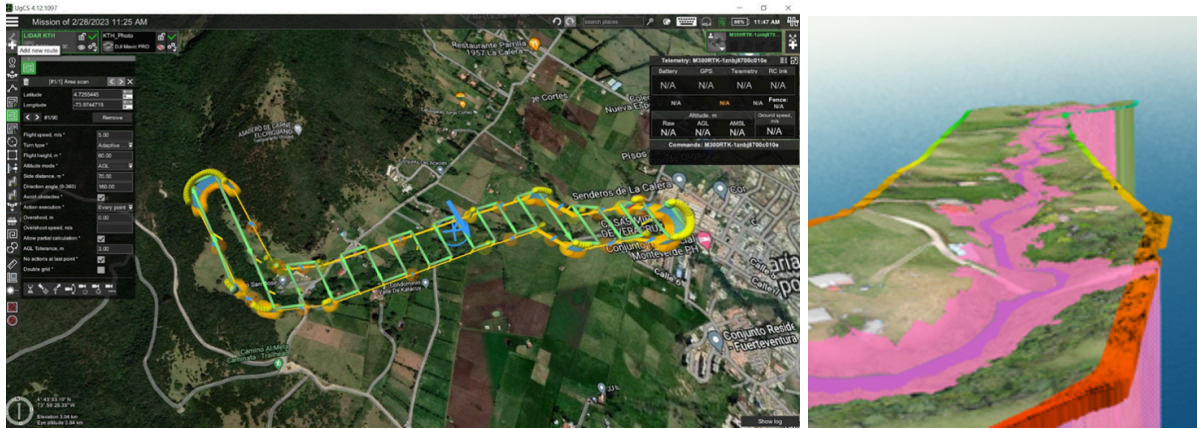


Flood Monitoring in the Colombian Andean Region Using UAV-Based LiDAR



Flight plan for DJI Matrice 300 (left) and 5-meter increase in river water level simulation (right)



DTM and photogrammetry (left) and the team group photo (right)

OVERVIEW	
Flying Labs	Colombia Flying Labs
Location	Bogotá (La Calera) – Colombia
Date	July, 2023
Length (number of days)	8 days
Sector program (optional)	EcoRobotics

Format	Online and In-Person
Co-organizer if applicable	La Calera, KTH University, Universidad Distrital, and UAV Latam Colombia.
SDGs	GOAL 6: Clean Water and sanitation GOAL 9: Industry, Innovation and Infrastructure GOAL 13: Climate Action GOAL 17: Partnerships to achieve the Goal

SCOPE & OUTCOMES	
Type of training	<ol style="list-style-type: none"> 1. Introduction training to drones 2. Sector-specific training of professionals: use of drones in LiDAR. 3. Youth/STEM training
Goal of the training	<ol style="list-style-type: none"> 1. Create drone awareness 2. Develop drone data acquisition skills 3. Develop drone data analysis skills 4. Train and empower youth and the workforce of the future 5. Use of drones in LiDAR
Expected outcome for participants	<p>The participants expected to learn about:</p> <ul style="list-style-type: none"> ● How to raise awareness against building and agriculture along rivers, throwing construction debris in rivers, and cutting trees around rivers. ● How to show substantial damage on buildings and farmlands for farmers using technology as a tool.
Confirmed outcome after training	<p>The participants had the opportunity to explore the world of drones and see the application of LiDAR sensors and the information that can be collected. With these demonstrations, student farmers can gain practical experience in new technologies and how to apply them to their daily lives.</p>
Eventual next steps	<ul style="list-style-type: none"> ● Generating more crop optimization projects using learning about the use of drones.

	<ul style="list-style-type: none"> Continuing the support to schools engaging the young students to drone technology and STEM. Scheduling new workshops and outreach activities.
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PARTICIPANTS

Profiles and number of participants	<ul style="list-style-type: none"> 7 professionals including individual consultants, an aeronautical engineer, researchers, experts, a teacher, pilots, students of Sweden, and data scientists. 10 local community members 20 School children (14-18 years old)
Name of participants' organizations	<ul style="list-style-type: none"> KTH Royal Institute of Technology Alcaldía de la Calera UAV Latam Colombia
Gender ratio	50% Female : 50% Male
Who paid for the training?	The training was free.
Participant fee rate (if applicable)	Not applicable.
Scholarships offered?	No.

CONTENT

Training components	<p>Please provide details about the different components/parts of your training.</p> <ul style="list-style-type: none"> Introduction to the drone industry. Drone operation, safety, regulations and uses. Future potential use of drone technology. Sensor management Drone flight demonstration.
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<p>Training resources used</p>	<ul style="list-style-type: none"> ● Powerpoint Presentation ● Portatil HP ● Project socialization meetings ● Drones Demonstration and Exhibition <ul style="list-style-type: none"> ○ DJI M300 RTK with H20T Camera and LiDAR TrueView ○ Ebee and SODA camera. ● Global Mapper
<p>Approaches and methods used</p>	<p>We adapted the training to meet the specific needs of the audience through:</p> <ul style="list-style-type: none"> ● Analysis of needs in fields and communities ● Gathering information on the current methods of conventional studies ● Using different scenarios of flooding, simulating water levels ● Considering the social, environmental, and economical impact consequences for surrounding people and vegetation ● Listening to young people about their experiences of working in the farms with their parents. <p>The training had two sessions, one theoretical and the other practical in the field with flights over sites. Through field practices and simulation models, the participants learned the importance of preventing floods and conserving water bodies.</p>