

Soaring in Nova Scotia and Away

By Larry Bogan
Scotia Eagles, EAA1051
7 February 2023



C-FVKA Schleicher Ka6e

Larry at 13,000 ft over Vermont

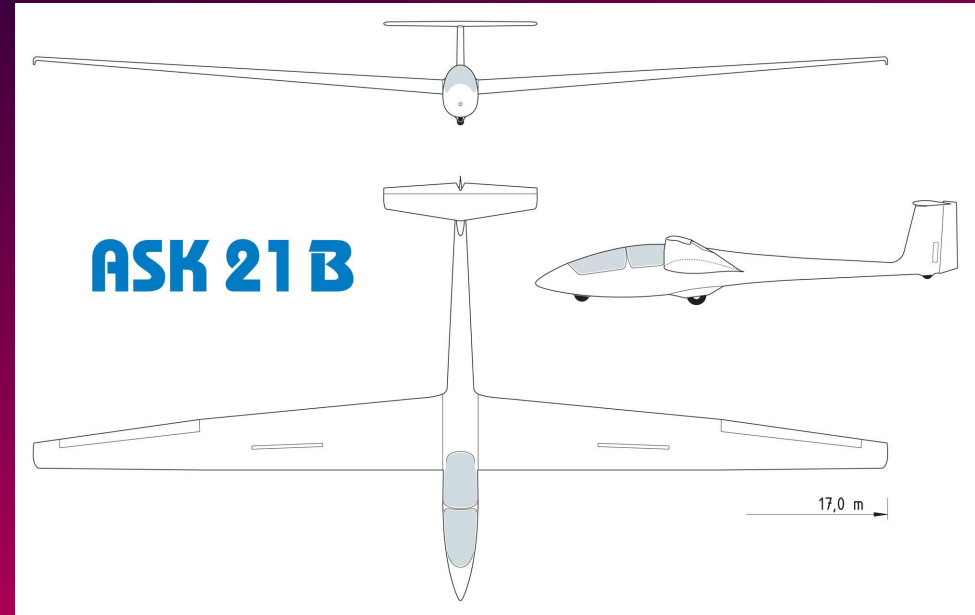
- **Glider License:** Ground School & Flight Training 1992-3
- Bluenose Soaring Club (BSC) Stanley Airport
- Purchase Share of a Schleicher Ka6e (C-FVKA)
- Soaring Association of Canada (SAC) Instructor 1997
- Join White Sands Soaring Association 2003
- BSC Chief Flight Instructor 2003
- 2005 – BSC disbands
- Fly with ACES at Debert Airport
- Last soaring flight in Nova Scotia 2010
- 2011 Sold C-FVKA
- Soaring in N.M. and VT 2000-2020
- Last soaring flight 2020 (New Mexico)

- 950 hrs 1650 flights
- 18 gliders types
- 10 locations
- Longest duration 7.5 hrs
- Highest flight 17,600 ft

Sailplanes (Gliders)

An example:

- **Technical Data – Popular Trainer**
- Span 17 m 55.7 ft
- Wing area 17.95m² 193 sqft
- Wing aspect ratio 16.1
- Empty mass 360 kg 794 lbs
- Max. take-off mass 600 kg 1323 lbs
- Max. wing loading 33 kg/m² 6.75 lbs/sqft
- Useful load, max. 2 x 110 kg 2 x 242 lbs
- Max. speed 280 km/h 151 kts
- Min. sink 0.65 m/s 128 ft/min
- Best glide ratio 34



Soaring Training

- Club Based
 - **Bluenose Soaring Club** (Stanley Airport – 1976 to 2005)
 - Club Aircraft, Instructors, Launch Capability, Storage, Maintenance
 - Air Currency Enhancement Society (Debert 1990 -)
- Soaring Association of Canada set standards for Clubs
 - Instruction methods and manuals
 - Instructor training
 - Insurance, competitions, and magazine exams and licensing by Nav Canada,
- Advanced Training:
 - Soaring Techniques,
 - Cross Country



Soaring versus Gliding

Character

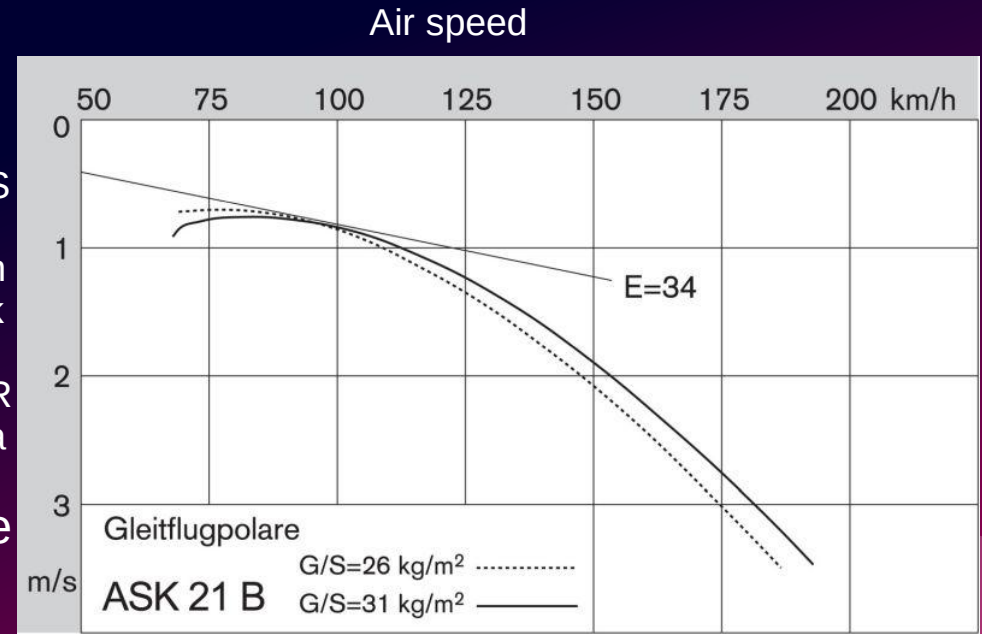
- A Sport involving unpowered flight
- Reliant on weather and air currents

Methodology

- Maximize Energy (height)
- Fly efficiently
- Know and be Aware of Microclimates

Rising-Air Sources

- Thermals (up to 18,000 ft)
- Ridge Lift (500 ft above ridge)
- Wave (5000 – > 25,000 ft)
- Convergence of currents

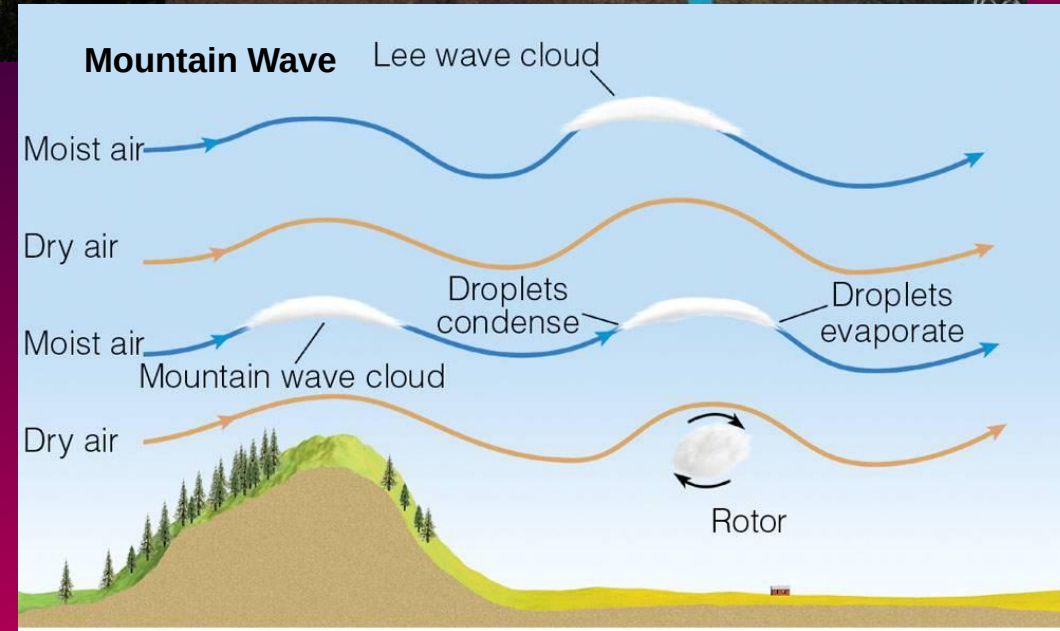
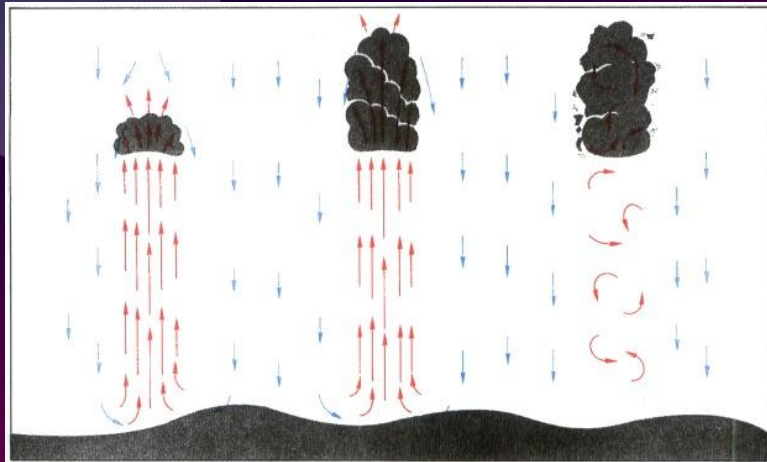
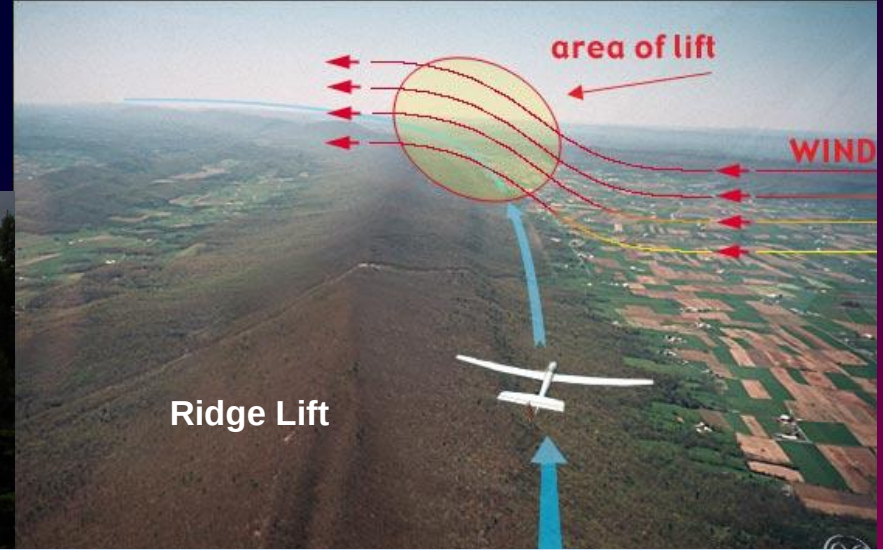


Gliding example:

2000 ft tow L/D = 30 Speed 42 kts
1200 ft = 0.2 nm → 6 nm flight → 1/7
hour = 9 minutes

Soaring: continual renewal of height
→ hours limited by weather

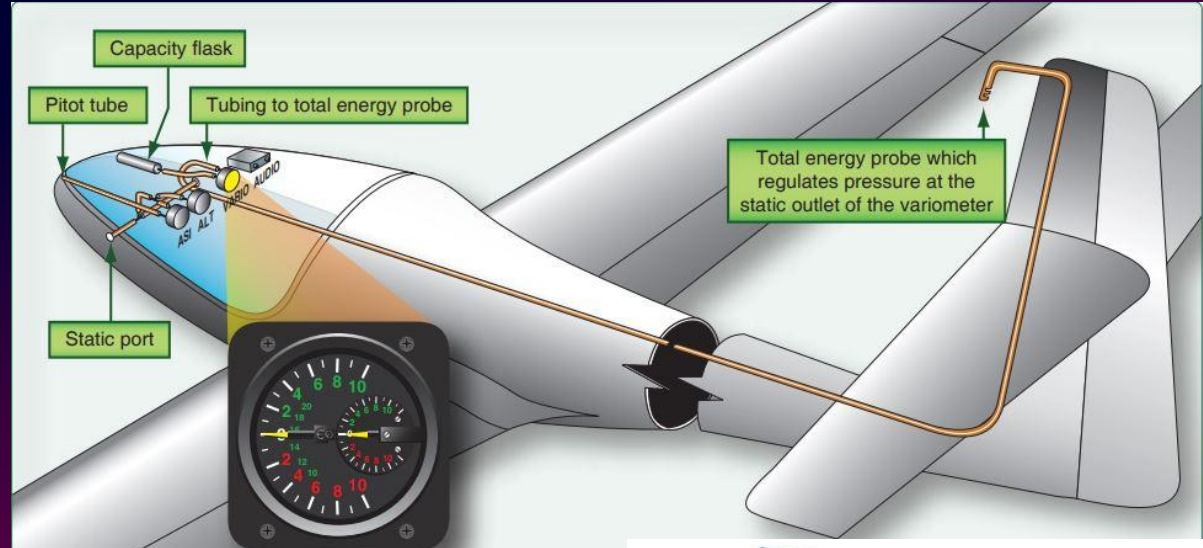
Lift = Soaring's Energy



Essential Instrument - Variometer

Sensitive Vertical Speed Indicator

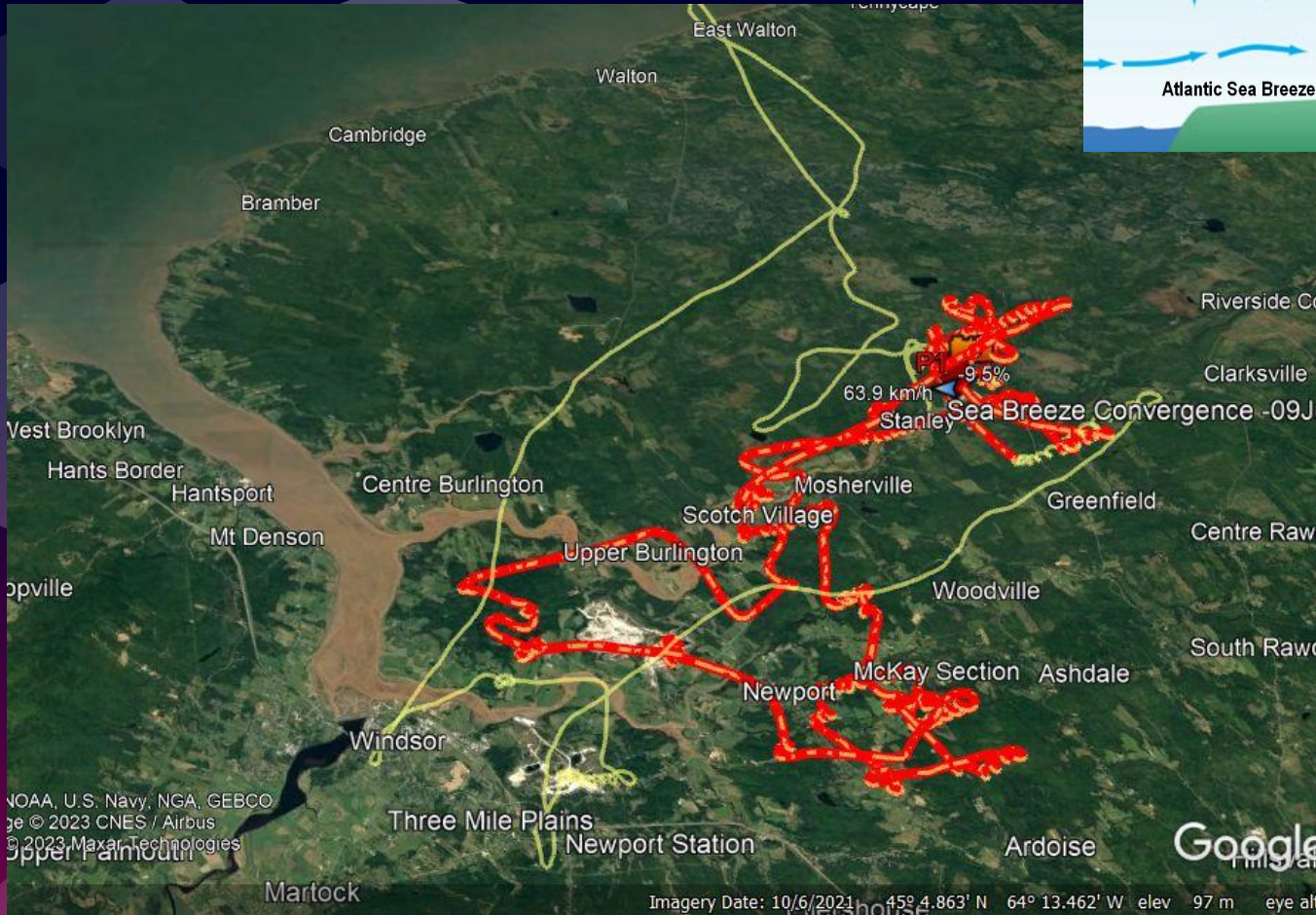
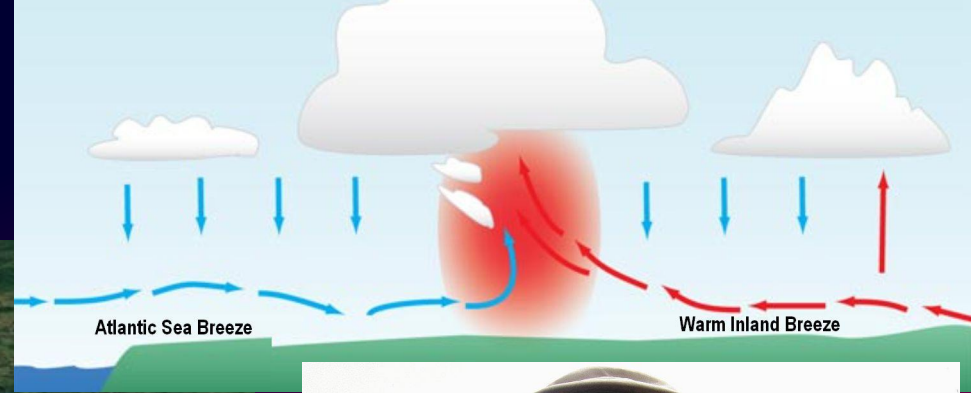
- Total Energy Compensated
- Mechanical and Electrical Varios
- Electric provides audio tones for heads-up flying
- Electric has faster response



GPS and Flight Computers
Have replaced maps and analytical
functions

Sea Breeze Convergence

Another Form of Lift



09 July 2000 – Stanley Aerodrome

1. Winch Launch into a SW breeze from the South
2. Quickly found a thermal to the east - climbed to 1540 m (5000 ft)
3. Flew thermals to Ellershouse, over Windsor and back to Stanley 2.5 hrs
Lost Altitude to 900m (3000 ft) 1/2 hr

Sea Breeze Flight - Heights

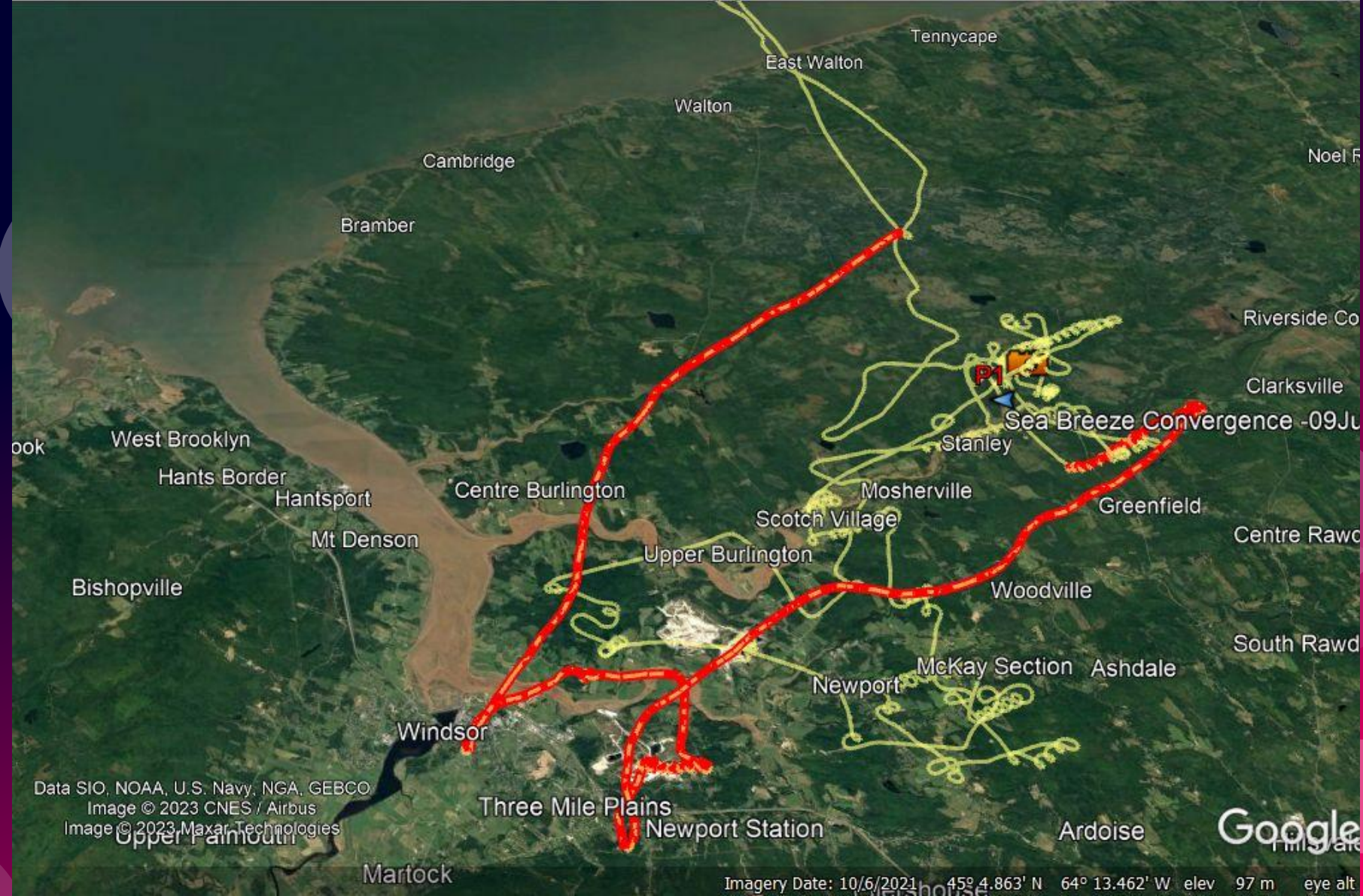


alt 55.49 km

Graph: Min, Avg, Max Elevation: 35, 1487, 2096 m Speed: 17.2, 73.5, 122.6 km/h
Range Totals: Distance: 317 km Elev Gain/Loss: 6911 m, -6904 m Max Slope: 44.5%, -12.6% Avg Slope: 4.9%, -3.1% Time: 4h 19m 3s



- 5. Caught thermal up 1000 m (3300 ft) under cloud street perpendicular the the SW breeze over Greenfield.
- 6. Flew to Windsor and Back in the next hour under a cloud shelf
 - a. Breeze Front shifted north during the hour
 - b. The return flight ended north of Stanley
 - c. Travelled 60 km and gained 140 m in height.



7. North of Stanley I left the convergences and flew north to Walton 15 km

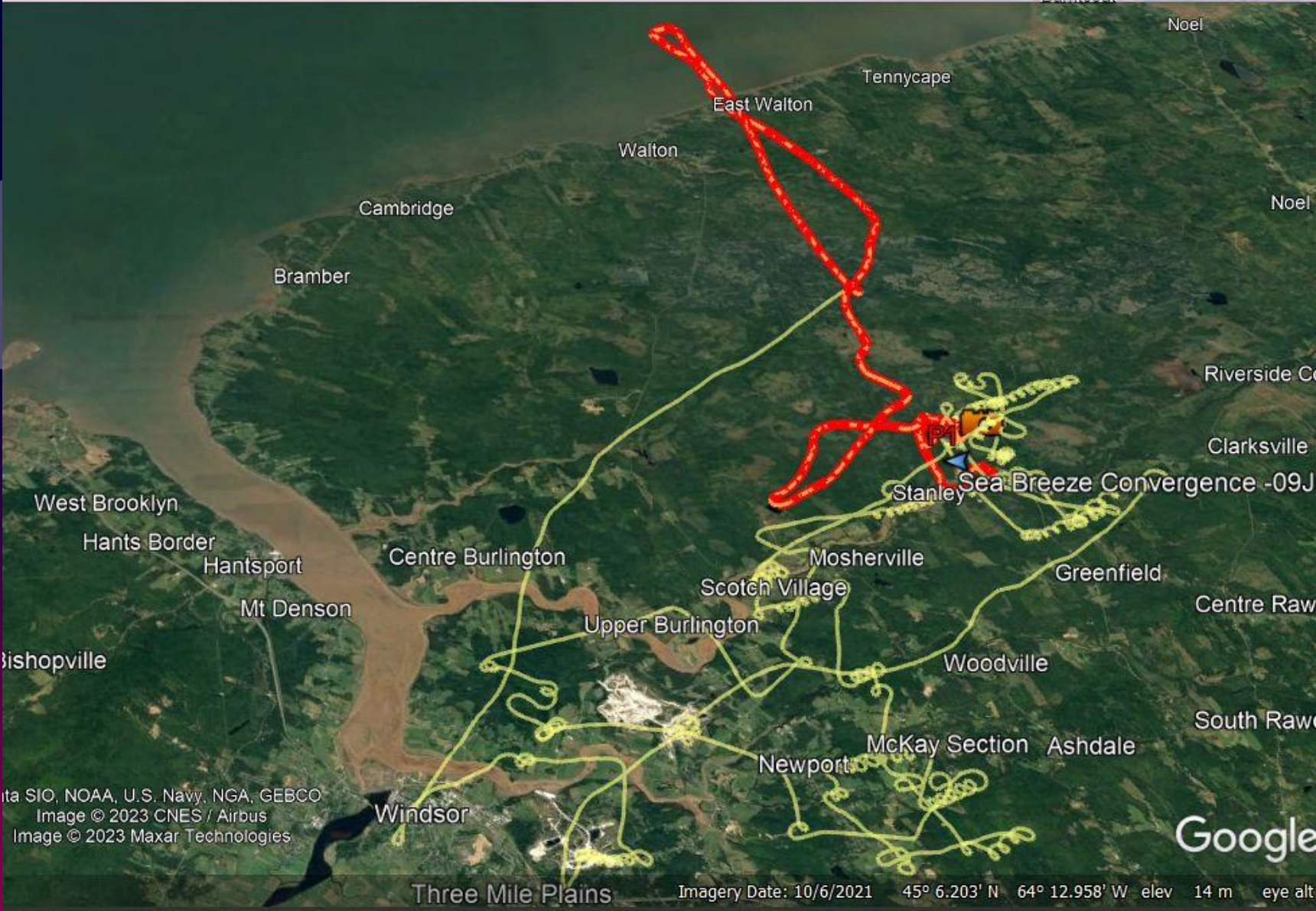
a. No lift in this flight to the Minas Basin shore – Ka6e L/D=33 → > 9km/1000ft 7000 ft -1000ft could travel 60 km

b. gained 120m in 3.5 km straight flight on the way south.

c. Still at 1100 m (3500 ft) over stanley

8. Played around and lost height to land

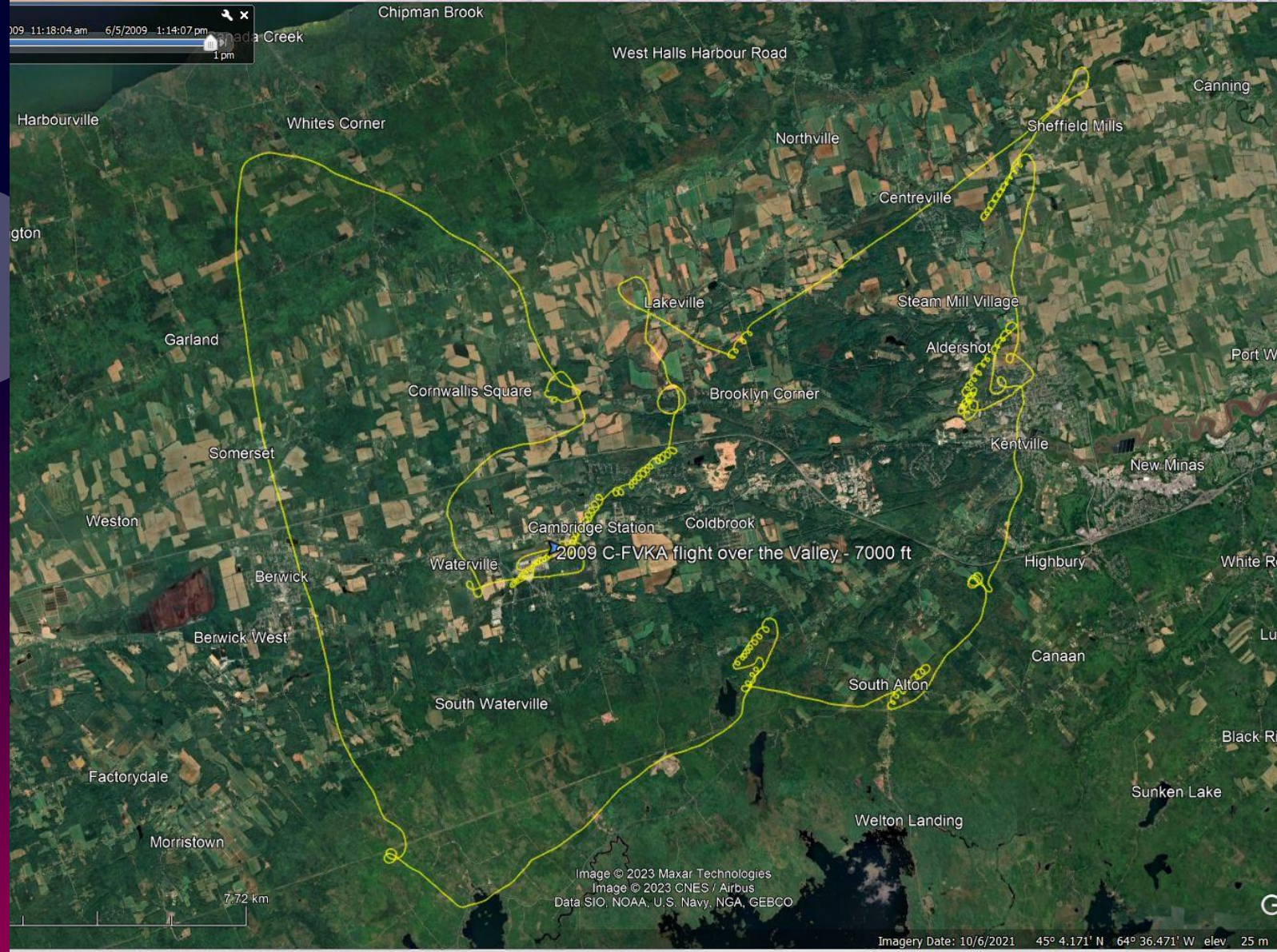
9. Travelled 318 km in 4.3 hr, gained 6900 ft

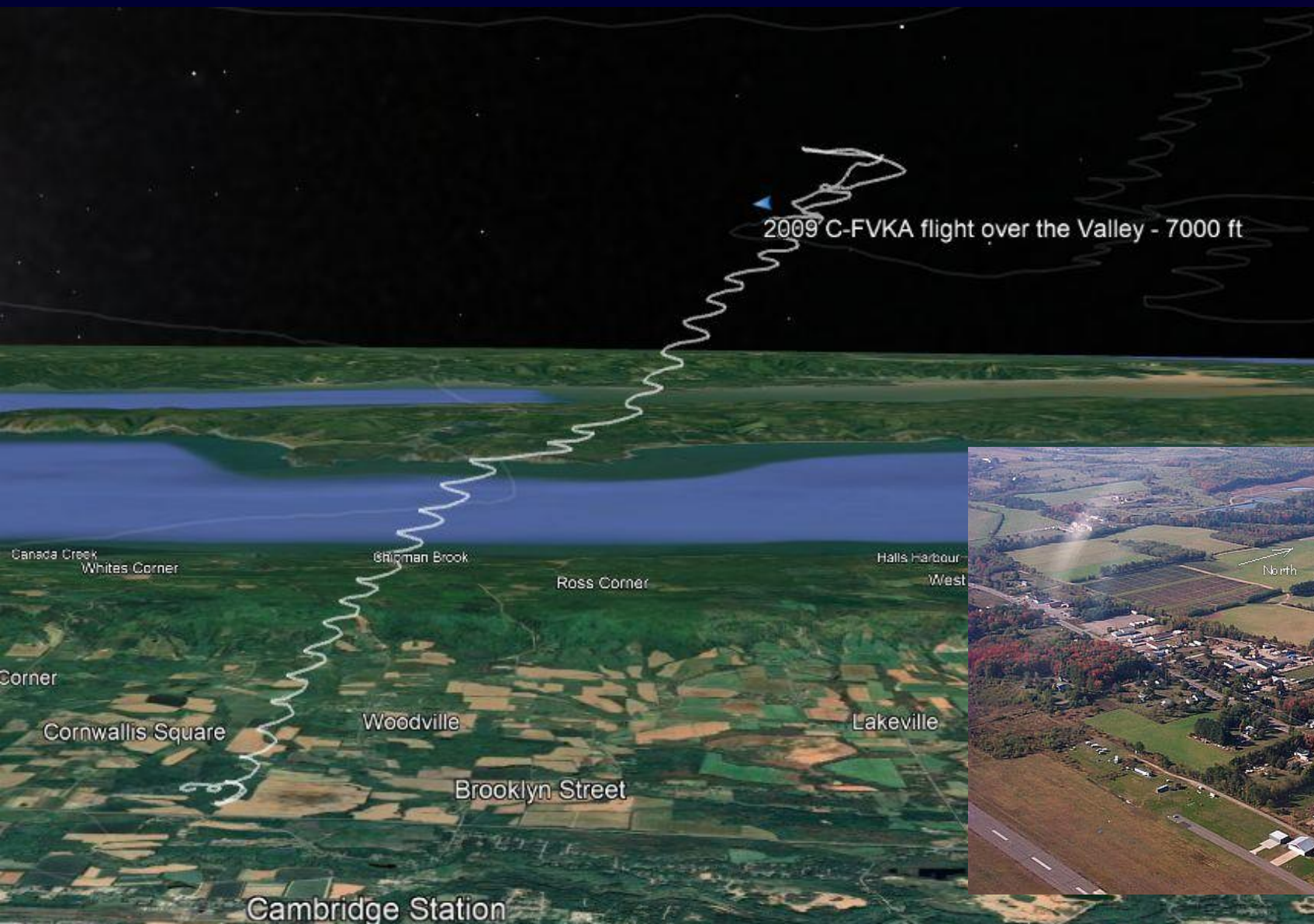


Annapolis Valley Thermalling

5 June 2009
C-FVKA winch launch
From Waterville AP

After BSC stopped – Winch
parked in my backyard-
Former member BSC
launched me to 1500ft





Gained 5560 ft in 26 turns drifted down wind 4.7 km in 11.8 min. Climb 4.7 kts in 14 kt SW breeze





Fog layer from Bay of Fundy



View to North Mtn fog layer from near cloud base



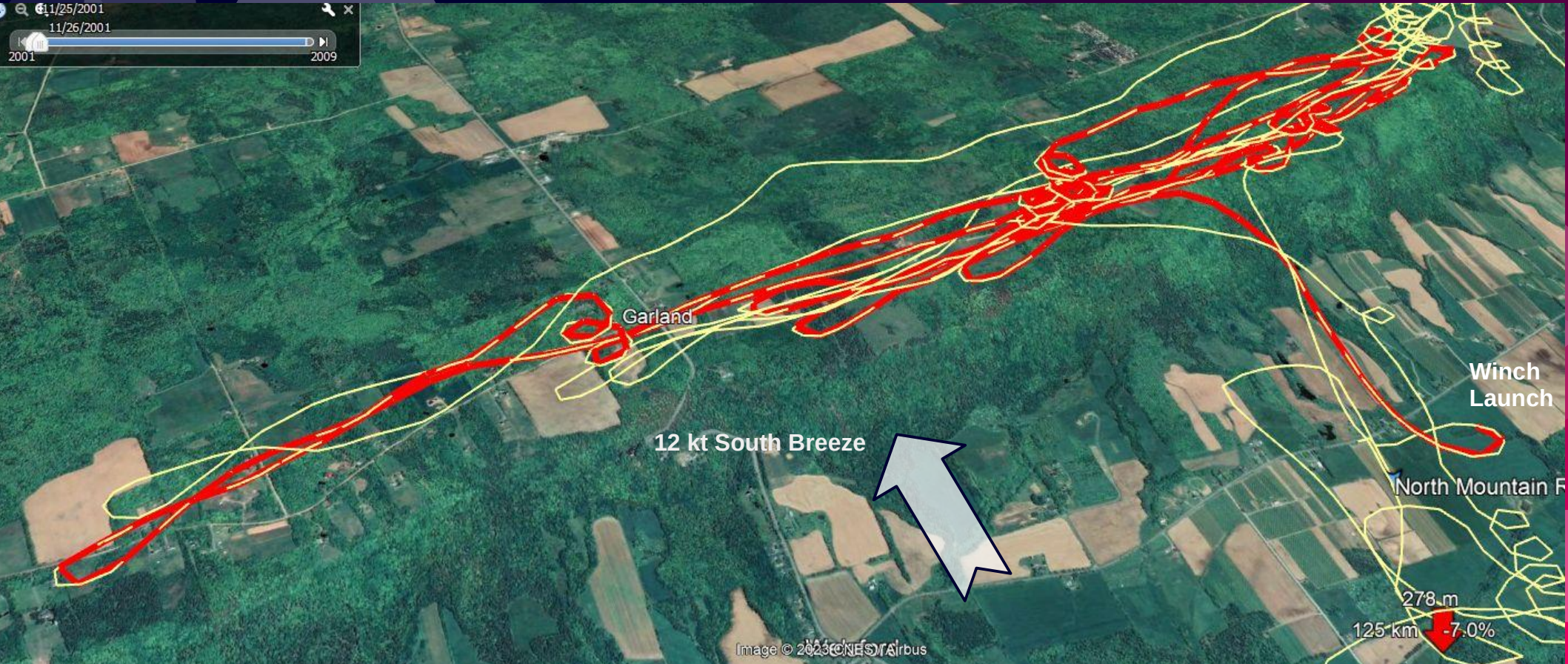
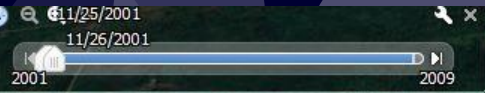
View to Minas Basin from 6000 ft



Gaspereau Lake

North Mountain Ridge Soaring – 25 Oct 2001

Welsford, Kings Co, N.S.



Harbourville

Base Line Road

Garland

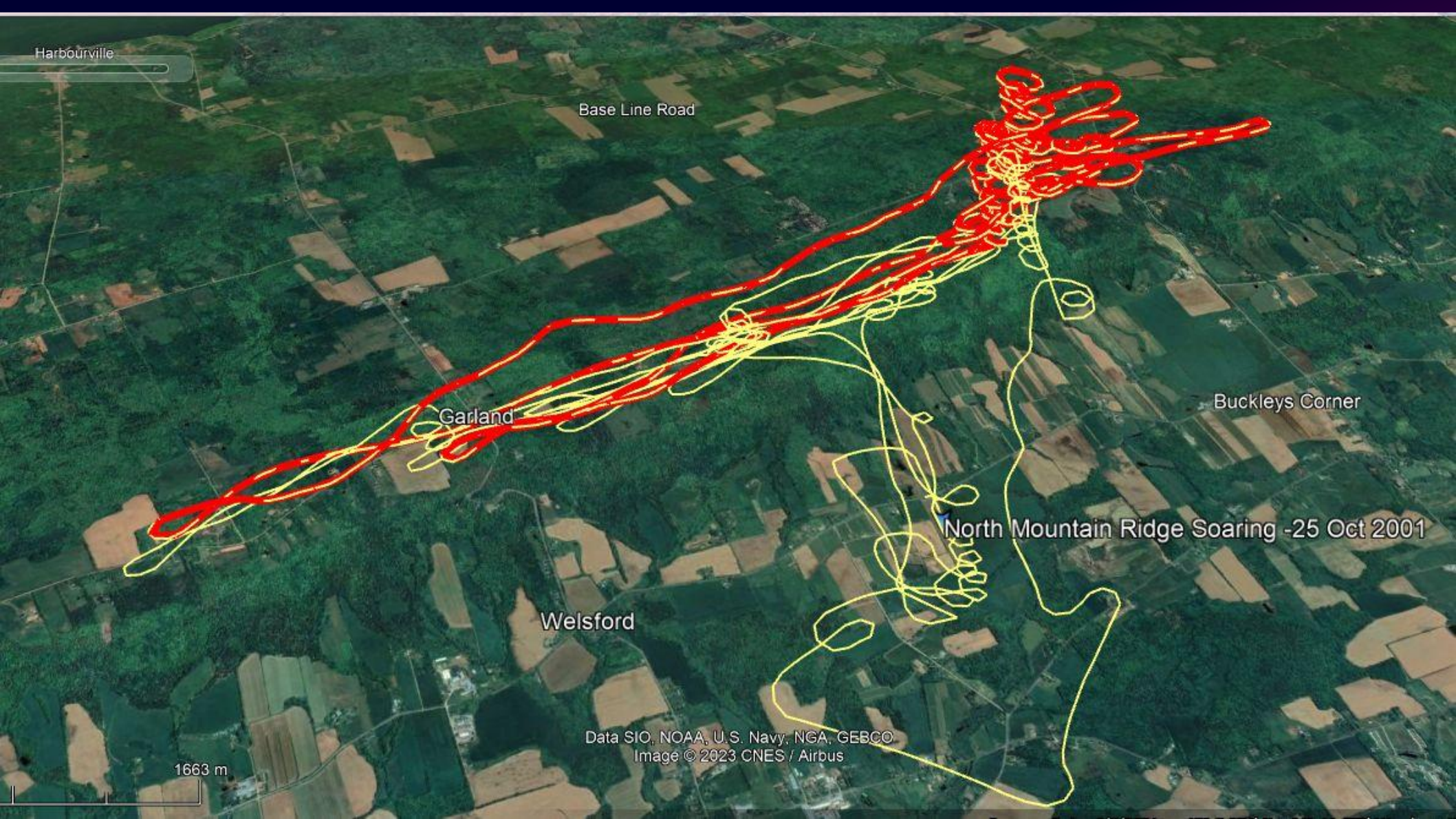
Buckleys Corner

North Mountain Ridge Soaring -25 Oct 2001

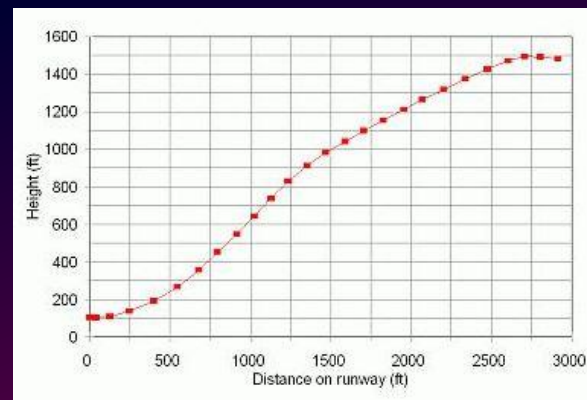
Welsford

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2023 CNES / Airbus

1663 m

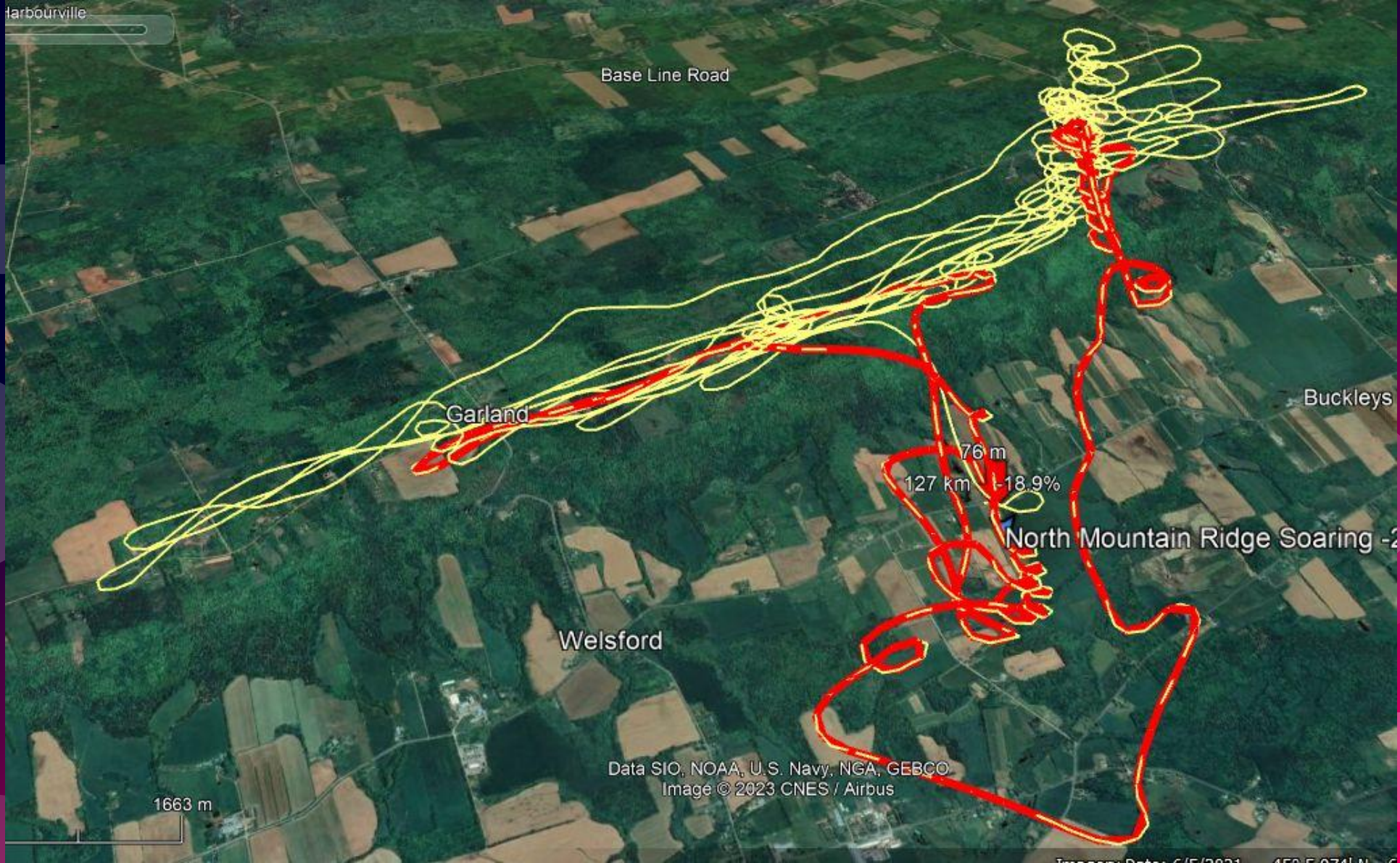


Ridge Flight Altitudes



Typical winch launch





Base Line Road

Garland

Welsford

Buckleys

76 m

127 km

-18.9%

North Mountain Ridge Soaring -2

1663 m

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2023 CNES / Airbus



West Ridge, Mad River Valley, VT

Soaring Outside Nova Scotia Vermont and New Mexico

- 15 winter visits to Alamogordo, New Mexico
– White Sands Soaring Association 2001-2020
- 10 October visits to Warren, Vermont
– Sugarbush Soaring 2000 - 2014



K6e at Sugarbush, VT view to east ridge



White Sands Soaring Blanik and Sacramento Mtns, NM



Grob Twin 103



New Mexico Tularosa Basin and Sacramento Mtns.

Aerotow White Sands Soaring Association



Alamogordo Airport 4200 ft MSL

Flight to Sierra Blanca

Grob 103 Twin - 7 April 2013 (No GPS track taken)
Sacramento Mountains to Sierra Blanca (12,000 ft)
Then south past Sunspot (10,000 ft) and over Tiberon



Alamogordo to Sierra Blanca 62 km
Sierra Blanca to Tiberon 84 km
Tiberon to Alamogordo 35 km
Flight over 200 km.





Larry in E4



Grob 102 Astir



View to Sacramento Mtn
foothills and canyons (7000ft)
with higher 10,000 level
beyond



Vermont Flights

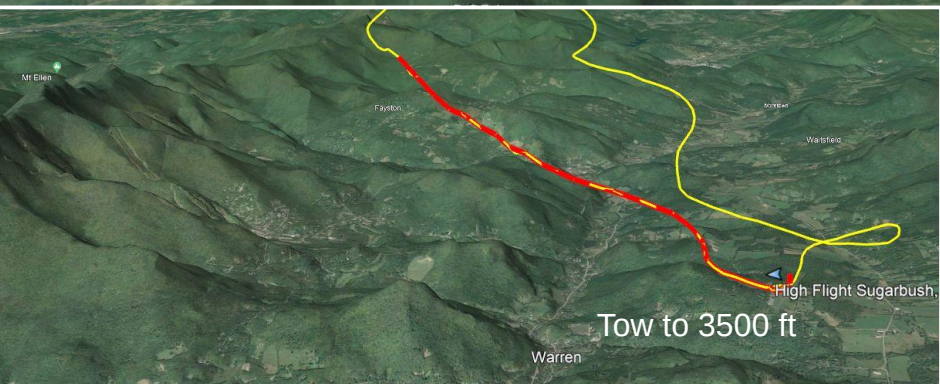
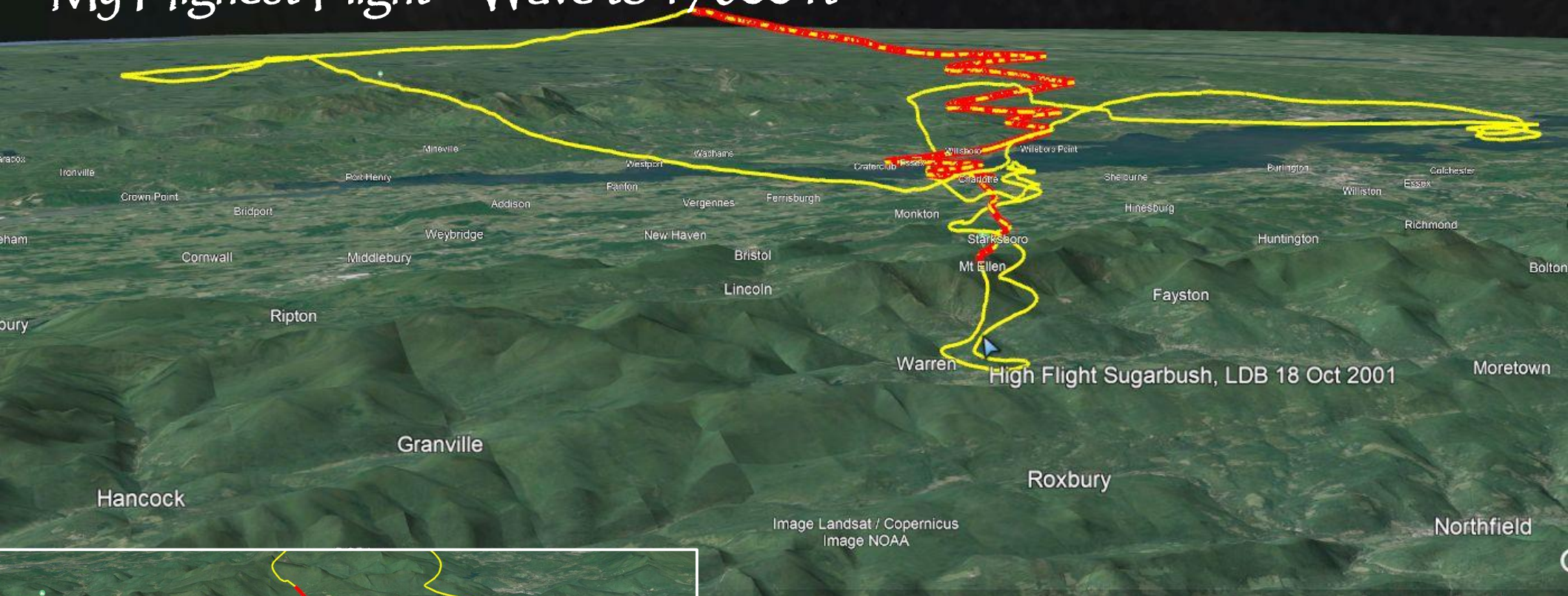


Sugarbush VT Crew 2000-2

- 1) Fred Huenl
- 2) Tom Foote
- 3) Doug Gerard
- 4) Larry Bogan



My Highest Flight ~ Wave to 17600 ft



18 October 2001- Sugarbush Soaring

- 40-50 kts NW winds aloft predicted wave day.
- South wind on the field. 3500 ft tow into wave with 6-8 kt lift
- Climb to 17600 ft with oxygen (pulled spoilers to stay below 18K)

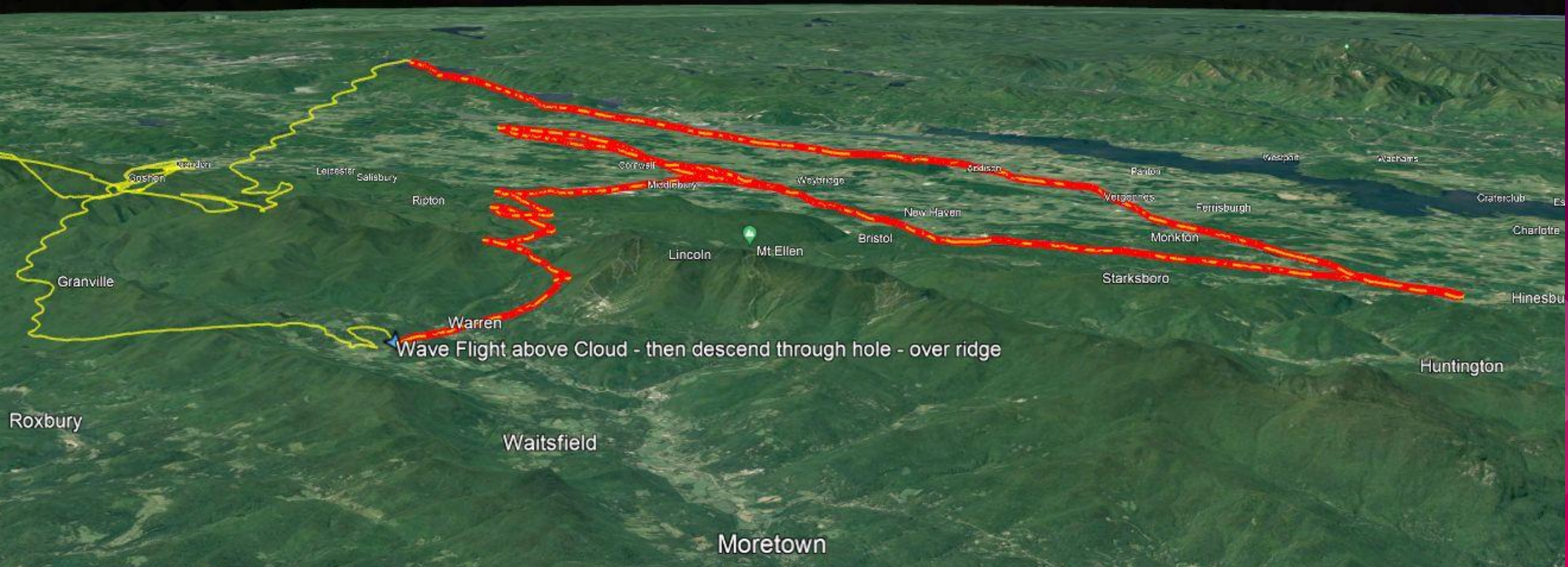
Altitude versus Distance ~ 17,600 ft flight



Soaring Above Clouds



The Hole Closes ~ 13000 ft Wave Flight

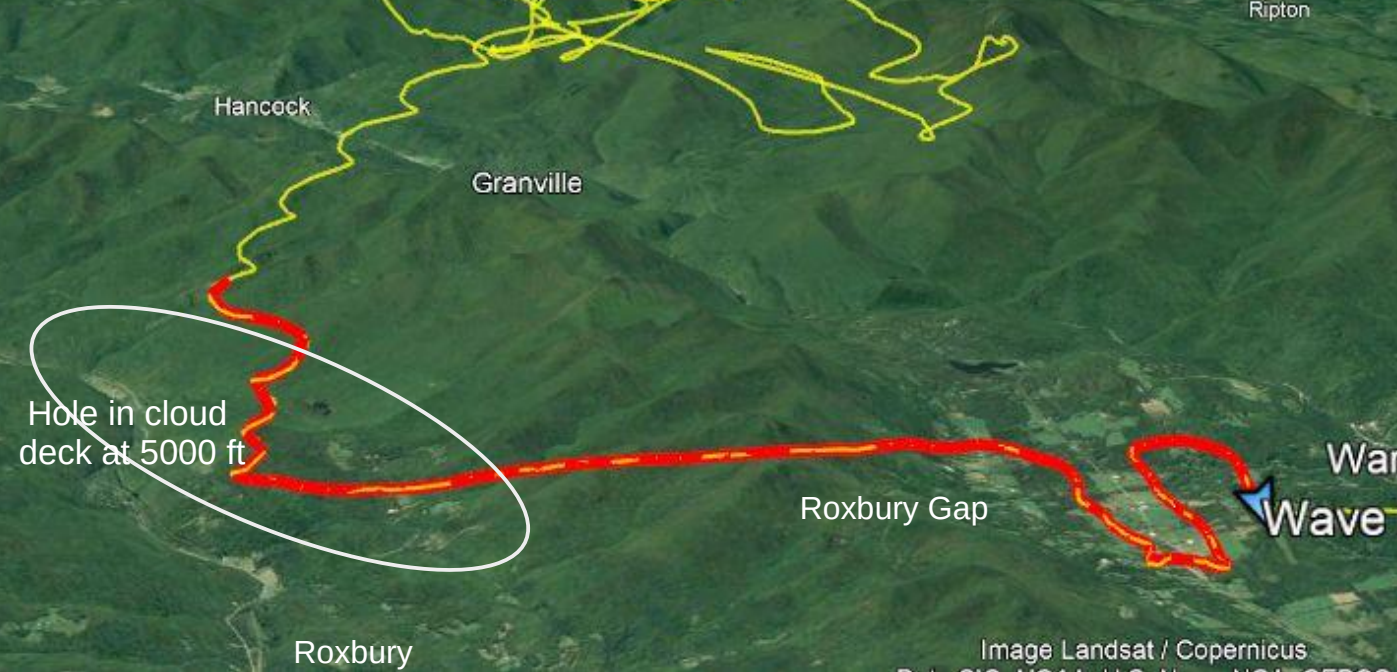


21 October 2006 - Cloud Cover: A west wind over West Ridge gave wave lift and creating a hole over the airport

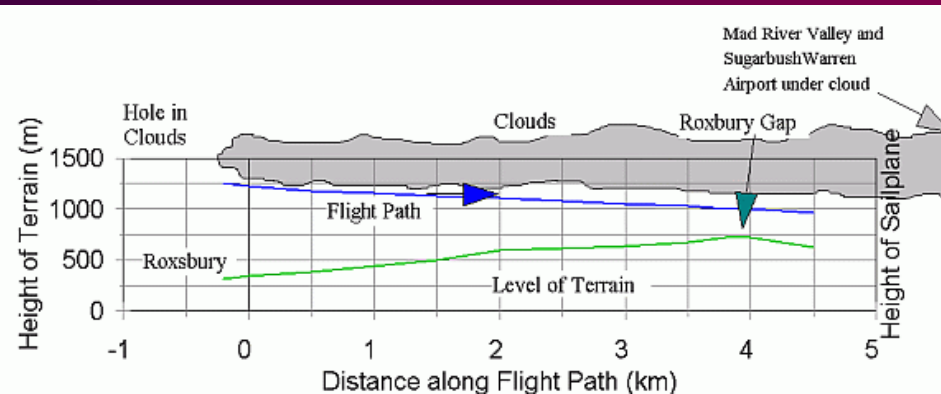
Towed up through hole into wave and climbed to 10Kft the flew 40 km north Turned around near Camels Hump and headed back climbing in wave to 13Kft

- Hole over Warren Airport closing so I flew downwind, descending to 8000 ft and a hole over Roxbury. The next valley East.
- I flew in wave (secondary?) there and climbed to 10 Kft, watching the hole. Winds were westerly at about 50 kts at that height.
- I decided to drop through the hole over Roxbury, and cleared cloud at 4000 ft.





- At cloud base I headed west 5 km to the Roxbury Gap (2500 ft MSL) and kept best glide with a crossing of the ridge at 3300 ft (clearing by 800 ft).
- What a relief to see the airport and make an easy landing.



Really Spectacular Soaring 1



- 1000 km flight in 9 hours on June 2003 in New Mexico
- Orogrande (south of Alamogordo) to Taos NM and back.
- Alvin Kroh in Nimbus Sailplane (German pilot visiting N.M.)
- Flight done on thermal with Max 18,000 ft

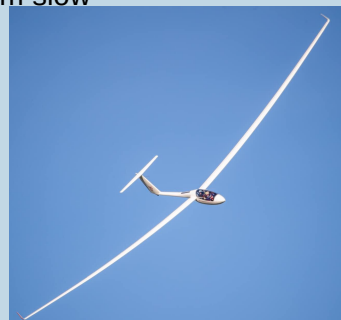
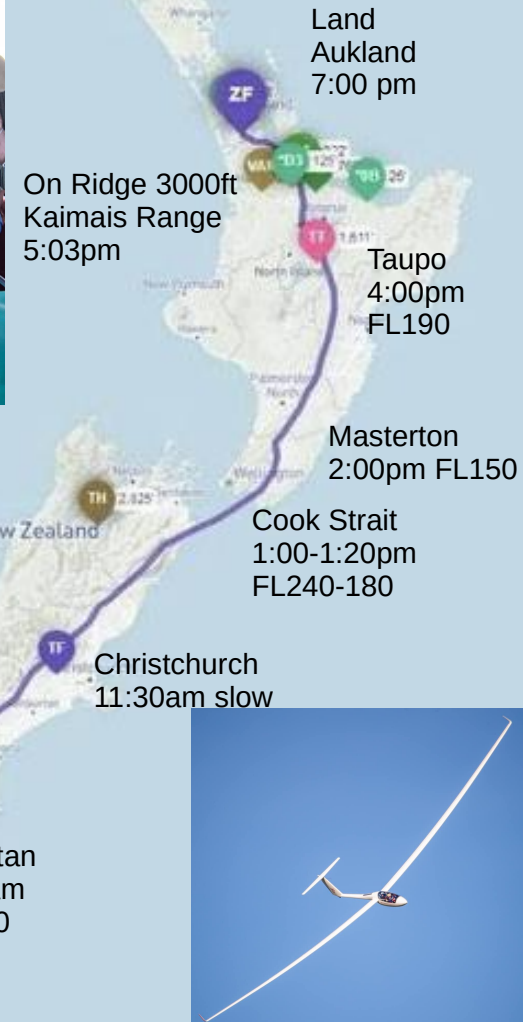
World record distance:

- 3,009 km
- Chapelco Airport San Martín de los Andes (Argentina)
- Schempp-Hirth Nimbus 4 DM
- Used Mountain Wave
- 21 January 2003

Really Spectacular Soaring 2

- Soaring Flight the length of New Zealand 5 am to 7 pm
- Terry and Abbe Delore - December 2021 (Summer)
ASW 25 (25 meter wingspan)
- Wave lift from the South Island Alps and North Island ridges
- First Thermal not until 4:49 pm at Tokora, North Island
See video of ridge run <https://fb.watch/ipe0QzRPGG/>
- Distance: 1753 km in 14 hours

(Note: Terry Delore set a distance record in N.Z of 2193 km in Dec 2004)



- Study the Stratosphere in the Andes – The Airbus - Perlan Project

- El Calafate, Argentina
- Downwind of Andes
- Below the Antarctic Polar Vortex (110 kts)

- <https://perlanproject.org>
- Perlan 1 – DG505 to 50,000 ft (2006)
- Perlan 2 – Special glider built to fly in Stratosphere 90,000 ft
- 52,000 ft in 2017 in Argentina
- 2018 – Argentine Andes records (Aerotow up to 47,000 ft)
 - 61,900 ft
 - 65,600 ft ($P = 0.8 \text{ lb/in}^2$)
 - 76,100 ft ($P = 0.5 \text{ lb/in}^2$)
- At 90,000 ft (2% atmosphere)



Really Spectacular Soaring 3



Note: Sealevel Pressure ~ 15 lb/in^2

Links and Resources

- Nova Scotia Soaring History (Bluenose Soaring Club +)
<https://nature1st.net/soarns/index.php?id=recent-ns-soaring-history>

YouTube.com (Videos of Soaring with a pilot in a sailplane)

- Stefan Langer (German pilot shows different flying environments, sailplanes and techniques)
<https://www.youtube.com/@SteFly>
- Flying NZ Coast Surfing the Coast of New Zealand by Sailplane – YouTube
- Bruno Vassel (Western US sailplane pilot shows long flights in spectacular environments)
[Bruno Vassel - YouTube Channel](#)
- Rudi's Gliding Adventures (German Soaring Pilot with flights and instruction)
<https://www.youtube.com/@RudisGlidingAdventures>
- Other Links
 - Soaring Association of Canada (<https://sac.ca>)
 - Soaring Society of America (<https://ssa.org>)

I hope you see that soaring is a fabulous way to
enjoy flight

The End