

Introduction to cross-country soaring

Session 1

- Introduction
- About soaring
- Soaring career
- Thermal
- Ridge
- Wave
- Glider performance

Session 2

- Phases of XC flight
- Task
- Preparation
- Physiology
- Off field landing
- Social aspect of Soaring
- Conclusion

Break

Karl Boutin, GGC
January 14, 2026

About me



About you?

Piloting Experience

- Pilots?
- Cadets ?
- Flight in a glider ?
- Other aircrafts: balloon, helicopter, parachute ?
- Simulators ?

About Gliders

- Who knows little about gliders ?
- How is it different from other aircraft ?
- Glider versus paraglider

The Pleasure of Soaring

- What feelings and emotions do you have toward flying?
- What are you looking for: understanding, skills, control, freedom?
- What do you want your glider pilot career to be beyond the Ground School?

How long?

Duration

- As long as we have lift
- As long as you can “hold it”;-)
- My 2025 solo logbook: 32 flights, 91:33, avg: 2:52, min: 0:19, max: 6:36,
- The world record solo: 1956 in 56 hours.

2025					Totals Forward Totaux Reportés	1331:36	75:04	283:10
Flight # Envolée No.	Date	Glider / Planeur		Place of launch Lieu de décollage	Type of Launch Type de Lancement	Time and Crew Capacity Temps de vol en qualité de:		
		Type	Marking Marque			P1	P2	Instr.
1709	05-11	IFX/JCZ		Pendleton	4V			1:52
1710	05-26	ASW-20	KB	Pendleton	2K	3:57		
1711	06-15	ASW-20	KB	Pendleton	2K	5:28		
1712	06-21	ASW-20	KB	Pendleton	2K	3:00		
1713	06-29	ASW-20	KB		2K	:29		
1714	06-29	ASW-20	KB		2K	1:16		
1719	06-30	L-23/Puch	IFX/JCZ		5V			1:42
1720	07-02	ASW-20	KB		2K	3:15		
1721	07-04	ASW-20	KB		2K	5:09		
1728	07-05	K-13/L-23	BQN/IFX		7V			1:04
1729	07-11	ASW-20	KB		2K	2:35		
1730	07-11	K-13	BQN		2K			:43
				Total	8	25:09		5:21

How far?

Distance

- It depends on your speed? How fast is a glider?
- Cruise vs XC speed
- OLC flights for 2025 in Ontario and Quebec
- Official (FAI) world record 3009 km in 2003

Page 1 of 1 12 items found, displaying all items

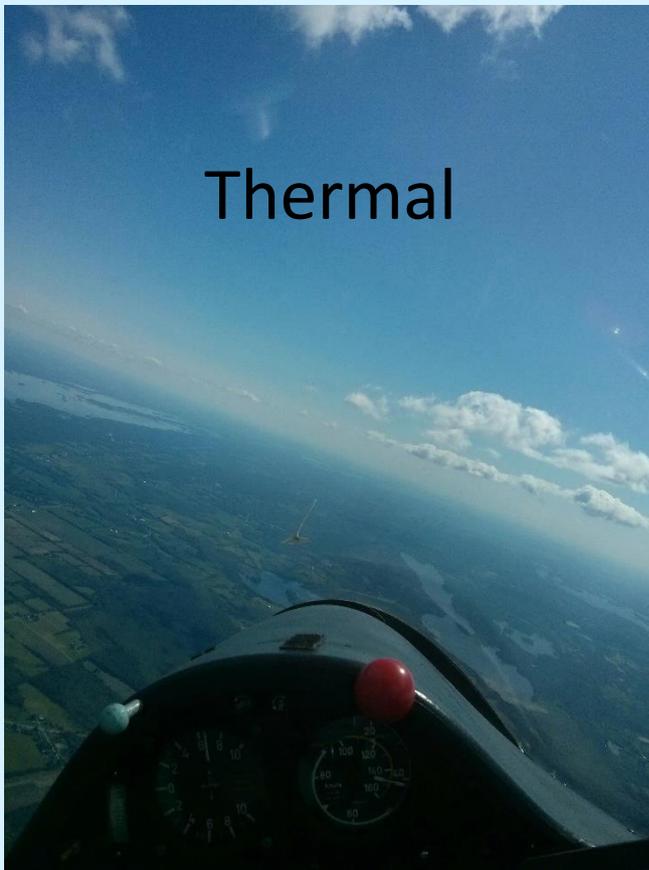
#	Points	Club	km	Flights	Pilots
+++NEWS+++  Latest News: 19. September <i>Continuation of the OLC</i> +++NEWS+++					
1	103,991.73	SOSA Gliding Club (ON/Q)	91,835.68	623	65
2	95,550.32	Montreal Soaring Council (ON/Q)	88,592.44	303	26
3	32,533.19	Club de Vol a Voile de Quebec (ON/Q)	29,600.52	292	27
4	31,017.79	Gatineau Gliding Club (ON/Q)	26,815.77	163	14
5	25,077.49	Association de Vol a Voile Champlain (ON/Q)	22,272.89	201	23
6	20,084.86	Rideau Valley Soaring (ON/Q)	17,054.89	83	12
7	18,759.13	Toronto Soaring Club (ON/Q)	15,761.43	84	17
8	8,743.61	Great Lakes Gliding (ON/Q)	7,883.46	38	6
9	4,520.23	York Soaring Association (ON/Q)	3,993.19	43	5
10	989.83	London Soaring Society (ON/Q)	740.50	5	1
11	338.28	ACE (Aeroclub Cantons de l'Est) (ON/Q)	310.43	2	1
12	0.00	Bonnechere Soaring (ON/Q)	26.73	1	1

Page 1 of 1 12 items found, displaying all items

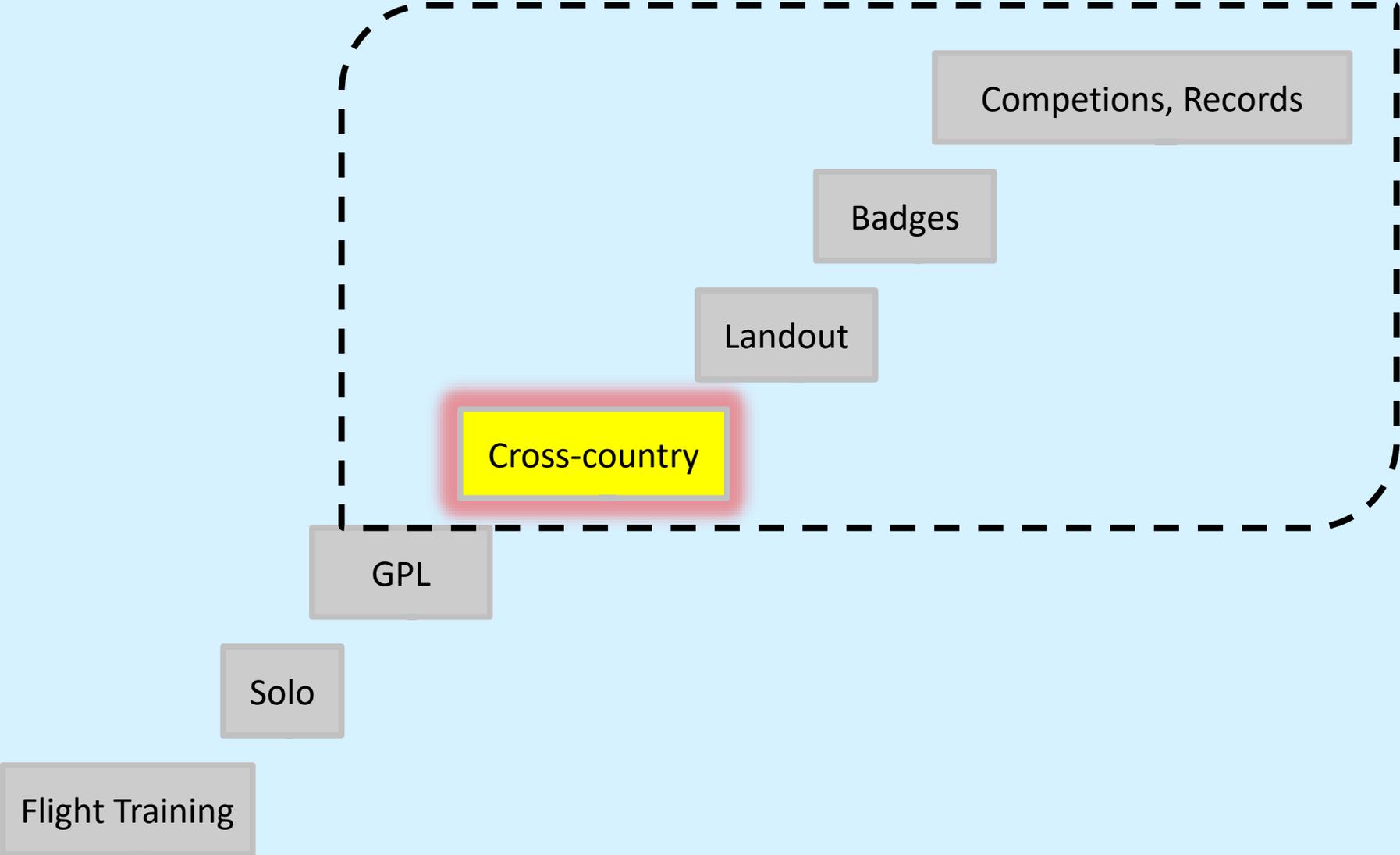
How high?

Height

- It depends on what provides the lift.
- 3 types of vertical lift
- Official (FAI) world record GAIN: 12894m in 1961



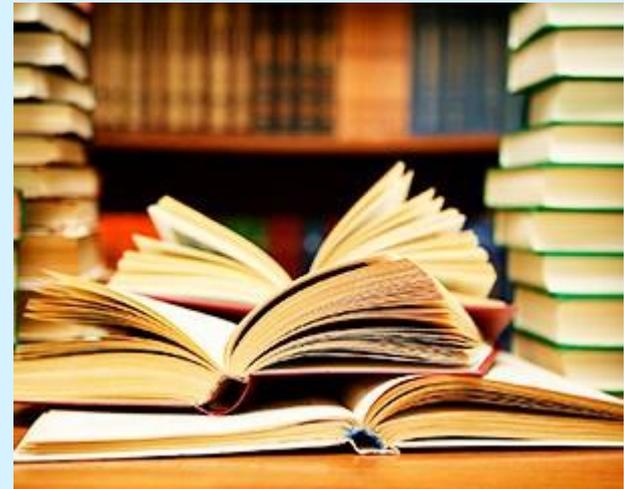
Soaring Career Milestones



A simple introduction

Topics in the Art of Soaring

- Meteorology
- Aeronautics
- Geography
- Technology, science and mathematics
- Strategy
- Safety
- Human Factor: Physiology & Psychology

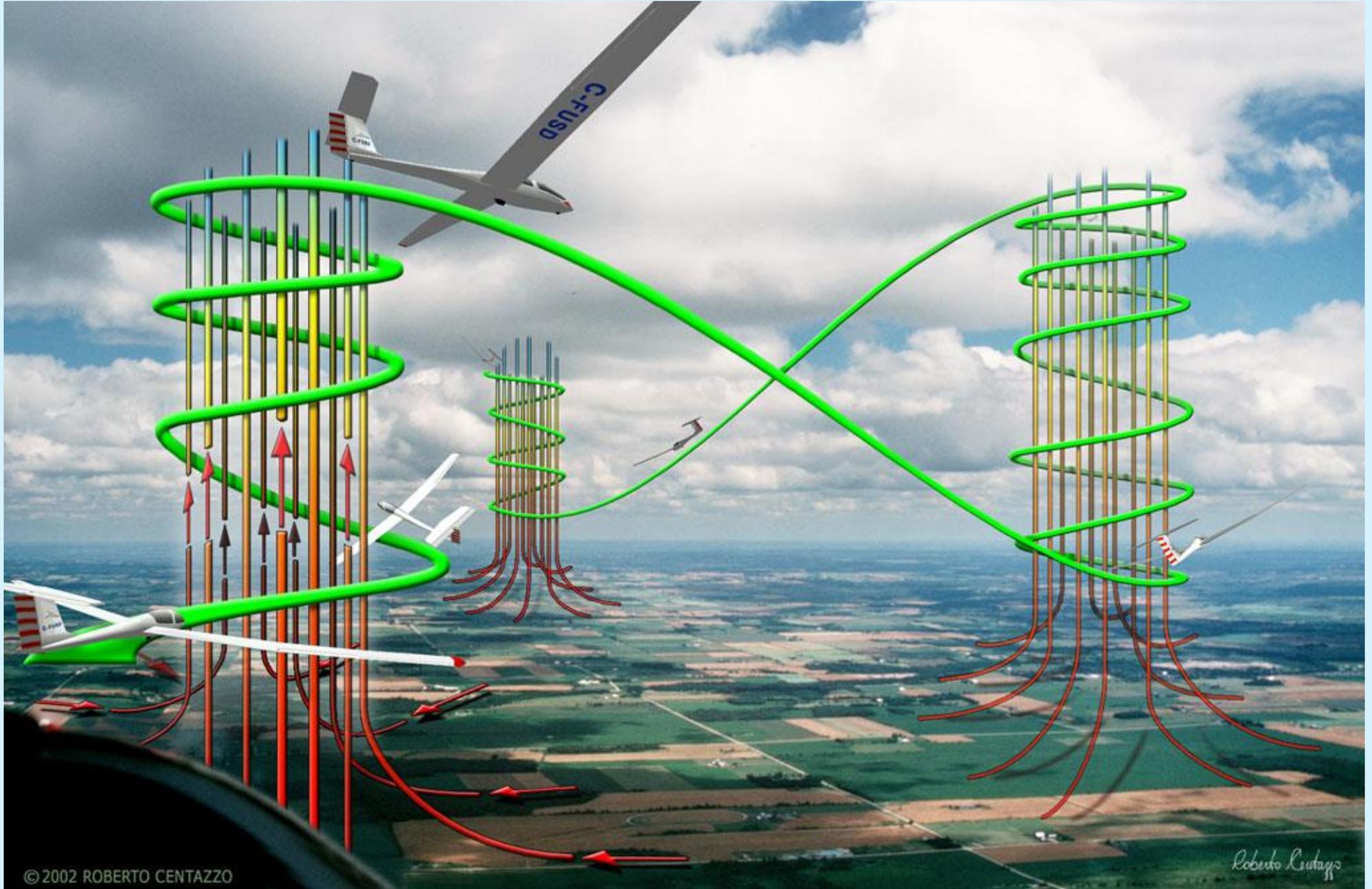


The Demanding Exercise of Soaring

- *Free as a bird*
- Flow: concentration and energy
- Practice. Practice. Practice

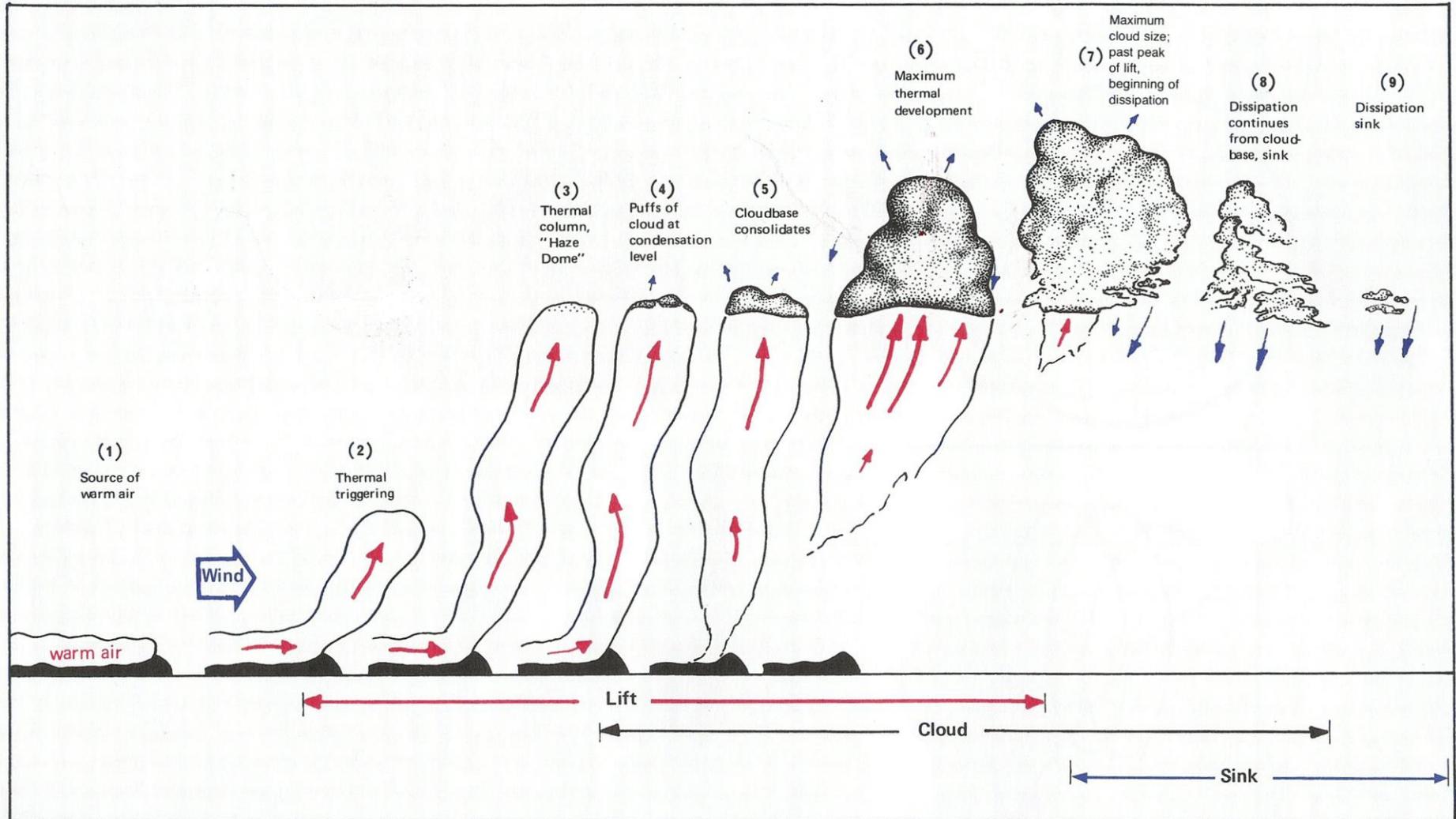


Thermal: Source of Energy



Life of a Thermal

Life cycle of thermals with Cumulus clouds



Clouds



« Boomer » Day



Blue Day



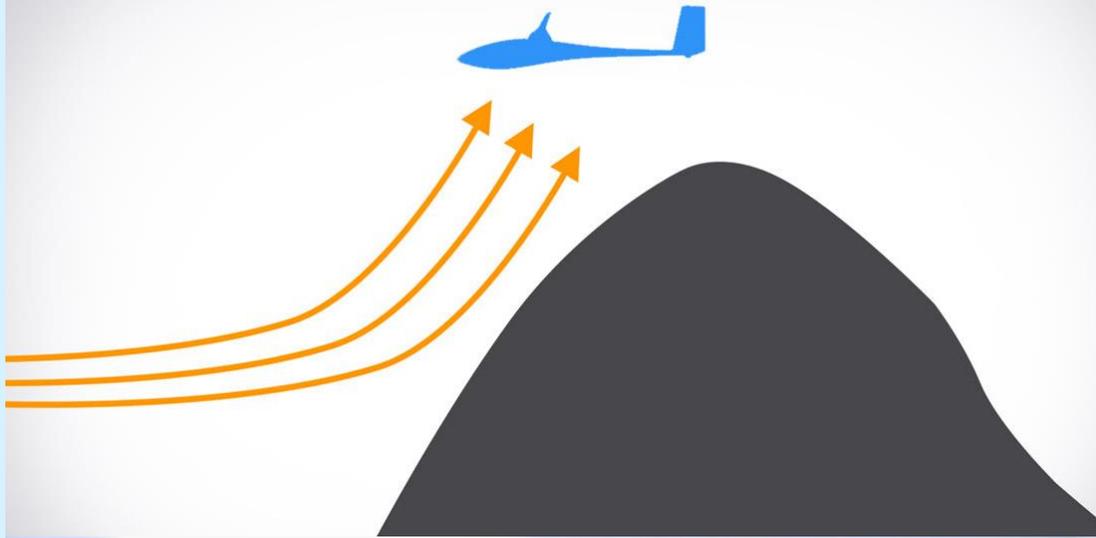
Cumulonimbus



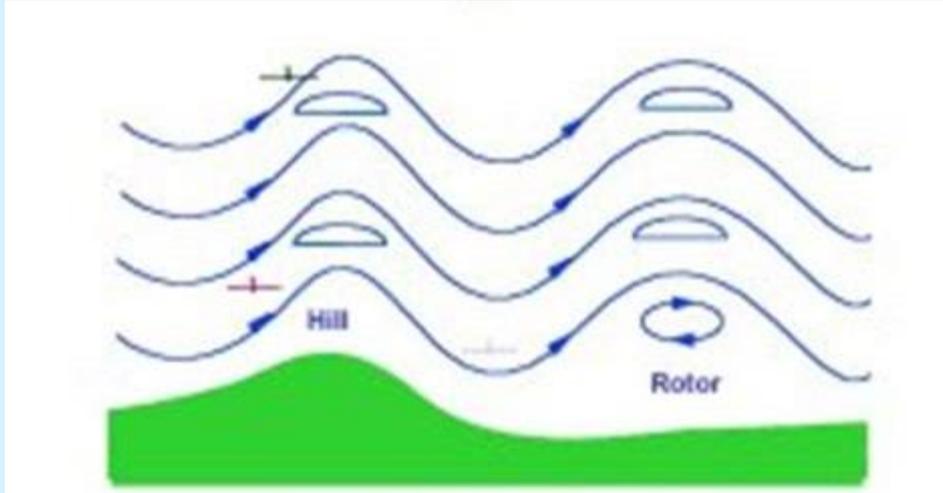
Cloud Street

Ridge

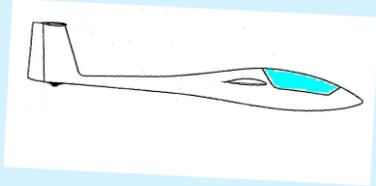
Ridge Lift - Windward Side Of Ridge



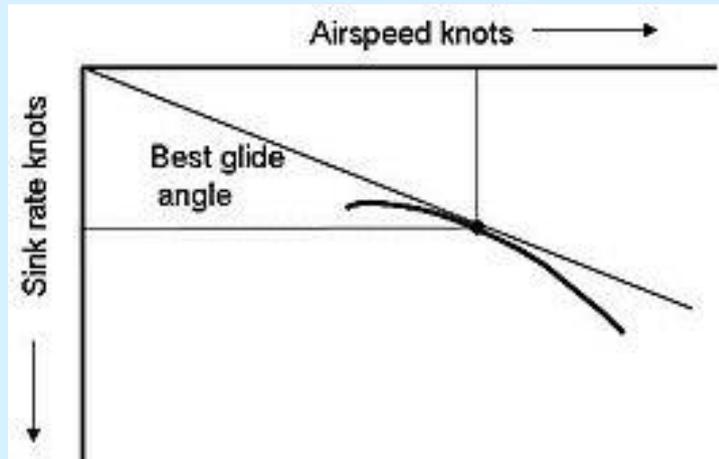
Wave



Glide Performance



$$L/D \approx \text{Finesse}$$



15:1



9:1



20:1



3:1

Typical gliders L/D



ASK-13 → 27:1



Puchacz → 30:1



Junior → 33:1



ASW-20 → 43:1



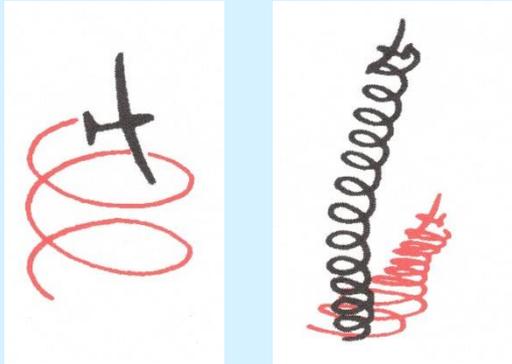
LAK-17 → 45:1



ASG-29 → 52:1

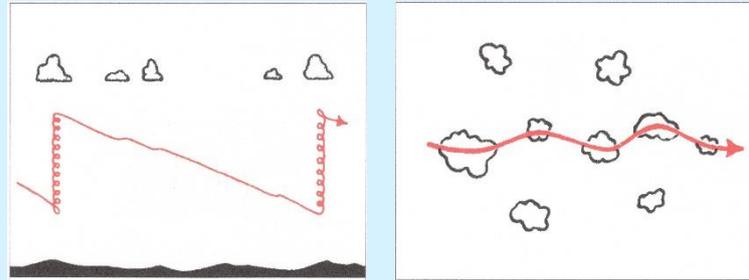
3 Phases of a XC flight

CLIMB



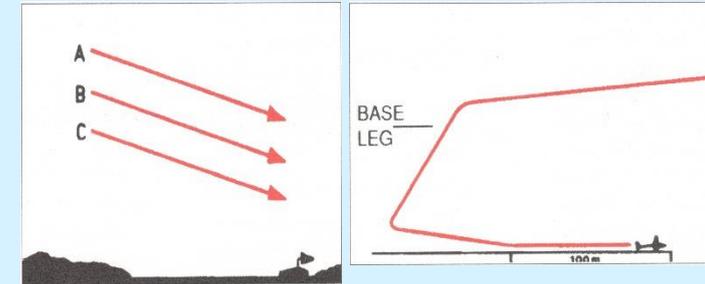
- Entering the thermal
- Centering the core
- turning direction
- Steep bank
- Minimum sink
- Gaggle flying
- Thermal strength
- Cloud base
- Cu, glider, bird, dust
- Plan for the next cloud
- Exiting the thermal
- Don't waste time i

CRUISE



- Choose next cloud
- Soaring Altitude band
- 30:1 – 10 km / 1000 ft
- McCready theory
- Cruise at best L/D
- Faster in sink, Into wind
- Slower In rising air or tail wind
- Feel the air
- Rising air
- Do not circle
- Avoid sink
- Dolphin flying

FINAL GLIDE



- No more climb needed
- From far away 30 – 75 km
- Marginal or conservative
- Relaxed or Anxious
- Plan for proper circuit
- Far-away strategy
- Close-by strategy
- Sight picture
- Fatigue
- Proper circuit

A Task

Date: 22 July 2025, 11:00-17:00

Distance: 421 km, FAI triangle

Duration: 5:51, 5:39 on task

XC Speed: 74 km/h

48 Thermals, 2:02

Climb: 38700', 286 fpm

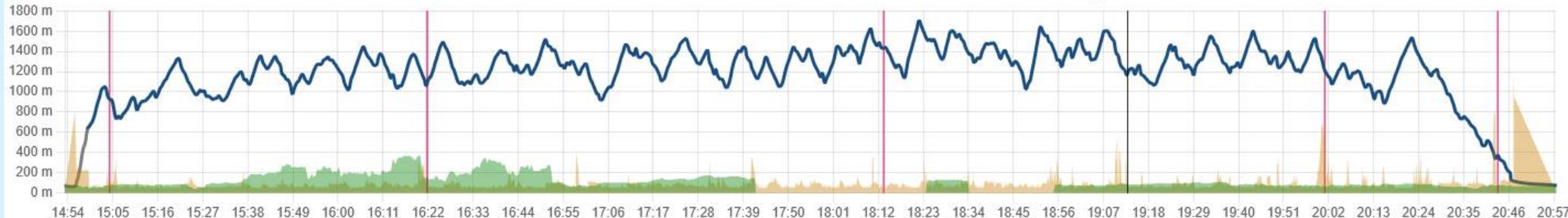
Cruise: 3:45h, 125 km/h

Alt: max: 5700 min: 2985

Glider: ASW20, KB



Karl Boutin MSL: 1192 m Vario: 1.0 m/s Vg: 110.2 km/h AGL: 1102 m Time: 19:12:53



XC Preparation

Plan

Weather forecast
Task choice
Timing
Check lists

Crew

Hangar
Launching
Team flying
Retrieve

Trailer

Road ready
Car, fuel and **Keys**
Maps & GPS
Equipment

Avionic

Battery
Flight Computer
Maps and *Rules of Thumb*
Task & Declaration
Vario, STF, GPS, FLARM
Download trace

Physiology

DRINK

Before the flight
Drink a lot
Water
Camelpack
Dehydration warnings

SUN & HEAT

Sunscreen
Clothing: Long & light
Hat: the *Bob*
Sunglasses

FOOD

Well fed
Healthy snacks
Sugar lows & high

COMFORT

Cushion and Parachute
Small cockpit
Peeing in flight!
Bug spray

Off-field Landing



Surface
Slope
Stock
Length
Obstacle
Wind
Elevation

Retrieve



Dolly...



Social Aspect of Soaring



Conclusion

- Safety First
- Personal Achievement
- Low cost flying
- Long history
- Further X-C training; Mentors, Bronze badge
- Proving Ground
- FAI Badges
 - Silver (50km, 5h duration, 1000m gain of height)
 - Gold (300km, 5h duration, 3000m gain of height)
 - Diamond (300km to a goal, 500km, 5000m gain of height)
- Contest: Mayfly, Nationals,
- Travel opportunity
 - LKP, PA ridge, NA
 - France (St-Auban), Chili, AU, NZ, Namibia