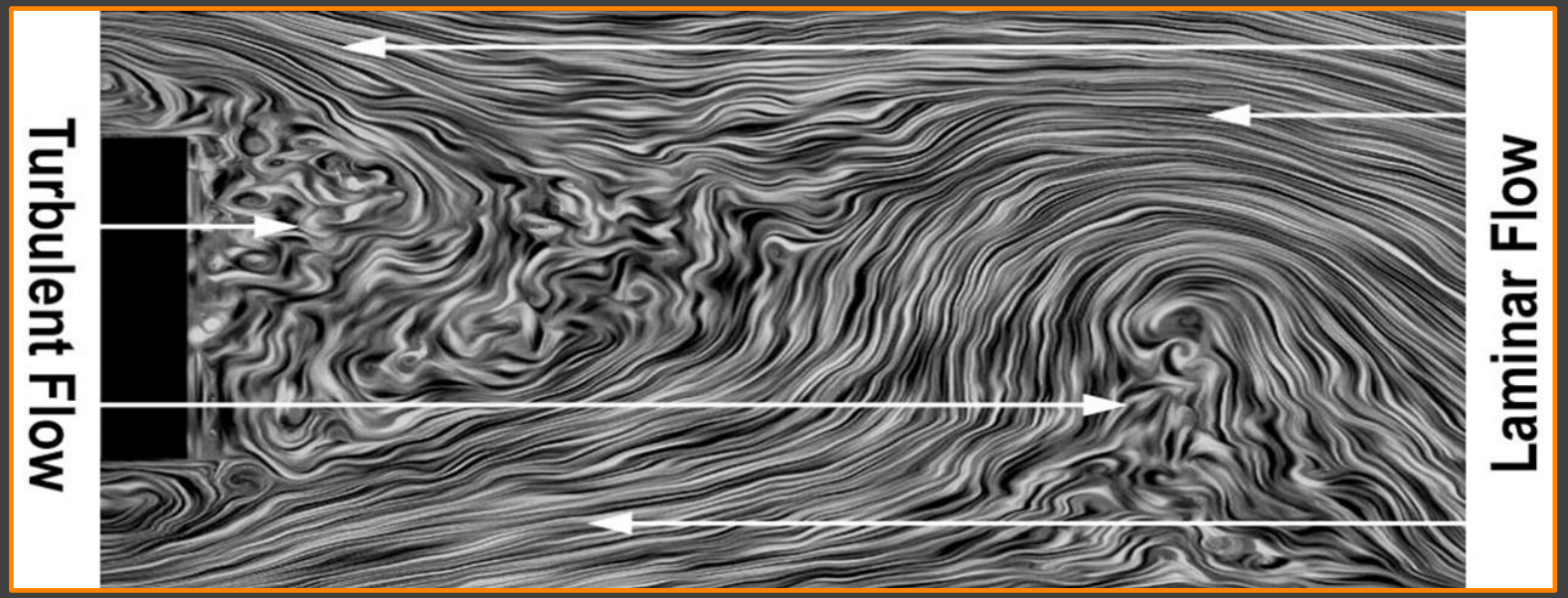
Report on our CanSat experiment

by OnionSAT

05-06/04/2024, Tatárszentgyörgy - Dabas

Mission targets

- Primary:
  - Temperature
  - Pressure
- Secondary:
  - Turbulent flows
  - Direction and magnitude of airflows
  - Relative humidity



Source: https://performativedesign.com/definition/air-flow-coefficient/

OnionSAT Structure

SD card module

GPS sensor

LoRa module

Tem.Pres.Hum. sensor

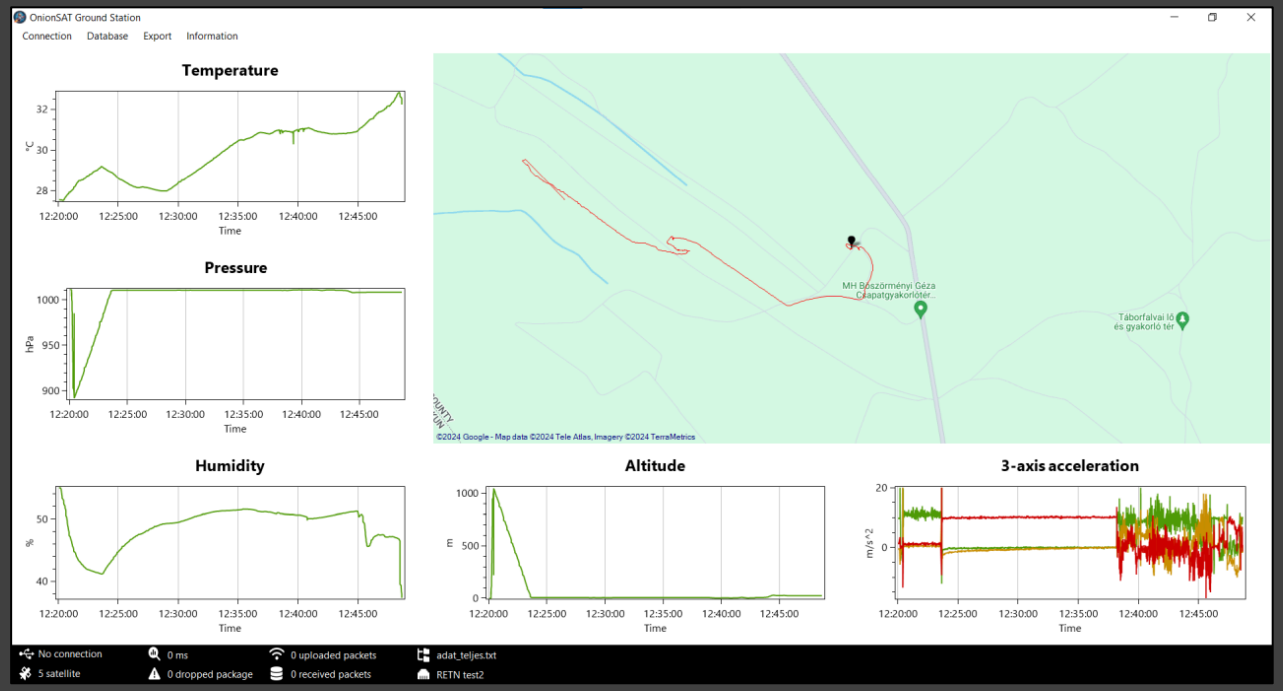
Three-axis accelero-meter

Arduino microcomputer

Antenna

Battery

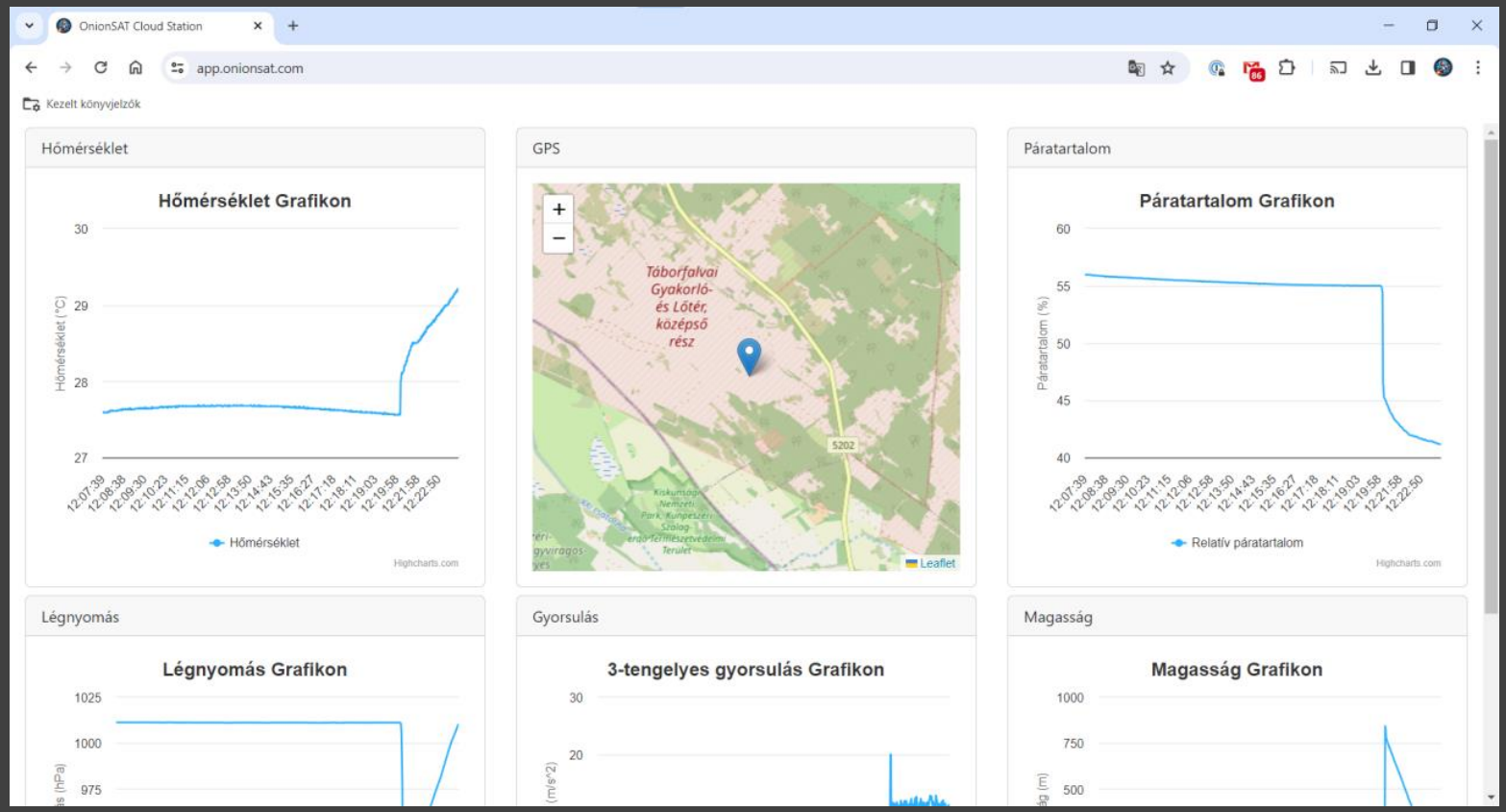
OnionSAT Software



Custom software

...in operation on 05/04/2024

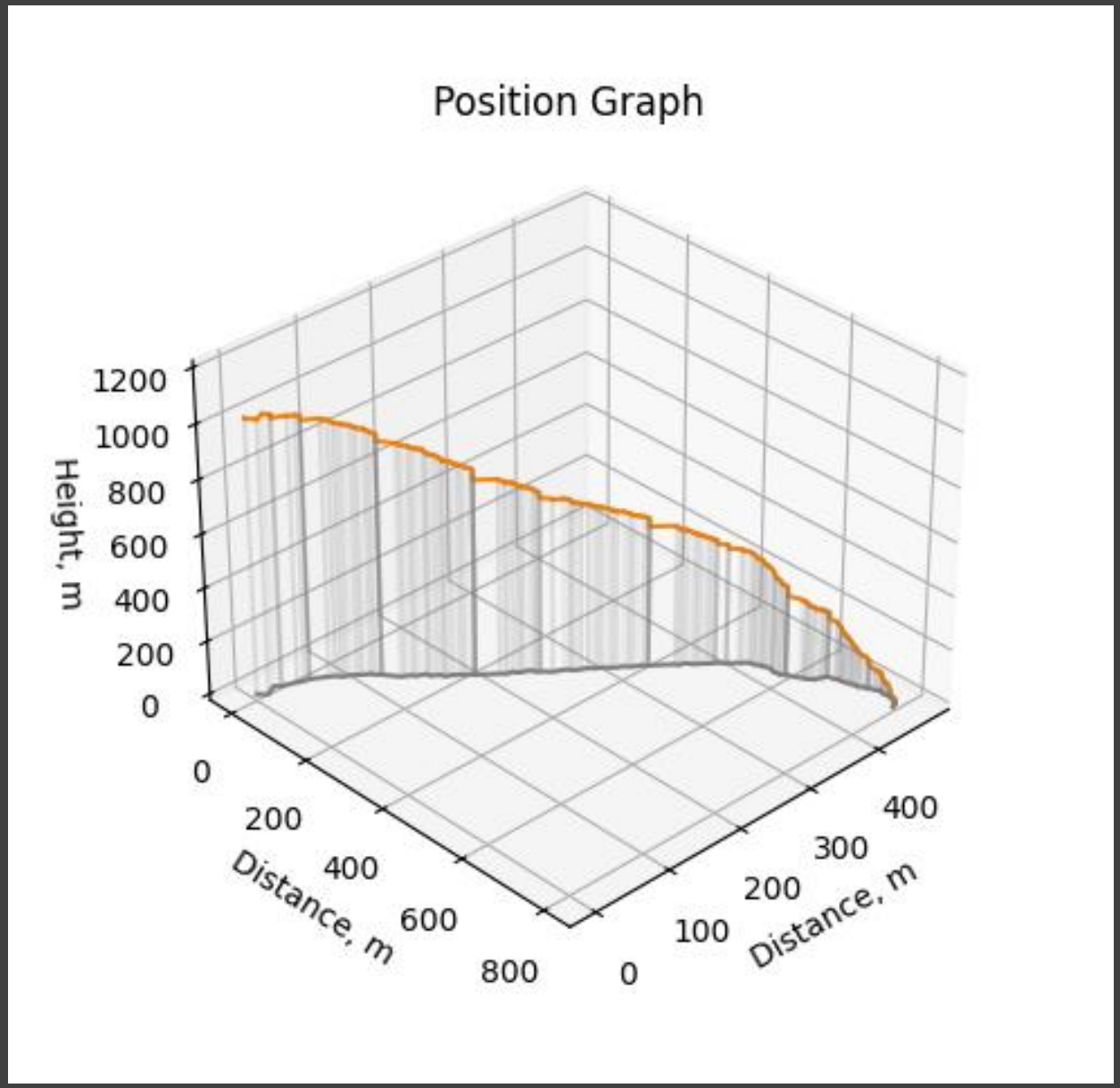
OnionSAT Software



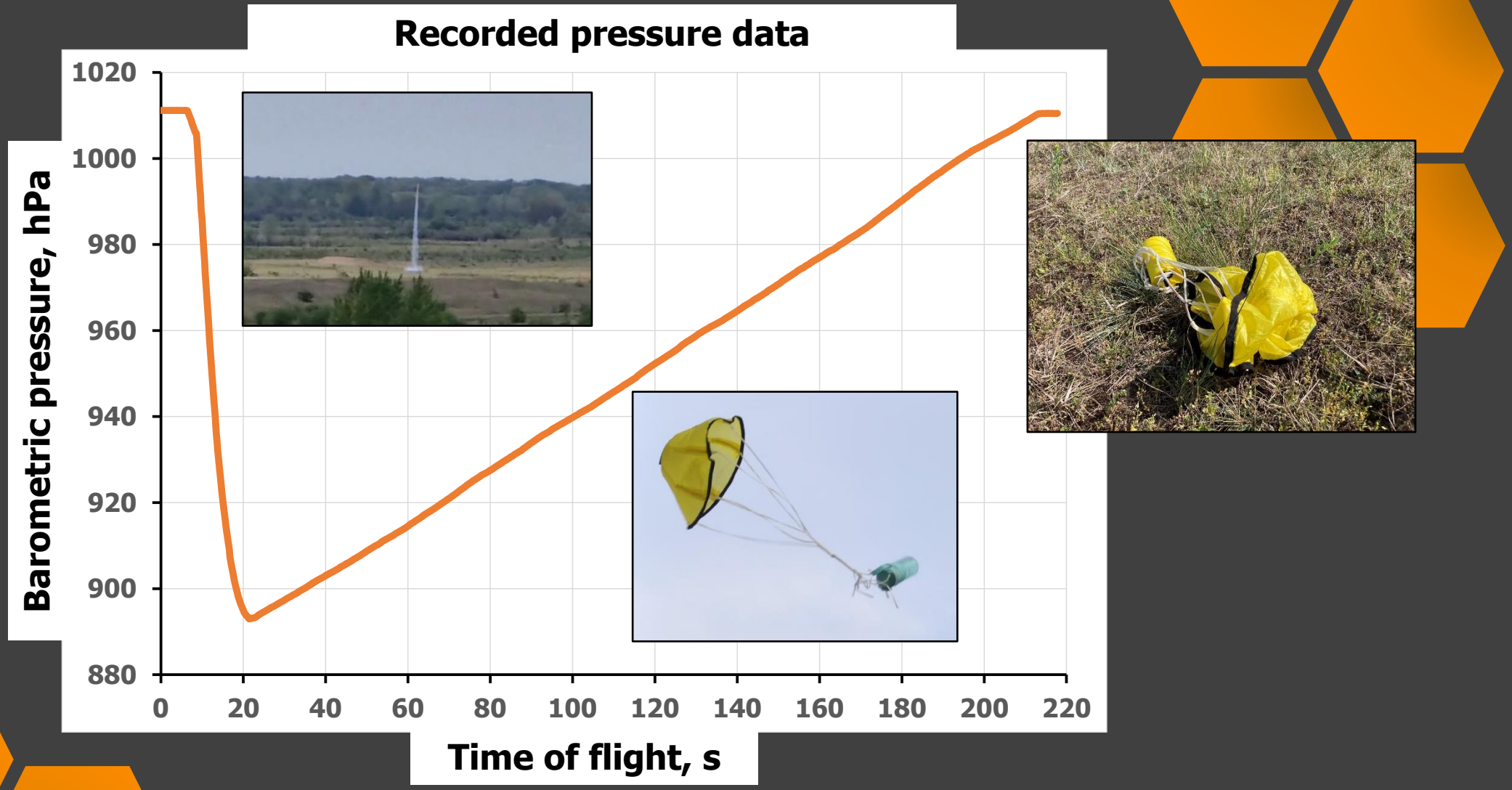
OnionSAT Cloud station:
online and real time event

Results #1

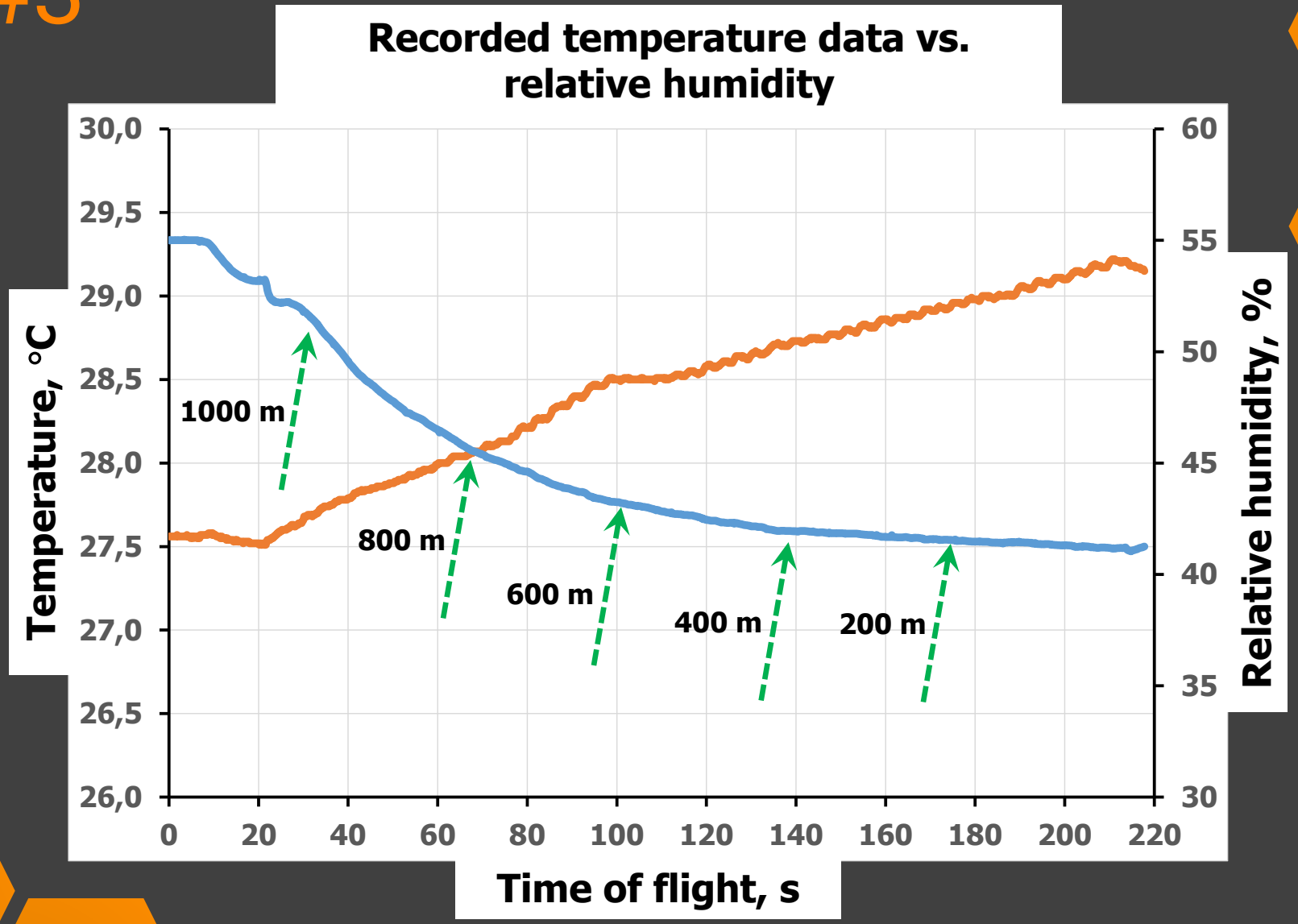
Flight direction:
~119° (NW)
Horizontal speed:
~17 km/h
Vertical speed:
~20 km/h



Results #2


Recorded pressure data
Barometric pressure, hPa
1020
1000
980
960
940
920
900
880
0
20
40
60
80
100
120
140
160
180
200
220
Time of flight, s

Results #3

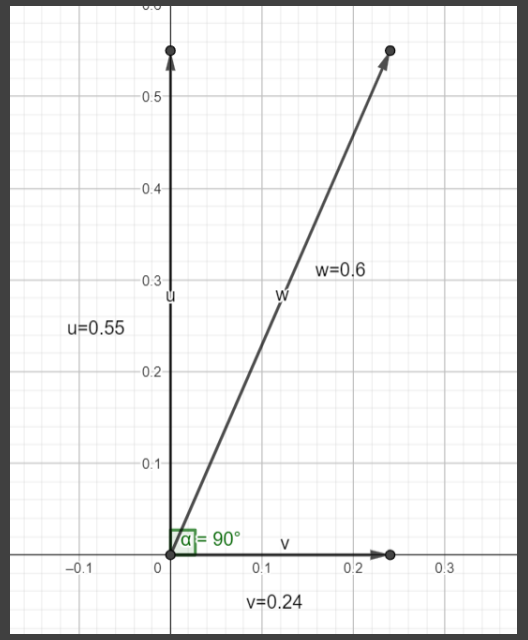

Recorded temperature data vs. relative humidity
Temperature, °C
Relative humidity, %
Time of flight, s
30,0
29,5
29,0
28,5
28,0
27,5
27,0
26,5
26,0
60
55
50
45
40
35
30
0
20
40
60
80
100
120
140
160
180
200
220
1000 m
800 m
600 m
400 m
200 m

Results #4

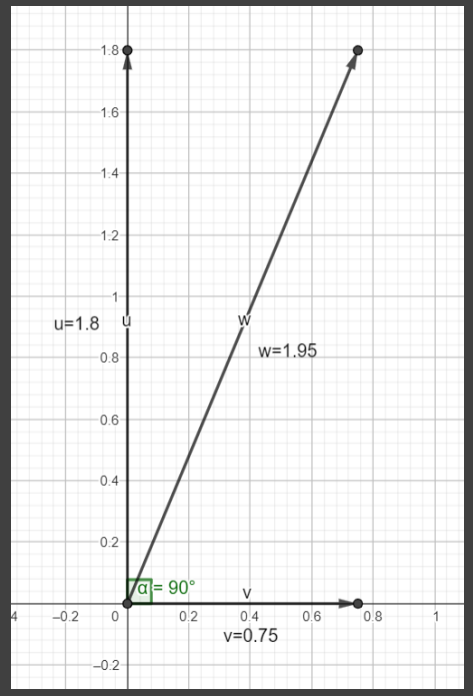
1000 m

500 m

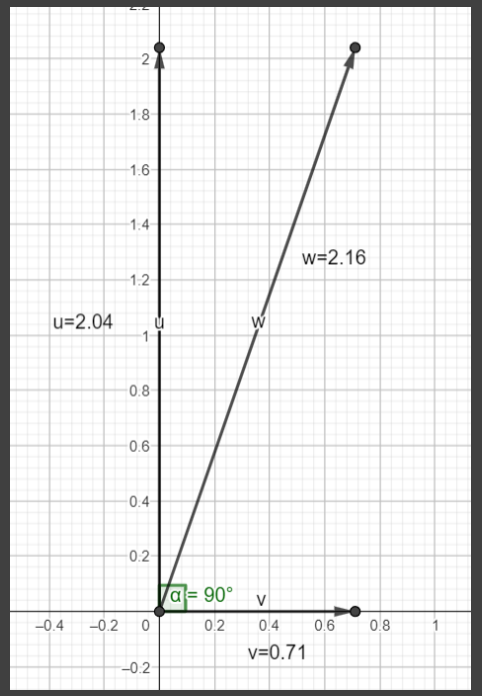
0 m



747 m



466 m



236 m

Conclusions:

- six months of cooperation
- three main and five minor versions
- lots of short-circuited parts
- tons of experience

Conclusions:

- successful launch, descent and touchdown
- five full sets of recorded and completely recovered ambient, positioning and acceleration parameters
- robust structure

Visit our cloud station:

Many thanks to our sponsors…

Kronosz Financial Kft.

Dobos Károly
Karosszéria lakatos mester

PNL-Systems Kft.

We, the OnionSAT team, thank you for your kind attention

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Visit our website: https://onionsat.com