

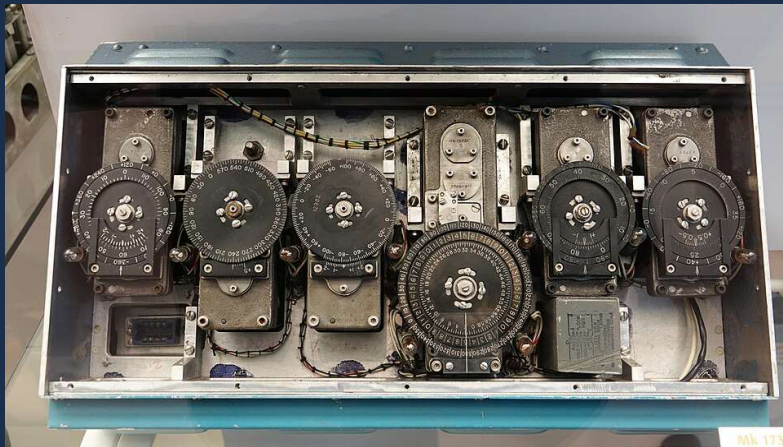


Aerobatic Data Loggers

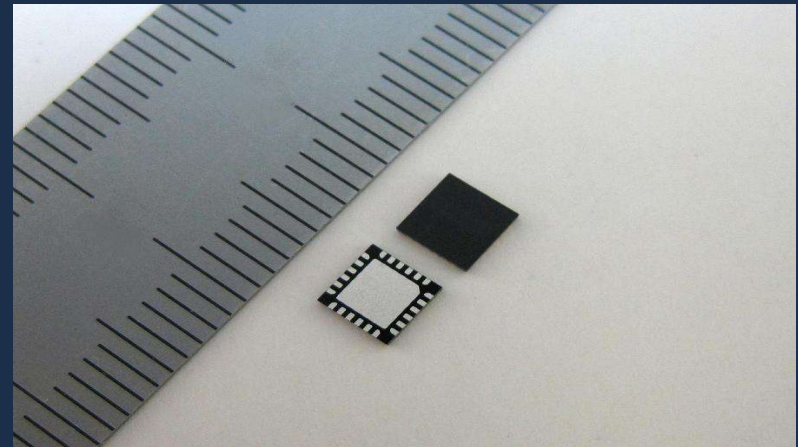
How flight data can sharpen your aerobatic flying

From Room-Sized INS to 3mm Chips

The technology that makes aerobatic data logging possible



1960s Inertial Navigation System



Today: 9-axis IMU — 3mm x 3mm



3-axis gyro + accelerometer + compass + DMP

Two Systems on the Market



Flight Recording Systems

- WiFi data download to phone
- Auto-scoring & roll detection
- View in Google Earth / CloudAhoy
- 8-hour battery life



Acrowrx

- Uses Bold Flight hardware
- Micro SD card data transfer
- Laptop analysis & replay
- Great flight visualisation

FRS — How It Works

1

Mount

Hardware snaps into a mount on the aircraft

2

Fly

Records all 9 axes of motion during your flight

3

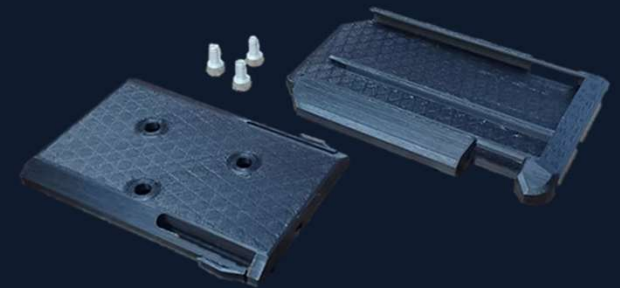
Connect

Hotspot your phone after landing

4

Analyse

Data analysed & uploaded to Google Drive in ~5 min



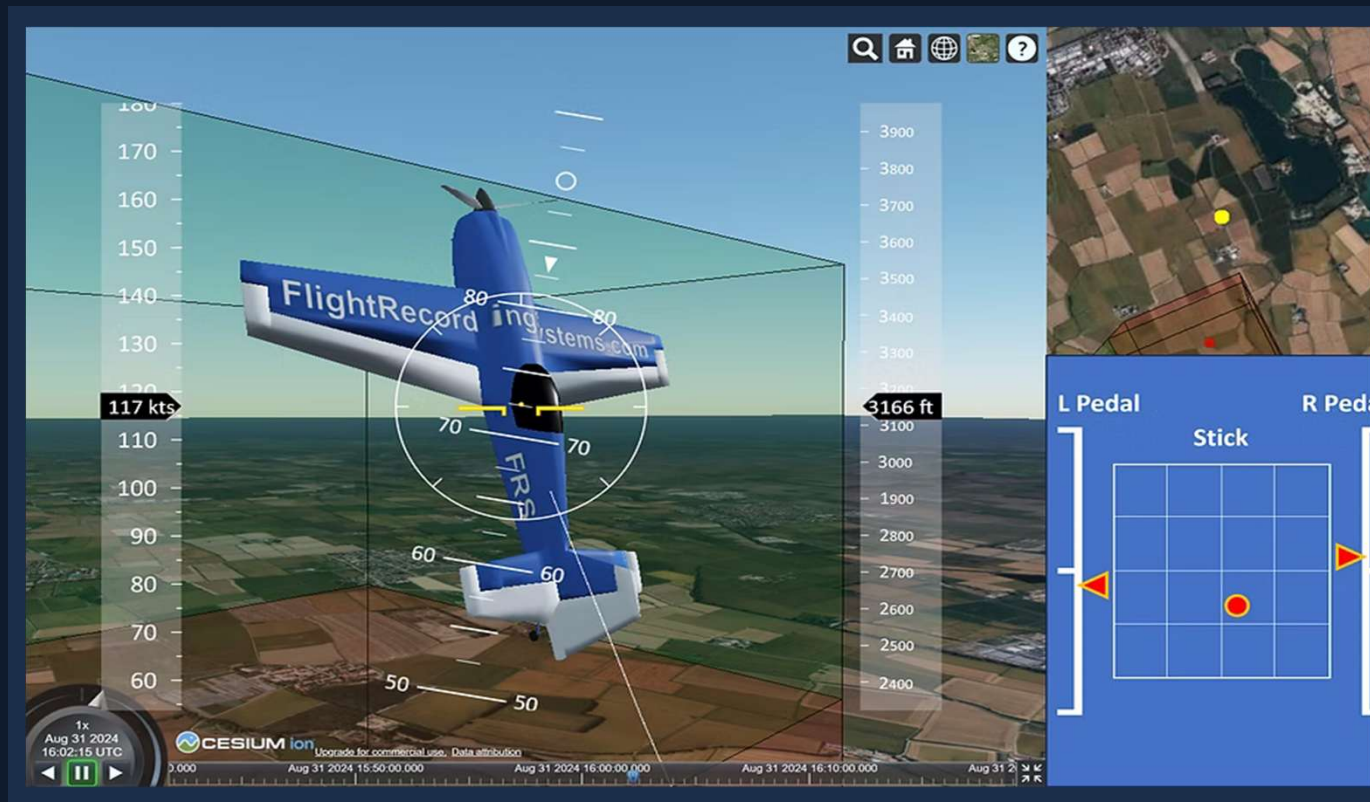
What you get:

- Scores as text file
- 3D flight replay on tablet/laptop
- Judges' perspective view
- Rolls highlighted automatically

flightrecordingsystems.com

3D Flight Replay

See exactly what the judges see — airspeed, altitude, control inputs in real-time



Automated Scoring

Every manoeuvre broken down with specific penalty deductions

Manoeuvre	Issue Detected	Penalty
Two Lines Stall Turn	Pitch increase on 90° line: +7.0°	1.4 pts
	Pitch decrease on 90° line: -11.0°	2.1 pts
	Pivot > ½ wingspan (23.5m)	4.7 pts
Half Cuban	Radius variation across octaves: up to 66%	1.0 pts
	45° line pitch error: -7.0°	1.3 pts



K-factor × mark = score. A stall turn with K:17 scoring mark 1 = just 17 points (out of a possible 170).

Roll Stop Detection

Data loggers detect roll rate to identify start/stop points and hesitations



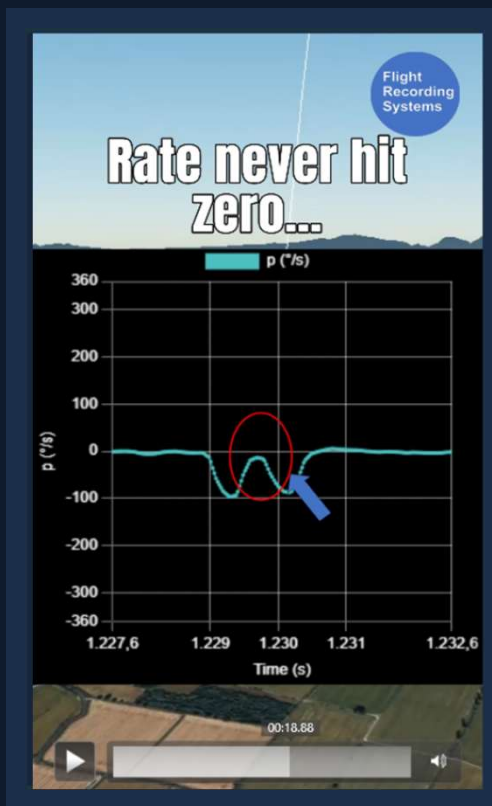
What the data shows:

- Exact roll rate in deg/sec throughout the manoeuvre
- Where hesitations occur and how severe they are
- Whether your roll rate is consistent
- Stop points precisely identified for scoring

This is the data judges can't see

Humpty Roll — Video

Watch how the data logger captures a humpty with a roll



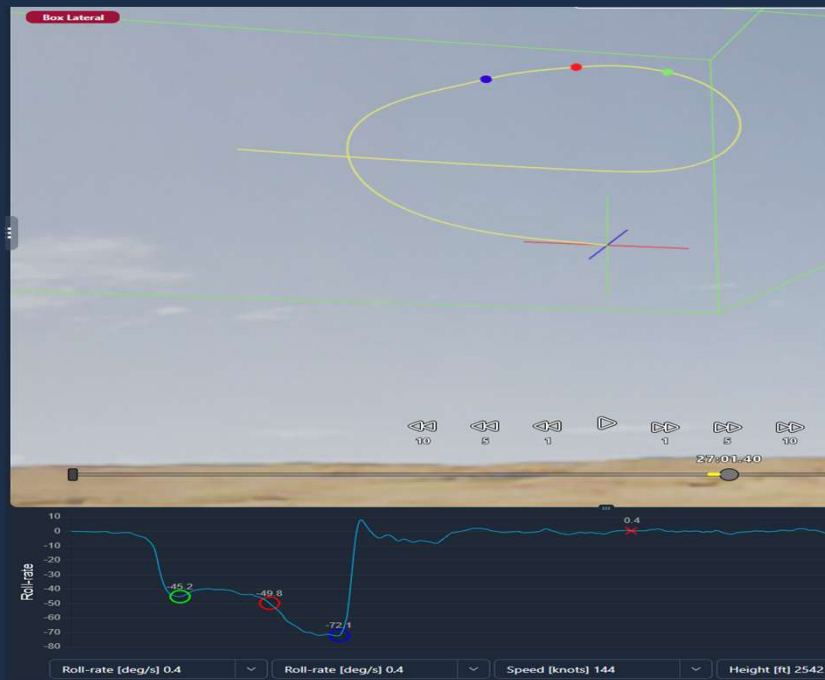
What to watch for:

- Pull to vertical, quarter roll on the up-line
- Radius at the top of the bump
- Push to vertical down-line
- Pull-out recovery and exit line

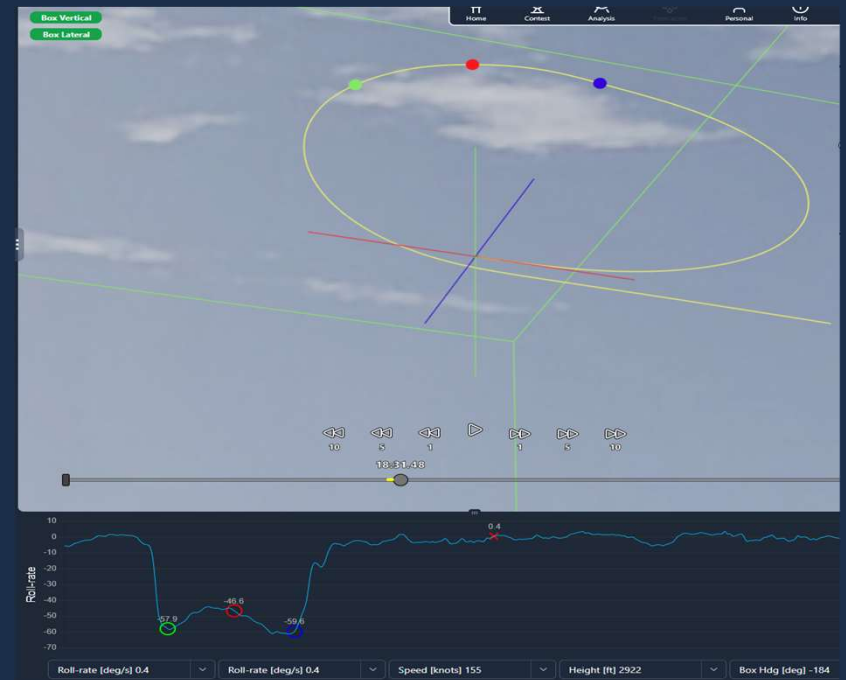
Click the video to play during presentation mode

Tracking Progress: Roll on a Loop

Day One



Several Days Later



Practical Considerations

What works well

- ✓ Excellent debrief & analysis tool
- ✓ Puts numbers on what you feel
- ✓ Great complement to video footage
- ✓ Helps tweak positioning precisely

Things to know

- ✗ Needs charging & data upload logistics
- ✗ Must calibrate against real judges
- ✗ ZLA of RVs can be an issue
- ✗ Still need a good coach for analysis



Pick a system that has a local community of users — shared knowledge makes all the difference.



Data Doesn't Replace Feel — It Sharpens It

Questions?

flightrecordingsystems.com · acrowrx.com



You're Invited

AAC Aerobatic Weekend

18–19 July · Latrobe Valley

Come for the AeroClub's Saturday BBQ lunch

Practice Aerobatics, Dinner, More practice on Sunday

AAC Member Website <https://members.aerobaticsaustralia.com.au/>

Go to the Shop and select "VIC Training Camp – July" to register

