INTRODUCTION
The QY-1 CubeSat payload will have a camera for observation of the earth. The downlink data rate is quite limited, and the satellite can only communicate with the ground station for a short period of time a few times a day. If a suitable compression algorithm, it will be possible to download more images, which is preferable due to the short life-time of the satellite.

The QY-1 CubeSat payload will have an Ion and Neutral Mass Spectrometer (INMS) to analyze the low mass ionized and neutral particles in the spacecraft ram direction to get the major constituents in the lower thermosphere, i.e., O, O2, N2.

The QY-1 CubeSat payload will also have a GPS to determine position, velocity and time autonomously.

ARGUS 1000 SPECTROMETER

Measurements of atmospheric neutral and ion composition and density are needed not only for studies of the dynamic atmosphere-themosphere-mesosphere region but also to derive the mass balance of atmospheric elements. Remote sensing measurements of atomic oxygen density at altitudes between 80-95km have shown that the density can vary by over an order of magnitude. This causes deviations from the densities estimated by MSIS (a well known empirical model of earth's atmosphere) by up to a factor of 3-4. Hence, it is important to determine the steady state background ion and neutral mass spectrometer capable of obtaining the in situ measurements that are critical to understanding this complicated system, see in the figures the result of the observation with CubeSat (ExoCube Team).

ARGUS 1000 RESULTS

The payload of QY-1 CubeSat will have a camera for observation of the earth and atmospheric phenomena. It is necessary know the requirements to select what kind of camera is the best to use in the QY-1 CubeSat. The following requirements are taken into account when choosing a camera: slow consumption of energy and long battery life, not exceed mass budget, the protocols that will be used in the CubeSat is I2C, is important to keep in mind that the images need to be downloaded to earth over a slow rate communication link.

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The QY-1 CubeSat payload will have a BD/GPS receiver by which we can realize the switch between GPS and BD navigation without hardware update. BMOS2-100 highly integrate RF baseband processing and positioning software, thus can provide high accuracy data of three-dimensional position, velocity and time, as well as original observation data, etc. The thumb machine has the characteristic of earthshine spectra. Argus features only an along-track footprint of 1km x 1km (there is no scan capability in cross-track). Initial tests will be carried out to detect pollution plumes of industrial origin. Argus has demonstrated and validated the detection of greenhouse gases.

Argus uses an adjacent-spectral range 900-1700nm to record nadir spectra of the radiation emitted from a 1km footprint under the spacecraft’s path. The passive composition of the air mass along the instrument’s line of sight may be inferred through measurement of absorption features associated with a particular gas. Argus will observe carbon dioxide, methane, carbon monoxide, hydrogen fluoride and water-absorption bands in order to determine near-surface column amounts for pollution monitoring.

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