Theory Lesson # 12

Unit 39 – Advanced Soaring Instruments and Flight Computers

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Aim

Advanced Variometers

- Averager and Netto modes
- Speed to fly information
- Configuration

Flight Computers

- Information available
- Assumptions and limitations
- Ground programming and use in flight
- Safety

Advanced Variometers

Many advantages over mechanical varios including:

- Averaging of the instantaneous vertical climb/sink rate (averager)

- Netto and relative netto

- Configurable parameters such as total energy compensation based on a mix of the total energy probe, pitot, GPS and inertial sensors

- Speed to fly information

- Many other display features blurring the distinction between varios and flight computers

Require configuration to work correctly – such as correct glider polar

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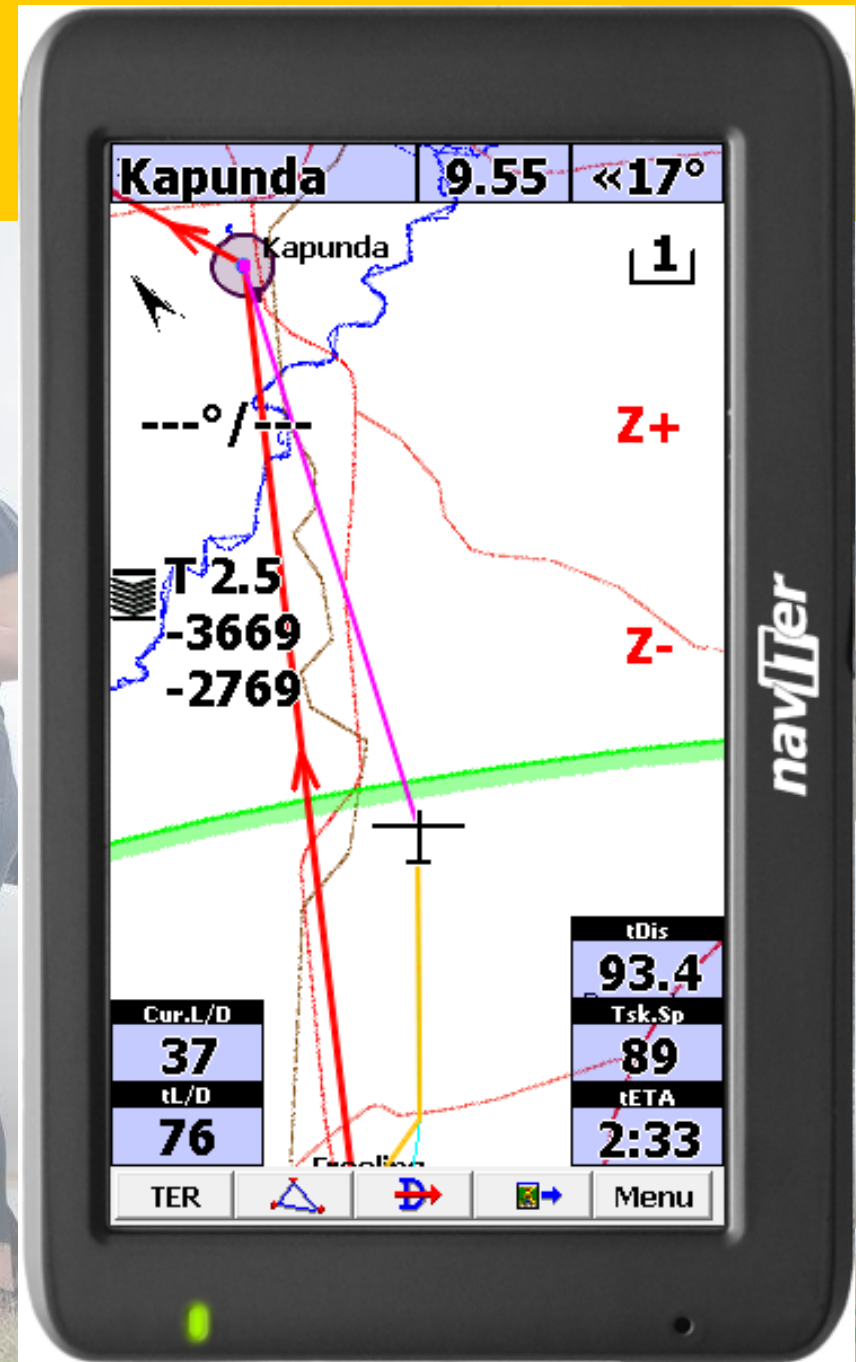AUSTRALIA

Flight Computer Example

Moving map
- Task
- Airspace
- Terrain

Wind

Final Glide (based on selected MacCready)

Many options for information

Flight Computers

Before you fly you'll need to understand how to set up and use at least the following

Configuration of the glider polar and connection to other devices

Enter a task, start the task navigation, move to the next waypoint etc

Set the MacCready setting (assumed climb rate), ballast and bugs

Configure airspace boundaries and warnings and understand how this information is presented in flight

How wind strength and direction is calculated and displayed

Display of required track and actual track
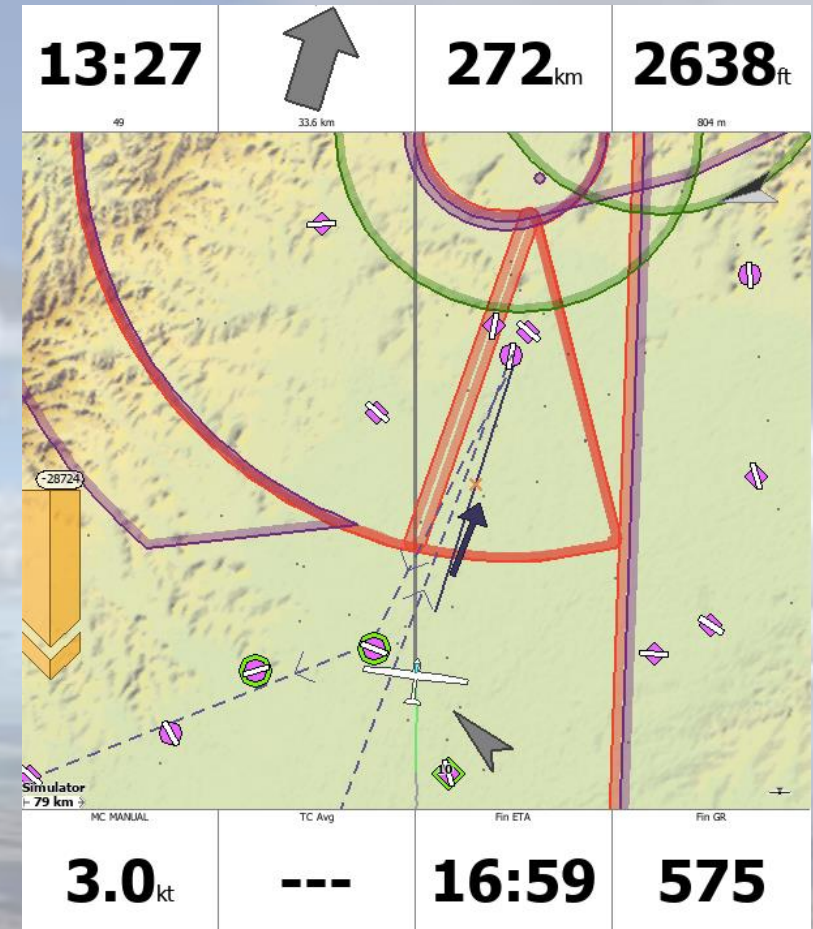
Distance and bearing to next turn point

Finish height and final glide data (including setting a safety height above the ground to finish the glide)

Simulators

Many systems can run in simulator mode on the device

Some also have a PC simulator version

Use these to configure and learn how to use the device

Safety

Flight computers will distract you from other tasks

Know how to use them before flying

Make sure they are correctly configured (such as polar and safety height)

Understand the limitations of predictions

Enter the task before flying

Keep it simple

LOOKOUT!!!

Always remember your map

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