AztechSat-1, a first collaborative CubeSat between NASA and Mexico

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An international collaboration program for capacity building in space technology is being established between NASA and the Mexican Space Agency (AEM). Its objective is to develop a series of CubeSats collaboratively in a way that benefits both agencies. For AEM, this experience will support the development of human capital required for its space program. This project provides an opportunity for NASA future missions to benefit from commercially available technologies demonstrated in space. AEM was recently created by the Mexican Government to use and develop space technology in Mexico. Current AEM plans call for having the capability of developing its own communication satellites by 2030, so the need for having a Mexican cadre of space experts is mandatory.

The program will start with the development and launching of AztechSat-1, the first AEM CubeSat project to be deployed from the International Space Station (ISS). Several public Mexican universities will participate in this project to demonstrate GlobalStar, a satellite communications provider using a constellation of LEO satellites, as an option for small satellite missions.

AztechSat-1 mission objectives are:

- Develop a flight ready CubeSat for deployment from the ISS
- Demonstrate GlobalStar´s Network as a method to advance communications in CubeSat missions.

AztechSat-1 is envisioned as a 1U CubeSat and will be designed and constructed by Mexican graduate students from two major universities in Mexico: UNAM and IPN. The students will be mentored and supervised by researchers from NASA Ames Research Center (NARC). Flight acceptance tests are going to be done both at Mexican university labs as well as at NARC. Funding for the project will be provided concurrently by AEM, the Mexican participating universities, and other Mexican entities.

The development of AztechSat-1 will emphasize the transfer of knowledge in space mission analysis and design, flight acceptance testing and other areas of space technology which are not well developed in Mexico yet. Mexican students will benefit from their mentoring from NASA researchers and will provide a multiplier effect in the development of the next generation of Mexican aerospace engineers.

AztechSat-1 will be developed in a period of twelve months and will be launched by late 2015. AztechSat´s success will define the future of collaboration between NASA and AEM in capacity building. A plan for developing a series of AztechSat's in a one per year basis, with increasing capabilities and complexity is currently being negotiated between NASA an AEM.

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