

Rheometry experiment of wire antennas aboard scientific spacecrafts

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Observation of plasma waves in the space is an important subject of scientific spacecraft missions. Especially, measuring the low frequency waves, lower than a few MHz, is very important to study space plasma environment.

It is necessary to estimate the effective length of each electromagnetic wave sensor.

However, the estimation is not easy. In order to estimate the effective length, we adopt rheometry experiment using a small antenna installed in a water tank.

We generate a quasi static electric field in the water tank. The intensity of the generated electric field is exactly known so that we can estimate the effective length of a small "scale-model" wire antenna in the water from its output voltage.