

SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Small Satellite Operations (3)

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GLOBAL EDUCATIONAL NETWORK FOR SATELLITE OPERATIONS (GENSO)

Abstract

The Global Educational Network for Satellite Operations (GENSO) aims to foster a worldwide community of educational institutions by developing and utilising ground segment tools and standards which can dramatically improve access to orbital educational spacecrafts.

Educational space missions are often hampered by the relatively small communication windows oered by their typically low orbits and local ground stations. GENSO develops a software standard which allows these ground stations to communicate with non-local spacecrafts, sharing the data with the spacecraft controllers via the Internet in order to alleviate this highly restrictive problem.

The authors will present the progress made over the past year, leading to the first public software release of GENSO, which is expected to be tested and operational in over 20 ground stations worldwide by the time of the Congress and extended to many more in the following months.

The design and implementation work is being carried out by a distributed set of student and radio amateur teams worldwide, coordinated by the ESA Education Department.

The compatibility foreseen with the radio amateur community will serve to involve a large user-base (several hundred) maximising the network resources available. Once a large enough number of ground stations participate in the cooperative scheme, almost world-wide coverage will be potentially possible.

This publication describes the GENSO software and network architecture in detail including some of the research projects carried out in relation with this project helping to optimize the overall mission return. It will also cover the requirements for participating ground stations and missions for joining the network.

GENSO is coordinated by the ESA Education Department, under the auspices of the International Space Education Board (ISEB). This board consists of representatives from the education departments of CSA, CNES, ESA, JAXA and NASA.