

The HumSAT System

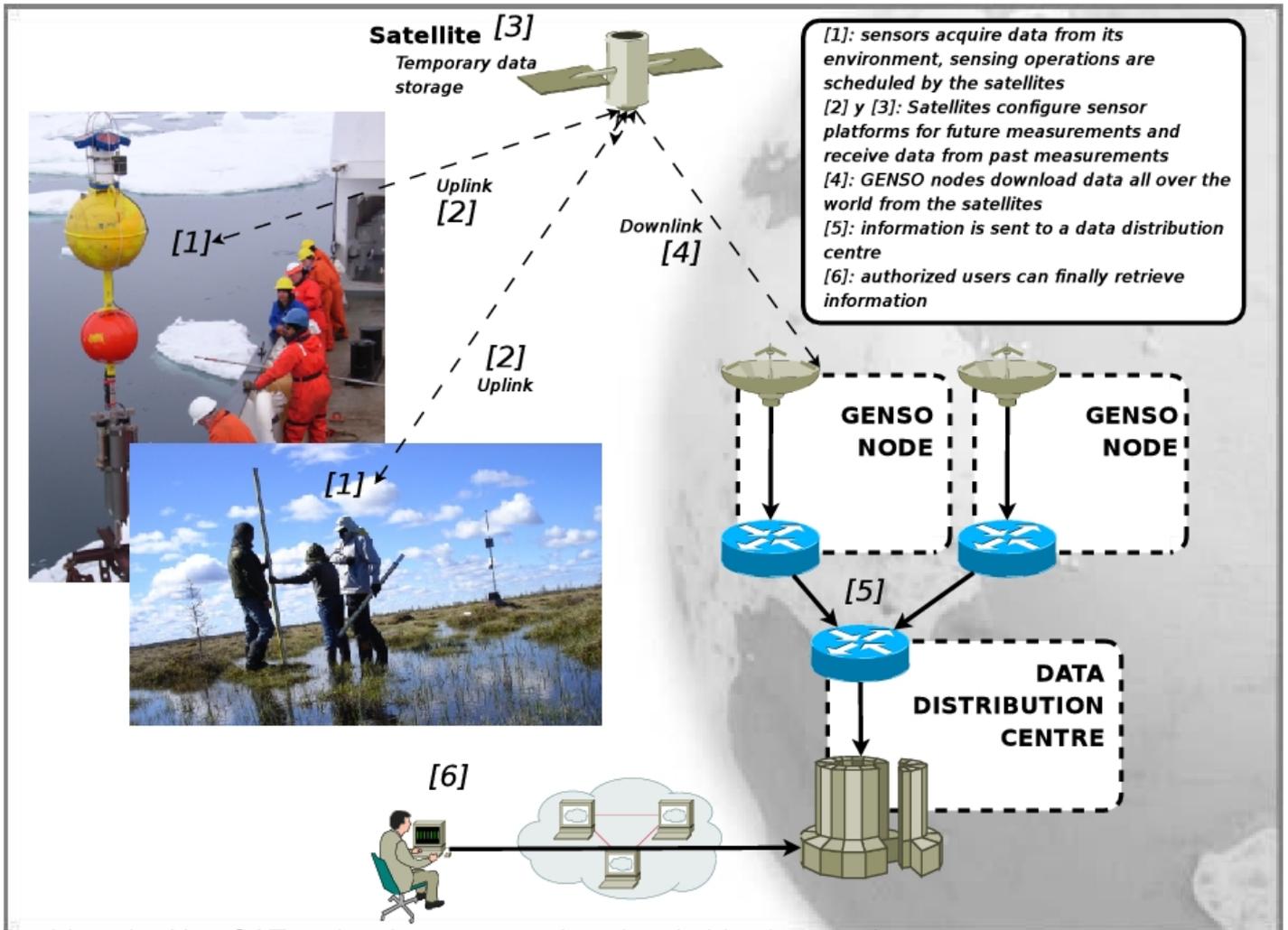
The main purpose of the HumSAT system is the development of a satellite-based system for connecting a set of users with a network of worldwide distributed sensors which they have previously deployed.

Sensors will be responsible for acquiring user data and for transmitting it to the satellites through an standard radio interface (SSI interface, definition of this interface is published in the **Documentation** section). Users will be able to define their own sensors, for monitoring different types of parameters; for example, water temperature or wind speed.

For retrieving data from the satellites, the GENSO network of ground stations will be one of the core components of the data distribution system. Several universities from different ESA member states, Japan and USA are cooperating in this project, whose second release (R2) is expected to provide the functionalities that the HumSAT system will require. For more information about the GENSO project, please visit the www.genso.org website.

Once data has been transported by HumSAT satellites, authorized users will be able to access it through an Internet connection. Several security restrictions shall be applied for guaranteeing a correct access to the data gathered.

Figure below provides an overview of the HumSAT system concept.



Provide the HumSAT project an alternative educational objective such as: students. Provide technical cooperation among universities and government agencies in space technology.

System applications

The HumSAT system will provide a generic communications service commonly known as "storage and forward", above which the different users of the system will be expected to build and define their own applications.

Nevertheless, several *killer applications* can be identified as the core set of applications for whom the HumSAT system is expected to provide its services:

1.

Autonomous *climate change control measurements*; for instance, in-situ measurements of wind speed and direction in several locations of the Atlantic Ocean or for continuously monitoring the temperature at different points in the Arctic Ocean.

2.

Low data-rate *communications support* in infrastructures-less areas like, for example, certain areas of developing countries or unhabited areas like the Sahara Desert.

3.

Emergency beacon localization, for providing support in humanitarian initiatives or in emergencies (natural disasters, accidents... etc.).