SENSAT: a cubesat project to promote the human resources preparation in aerospace technologies in Mexico

Francisco J. Mendieta[1] , Enrique Pacheco[1], Arturo Serrano[1], Jorge Sanchez[2], Ciro Martinez[3], Marco Turrubiartes[4], Juan C. Murrieta[5]

1 CICESE Carretera Ensenada-Tijuana No. 3918, Zona Playitas, Ensenada, B.C. México 22860 Tel. +52 646 175 0554 Fax.+52 646 175 0555

2 VIVETEL, Justo Sierra No. 9216, Zona Centro, Tijuana, B.C. México, 22000. 3 CITEDI, Av. del Parque No. 1310, Mesa de Otay, Tijuana, B.C., México 22510

4 UABC, Blvd. Benito Juárez S/N, Mexicali, B.C., México. 5 ITSON, Calle 5 de Febrero No. 818 Sur, Colonia Centro, Ciudad Obregón, Sonora, México

mendieta@cicese.mx, epacheco@cicese.mx, serrano@cicese.mx, jorge.vivetel.@gmail.com, drciro@gmail.com, mturrubiartes@gmail.com, jmurriet@itson.mx

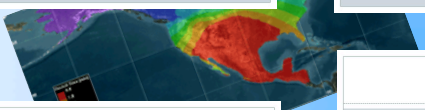
OBJECTIVE

•Research, design, development, and construct cubesat standard based: High Performance Educative Nano Satellites (HPENS), and support elements that will enhance the teaching and training process for high level human resources formation in the area of aerospace technology.

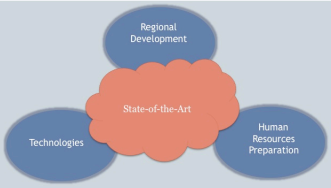
• Specifically the project seeks to strengthen the human sector involved in the aerospace industry in the northwest, mainly the states of Baja California and Sonora.

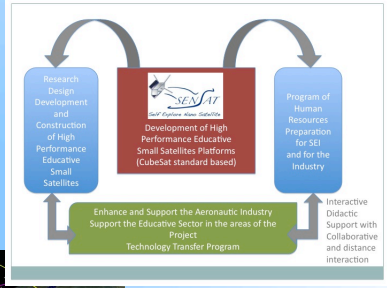
Introduction

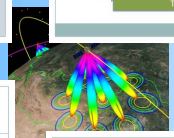
- CICESE Research Center is located 100km South to the border with California.
- Working on satellite communications since 1975 and space technologies since 1985



SENSAT main goals



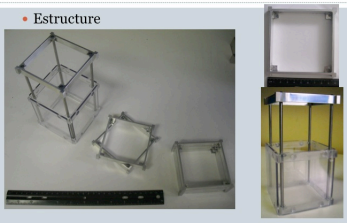




SENSAT Components

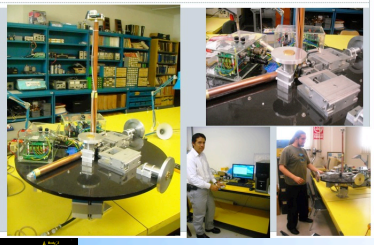
Functional Evaluation Prototypes

- Estructure



Functional Evaluation Prototypes

- Stabilization test-bed system

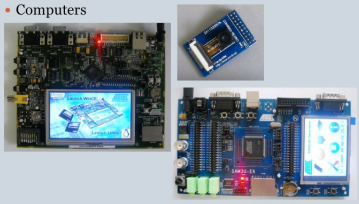


Regional Impact on the Aerospace Sector

- **Generation of methodologies for monitoring the manufacture of satellite subsystems in order to strengthen the knowledge and development of improved techniques of integration, control and quality assurance, reliability, and others, linked to standards of manufacturing for aerospace elements and transfer as learning process in the training of high level human resources.**
- **Development of interactive mechanisms, supported by the use of Internet and digital tools for disseminating information to create interactive educational content to optimize the learning process.**

Functional Evaluation Prototypes

- Computers



Participants

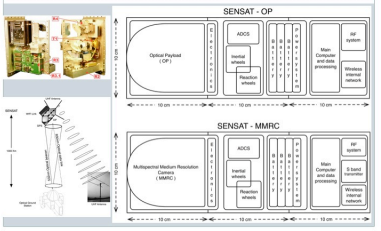
- VIVETEL S. de R.L. De C.V.
- CITEDI (Tijuana)
- UABC (Mexicali)
- ITSON (Cd. Obregon)
- CICESE (Ensenada)

Conclusions

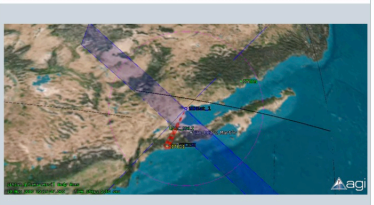
- One satellite for the Humsat Constellation
- One payload for Condor mission from UNAM
- Part of the main national efforts linked to aeroespace activities
- Promoter of active collaborations links between research groups in Mexico, included CAT-UNAM, INAOE, IG-UNAM, II-UNAM, ESIME-IPN, QAE, etc.

Gracias – Thank you

Payload Concepts



Operation



Contact Information:
Javier Mendieta – Project Leader
mendieta@cicese.mx

"Images courtesy of Analytical Graphics, Inc. (www.agi.com)"