CubeSat Quetzal-1: Outreach Activities

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1st Access to Space for All Expert Meeting
May 2023
ABOUT QUETZAL-1

• First Guatemalan satellite
• Deployed from the ISS in 2020
• Mission: Design, develop and operate a CubeSat satellite, testing a prototype of a multispectral sensor
• Winner of:
  • 2nd round of the KiboCUBE program of UNOOSA & JAXA in 2017
  • Person of the year in Guatemala 2019, Prensa Libre
  • People’s Choice Award of AIAA in 2020
  • CubeSat Delivery Initiative of Arizona State University Interplanetary Initiative in 2022
Outreach Activities, Quetzal-1
2016 to 2022

1. Webpage
2. Social networks
3. Press conferences, press releases for milestones
4. Workshops in schools, conferences in companies and events
5. “Guate goes to the space” in newspaper Prensa Libre
6. Interviews in media
7. Promoting balance gender in Engineering
8. Competitions:
   1. Name the first Guatemalan Satellite
   2. Design the mission patch for Quetzal-1
10. Release of Quetzal-1 hardware design
THE FIRST GUATEMALAN SATELLITE
IS A STUDENT PROJECT OF THE ENGINEERING SCHOOL AND THE RESEARCH INSTITUTE OF UVG

PROJECT SELECTED BY THE UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS (UNOOSA) AND THE JAPAN AEROSPACE EXPLORATION AGENCY (JAXA) FOR THE SECOND ROUND OF THE UNOOSA-JAXA KIBOCUBE PROGRAMME «
Social Networks

Quetzal-1 CubeSat

Our great gig in the sky, #Quetzal1, reached its end. We flew all over the world, and we say goodbye with pride.

Guatemala  bit.ly/datos-quetzal1  Se unió en junio de 2019
338 Siguiendo  3.178 Seguidores

#Tweet fijado
Quetzal-1 CubeSat @quetzal1_uvg · 26 ene. 2021
La misión de #Quetzal1, con 211 días de operación continua, llegó a su fin.
Press Conferences, press releases for milestones

October 2016. Announcement that UVG was developing the first Guatemalan satellite

November 2019, Quetzal-1 ready to be handed-over to JAXA
Workshops in schools, conferences in companies and events
Cómo obtiene energía Quetzal-1

El submódulo de potencia del primer satélite guatemalteco ha pasado por pruebas para asegurar su funcionamiento en órbita.

Componentes del submódulo de potencia

1. Paneles solares
2. Convertidor electrónico del sistema de potencia
3. Almacenamiento

55 Bi-weekly publications from 2018 to 2020

“Guate goes to space” articles in newspaper Prensa Libre

Image credit: Prensa Libre
Interviews, articles, news in media

Cover of newspapers in Guatemala when Quetzal-1 was deployed from the ISS

390 publications registered in media from 2015 to 2022
Promoting balance gender in engineering

Image credit: Prensa Libre

Women in Engineering program: a one week workshop for middle and high school girls that includes a session on Quetzal-1
Competitions

José Miguel Ortega, winner of the competition: “Name the first Guatemalan satellite”

Image credit: Prensa Libre

Winner of the Mission Patch design competition. Designed by Carlos Lorenzana, José Salguero y Johany Cúmes
Almost 85,000 data packages received with support of SatNogs network
Hope from the sky: the story of the first Guatemalan Satellite
Release of Quetzal-1 hardware design (June 2023)

DESIGN OF THE FIRST GUATEMALAN SATELLITE, QUETZAL-1

The satellite design has been released by the Quetzal-1 team, including the software and hardware for the Electrical Power System (EPS) and the Attitude Determination and Control System (ADCS). It also includes the electronic design of the Antenna Deployment Mechanism (ADM), as well as a database with satellite telemetry (more than 80,000 data packets throughout its 211 days of operation) and the photographs that were taken and downloaded from space. Finally, a repository that describes the operation of the Ground Control Station (GCS), assembled at UVG and used in 2020 to operate the satellite.

To access the released information, you can visit the following links:

- Repository home page: https://github.com/Quetzal-1-CubeSat-Team
- Electronic design of the satellite: https://github.com/Quetzal-1-CubeSat-Team/quetzal1-hardware
- Satellite software: https://github.com/Quetzal-1-CubeSat-Team/quetzal1-flight-software
- Ground control station software: https://github.com/danlavarez/gr-quetzal1
- Telemetry and photographs taken by the satellite: https://github.com/Quetzal-1-CubeSat-Team/quetzal1-telemetry
Quetzal-1

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