

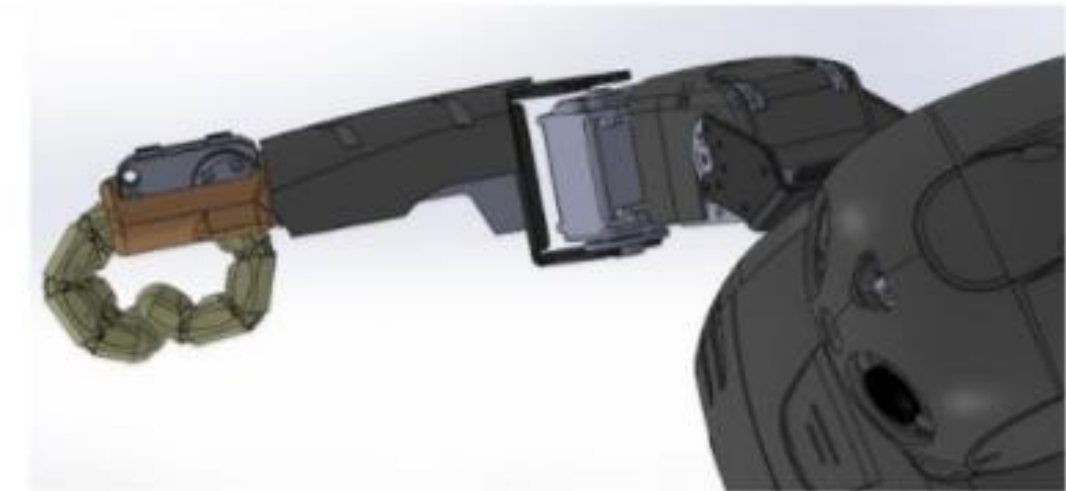
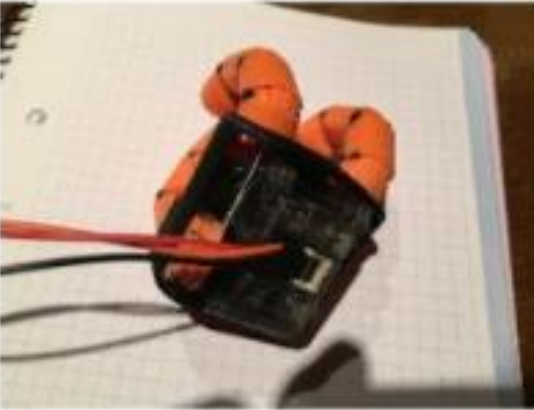
MSF Cargo UAVs - Last Mile Delivery

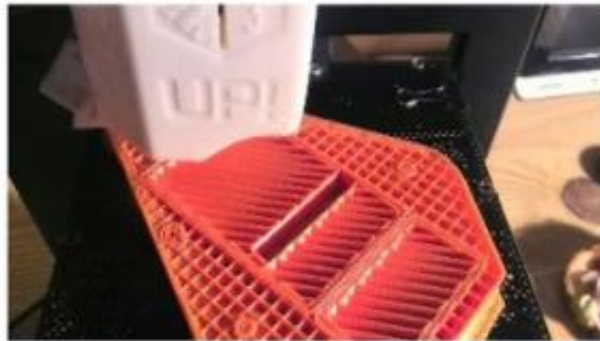
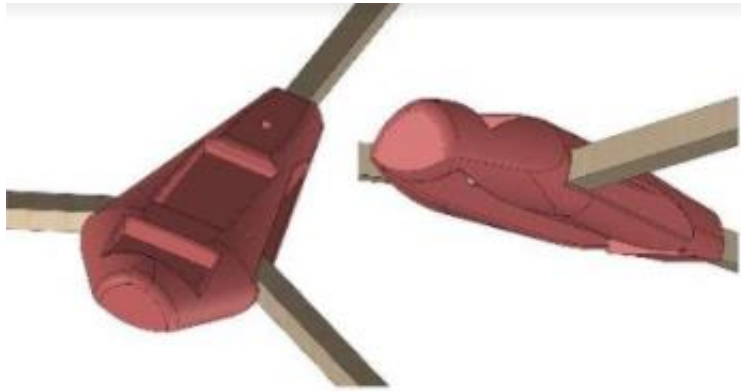


- MSF Cargo UAVs – Last Mile Delivery
- We Robotics – Cargo Drones in Peruvian Amazonas
- WeRobotics – DR Cargo Trials

Oriol López







MSF: Supply Constraints

- Isolated Places
- Difficult Transport
- Key for good treatment



Example: Papua New Guinea

- MSF + Ministry of Health - Tuberculosis
- Collect TB sputum samples

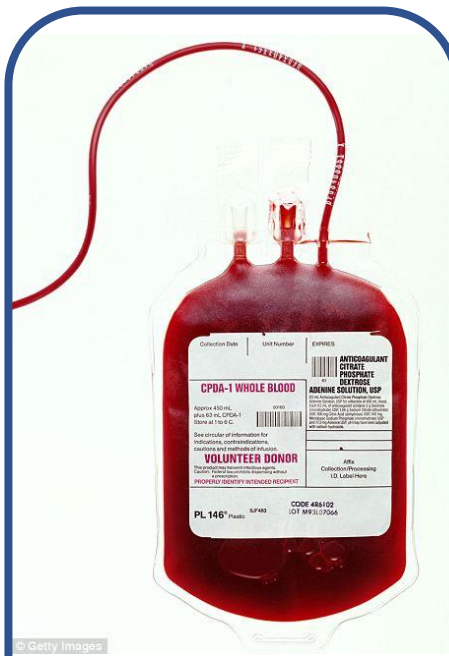


Bringing TB Sputum samples is complicated



- Outreach Locations
- Difficult Access
- UAV regulation & Acceptance
- MSF + MoH project
- 2 Way trip – No Drop
- Quadcopter 15km range

<2kg Opportunities



Blood



Vaccines



Anti Venom



Lab Samples

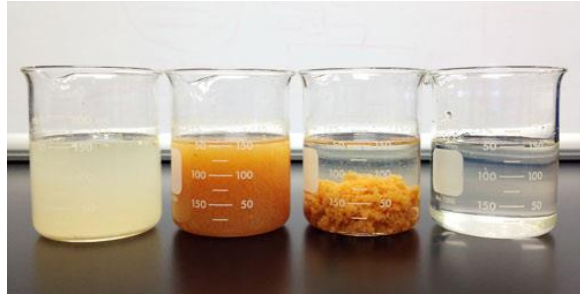


Oxytocin

2kg Emergency Response Kits

Water Treatment 10k liters

1kg Flocculant



500gr Chlorine



Pool Tester



Com's Kit

Cell Phone Repeater



Satellite Phone



Satellite Internet



SO WE WANT TO USE DRONES



Requirements: Operator



REQUIREMENTS: CONTROL



Automatic & Simple use



REQUIREMENTS: MAINTENANCE

Reliable & Easy Maintenance



REQUIREMENTS: RANGE VS CONTROL

80Km & Auto Take Off & Land



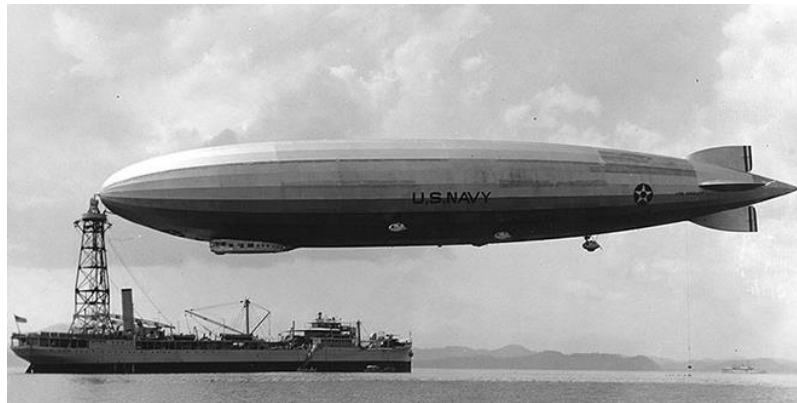
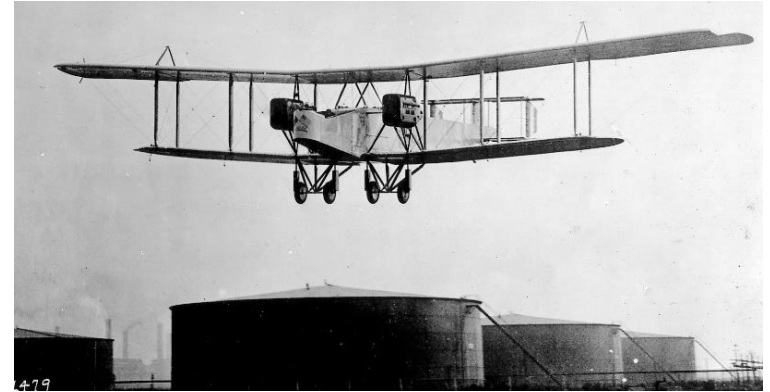
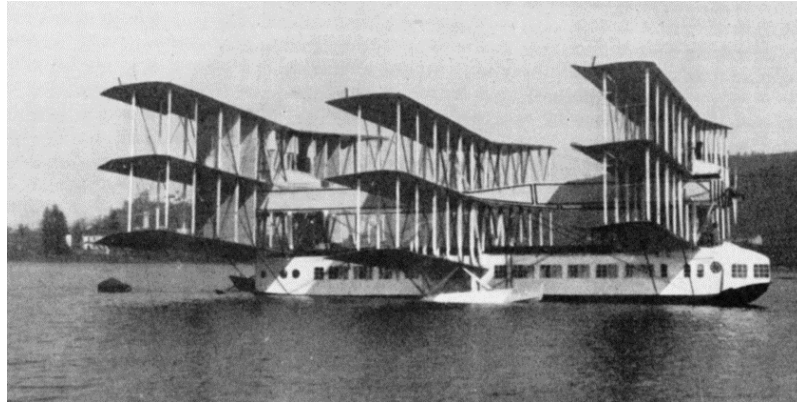
REQUIREMENTS: RANGE VS CONTROL



REQUIREMENTS: RANGE & CONTROL



Aviation 1917



UAV VTOL 2017



Complexity – Sustainability - Reliability

Concorde



1976 - 2003

Concorde failed to meet its original sales targets

Douglas DC-3



1935 - Today

Grass & dirt runways
First plane to obtain benefits commercial passengers

Complexity – Sustainability - Reliability

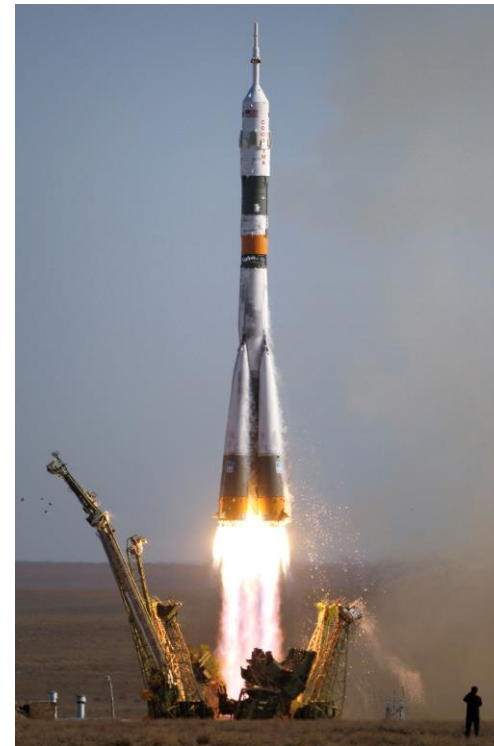
Space Shuttle



1981 – 2011

NASA: The most complex machine ever
built: 2.5m parts, 370km wire...

Soyuz (R7 & Spacecraft)



Rocket: 1957 - Today
Spacecraft: 1967 - Today

The Challenge to Demonstrate Transport in Real Environment





Ranomafana, MADAGASCAR

Civil Aviation Safety Authority - PNG

- UAV New Zealand regulation
- Regulation 101 – Section Unmanned Vehicles
 - Less than 25kg ✓
 - Aircraft register & approved ✓
 - 400 feet max altitude ✓

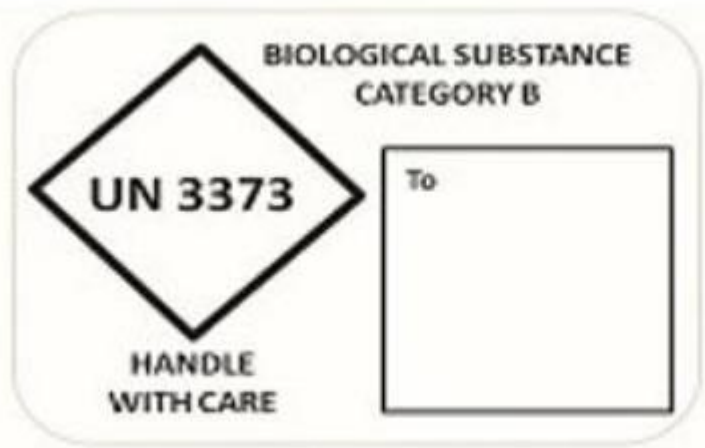


- Line of Sight ✗
- Not 4km near Aerodrome ✗

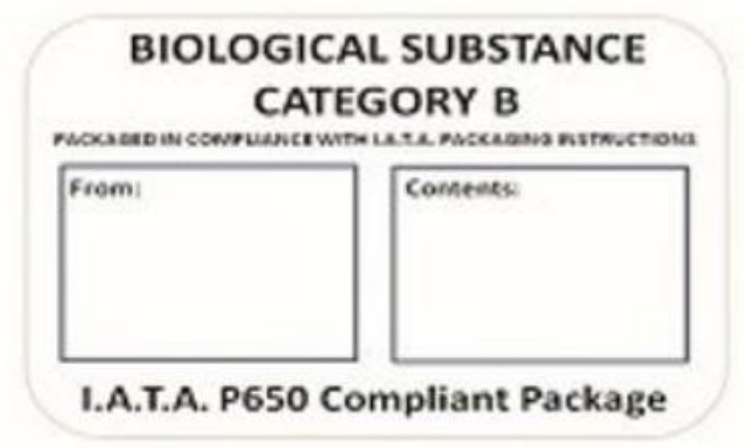
Regulation 102

Transporting TB Sputum Samples UN3373

- Non Hazardous (Only if Aerosolized)
- Triple Packaging



Order Code: F/UN3373TO/B-W/500/No of Rolls

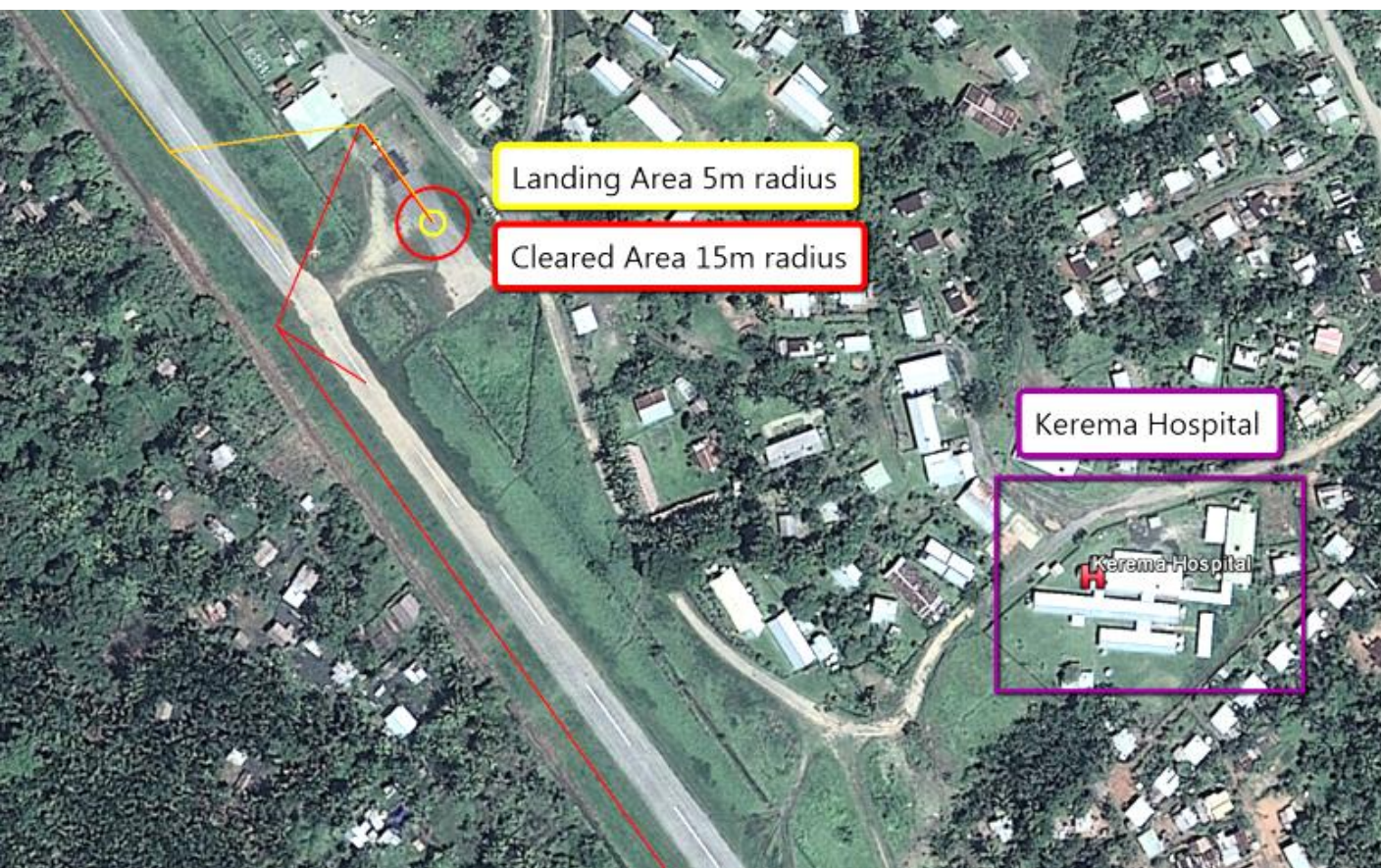


Order Code: F/UN3373FROMCONT/B-W/500/No of Rolls

Flight Plan 1

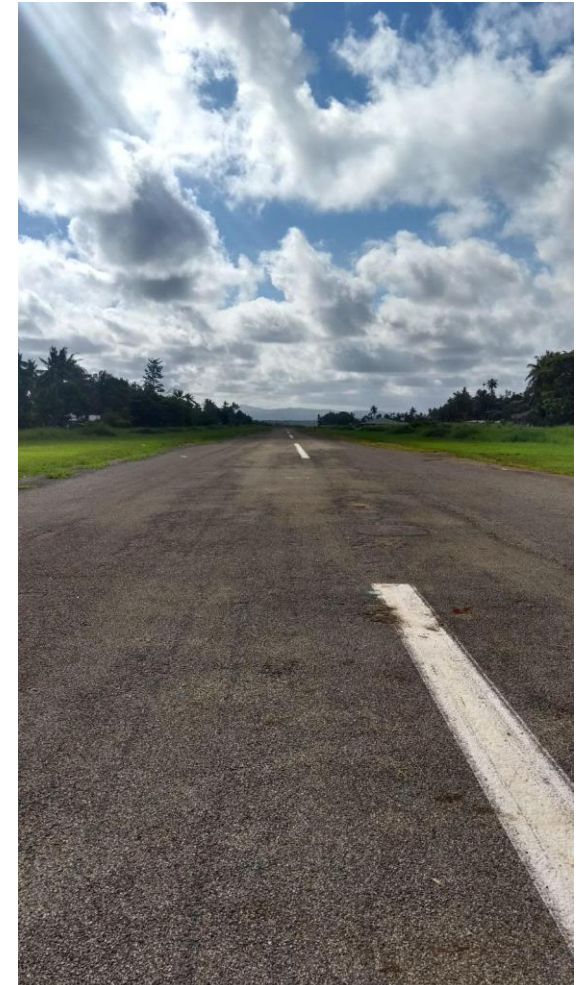


Flight Plan 2



PNG Cargo Drones - Key Points

- Outreach Isolated communities
- First Test Matternet 2014
- SOP and Mission Plan
- Solid Regulation (CASA NZ)
- Permission CASA & Local Authorities
 - Operate in Aerodrome
 - Out of the Sight of View
- Multiple Interest:
 - NGOs, Gov, partners...
- No military conflict area



Peru Cargo Tests in the Amazonas





18C

Tiruntan

Contamana

Masisea

Pucallpa

Community Work



 **WeRobotics**
@WeRobotics

Follow 

Community outreach in Pucallpa, Peru, prepping for our 2week medical cargo drone tests next week [#dronesforgood](#)

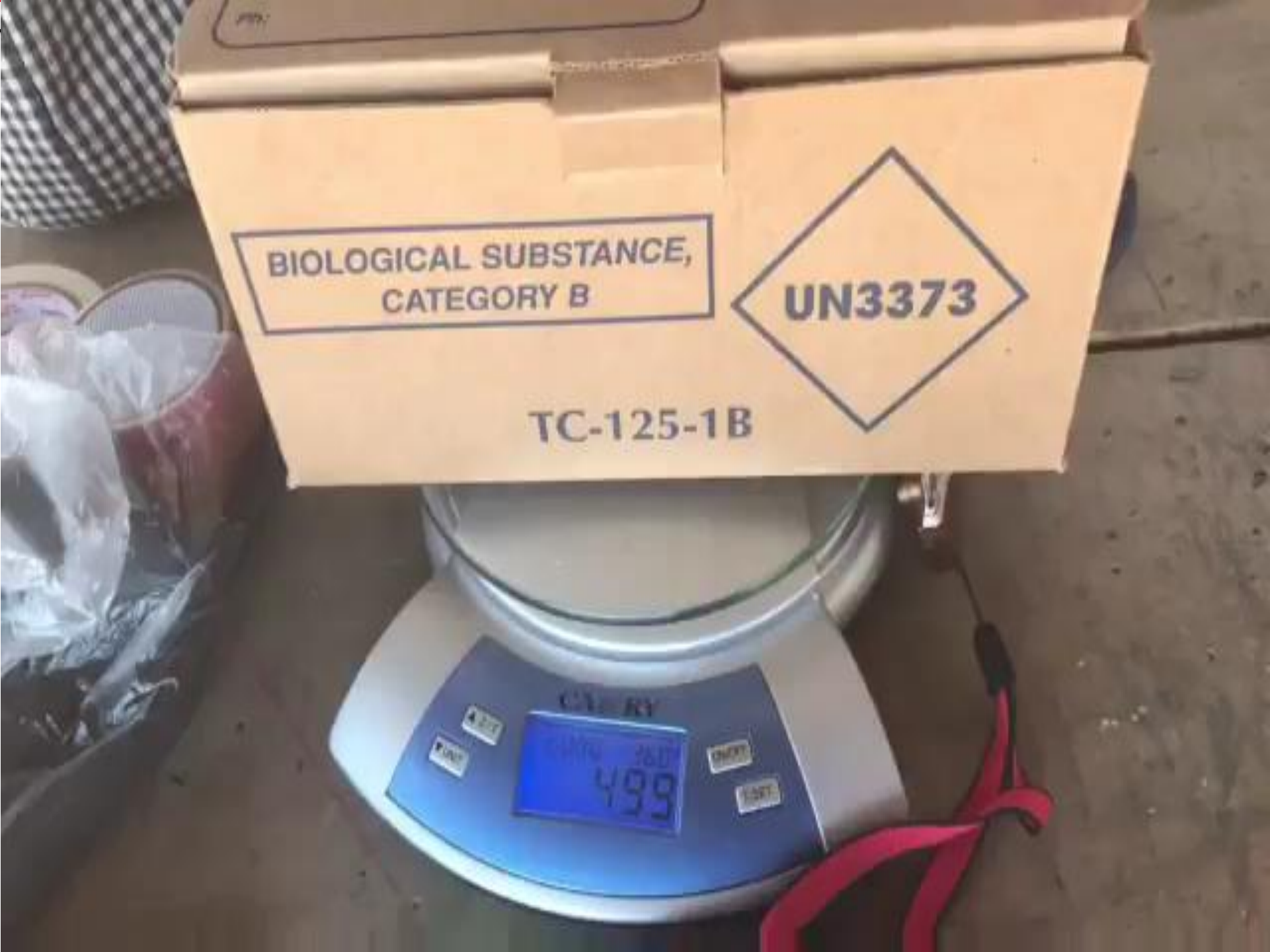


3:31 PM - 16 Jun 2017 from Calleria, Peru

3 Retweets 14 Likes



  3  14



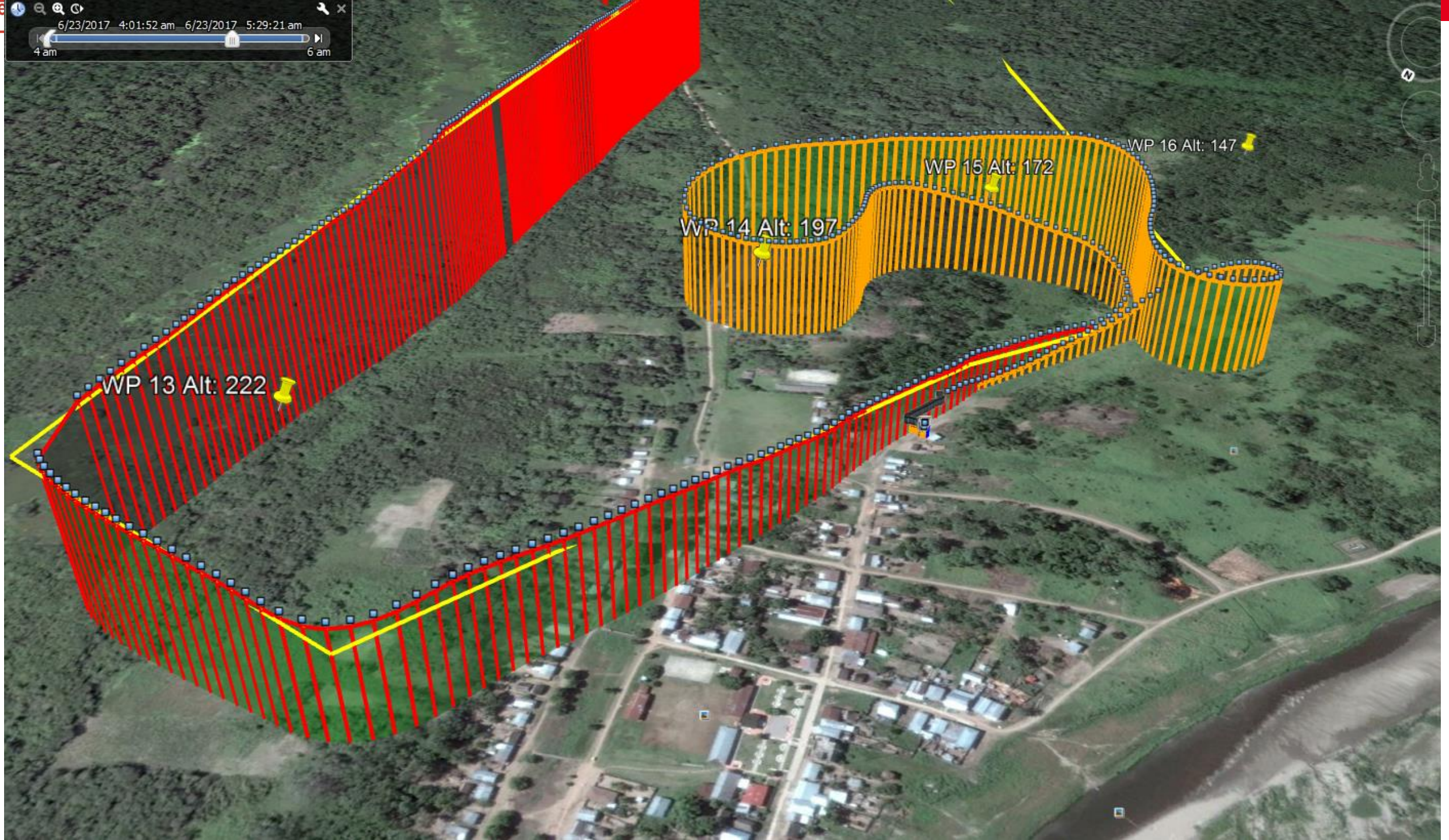


The screenshot displays a flight simulator interface with three main panels:

- Top Left Panel:** A 3D perspective view of a green terrain with a blue sky. A white arc indicates a flight path or heading. A vertical scale on the right shows values from 80 to 110.
- Top Right Panel:** A "Tuning" graph showing "Landing (km/h)" on the y-axis (0 to 40) and "Time (s) (10°)" on the x-axis (23.806 to 23.814). A legend at the top lists parameters:
 - Windward Side: 10 km/h, 10 km/h, 10
 - Downwind Side: 10 km/h, 10 km/h, 10
 - Upwind Side: 10 km/h, 10 km/h, 10 km/h
 - Downwind Side: 10 km/h, 10 km/h, 10 km/h
- Bottom Right Panel:** A 2D map view showing a flight path with numbered waypoints (1-14) and colored lines (yellow, purple, green). A red arrow indicates the current heading. A legend at the bottom identifies "Land Heading", "Down to current WP", "Up Heading", and "GPS Track (Black)".

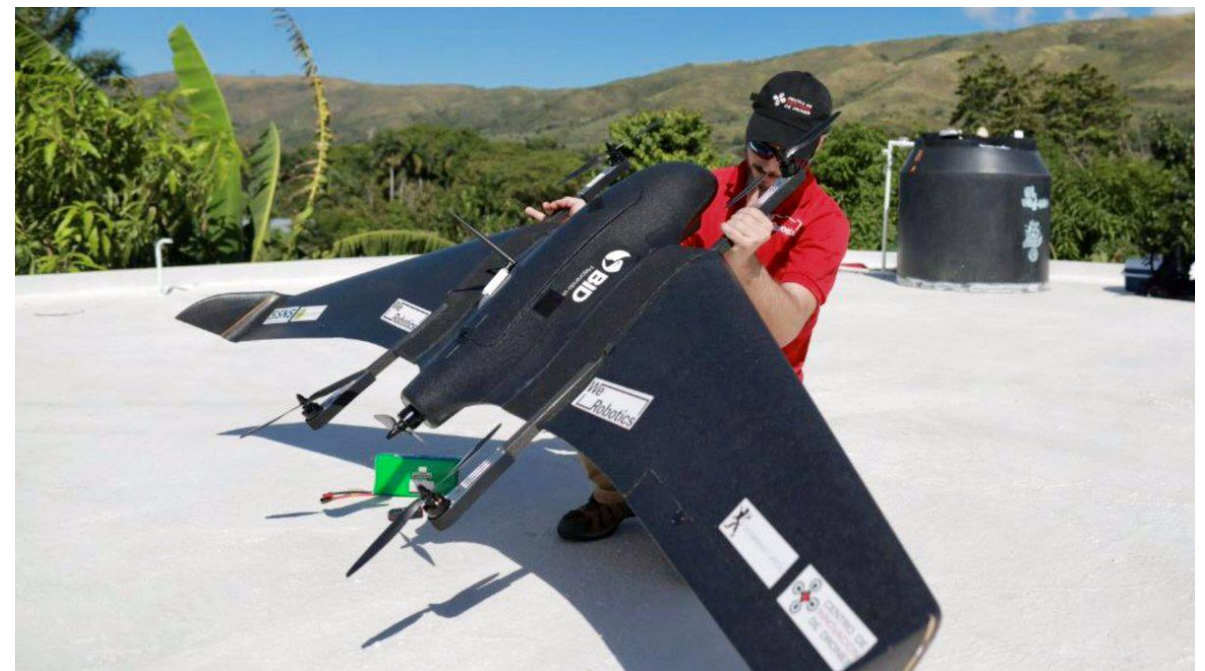
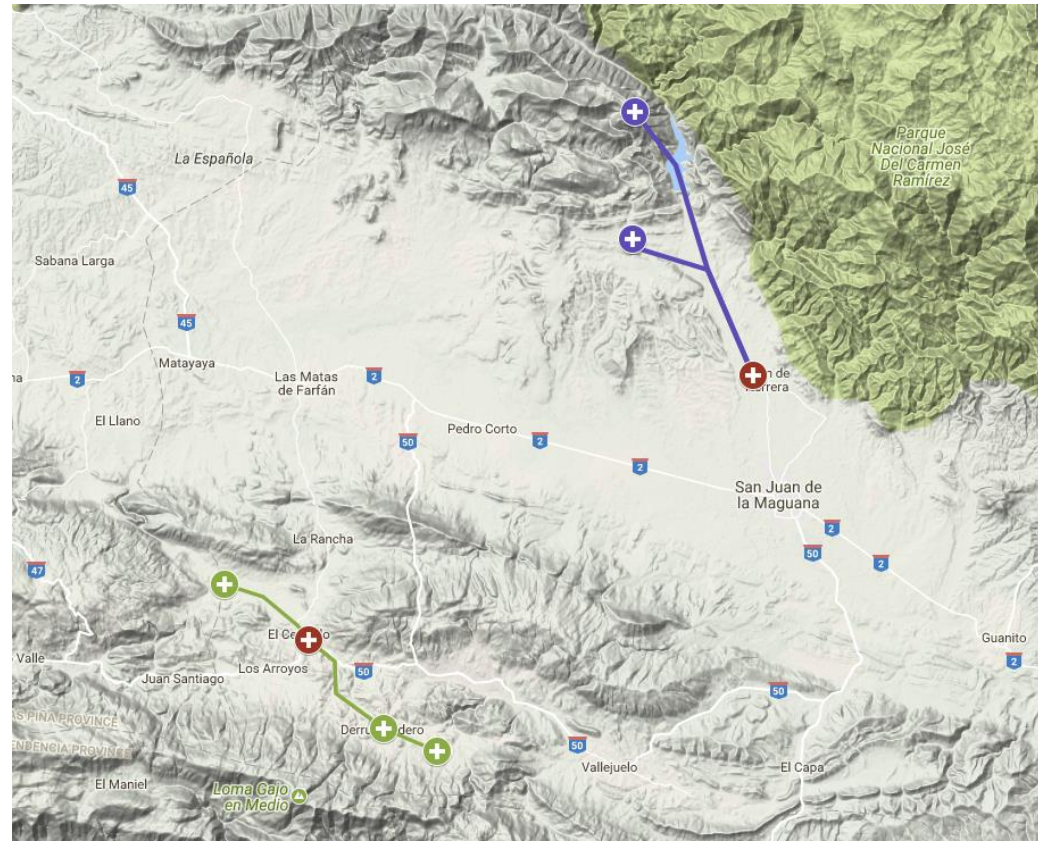
At the bottom of the screen, there is a Windows taskbar with the system clock showing 17:16 on 23/06/2017.

6/23/2017 4:01:52 am 6/23/2017 5:29:21 am
4 am 6 am





Cargo VTOL Trials in Dominican Republic



Emprende – WeRobotics









What's Next

- Dominican Republic
- PNG – Vayu
- PNG – Sparkletech
- Perú – Jacques 2.0



Questions?



o.lopez@tokyo.msf.org



oriol@werobotics.org