

cansats in europe



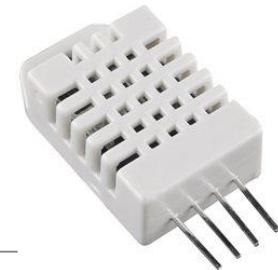
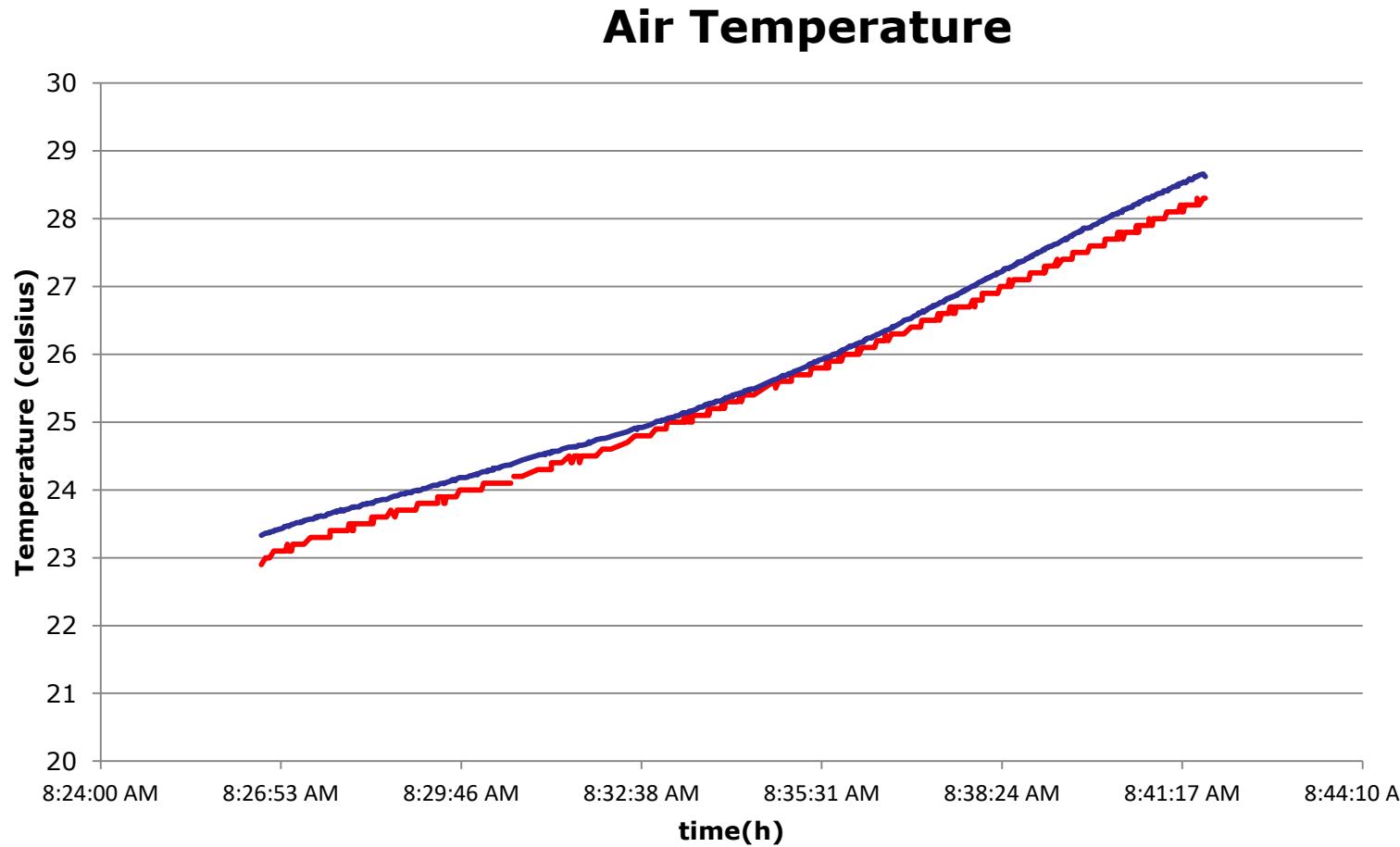
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# CanSat team Carmen Sylva 1 Result



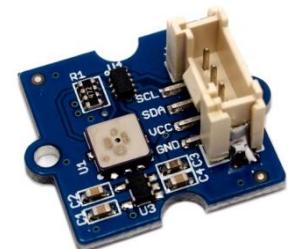


# Primary mission



DHT22

DHT22  
BMP085

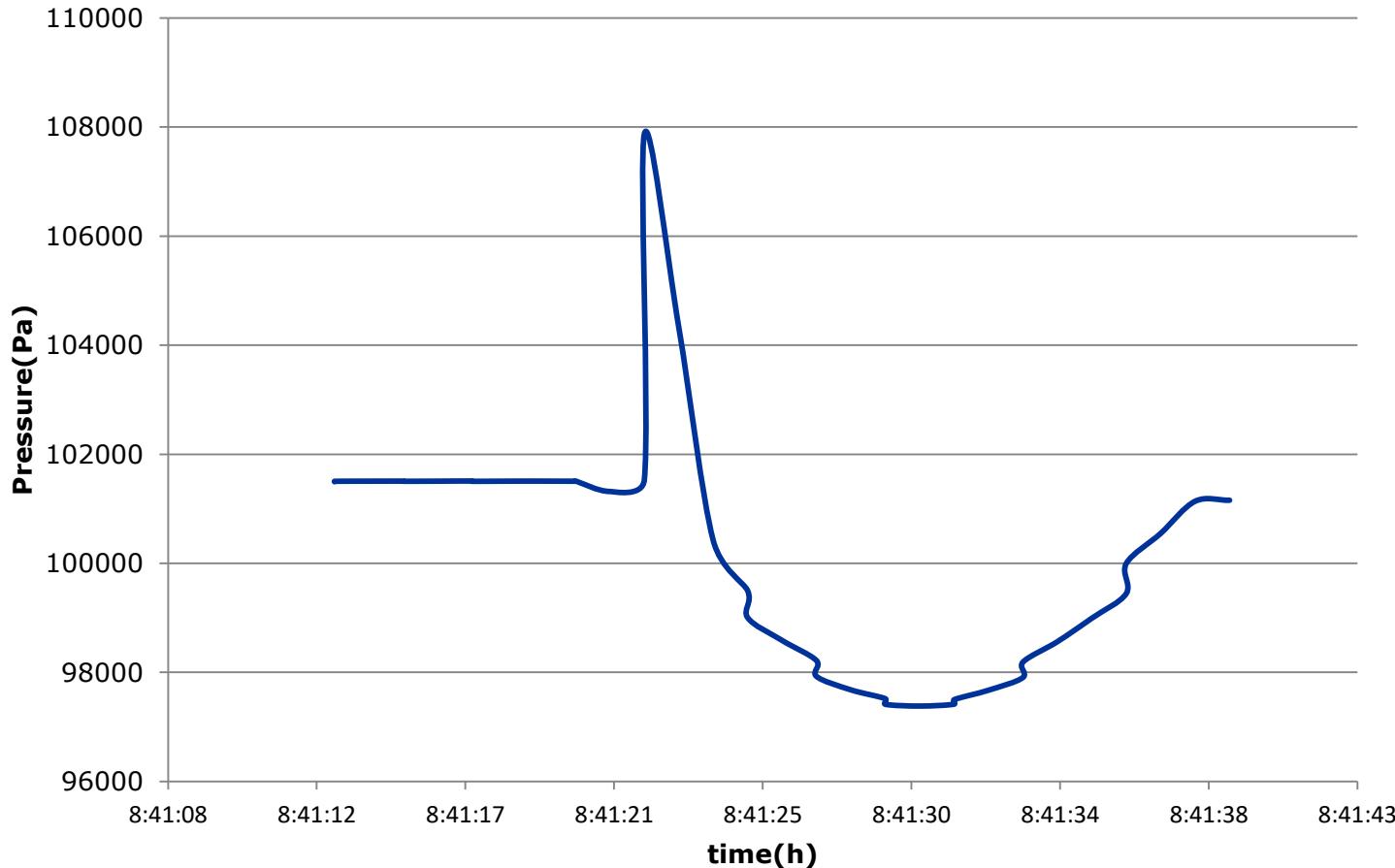


BMP085



## Primary mission

Air Pressure

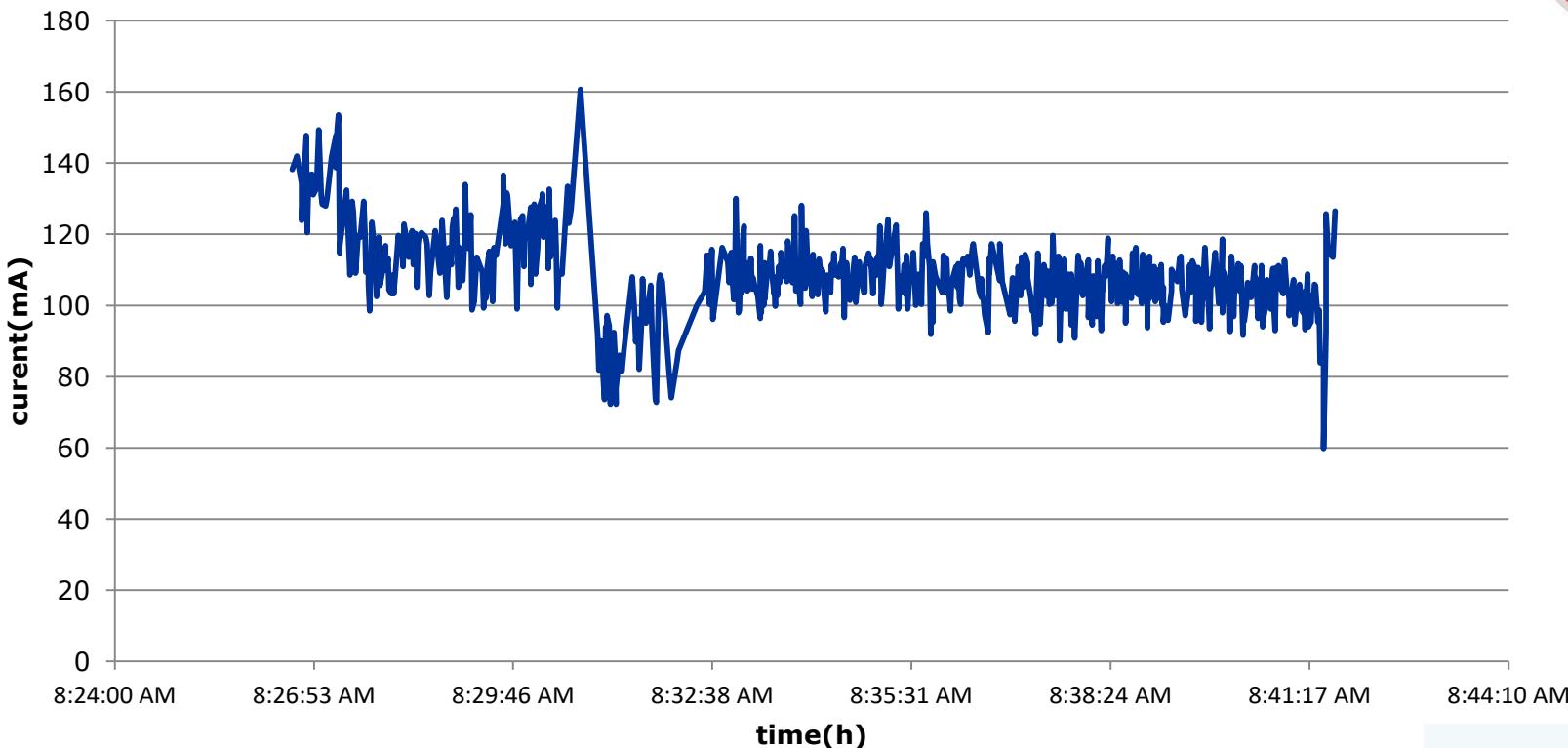


BMP085



## Secondary mission – Power budget

Current Intensity ACS712

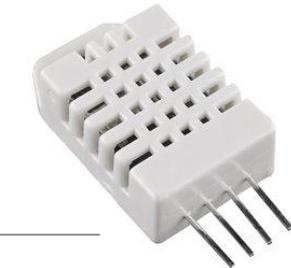
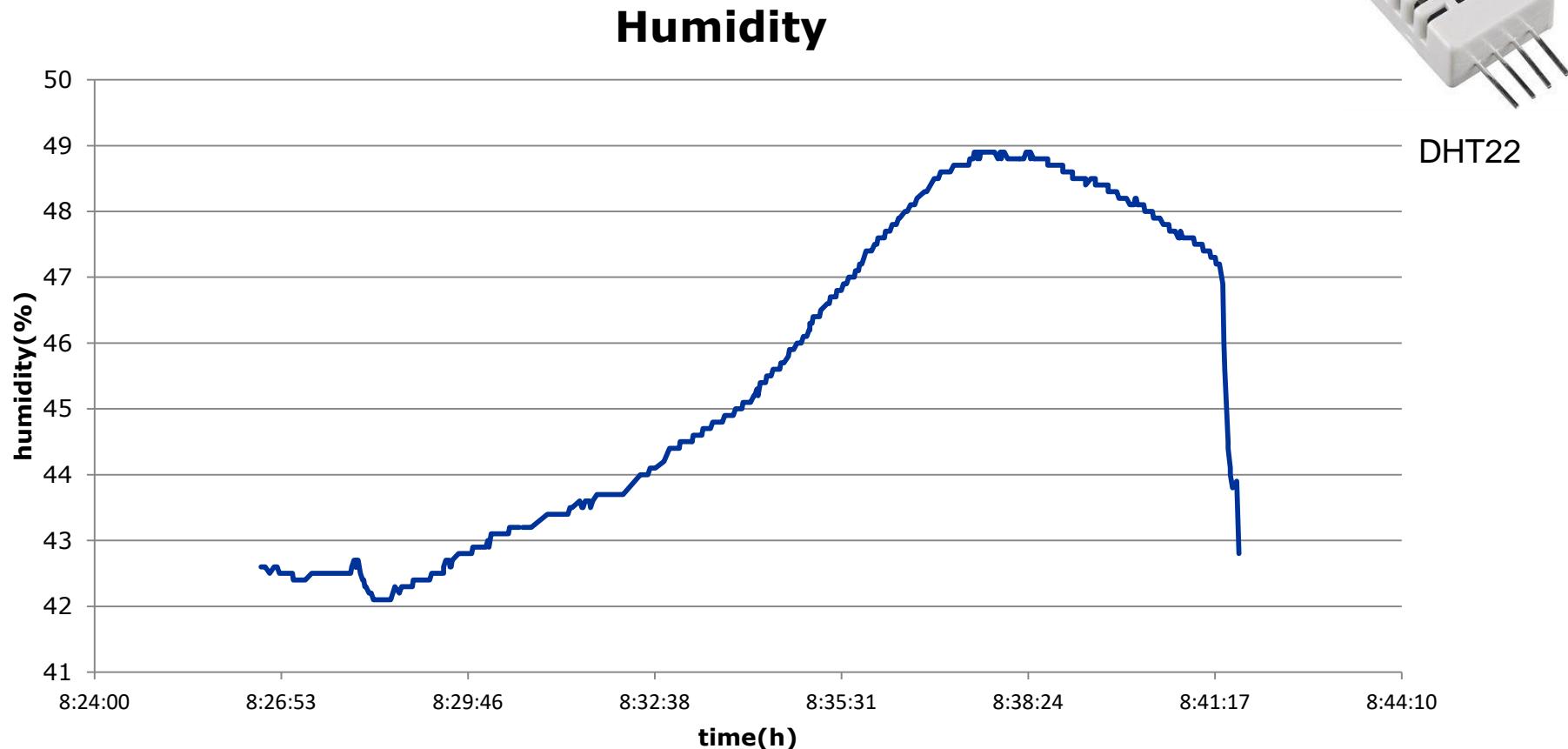


ACS712

Current (mA)	
Maximum	160.72
Minimum	59.84
Medium	108.3406

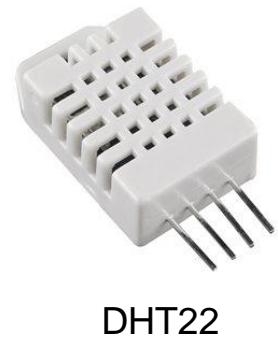


## Secondary mission



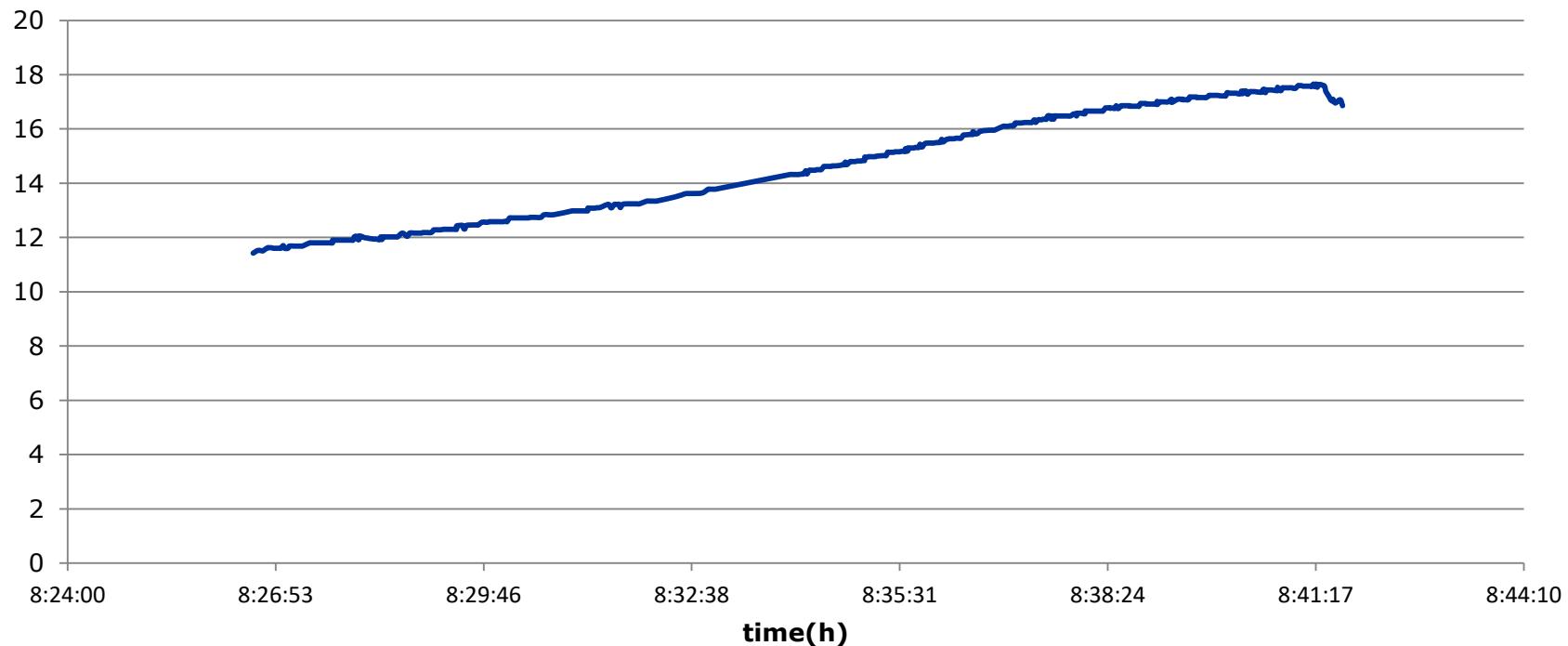


## Secondary mission – Dew point



$$T_{dp} \approx T - \frac{100 - RH}{5};$$

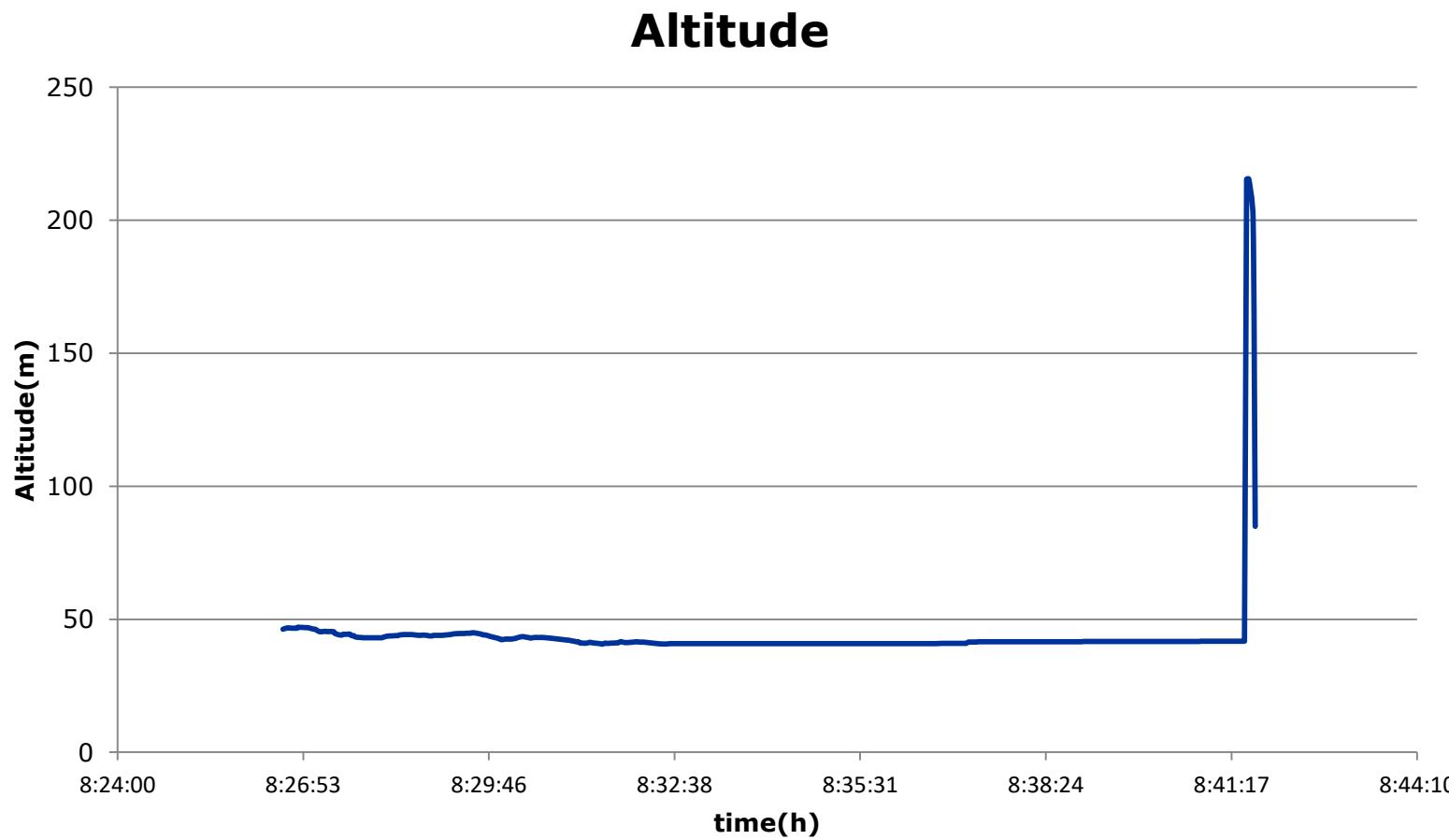
Dew Point



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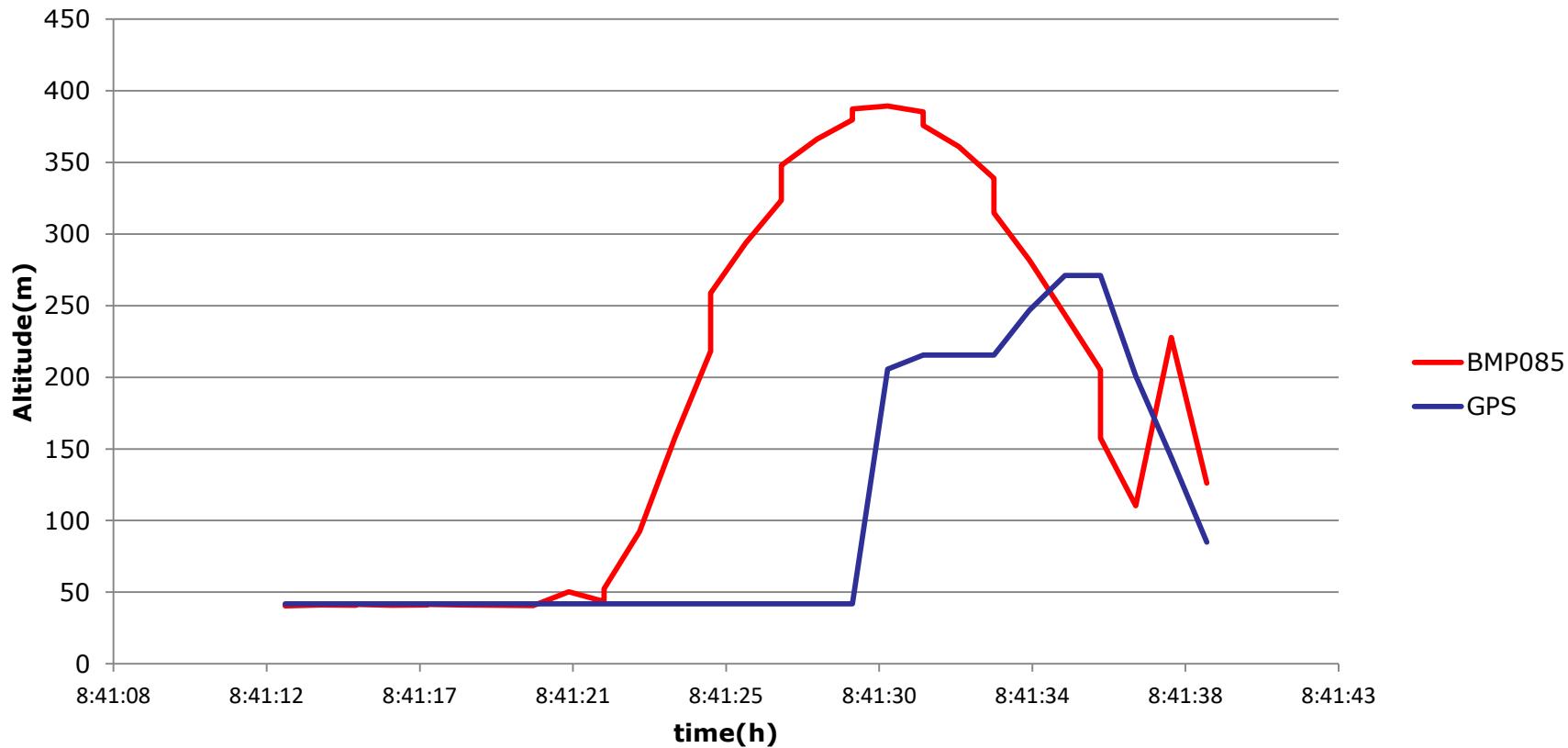
BMP085



Adafruit Ultimate GP



### Altitude



### Vertical speed

$$V_y = \Delta y / \Delta t$$

$$V = 38.55556$$

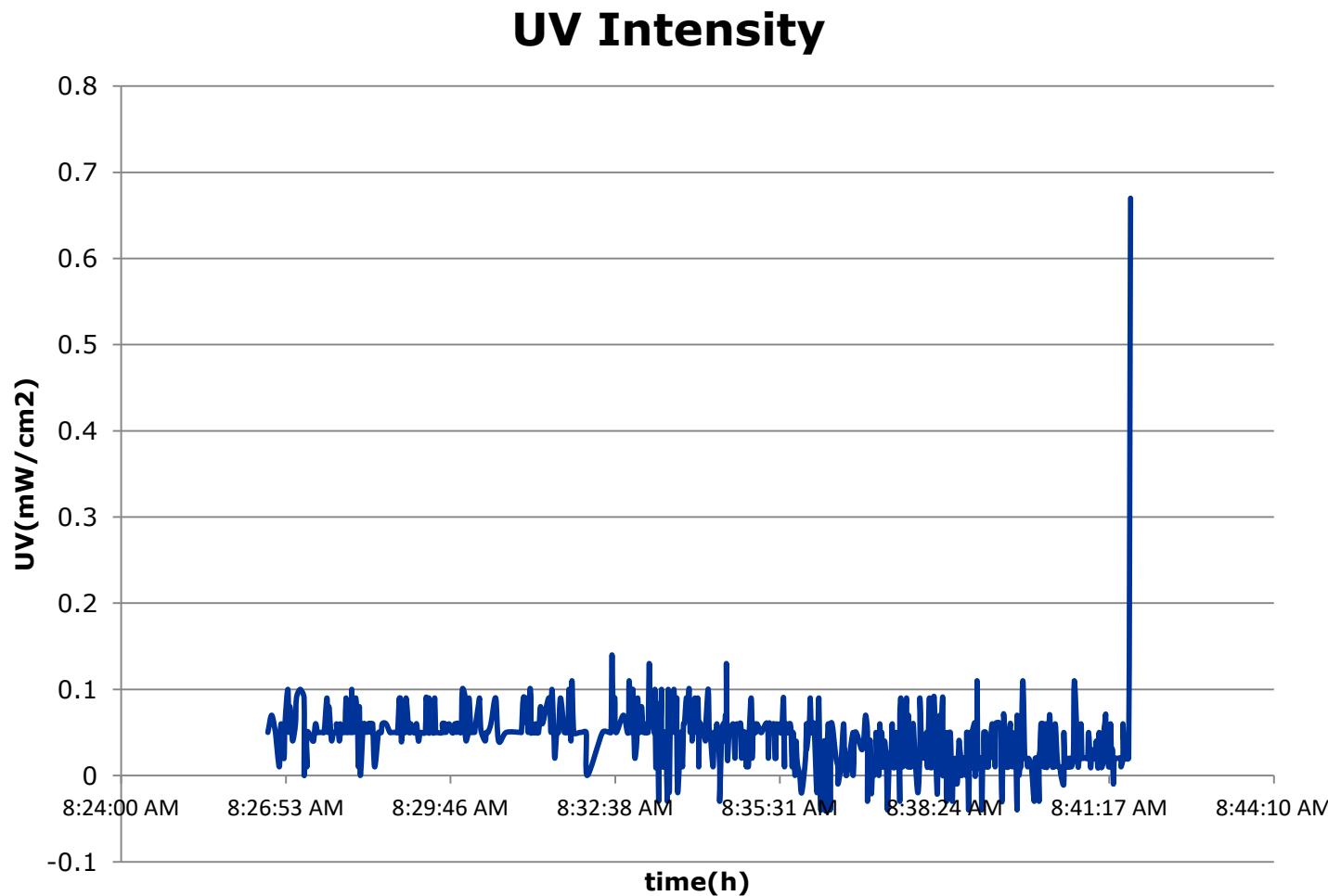
$$v = \sqrt{2 * 9.81 * h}$$

$$V = 87.47457$$

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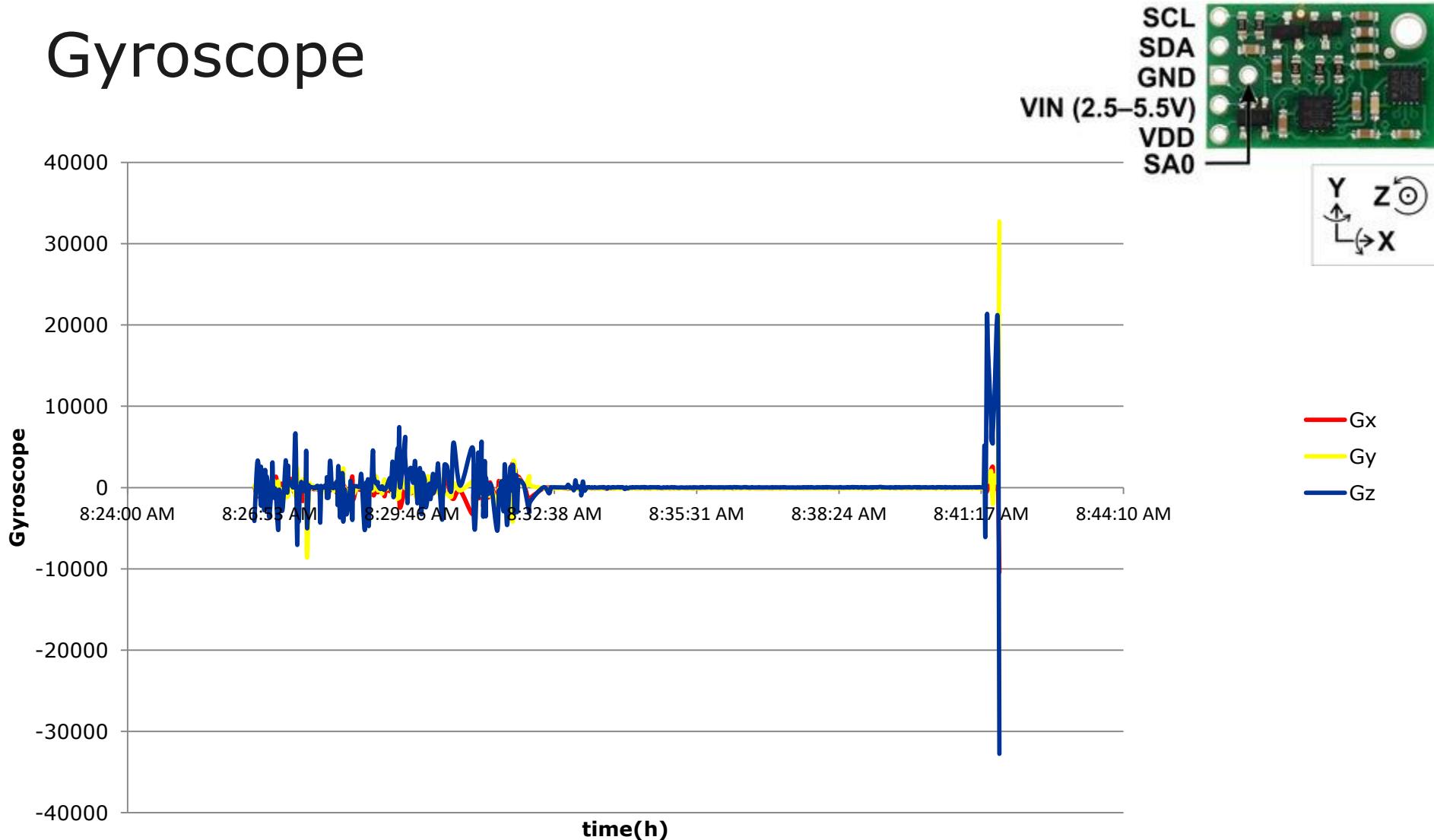
ML8511

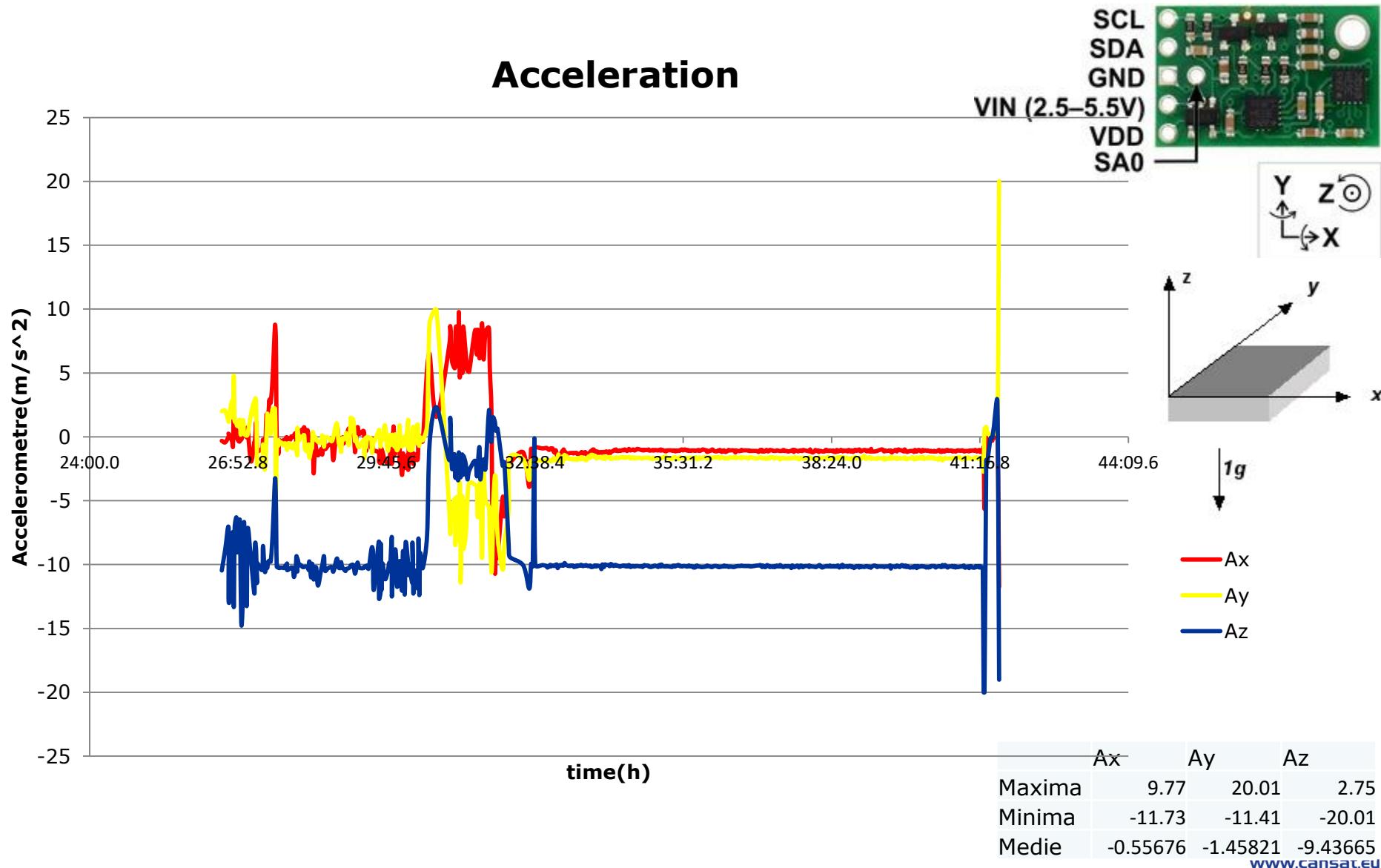
Int UV  
( $\text{mW}/\text{cm}^2$ )

Max	0.67
Min	-0.4
Medium	0.043032



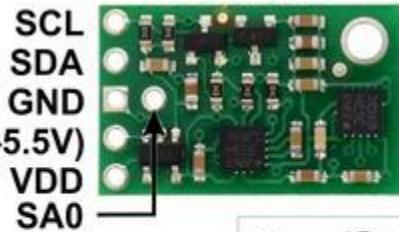
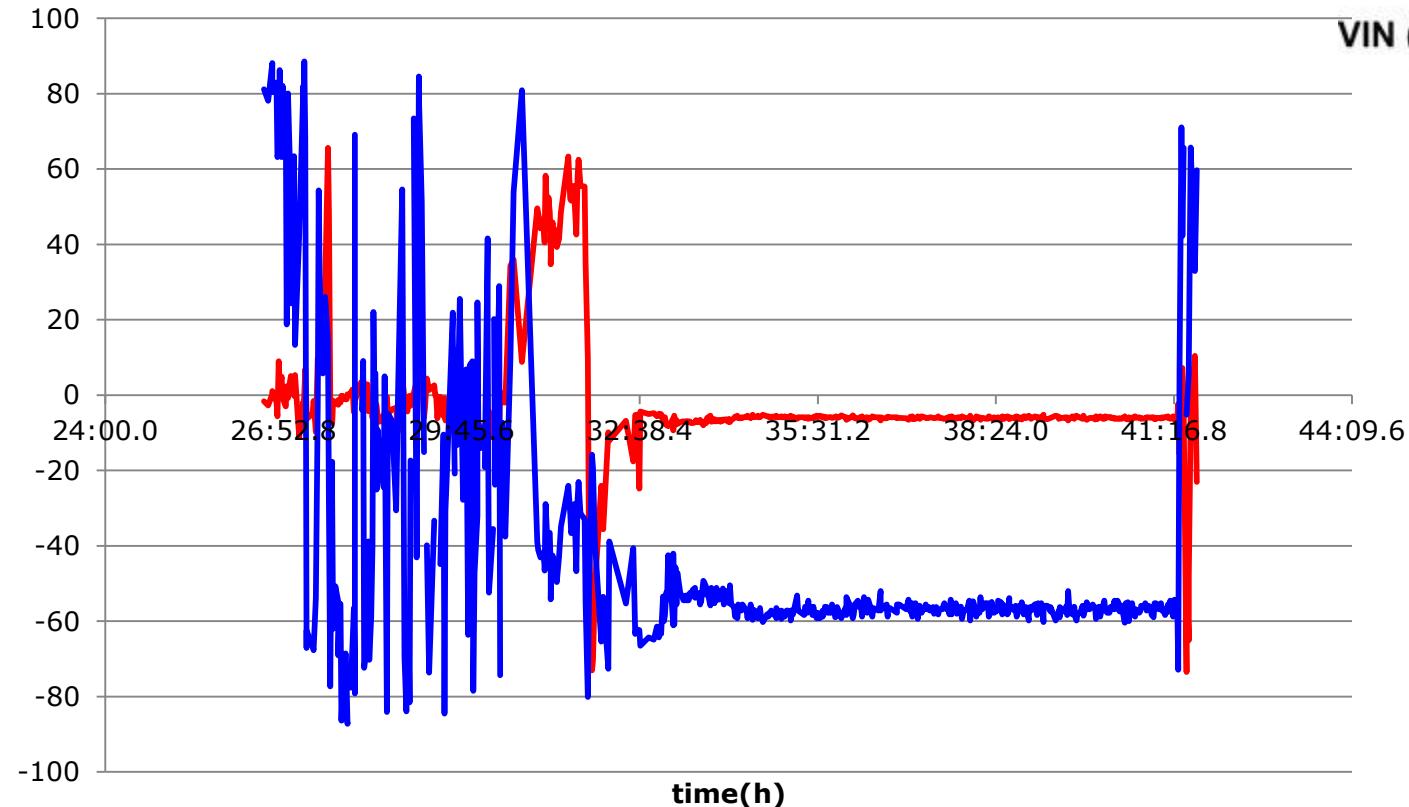
### Gyroscope



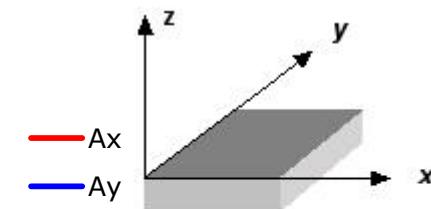
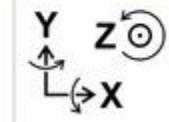




### Pitch and Roll



VIN (2.5–5.5V)

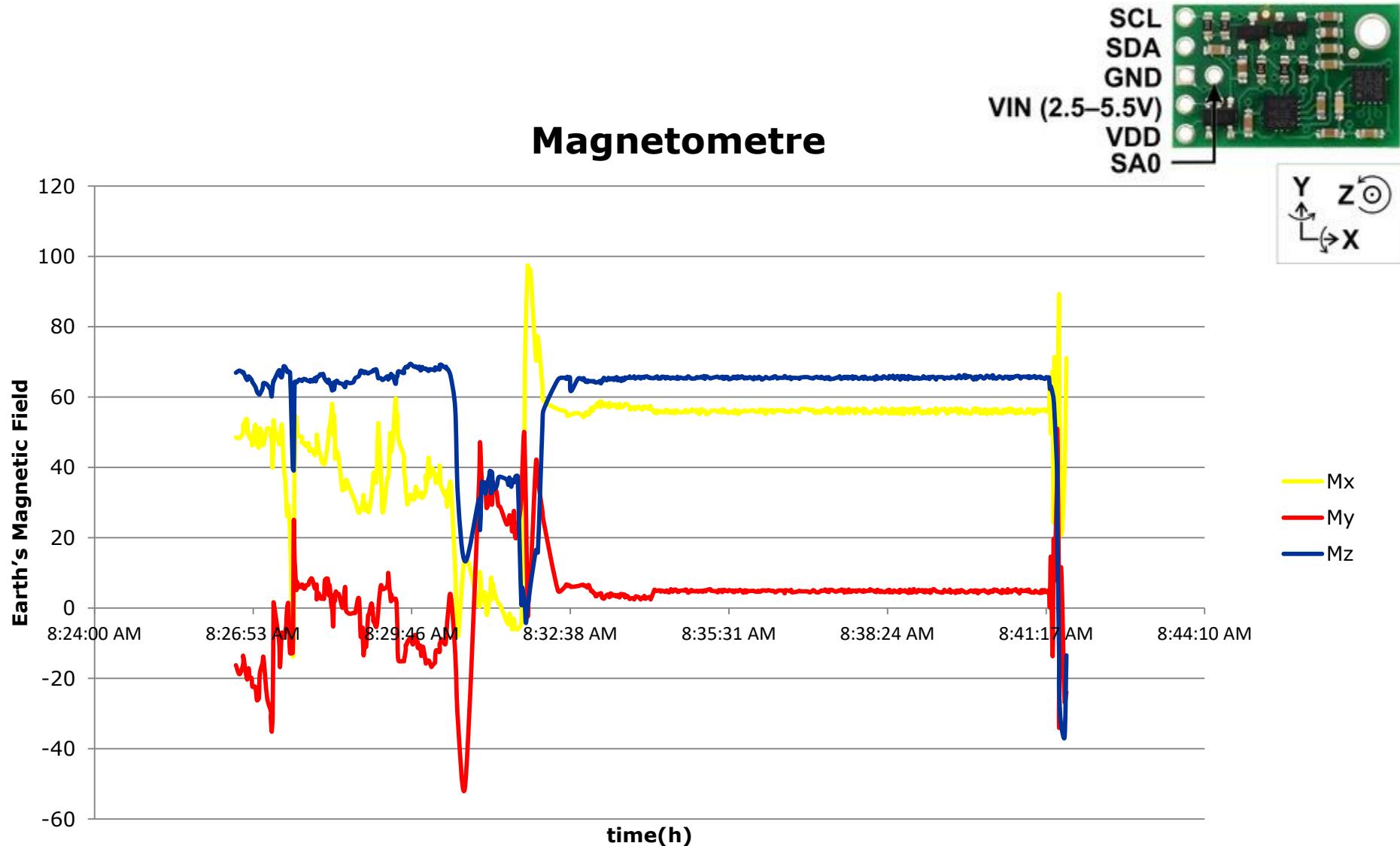


1g

$$Ax = \arctan\left(\frac{X}{\sqrt{Y^2+Z^2}}\right)$$

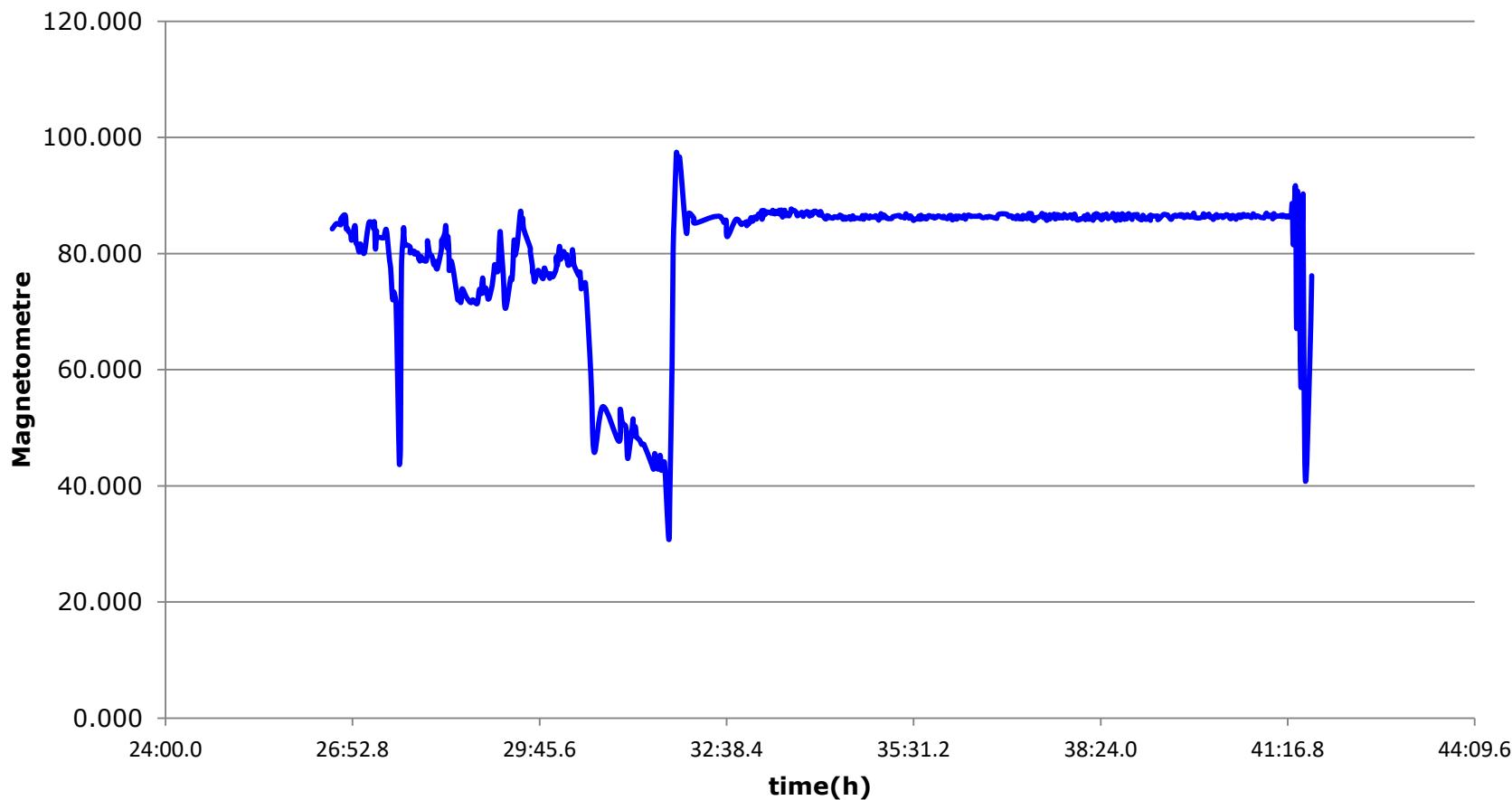
$$Ay = \arctan\left(\frac{Y}{\sqrt{X^2+Z^2}}\right)$$

	Pitch	Roll
Maxim	65	88
Minim	-73	-87





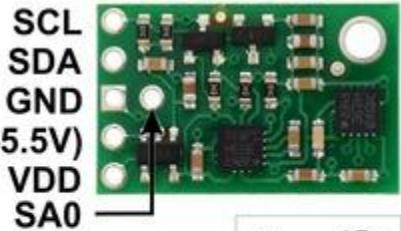
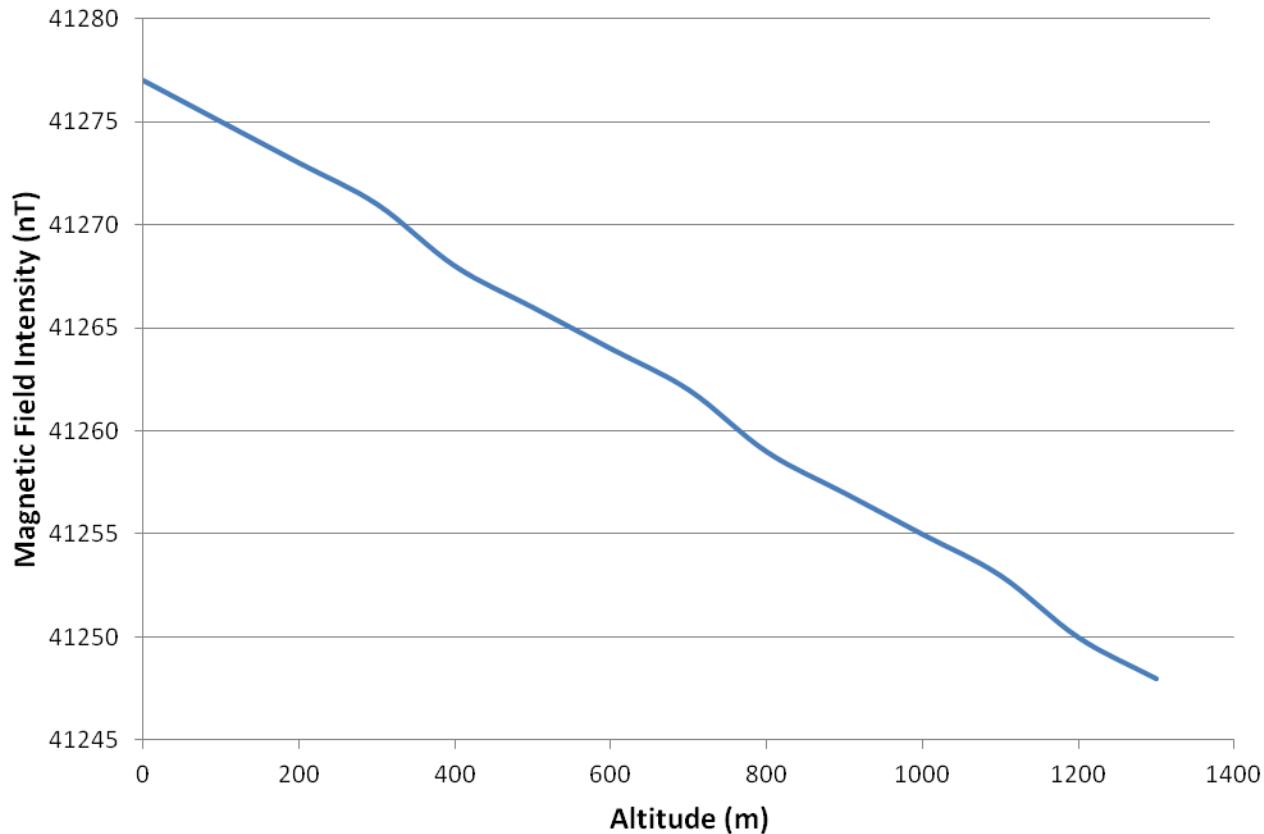
## Magnetometre





### Magnetometer data

Magnetic Field Intensity (F)



VIN (2.5–5.5V)

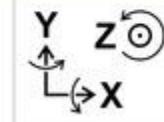
SCL

SDA

GND

VDD

SA0

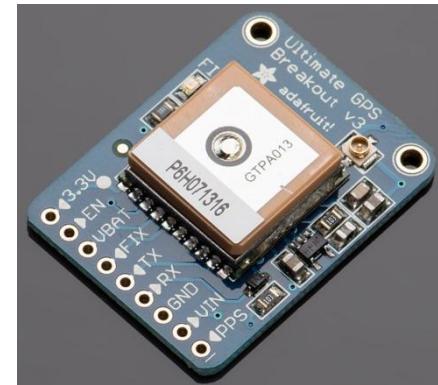


Data obtained from  
the World  
Magnetic Model  
2010,  
for Skarsteindalen,  
Andenes,  
Norway for 3 June  
2014



### GPS data

- Chip - **MTK MT3339**
- Channel - 66 channels
- Hot start - 1 second (with Lithium CR 1220 battery)
- Position Accuracy - 3.0m
- Velocity Accuracy - 0.1m/s
- **NMEA Output Sentences**
- **RMC** (Recommended Minimum Navigation Information)
- Time, date, position, course and speed data.



Adafruit Ultimate GPS



CR1220 Lithium batterie

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## 2D CanSat trajectory



Image © 2014 DigitalGlobe



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GPS

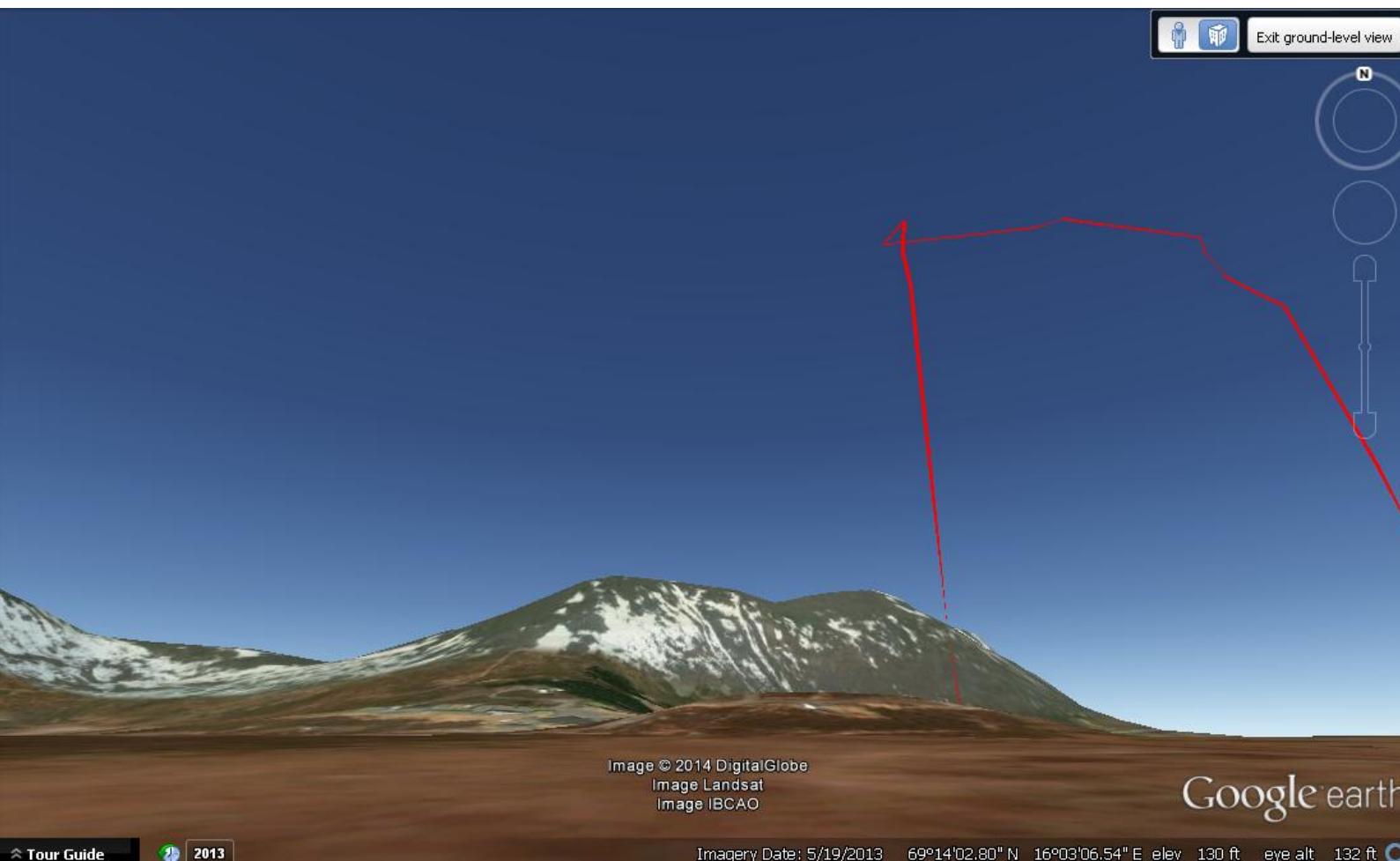
Google earth

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## 3D CanSat trajectory



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GPS

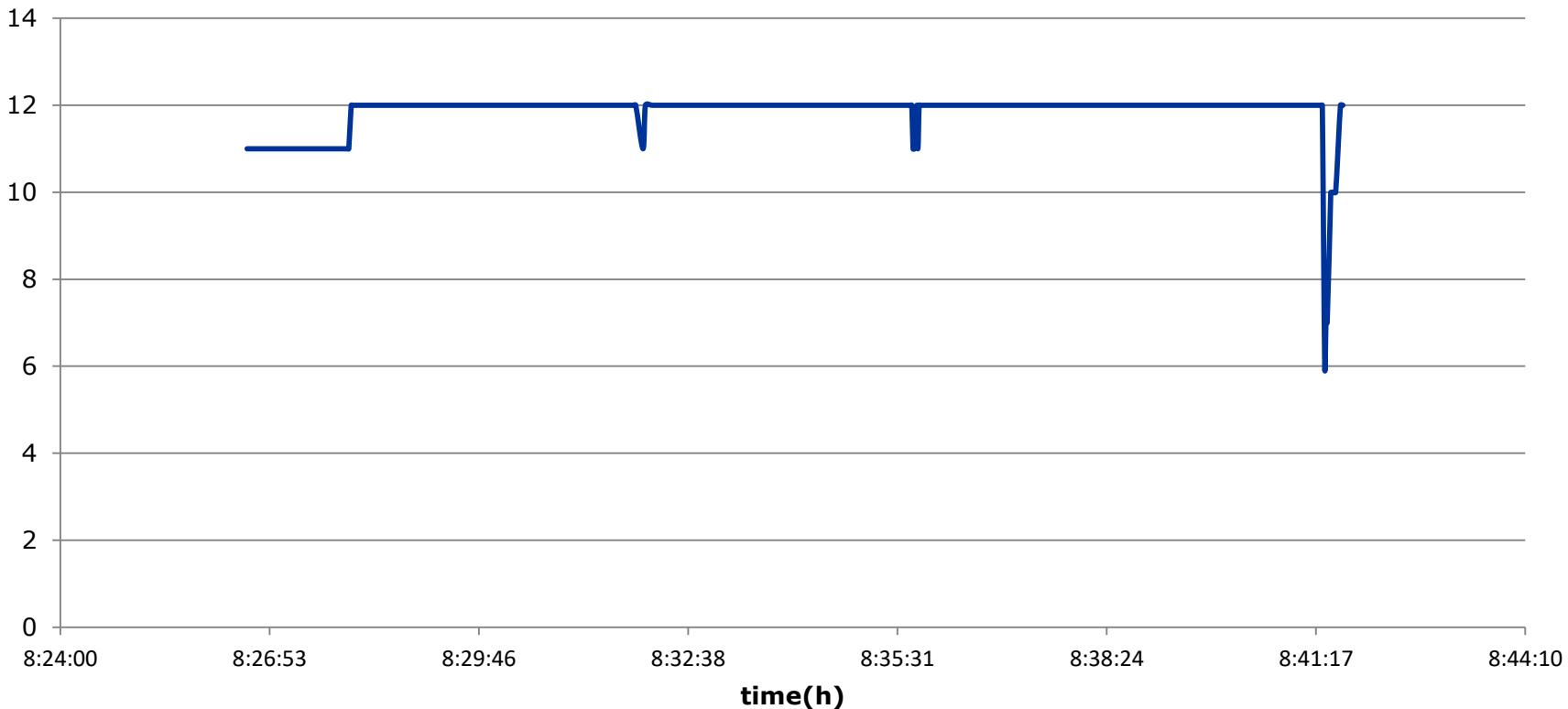


### Number of satellites



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GPS

#### Satellites



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## Optimistic before the launch

