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IR1: 1μm Camera on board the Japanese Venus Mission

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IR1 camera is designed to image both the night- and day-side of Venus at 1.01 μm with a band width of 0.04 μm onboard an orbiter in a near-equatorial retrograde long-elliptical orbit with a period of 30 hours. On the dayside it quantifies the wind-field in the cloud region (45-60 km) over the hemisphere by comparing the images taken every 2 hours. By combining meteorological information obtained by other cameras using different wavelengths, it may contribute to solve the long-standing problem "Super Rotation" of the atmosphere. On the nightside, it measures the thermal radiation mostly from the surface and a little from the atmosphere. Such measurement will give information about lowermost atmosphere and the surface properties, and also is expected to find out active volcanoes. The knowledge of current status of the volcanism is an important key to investigate the internal structure and the thermal history of this interesting planet. The camera consists of a hood, F/4 optics with a focal length of 84.2 mm, 1.01 μm band-pass and ND(neutral density) filters, Si CSD(charge sweeping device)-CCD detector cooled down to 250K and an electronics. It has a field of view of 12 degree and a spatial resolution of 16 km at the apoapsis.