Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)
©2009. Japan Geoscience Union. All Rights Reserved.

PCG040-03 Room: 301A Time: May 28 11:15-11:30

A feasibility study for cameras on board AKATSUKI

Seiko Takagi[1*], Naomoto Iwagami[1]

[1]University of Tokyo

It has been difficult to observe below the Venus cloud because the cloud is very thick. In 1983, we knew that some of the lights of the wavelength at 1 - 2.4 um (Near InfraRed region)see through the cloud. Two of the cameras on board Venus Climate Orbiter(AKATSUKI, JAXA, 2010 launch) have sensitivity for these lights of NIR wavelength. We hope to obtain detailed information about lower atmosphere of Venus with these cameras. AKATSUKI plans to mount five cameras(IR1, IR 2, LIR, UVI, LAC) to observe various lights of wavelength. So, AKATSUKI can observe various targets at some altitudes at a time. But, there are some problems on this observation. In my study, I will clear up the following 3 problems.

What is the image of matte Venus obtained by Galileo ?
Jupiter Orbiter Galileo took image of Venus by 0.9 um. It is like to ball, and the contrast of brightness is less than 3%. In my study, I will solve the radiation transport equations, and find out the source of contrast.

Where are the representative altitudes of IR1 and IR2 ?
The representative altitude of UV is 65 km, and LIR's it is 70 km. NIR's representative altitude is expected 50 km, but anyone have never estimated it. To understand Venusian atmosphere globally by AKATSUKI, determing the representative altitude of each cameras on board AKATSUKI is high-priority issue. In my study, I will solve the radiation transport equations, and locate the representative altitude of NIR(IR1/IR2) first time.

What is the parameter contribute to brightness of Venus ?
We expext that one data obtained by AKATSUKI contains various information. So, we will need to separate information. In my study, I will solve the radiation transport equations, and propose the method of separation.

Keywords: Venus