## Lightning and Airglow Observations with LAC on Board Akatsuki

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Akatsuki, the Japanese Venus Climate Orbiter, will arrive at Venus in the middle of December 2010, which carries 5 cameras mainly dedicated to meteorological investigations. LAC, lightning and airglow camera, is aiming to detect lightning flashes from Venus orbiter for the first time and to monitor the location of night side airglow at visible wavelengths.

Though there are extensive researches on the existence of lightning discharge in Venus over few decades, this issue is still under controversial. Recently it is reported that the magnetometer on board Venus Express detected whistler mode waves whose source come from well below the spacecraft. However, it is still under discussion if these waves are generated by lightning discharges not by plasma instabilities. On the other hand, night airglow is expected to provide essential information on the atmospheric circulation in the upper atmosphere of Venus. But the number of consecutive images of airglow obtained by spacecraft is limited and even the variations of most enhanced location is still unknown.

In order to identify the discharge phenomena in the atmosphere of Venus separating from noises and to know the daily variation of airglow distribution in night-side disk, we plan to observe the lightning and airglow optical emissions with high-speed and high-sensitivity optical detector with narrow-band filters on board Akatsuki. Main difference from other previous equipments which have provided evidences of lightning existence in Venus is the high-speed sampling rate at 32 us interval for each pixel, enabling us to distinguish the optical lightning flash from pulse noises. In this presentation the observation strategies, including ground-based support with optical telescopes, are shown and discussed.