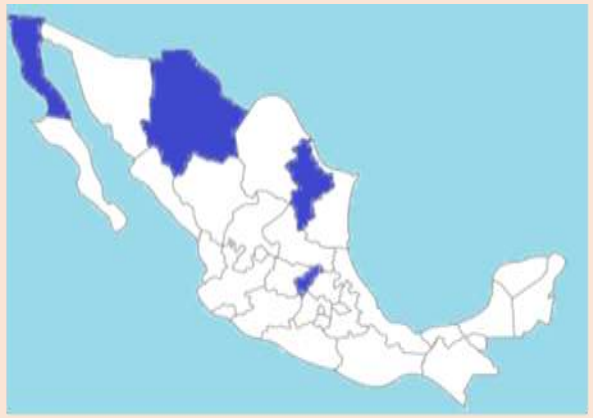
UNISEC-México: **Experience in Space Development**

Dr. Jorge Alfredo Ferrer Pérez
Chair of Local Chapter México

UNISEC-México Norte

UNISEC
University Space Engineering Consortium
NORTH-MEXICO

(2014)



Universidad Autónoma de Baja California
Aerospace Engineering

M. C. Antonio Gómez Roa

Student: Erick Norberto Bustamante López

Universidad Nacional Autónoma de México
High Technology Center

Dr. Jorge Alfredo Ferrer Pérez

Student: Eng. Rigoberto Reyes Morales

Universidad Autónoma de Chihuahua
Aerospace Engineering

Lic. Adriana Ruíz Anchondo

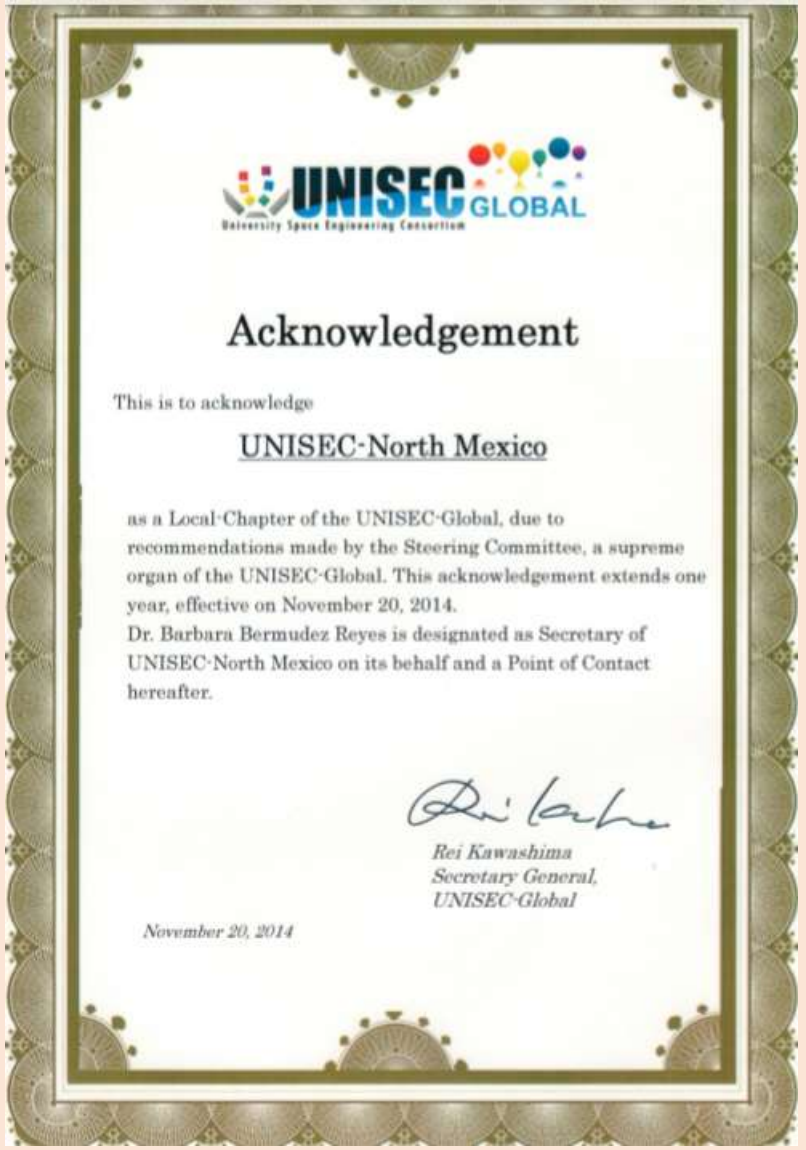
Dr. Hermes Moreno Álvarez

Student: Janeth Loya Ruiz

Universidad Autónoma de Nuevo León
Aeronautics Engineering Research and
Innovation Center

Dr. Bárbara Bermúdez Reyes

Student: Octavio Rafael Farías Altamira



UNISEC GLOBAL
University Space Engineering Consortium

Acknowledgement

This is to acknowledge

UNISEC-North Mexico

as a Local-Chapter of the UNISEC-Global, due to recommendations made by the Steering Committee, a supreme organ of the UNISEC-Global. This acknowledgement extends one year, effective on November 20, 2014.
Dr. Barbara Bermudez Reyes is designated as Secretary of UNISEC-North Mexico on its behalf and a Point of Contact hereafter.

Rei Kawashima
Secretary General,
UNISEC-Global

November 20, 2014

First activities of UNISEC-Mexico Norte

- Cansat training for professors of UABC (2015)
- Cansat training for students of UANL, UACH, CAT-UNAM, UABC (2015)
- Cansat training for students of UANL, UACH, CAT-UNAM, UABC, UT-Altamira (2016)
- Rocketry training for students of UANL-UABC (2017)
- Local competitions of Cansat in UABC (2018)

Change of UNISEC-México Norte to UNISEC-México

General Secretary: Dra. Barbara Bermudez-Reyes (UANL)

Executive Advisor: Dr. Carlos Romo Fuentes (RedCyTE)

External Group: Dr. José Alberto Ramírez-Aguilar (GRULAC-IAF)

www.unisecmexico.com

Member Universities

University	Professor
Instituto Tecnológico de Nogales	Ing. Karina Reyes-Lío
Instituto Tecnológico de Puebla	M. C. Rosa Maria Martínez -Galvan
Universidad Autónoma de Chihuahua	Dr. Hermes Moreno-Álvarez
Facultad de Ingeniería –UNAM	Dr. Fernando Velásquez-Villegas
Universidad Autónoma de Nuevo León	Dra. Bárbara Bermúdez Reyes
Instituto Tecnológico Superior de Tepeaca	M. C. Josué Mancilla - Cerezo
Unidad de Alta Tecnología- UNAM	Dr. Jorge Alfredo Ferrer- Pérez
Altamira Technological University	M. C. Oscar Martínez- Hernández
Instituto Politécnico Nacional	Dr. Jorge Javier Hernández Gómez
Instituto Tecnológico Superior de Irapuato	Dr. Rafael Vargas-Bernal
Universidad Autónoma de Baja California	M.C Antonio Gómez-Roa
Universidad Autónoma de Estado de México	Dr. Juan Sumaya
Universidad Autónoma de Sinaloa	Dr. Ana María López-Beltrán

INTERNATIONAL ASTRONAUTICAL FEDERATION

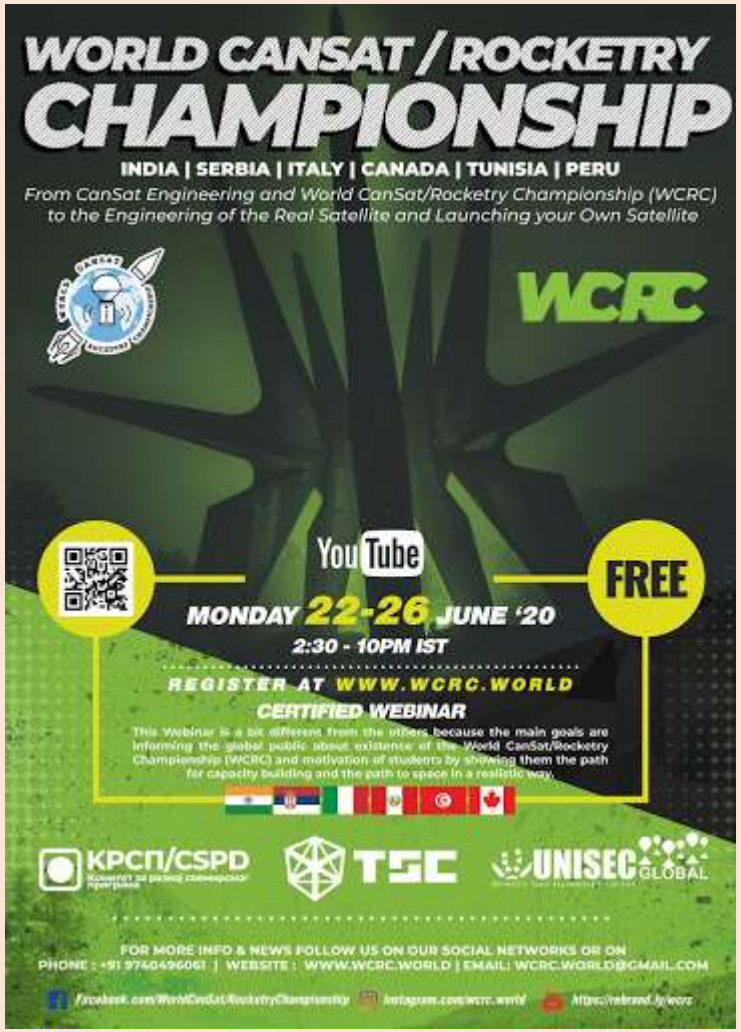
GRULAC

Latin America and Caribbean Regional Group

RedCyTE

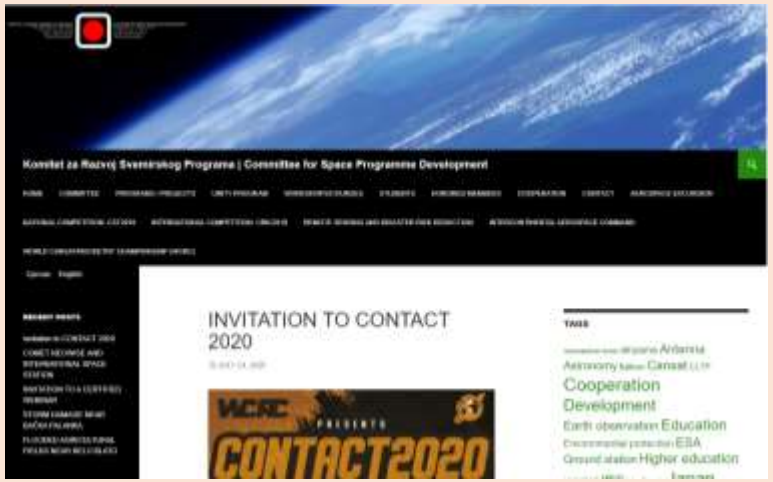
UNISEC-México

Colaboraciones Internacionales



CANSAT
BOOTCAMP COSTA RICA

Costa Rica Institute of Technology
UNISEC-Costa Rica



Komitet za Razvoj Svemirskog Programa | Committee for Space Programme Development
UNISEC Serbia

UNISEC México – UNISEC Peru

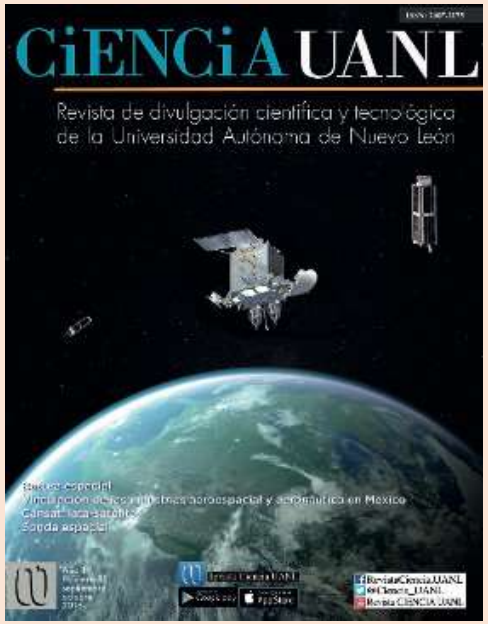
MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

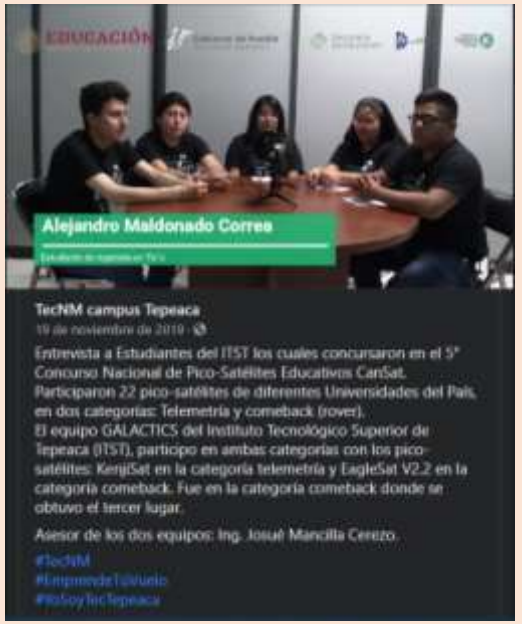
New Zeland University

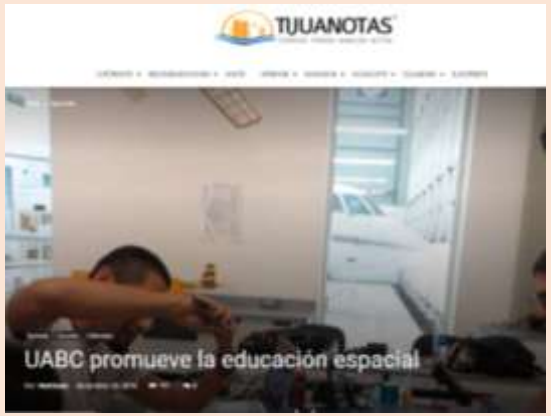
UNISEC-México

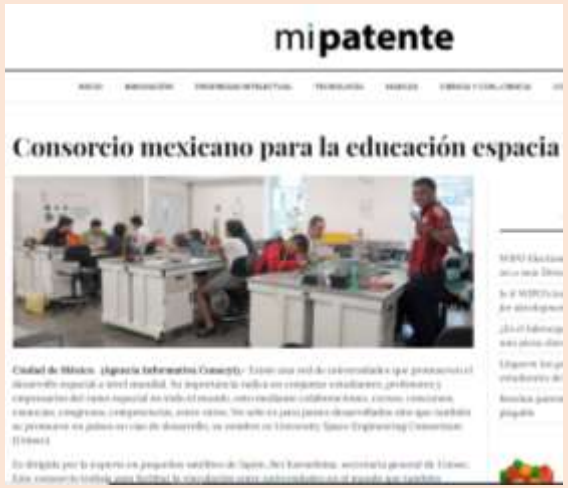
Social Impact

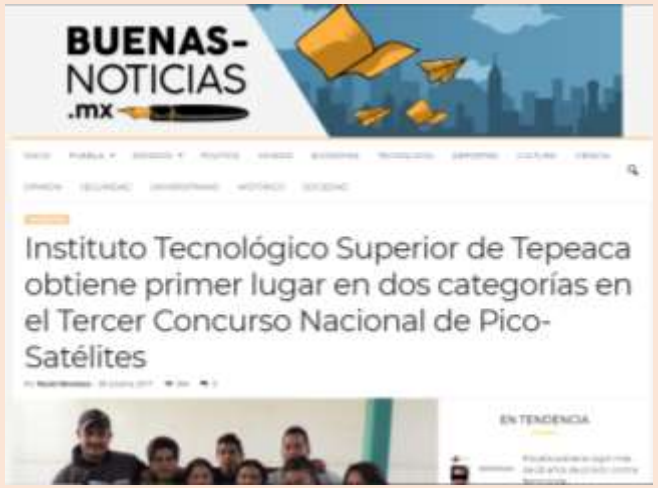
- Human resources formation: 12
- Indexed publications: 15
- Summer students: UABC UANL y UAS.
- Face-to-face courses: UABC, UANL, in colaboration with REDCYTE
- Virtual courses: UABC, UANL, UACH, UT-Altamira, CAT-UNAM
- Special issue in Revista Ciencia UANL (No. 81).
  - http://cienciauanl.uanl.mx/?page_id=947
  - https://issuu.com/rodrigosotomoreno/docs/ciencia_uanl_19_81
- Web page: UANL-ITST (in reestructuration)
- Newspaper notes: 6
- Advisor organization of the Aerospace Engeneering Program of UNAM

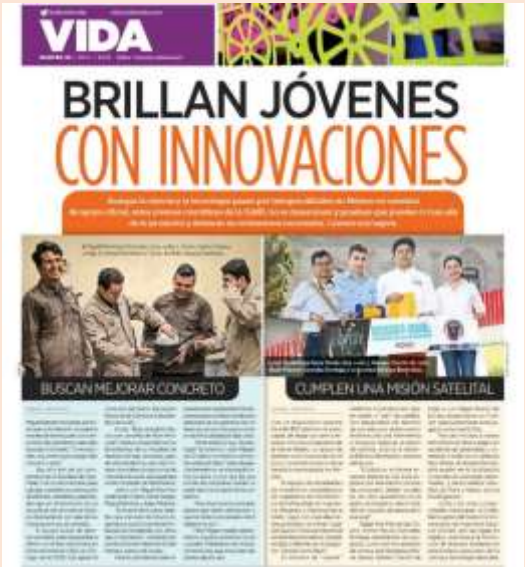




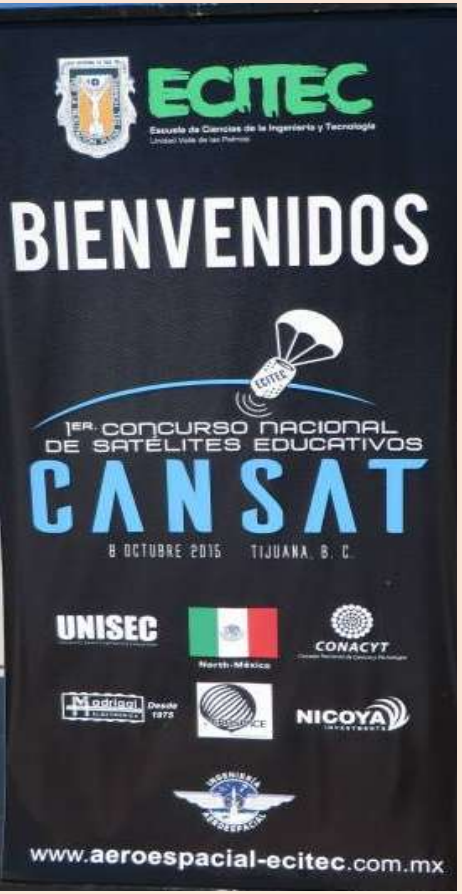


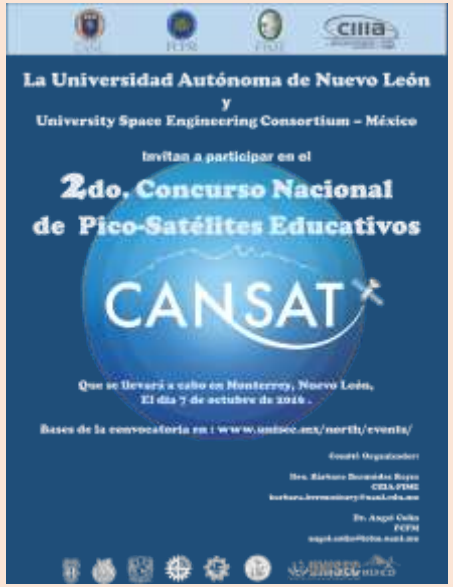


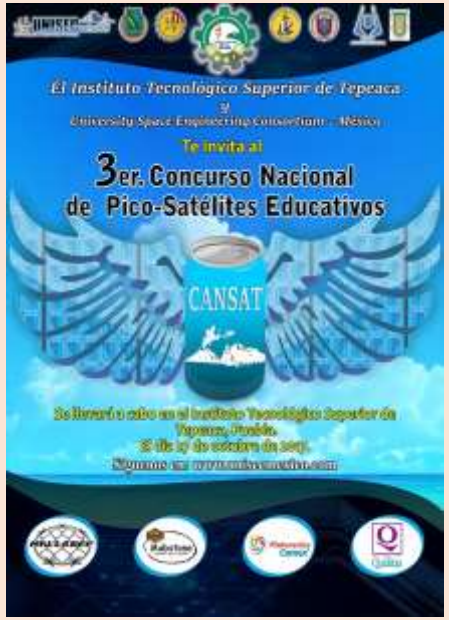


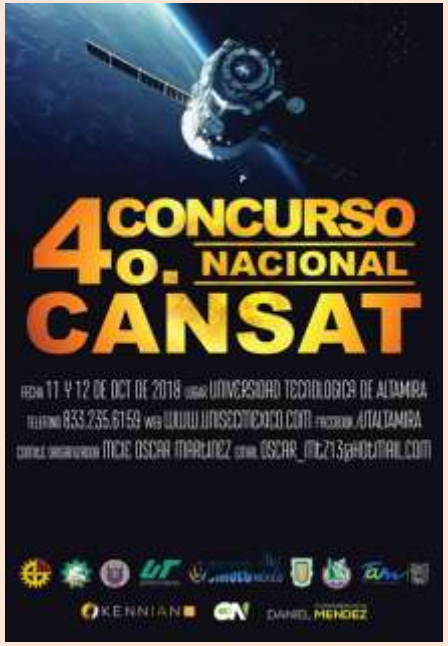


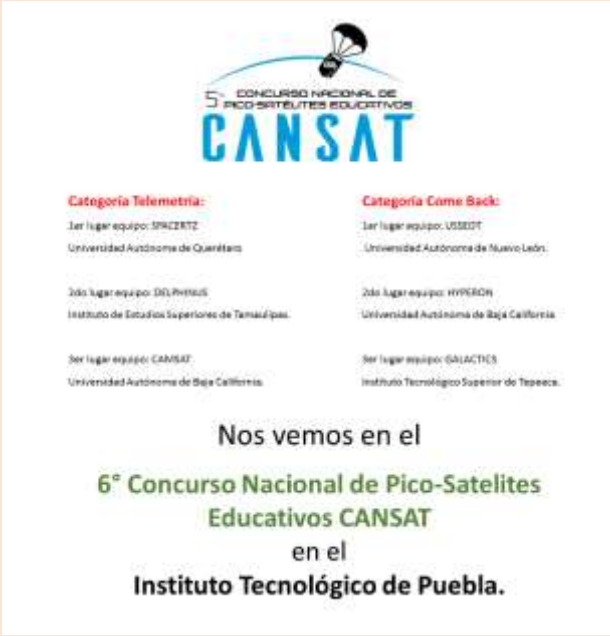
Educational Picosatellites (Cansat) National Competitions











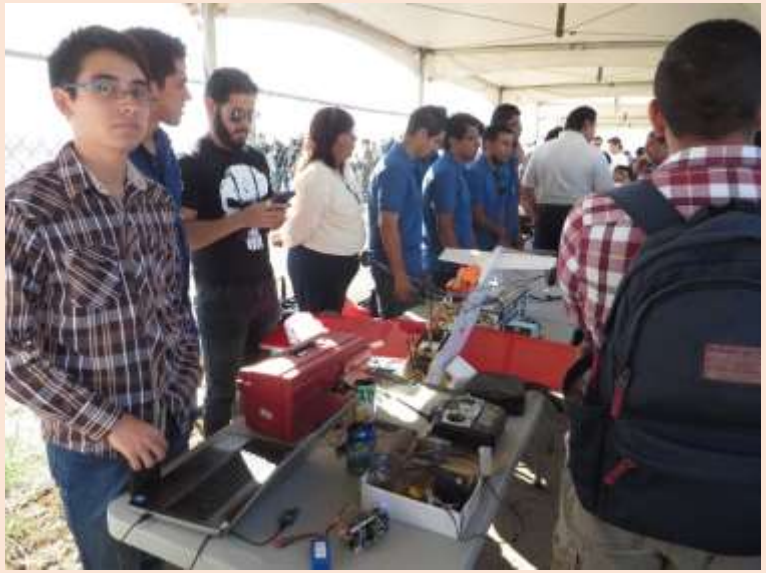
6° Concurso Nacional de Picosatélites Educativos Cansat

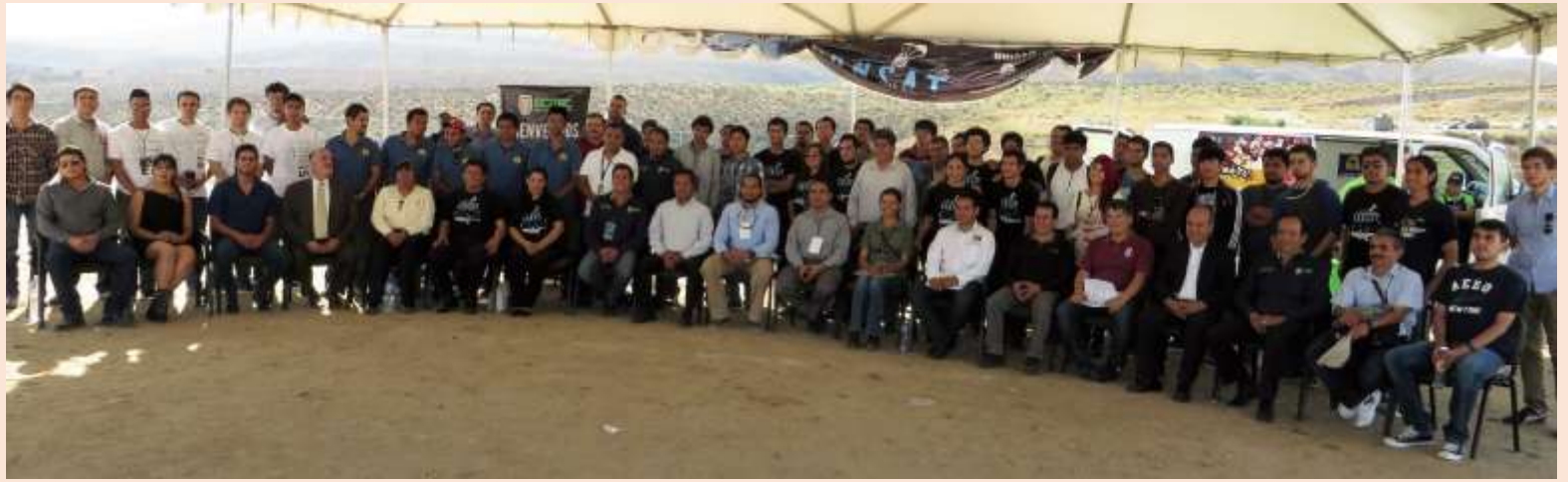
Instituto Tecnológico de Puebla

2021

First competition (learnt lessons)

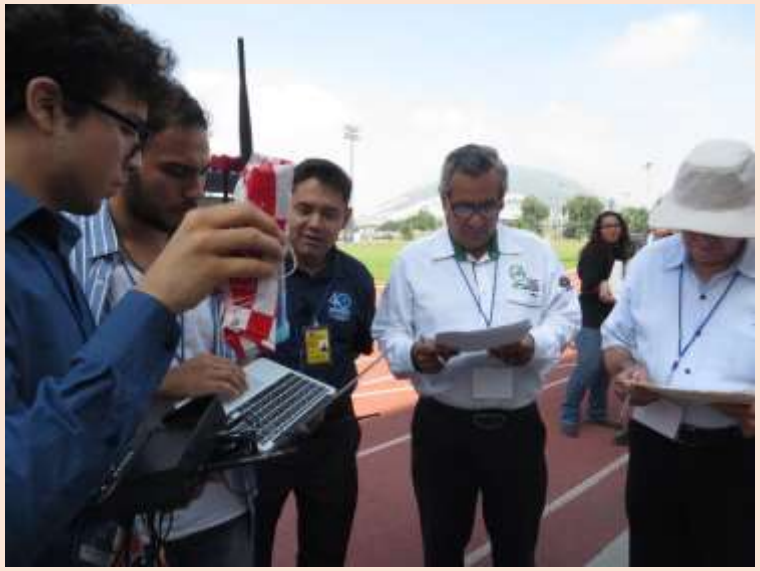
- Load all possible tools
- Write calls
- That systems fail when you need them most
- Launch pad type
- Parachute size
- The private properties surrounding the mission site.

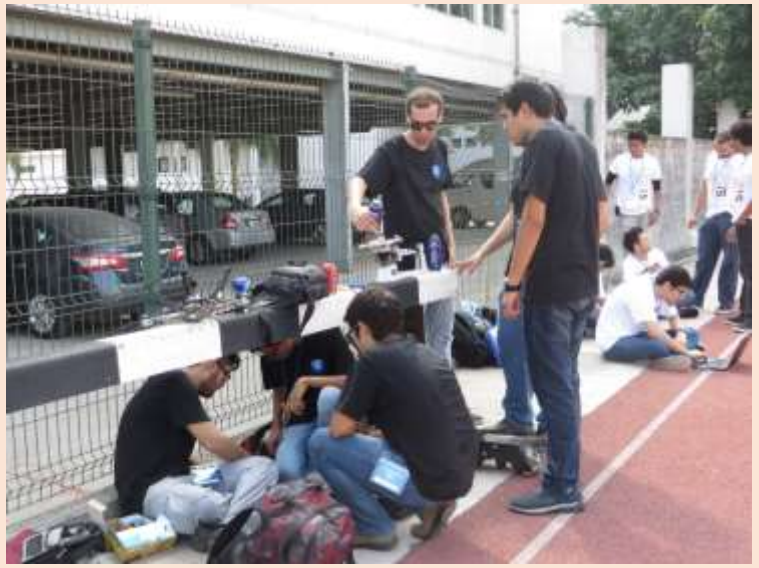




Second competition (learnt lessons)

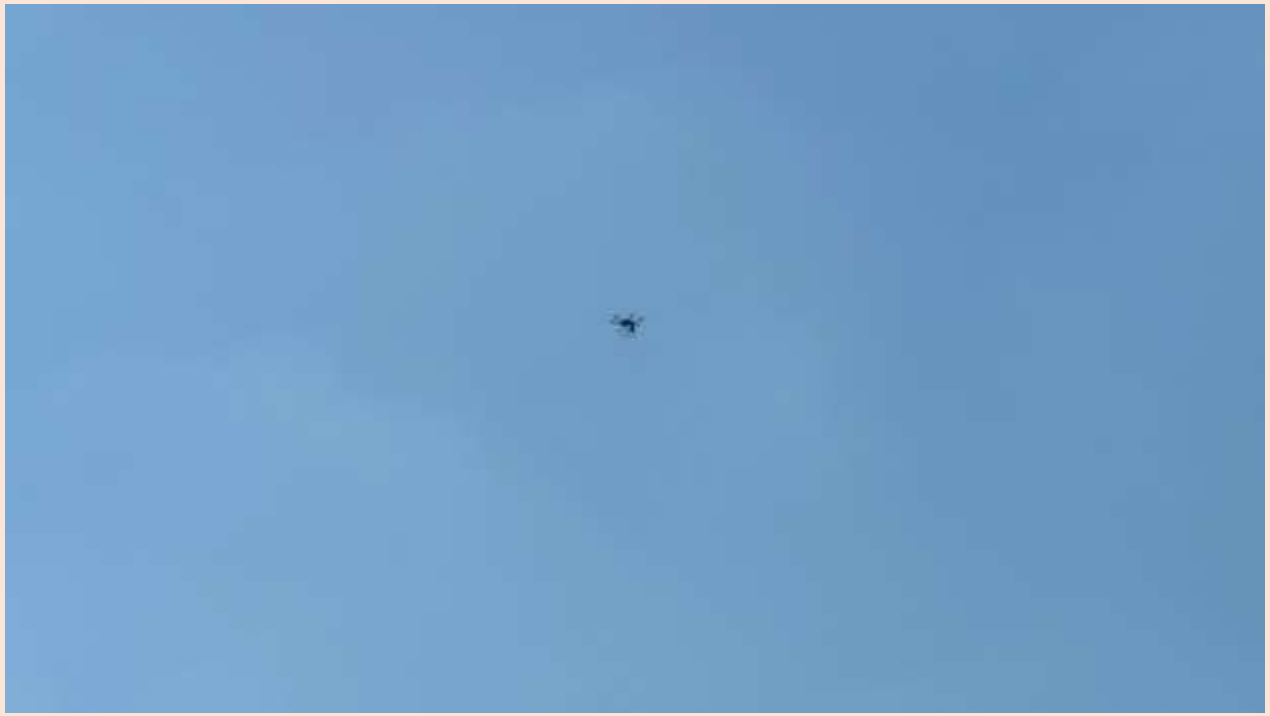
- Keep the computer batteries charged
- Bring extra batteries
- Pay attention to the call
- Consider the weight and dimensions requested
- Launch pad capacity
- Special place for evaluation of the judges
- Have Electricity in the mission scenario
- Don't fight with the judges





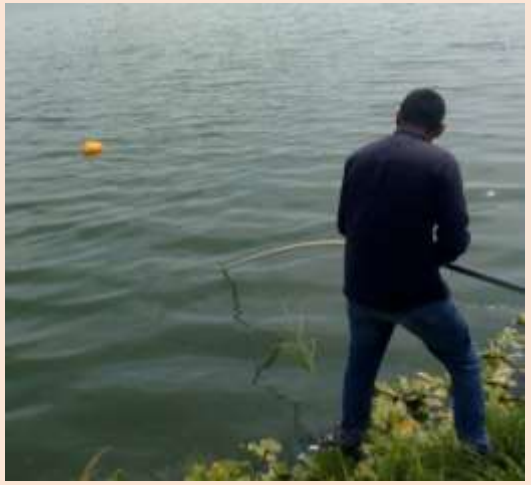
Third competition (learnt lessons)

- Turn off cell phones or put them in flight mode
- Consider the wind direction
- Turn on the cansat before flights
- Number of flights allowed
- Consider cansat rescue equipment
- Consider the height of nearby trees
- Consider the terrain of the mission scenario
- That the cansat must carry out missions.
- Consider a closed location for mission presentations.



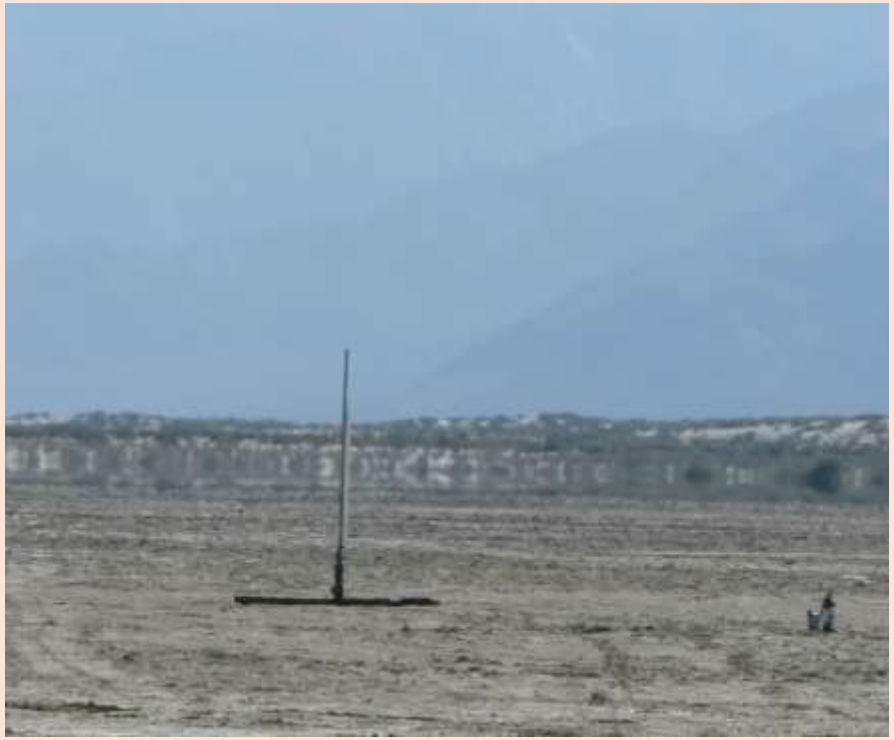
Fourth competition (learnt lessons)

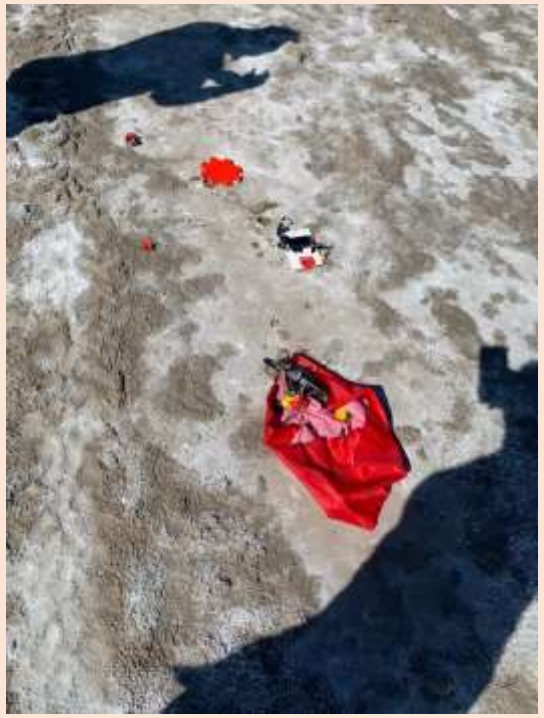
- Consider the humidity and height of the place
- Consider the direction and speed of the wind
- Consider the flora and fauna of the place
- Consider water rescue equipment
- Consider if there are lakes, lagoons or surrounding rivers
- Consider the judges' flight schedules.



Fifth Competition (learnt lessons)

- Consider height above sea level
- That the direction and speed of the wind depend on the time of day
- Do not assume that there is no water in the desert
- That crystallized salt is a tire destroyer
- Teams and judges must be in good physical condition
- Don't forget your colleagues at customs
- Mission scenarios





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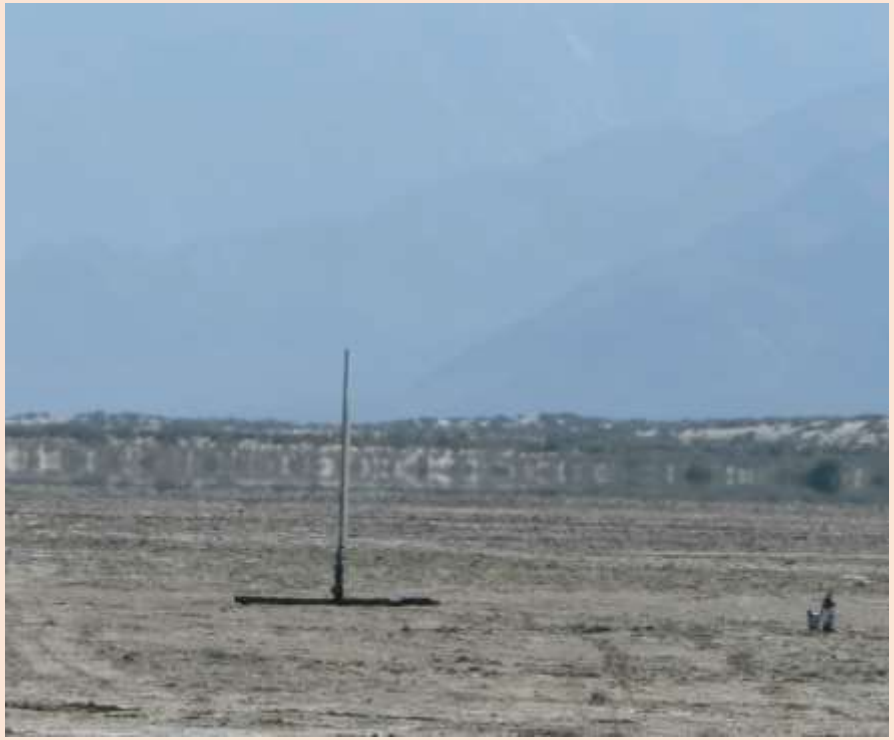
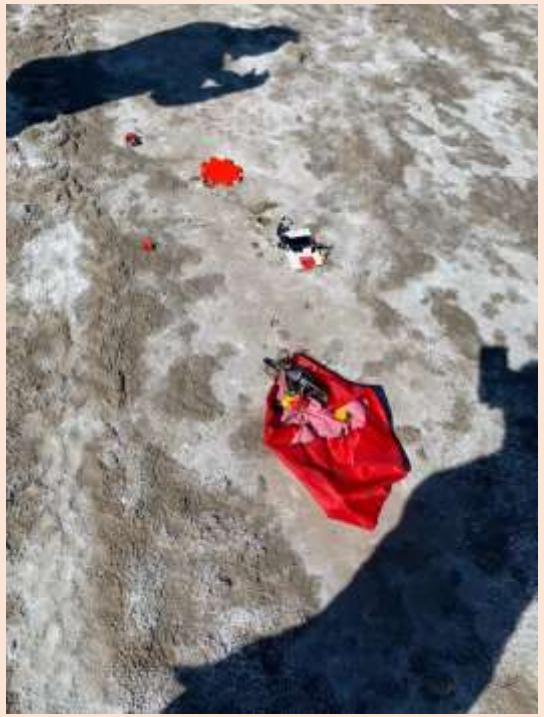
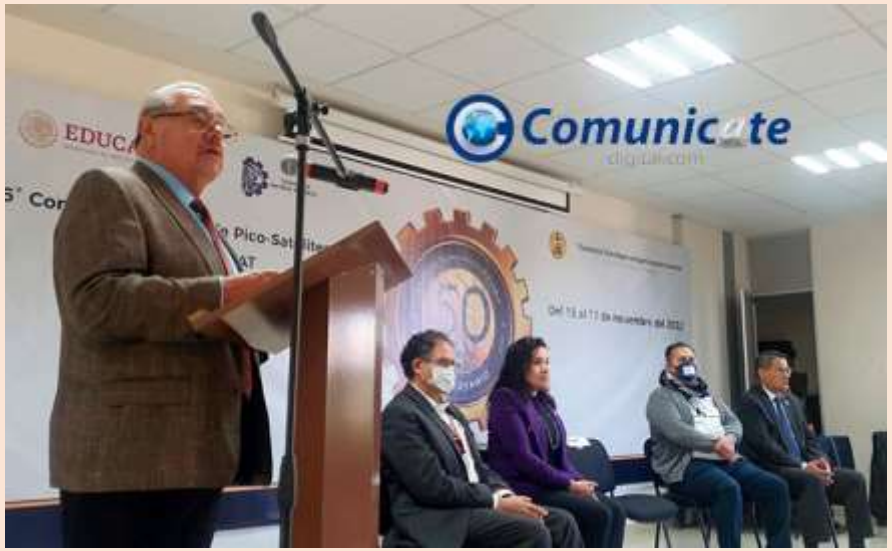
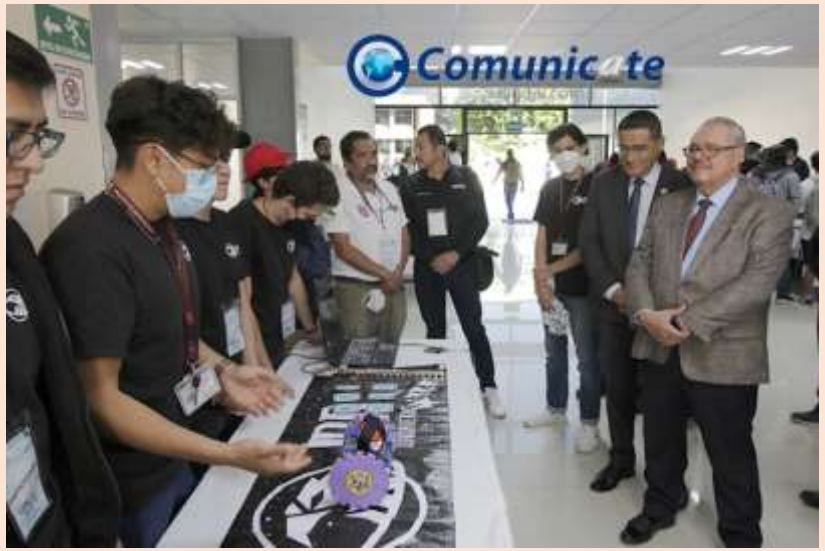


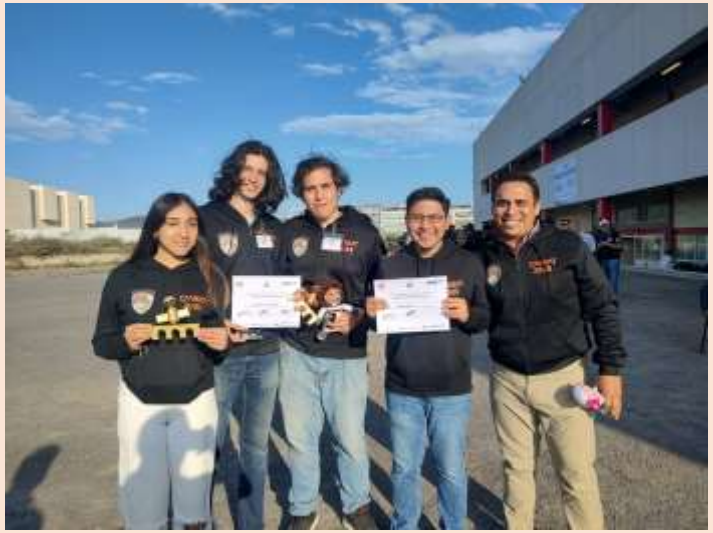


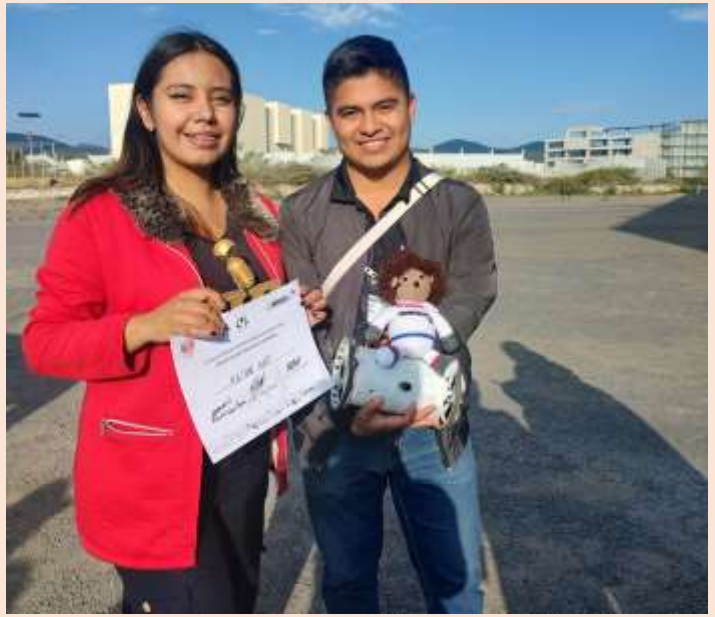
The sixth edition of the CANSAT National Educational Pico-Satellite Competition It took place at the Pueba Technological Institute, on November 16, 2022.





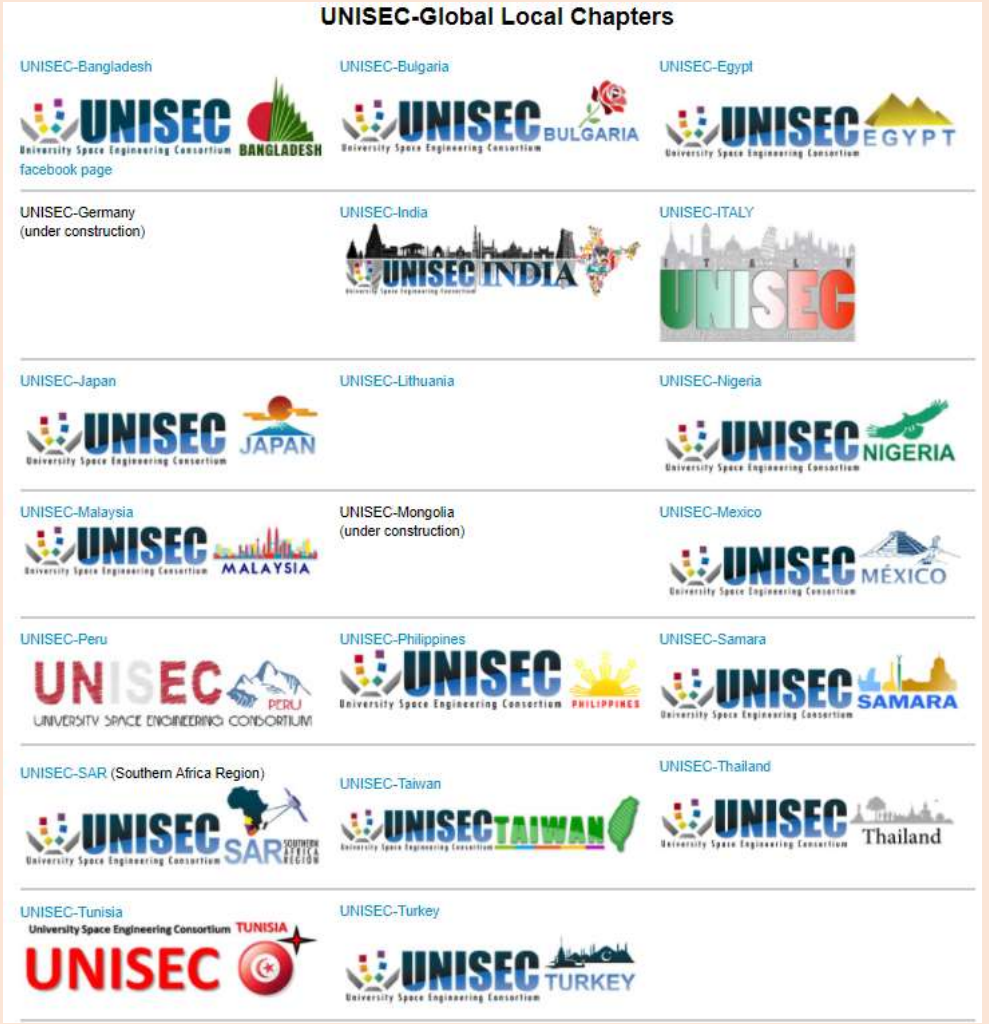
The seventh edition of the CANSAT National Educational Pico-Satellite Competition took place at the UNAM Campus Juriquilla, State of Queretaro on November 9, 2023.





Conclusions from the first 6 years of UNISEC-Mexico

- Continuous work
- Collaborative work
- Same goal
- Analysis of each competition
- Student exchanges
- Teacher stays
- Generation of external projects



Future work

Keep growing and advancing