and this should be pointed out to trainees at the start of the session.

Section 3

14. Circuit Planning 1 - Briefing and Demonstration

May be taught effectively.

Instructor TEM

Scenarios have been constructed to place the glider at 1500ft in a location from which a circuit may be planned and then joined rather than commenced from fixed locations such as a high key point. These scenarios should be used as the starting point for all circuit planning briefing and demonstration exercises and allows for the student to develop the competence of planing and then joining the circuit. If the instructor wishes to reinforce a particular part of the circuit then the snapshot function can be used to save and recall the start position of the element to be taught. However great caution should be applied as repeatedly commencing the circuit from the same location multiple times may reinforce a concept of always basing the circuit on the same ground features.

15. Circuit Planning 2 - Trainee Practice

May be taught effectively.

This is an area where the power of a simulator is well demonstrated. Instructors should make full use of the opportunity to facilitate trainee practice of a variety of circuits, to different runways in varying wind conditions.

Instructor TEM

Take care not to overload the trainee here. It is very easy to overdo the trainee practice with too much variety.

If the trainee is likely to be practising the circuit exercises in the actual glider later in the same day then it is good practice to adjust the simulated weather conditions to match the actual airfield weather conditions for the last couple of circuits in order that the trainees mind is reset to today's weather conditions.

Section 4

16. Wire Launching

The winch launch model is basic and has some limitations. The speed of the launch cannot easily be adjusted and does not vary with glider load remaining constant at a preset value throughout the launch.

However, the principles and disciplines required for safe winch launching can be taught in the simulator effectively.

ALL winch launch failures, including the ultra low level failure may be taught effectively.

Please note the following:

- The impact of allowing a wing to drop during the launch can be demonstrated most effectively.

- Cross winds are realistic and will create drift which will require to be laid off. The cross wind may be varied by the instructor directly through the IOS.

- The yaw string will NOT show the wind direction on the ground so trainees MUST have this pointed out to them during the session briefing.

- The winch launch speed is set in the simulator and will not vary throughout the launch.

- Power loss failures cannot be demonstrated however the instructor may simulate a cable break directly from the IOS.

- The cable will break if too much load is applied on the stick.

17. Aerotowing

The aerotow model is relatively simple although the basic disciplines may be taught with some limitations.

- Crosswinds on the ground are represented although the model fails to replicate crosswinds well once the combination is airborne.

- There is no slipstream effect from the tow aircraft. However, boxing an imaginary wake from the tow plane can be demonstrated effectively.

- The rope can easily be broken if the glider gets out of position.

- Currently tows are only possible straight ahead however future software changes should allow for some turning on tow.

- One of the most valuable exercises that can be taught is the rope break shortly after take off where the principles of landing straight ahead may be reinforced. The rope break may be initiated by the instructor directly from the IOS.

Prohibited Exercises

What follows is a list of exercises that are currently prohibited. This list will be modified as we adapt and improve simulator fidelity.   As previously discussed we are employing a "phased" introduction of the simulator to the training program and hope to introduce some of these items in the future.

Section 5

18. Stalling

19. Spinning and Spiral Dives

INSTRUCTOR TRAINING

• BI Training

(To be added in future editions)

• Ass CAT Training

(To be added in future editions)

• Simulator Instructor Qualification

Before instructors teach on the Mintel simulator they should attend at least one Simulator Instructor's Seminar. The purpose of the seminar is to familiarise the instructor with the operation of the simulator whilst also introducing some of the teaching benefits and risks associated with their new training environment.

Once instructors have attended a seminar they are free to practice using the simulator until they feel they have attained sufficient proficiency to provide trainee's with good instructional value.

Many instructors, new to teaching in the simulator, have found that pairing up with a similarly experienced colleague in order to practice very beneficial.

From time to time further seminars will be run in order to gain feedback from instructors on their experience and offer further guidance. These seminars will also include additional training on changes and improvements to the simulator platform.

MINTEL SIMULATOR OPERATIONS

• Introduction

The Mintel simulator is designed to be used with a basic Instructor Operator Station henceforth referred to as the IOS. The purpose of the IOS is make the operation of the simulator as easy as possible. This ensures that the instructor is free to devote most of their attention to the conduct of the training with minimal distraction.

• Start Up

1. Switch on the cockpit instrumentation and controls interface at the wall socket on the wall behind the instructor station.

2. Turn on the overhead projectors using the remote control handset. Pointing the control at the centre of the five projectors will power up all five at once.

3. Power up the PC by pushing the large black button on the top/front/right of the PC enclosure.

4. The IOS screen should turn on and P3D will automatically boot up. If after about 60 seconds nothing has happened press on the CGC_IOS icon - just once. The software takes a couple of minutes to start from cold. The IOS will open at the "Flight" page.

5. Turn on the lights over the fuselage (the white knob on the end of a cable is the dimmer and on/off switch)

6. Sound is currently controlled through a Bose system using the circular remote control. Rotate the outer ring for volume and turn the sound on or off by touching the centre of the control.

Notes:

After initial startup, screen "4" is not maximised. Pressing "Reset Flight" once, fixes this.

Pressing the "Yellow Knob (Cable)" button on the ground initialises a winch launch, as does pulling the yellow know in the cockpit. Don't pull it again if prompted, as this abandons the launch

• General Operation

IOS Introduction

The IOS is currently composed of 6 pages each selected by the tab at the top of the screen.

The Flight Page
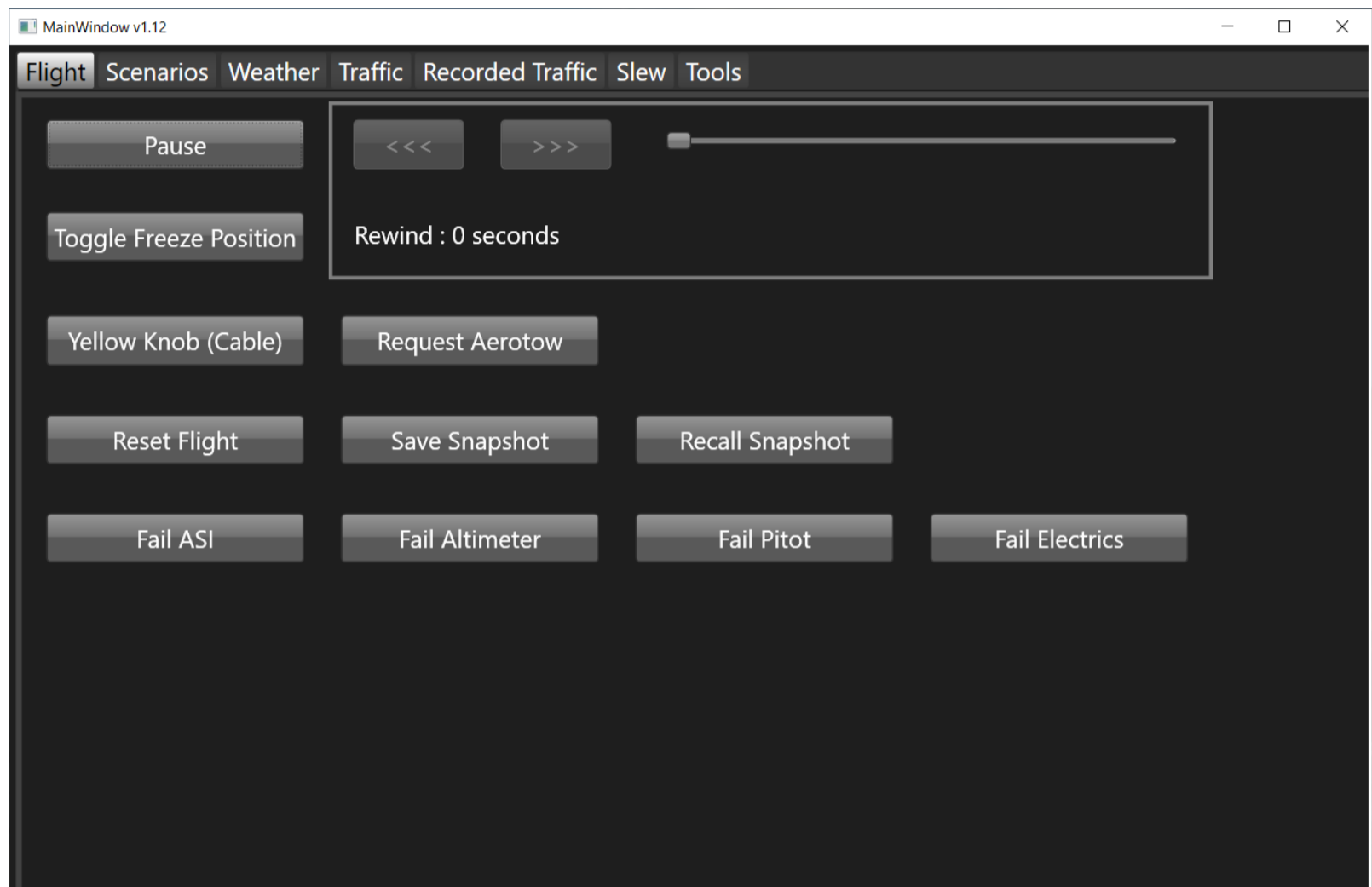
The FLIGHT page should be selected during the running of the session and allows for immediate control of the basic simulator functions.

Run/Toggle Pause

The simulator may be paused and run from this button. Scenarios should be loaded in a PAUSED mode and once the instructor is ready to commence the flight or session pressing the RUN button releases the flight freeze or pause. The button then changes to a PAUSE button in order that the instructor may PAUSE or "flight freeze" the session.

Toggle Freeze Position

(detail to be added)

Rewind and the Rewind Slider

(detail to be added)

Yellow Knob (Cable)

Replicates the cable release action of the cockpit controls.

Calls for a winch launch

Releases cable (so may be used by the instructor to release the cable during a launch)

Request Aerotow

Summons the tug and commences and aerotow

Reset Flight

Resets the simulator to the start of the previously loaded scenario.

Save Snapshot

During the course of a session the instructor may use this function to save a snapshot of the current position. This effectively creates a temporary scenario which may be recalled.

Recall Snapshot

Recalls the saved snapshot.

Fail ASI

The ASI needle sticks at the speed at which the failure was initiated.

Fail Altimeter

The Altimeter needle sticks at the altitude at which the failure was initiated.

Fail Pitot

Fails the Pitot *(detail to be added)*

Fail Electrics

Fails the glider electrical system *(detail to be added)*

Scenarios

The scenarios tab is used to call the page from which scenarios may be loaded.

Selecting the airfield and runway direction required will open up the available scenarios. Select the required scenario and then press LOAD
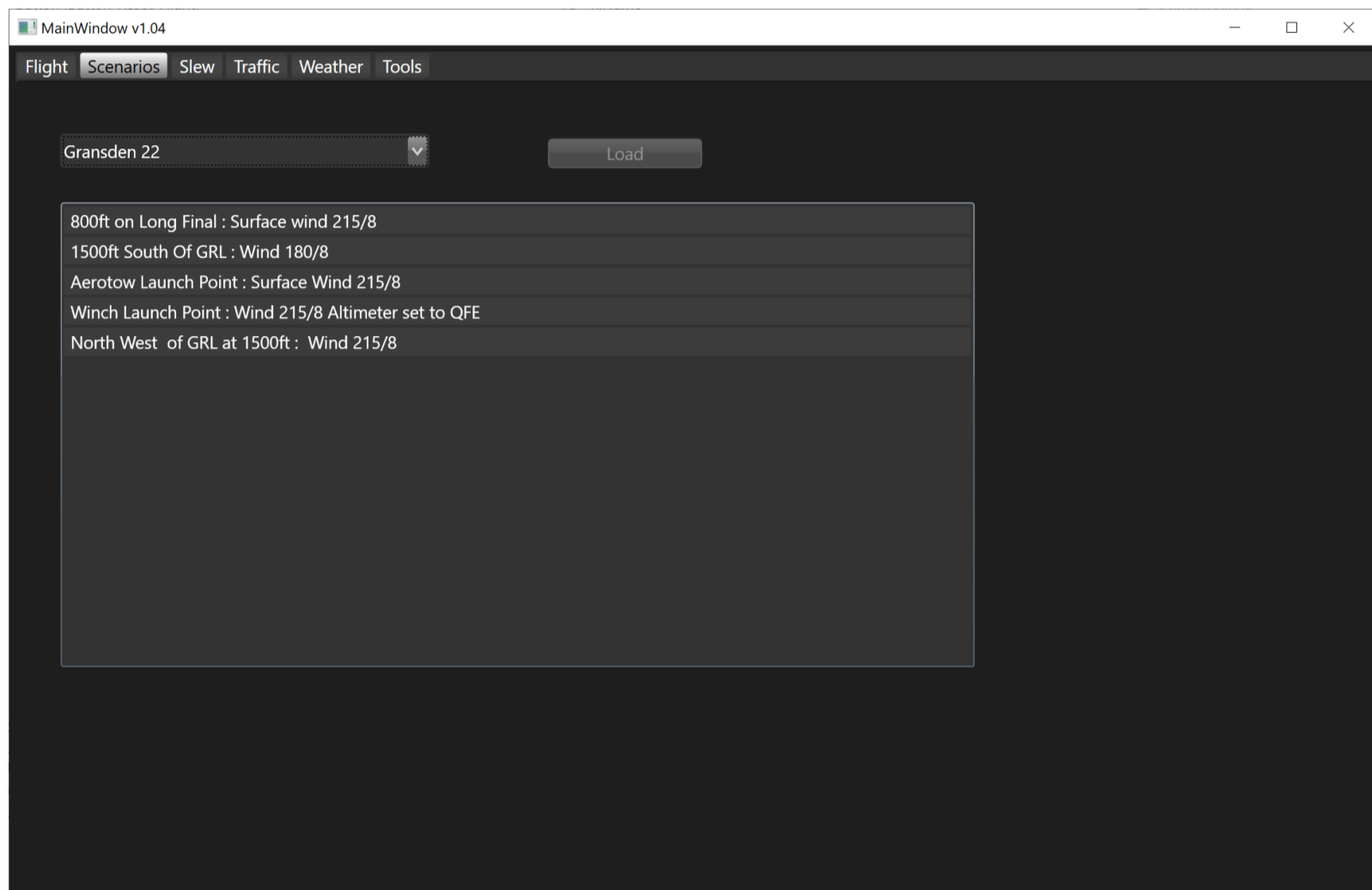
Slew
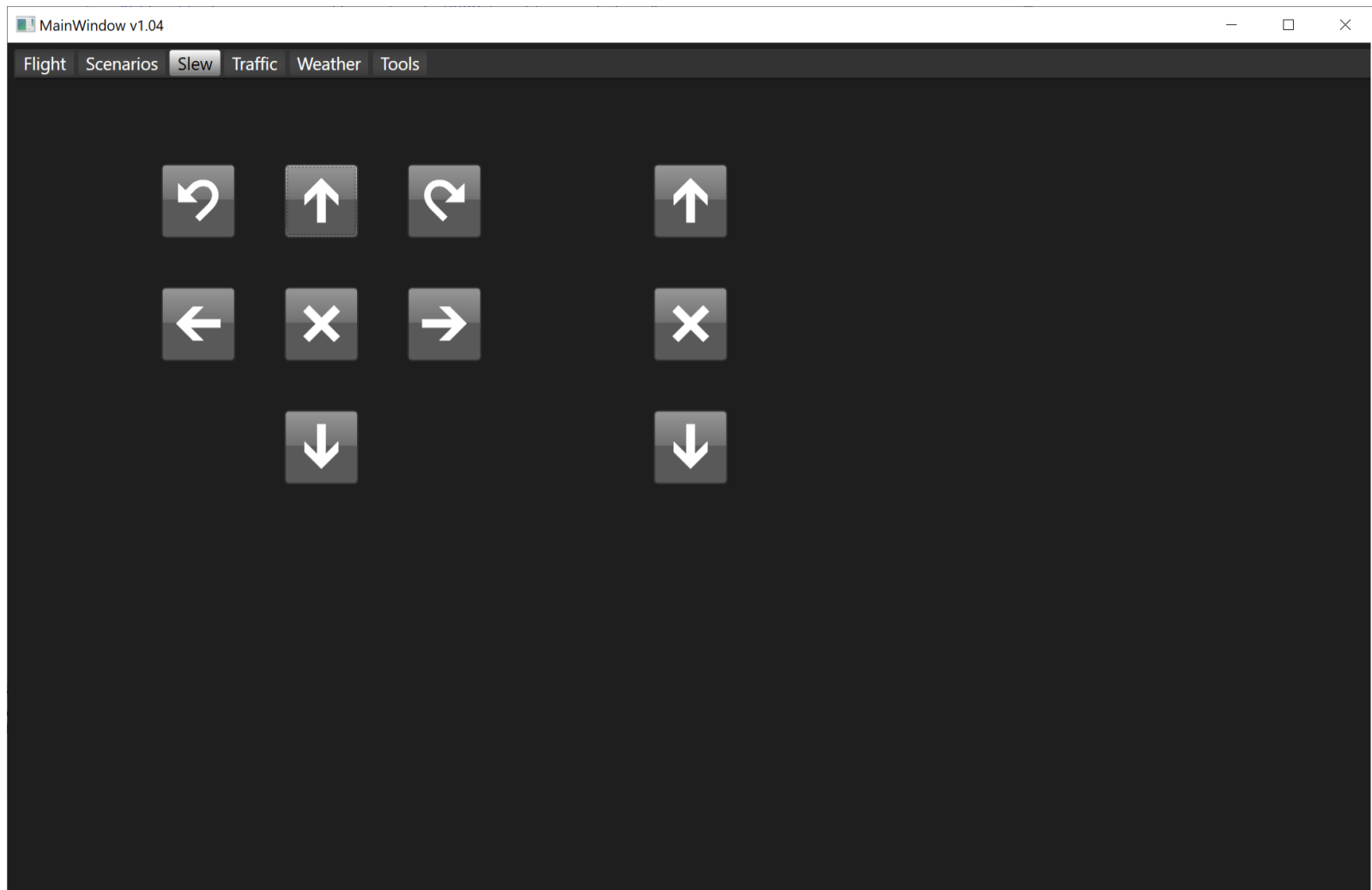
The slew page allows for the glider to be moved around geographically both laterally and vertically.

Traffic

The traffic page allows the instructor to select traffic to test the trainees lookout and observation skills.
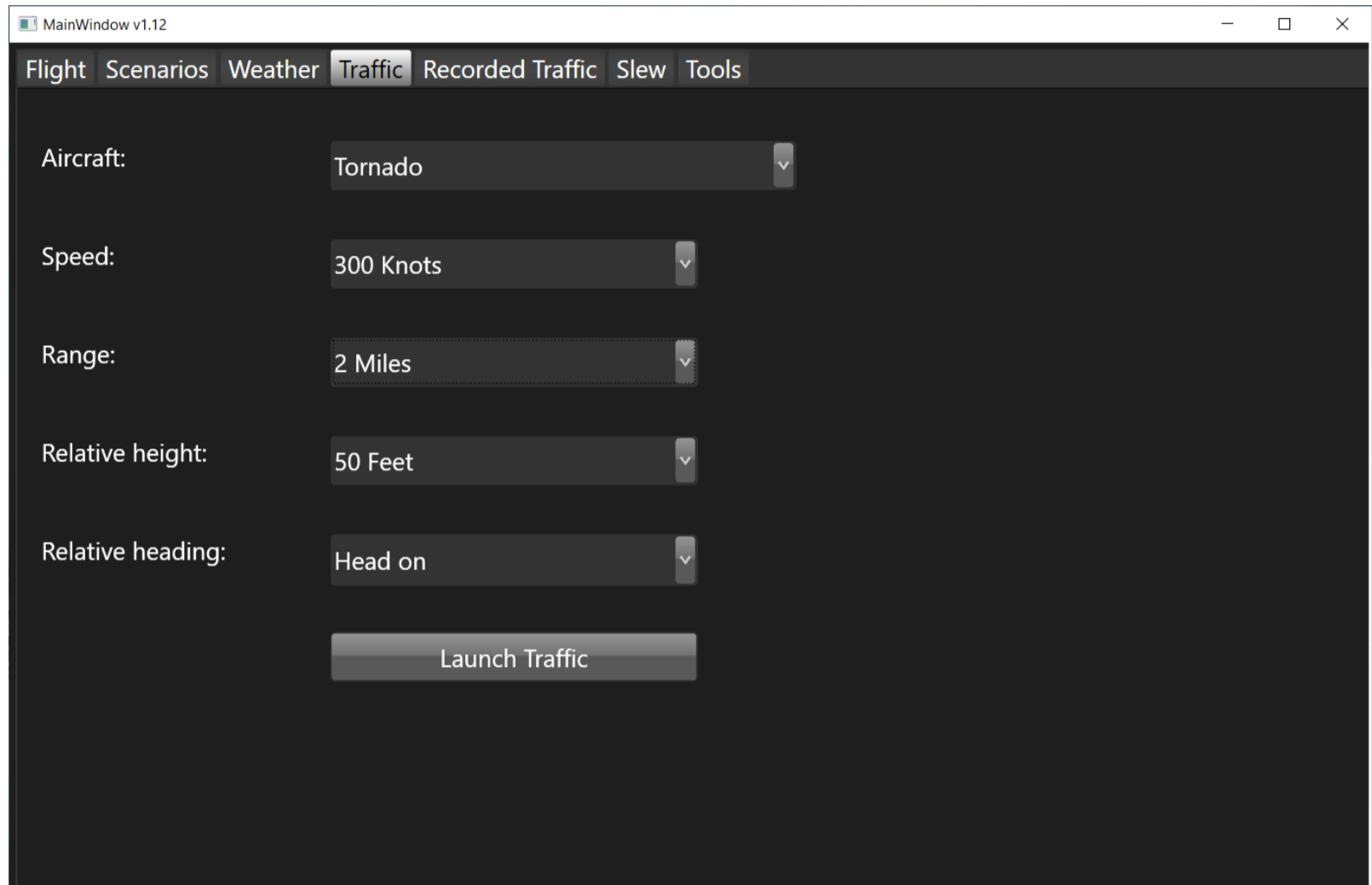
Select the aircraft required from the Aircraft menu and choose and appropriate speed, range and direction.

Launch the traffic by pushing the Launch Traffic button. Each successive press of the button launches another aircraft.

Instructor TEM

Try to keep the traffic realistic. Launching squadrons of K13's all travelling at 300kts towards your trainee appears to be great fun but immediately reduces the level of realism and damages the credibility of the training scenario.

Weather

Currently under development this page allows control of the weather pertaining to the loaded scenario. Currently all Gransden scenarios are loaded with a wind straight down the runway selected at 8kts. The Surface wind sliders may be adjusted to change both wind strength and direction and then the Set Wind button pressed to load the modified wind into the current scenario.
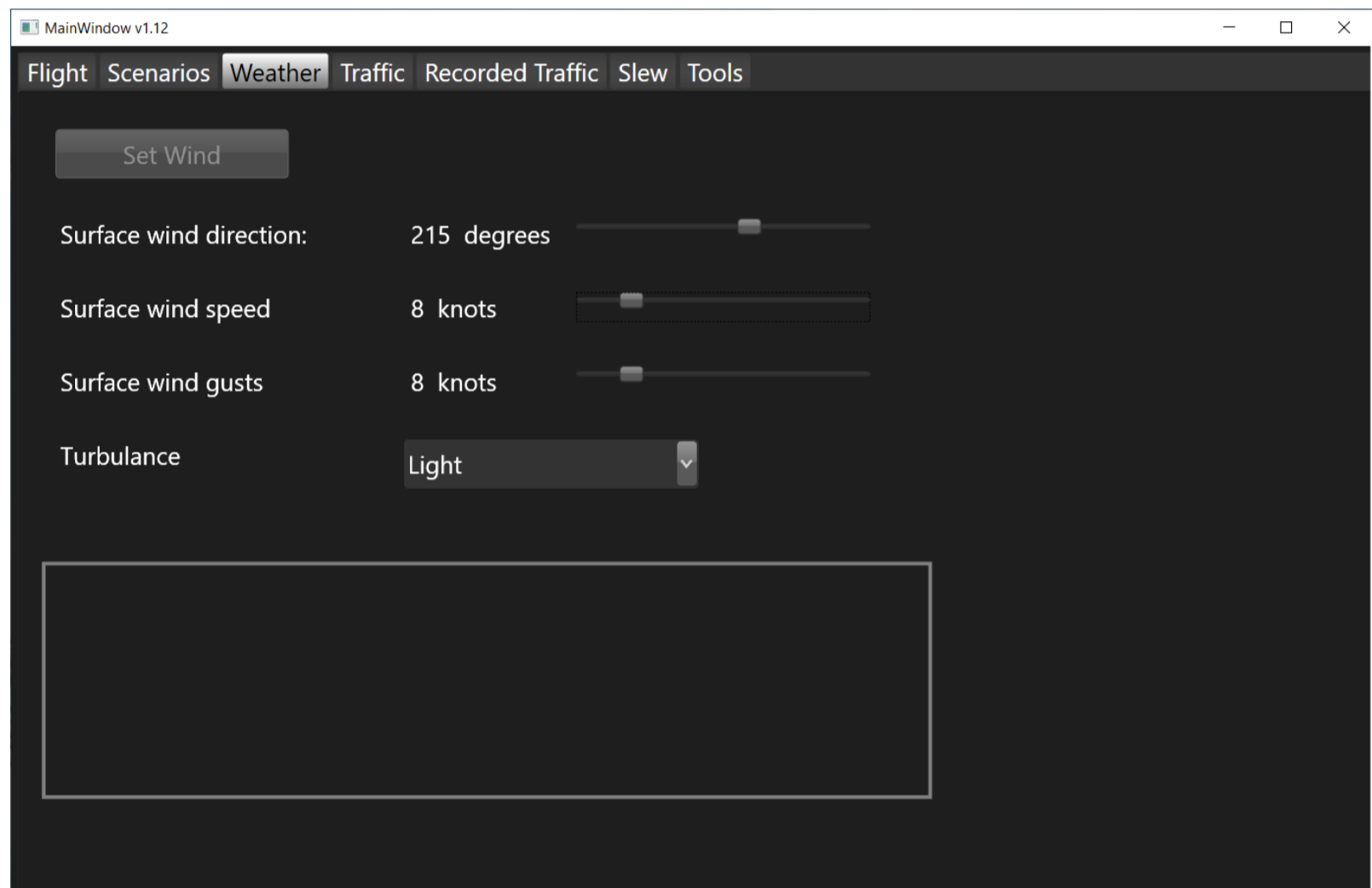
Instructor TEM

Take great care when changing the wind. Currently the wind changes instantly the Set Wind button is pressed. If your trainee is flying into wind and you immediately give him a strong tailwind the glider may immediately stall. This function will be improved in due course.

Tools
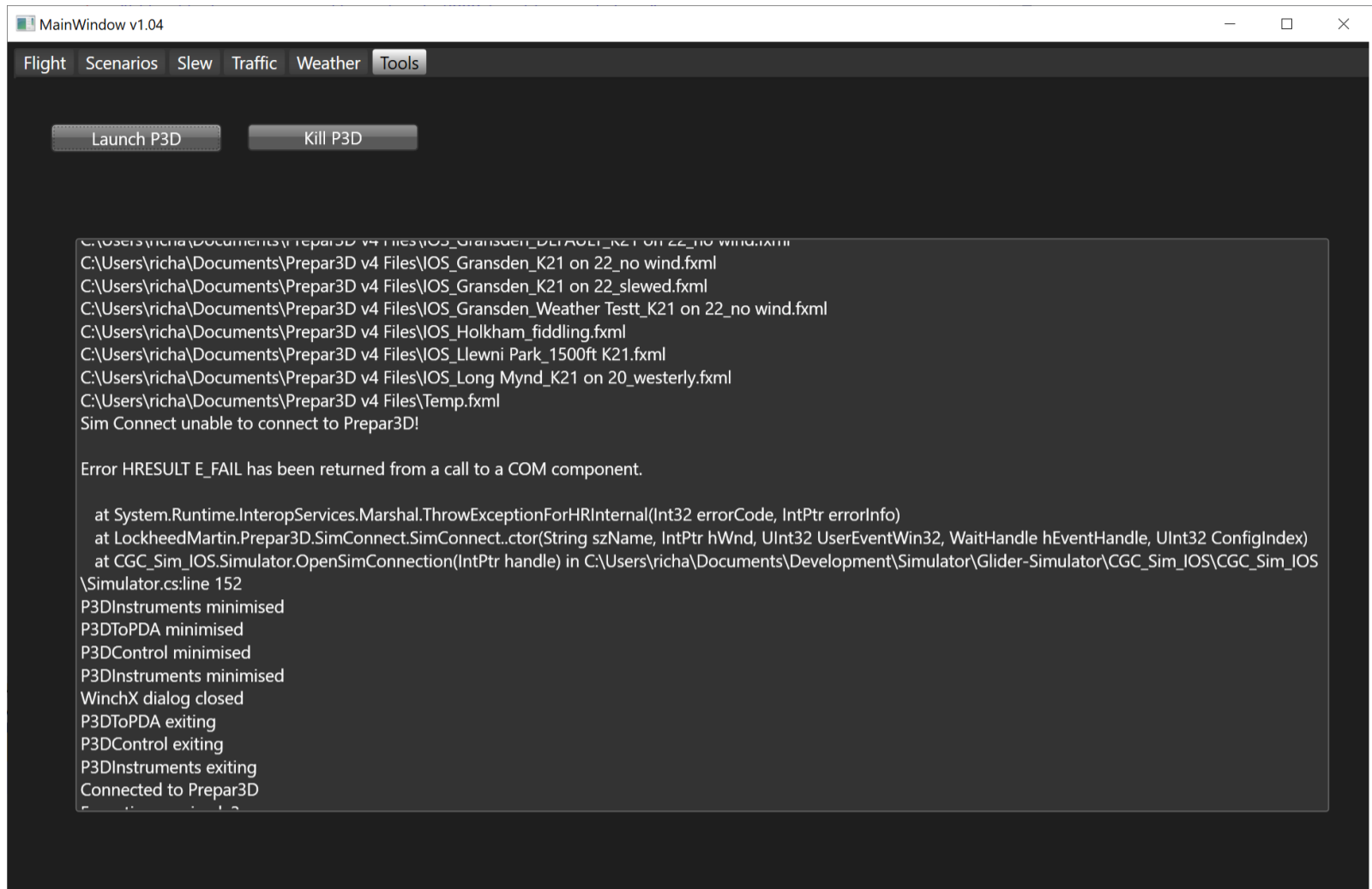
The tools page is reserved for the use of the simulator administrator and trouble shooting.

• Shut Down Procedure

1. Close the IOS software by clicking on the top right corner of the IOS Window

2. Shutdown the PC by clicking on the Windows button bottom left on the toolbar

3. Switch off the cockpit instrumentation at the wall socket on the wall behind the instructor station.

4. Turn off the overhead projectors using the remote control handset:

5. Point the control at the centre of 5 projectors as it will turn off all 5 at once.

6. Do not turn the projectors off at the wall socket.

7. Leave the touchscreen powered on – the small blue light bottom right.

8. Turn off the lights over the fuselage (the white knob on the end of a cable).

Sim Time

Simulator time should be recorded in hours and minutes on the provided log sheets. A copy of the simulator log sheet is included in the appendix.

Recording Defects

Any defects or difficulties encountered should be recorded in the simulator log for troubleshooting and the benefit of the next sim instructor. Complex faults and requests for features or scenarios should be emailed to:

simulator@camgliding.uk

• Connecting External Devices (Oudies)

The simulator has the capability to drive a number of glide computers via WiFi or via bluetooth. As such, no physical connection to the simulator is needed and power may be taken from the extension lead, employing USB adapters or other appropriate power supplys.

Eventually the simulator will be able to supply USB power and mounting points will be fitted.

Oudie With SeeYou

The Oudie connects via bluetooth. The simulator has 2 bluetooth serial adapters called "FrontSeat" and "RearSeat". These are fed with GPS data from the simulator and there is no difference between the seat feeds except that the FrontSeat bluetooth adapter is behind the front panel and RearSeat is behind the rear panel.

Find the *Input* option in the *settings* menu and select *Bluetooth* to open Bluetooth, serial setup page. Unpair any existing device and select *Lookup* to locate the available bluetooth devices. You should see FrontSeat and RearSeat displayed as shown below:

Select the appropriate device and *Pair* with it. When the PIN is requested insert "1234".

Once paired you should see a dialog similar to the following. Note the speed is set to 115200 - that's the speed used internally within the bluetooth adapters but it may not be strictly necessary to set it here.
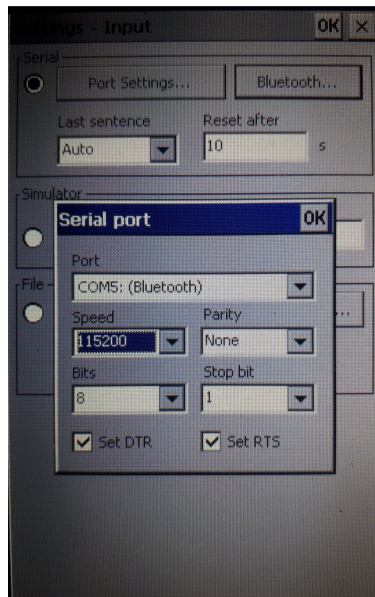
Click on OK and return to the normal map page on mSee You. Provided the simulator is running you should see your position on the display which matches the current scenario.
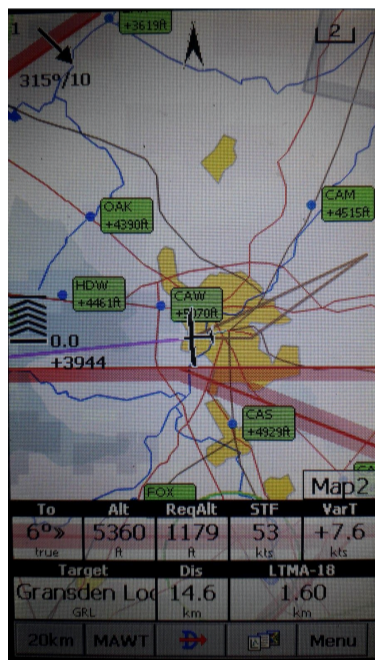
• Mintel Simulator Scenario's Listing

Gransden 04

- 1500ft South of GRL: Surface wind 040/08

- 600ft Long Final: Surface wind 040/08

- Aerotow Launch point: Surface wind 040/08

- Winch Launch Point: Surface wind 040/08

Gransden 16

- Aerotow Launch point: Surface wind 160/08

- Winch Launch Point: Surface wind160/08

Gransden 22

- 800ft on Long Final: Surface wind 215/08

- 1500ft South of GRL: Surface wind 215/08

- Aerotow Launch Point: Surface wind 215/08

- Winch Launch Point: Surface wind 215/08

- North West of GRL at 1500ft: Surface wind 215/08

Gransden 34

- Aerotow Launch Point: Surface wind 340/08

- Winch Launch Point: Surface wind 340/08

Long Mynd

- K21 on the ground facing west: Wind 270/16

Sutton Bank

- K21 on ground launching to the south west

- K21 on the ground launching to the north

• Troubleshooting Basic Faults

After initial startup, screen "4" is not maximised. Pressing "Reset Flight" once, fixes this.

Appendices

A. Mintel Simulator Log

B. Example Trainee Logbook Entry

C. Further Reading

MINTEL SIMULATOR LOG

Date	Session Start 00:00	Session End 00:00	Session Duration 00:00	Instructor	Trainee A	Trainee B	Sim Status S or U/S	Comments *Please note any defects, failures resets or workarounds*	Office use

Example Trainee Logbook Entry

The current BGA Logbook makes no provision for the recording of simulator time. For the present please record all simulator training in the BACK pages of the trainee's logbook starting on the last page before the Cross Country Log and working FORWARDS towards the from of the logbook.

Total Launches brought forward	
Total Hours brought forward	

Flight Time breakdowns brought forward

Flight No	Date	Glider/AC Type	Registration	Takeoff location	Landing location	Launch Type	Crew Capacity	PIC Name
N/A	11.11.19	SIMULATOR	G-OSIM	GRL	GRL	W	P2	A.M. LACEY

PIC		Under Instruction		Other (see notes)		
Hrs	Mins	Hrs	Mins	Hrs	Mins	Remarks
		O	45			STRAIGHT AHEAD LAUNCH FAILURES DEMONSTRATED. 6x LAUNCH FAILURES PRACTICED TO PROFICIENCY. REMEMBER TO WAIT TO REGAIN YOUR NOMINATED APPROACH SPEED BEFORE OPENING THE AIRBRAKES.

		Launches	

TH