SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
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DESIGN OF A PERUVIAN SMALL SATELLITE NETWORK

Abstract

The Center for Technological Information and Communications (CTIC) at the National University of Engineering (UNI) in Lima, Peru, is in charge of the design of a national concept for the implementation of a Network of ground stations for small satellite missions. Currently CTIC conducts investigation on how to carry out this challenging project for our country and for the Peruvian industry. The main idea is that this network shall be supported not only by Peruvian government institutions, but also by national and international universities. The creation of such a program has already been started and a couple of European entities and universities are interested in becoming co-partner within the project. The ground stations will be located in remote places in Peru thus providing wide communication coverage, permitting longer contact capabilities between the satellite and the ground, and creating a complex space and ground based system. The selected locations are:

1- Lima (Head quarters – Centre West) Coordinate: 12 2 36 S, 77 1 42 W
2- Piura (North West) Coordinate: 5 12 0 S, 80 38 0 W
3- Tacna (South West) Coordinate: 18 3 20 S, 70 14 54 W
4- Iquitos (North East) Coordinate: 3 45 0 S, 73 15 0 W
5- Pucallpa (Centre East) Coordinate: 8 23 0 S, 74 33 0 W
6- Puerto Maldonado (South East) Coordinate: 12 36 0 S, 69 11 0 W

A network including these places will cover an area larger than 1.5 Mio Km2.

Why is it necessary to develop this kind of system? In general small satellites use a low rate data downlink. Due to reduce communications contact and a low power capacity only the usage of an UHF transmitter is possible. The proposed network will make possible to have often and contact with the satellites and this way there will be more chance to dump a higher amount of data. In the future when small satellites will be able to dump data faster than they currently do, it will be also possible to collect and distribute data in an effective manner and efficient access of the data to the users. It will be permit to generate more accurate data from the instruments or from the spacecraft itself. This network will be implemented, at a first level, for UHF band antennas and in the future will be implemented for S-band antennas. For sure this network is useful for Peruvian satellites but also for all the missions that currently work with and use UHF band antennas.