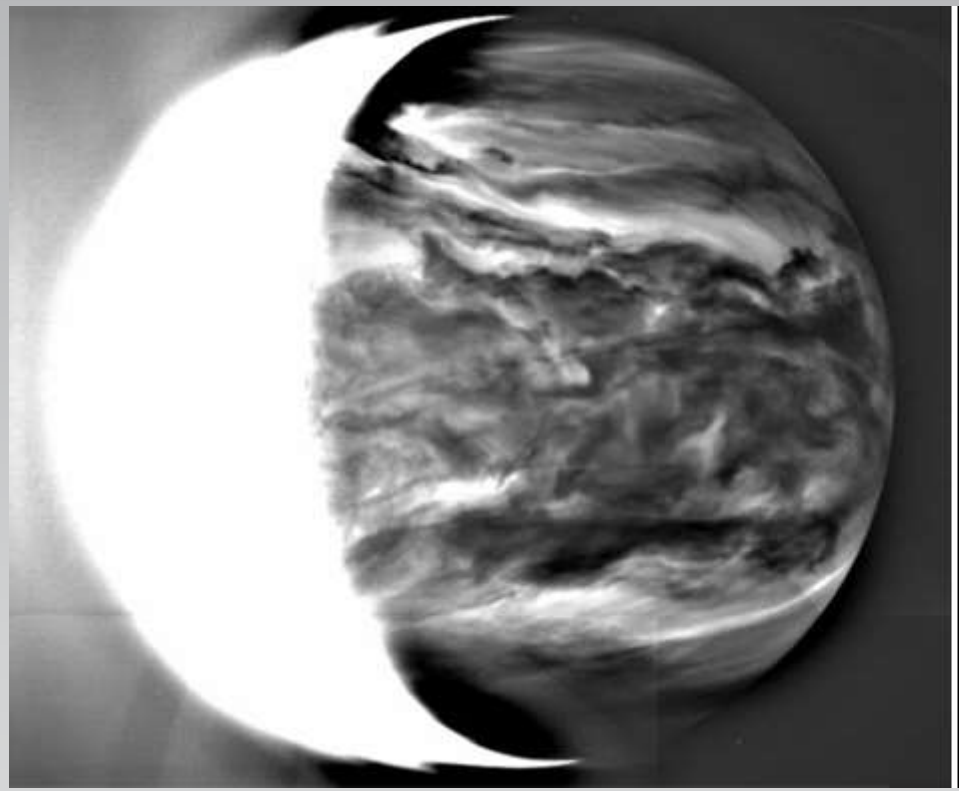
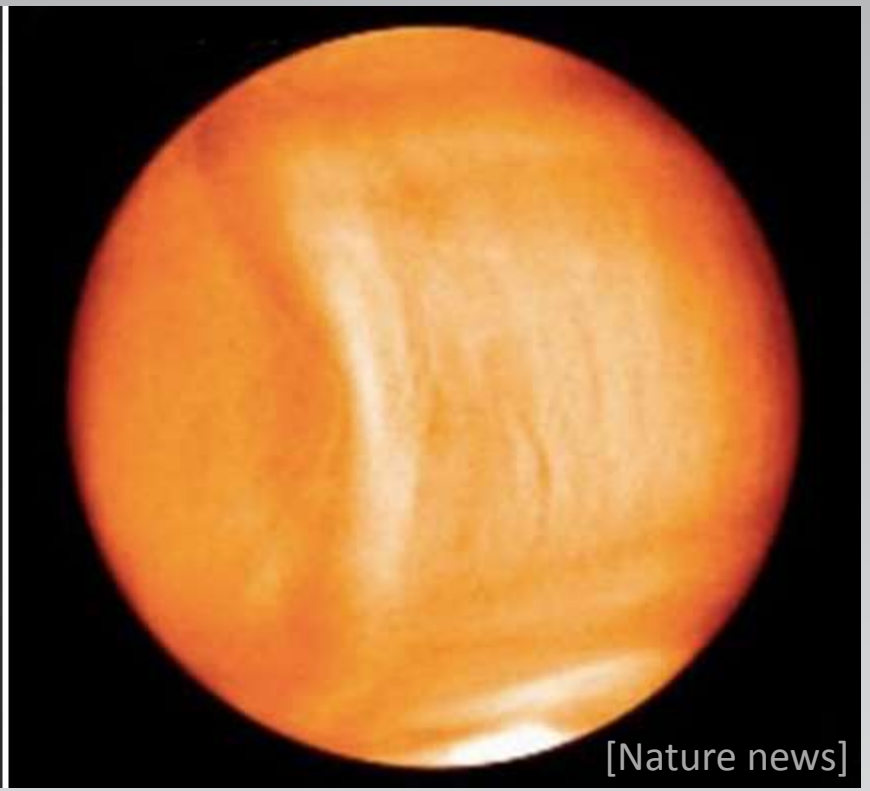




あかつき
- Observing Venus with Akatsuki -

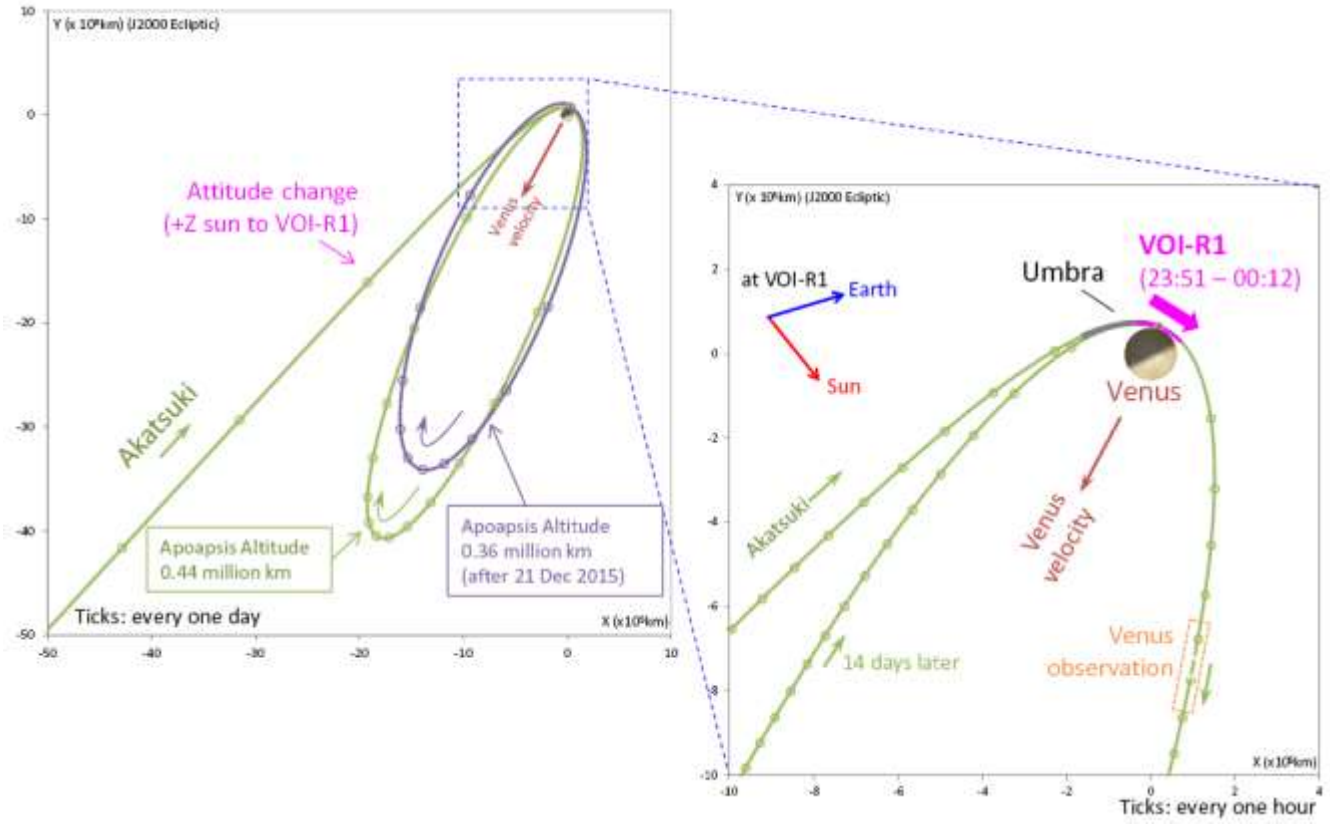
Yeon Joo Lee, Javier Peralta, and Imamura Takeshi
(ISAS/JAXA, Sagamihara)

2016-06-05 ALPO-Japan

あかつき in a good condition!

- Since 2015 Dec 7, Akatsuki has been observing Venus.

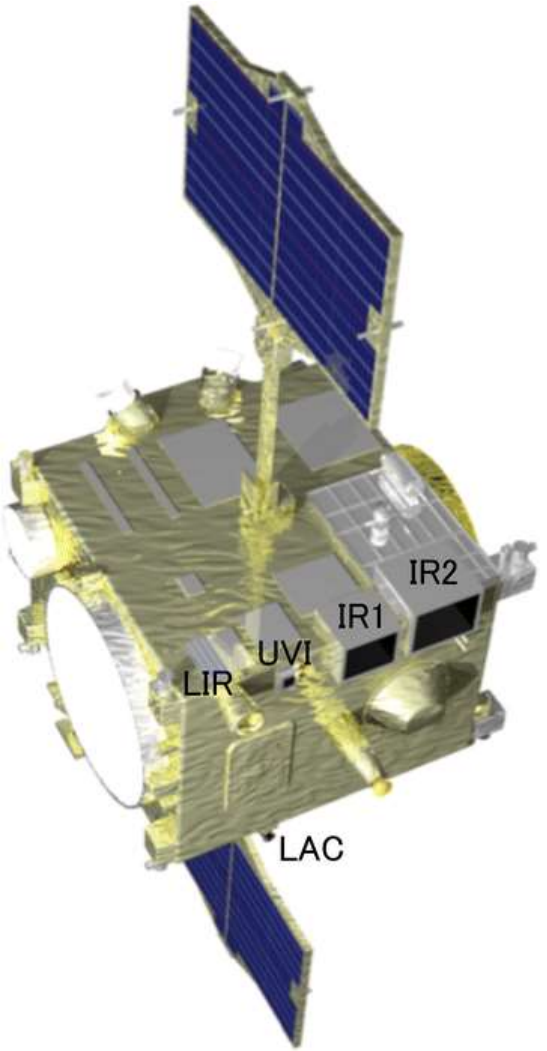
At the time right after the successful orbit insertion



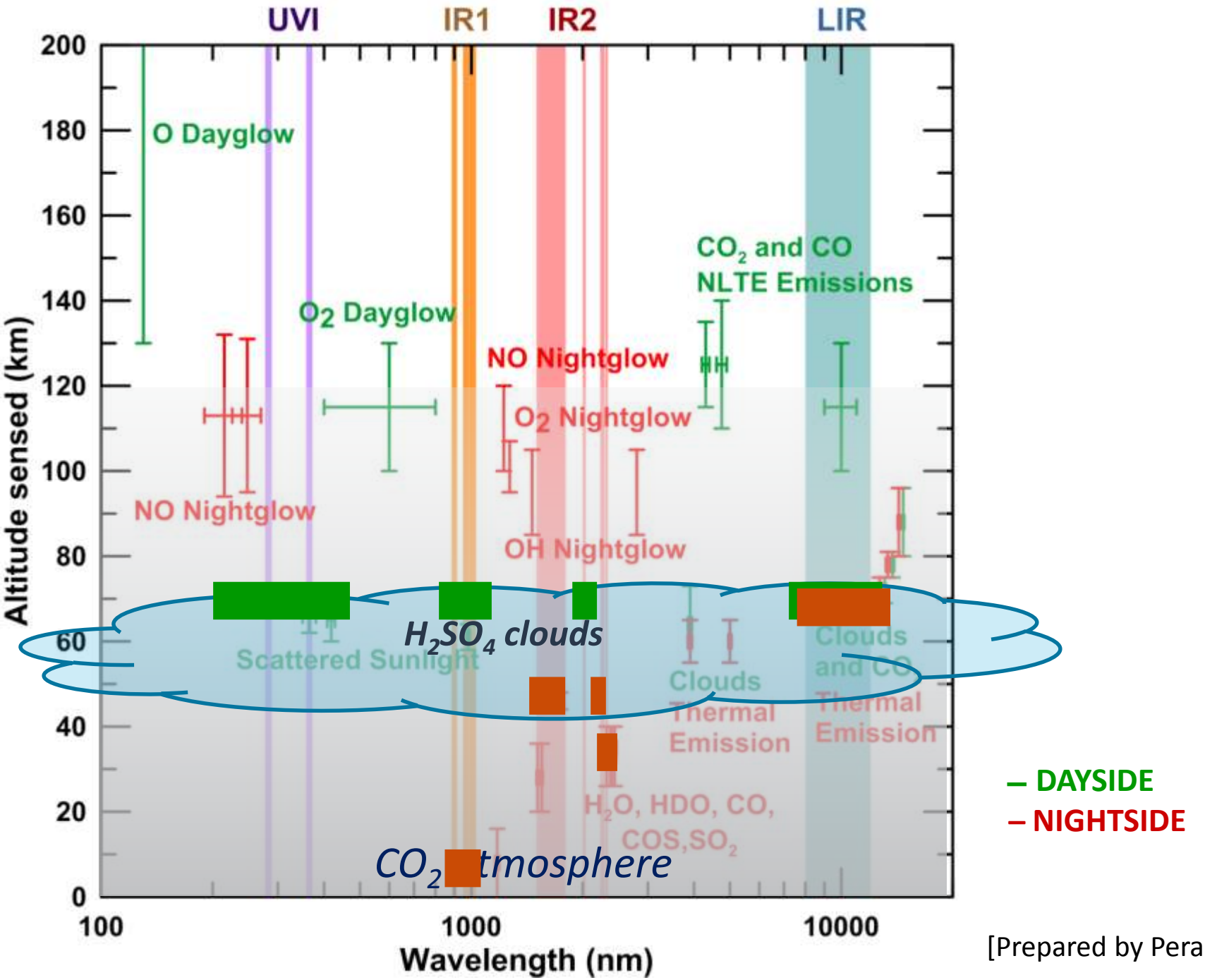
[Nakamura et al. 2016]

あかつき instruments

- 5 cameras;
  Imaging Venusian atmosphere and surface
  - LIR (Long wave InfraRed camera)
  - IR1 (1 μm camera)
  - IR2 (2 μm camera)
  - UVI (UltraViolet Imager)
  - LAC (Lightening and Airglow Camera)
- 1 ultra stable oscillator;
  Retrieving temperature profiles using radio occultation technique



[Nakamura et al. 2016]

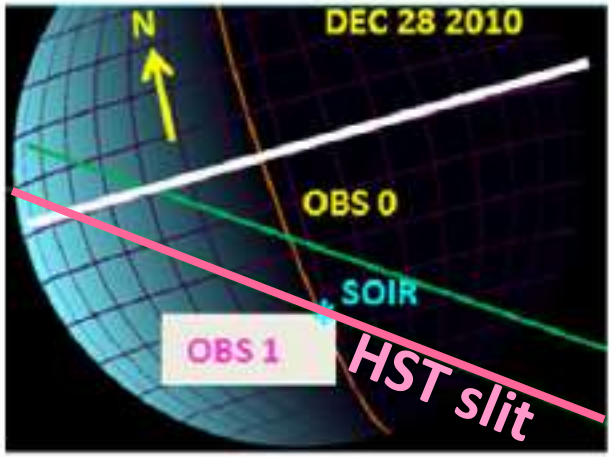


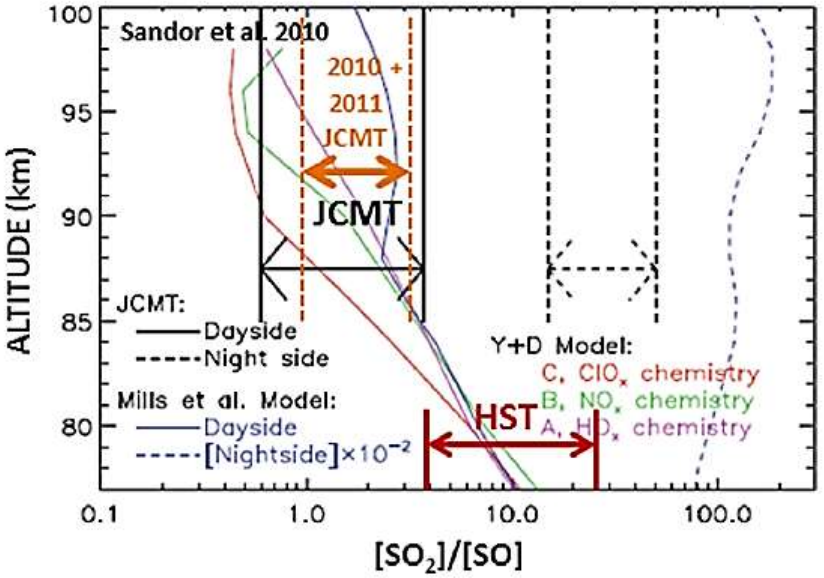
[Prepared by Peralta]

Ground/space-based coordinated observations

- Have been used for Venus atmosphere observations
  - **Same target, but different wavelength**

    e.g. Mesospheric SO2 abundance vertical distribution using UV spectra of Hubble Space Telescope (HST) and ground-based sub-mm observation [Jessup et al. 2015]
    (Note, Venus Express data was also used.)

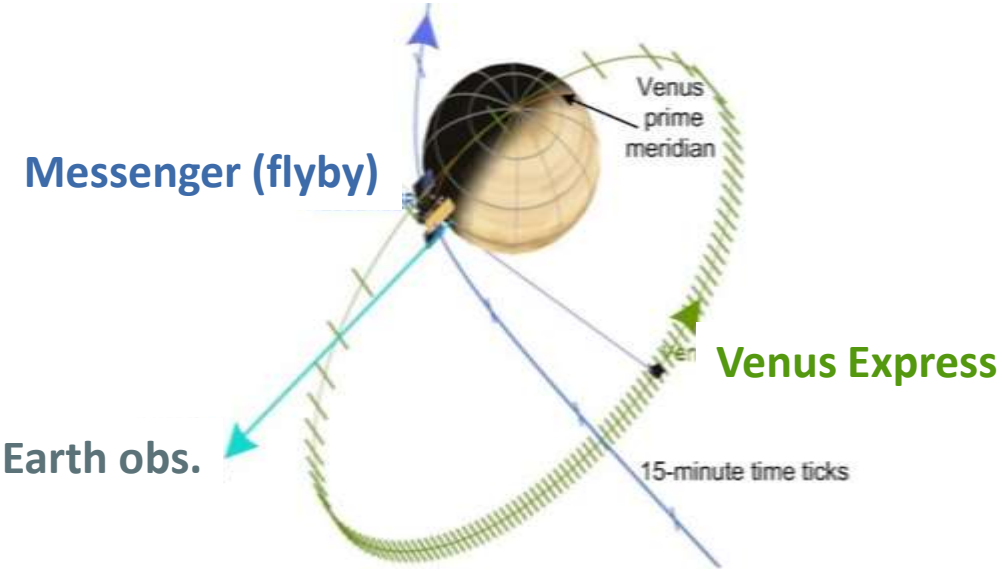




[Jessup et al. 2015]

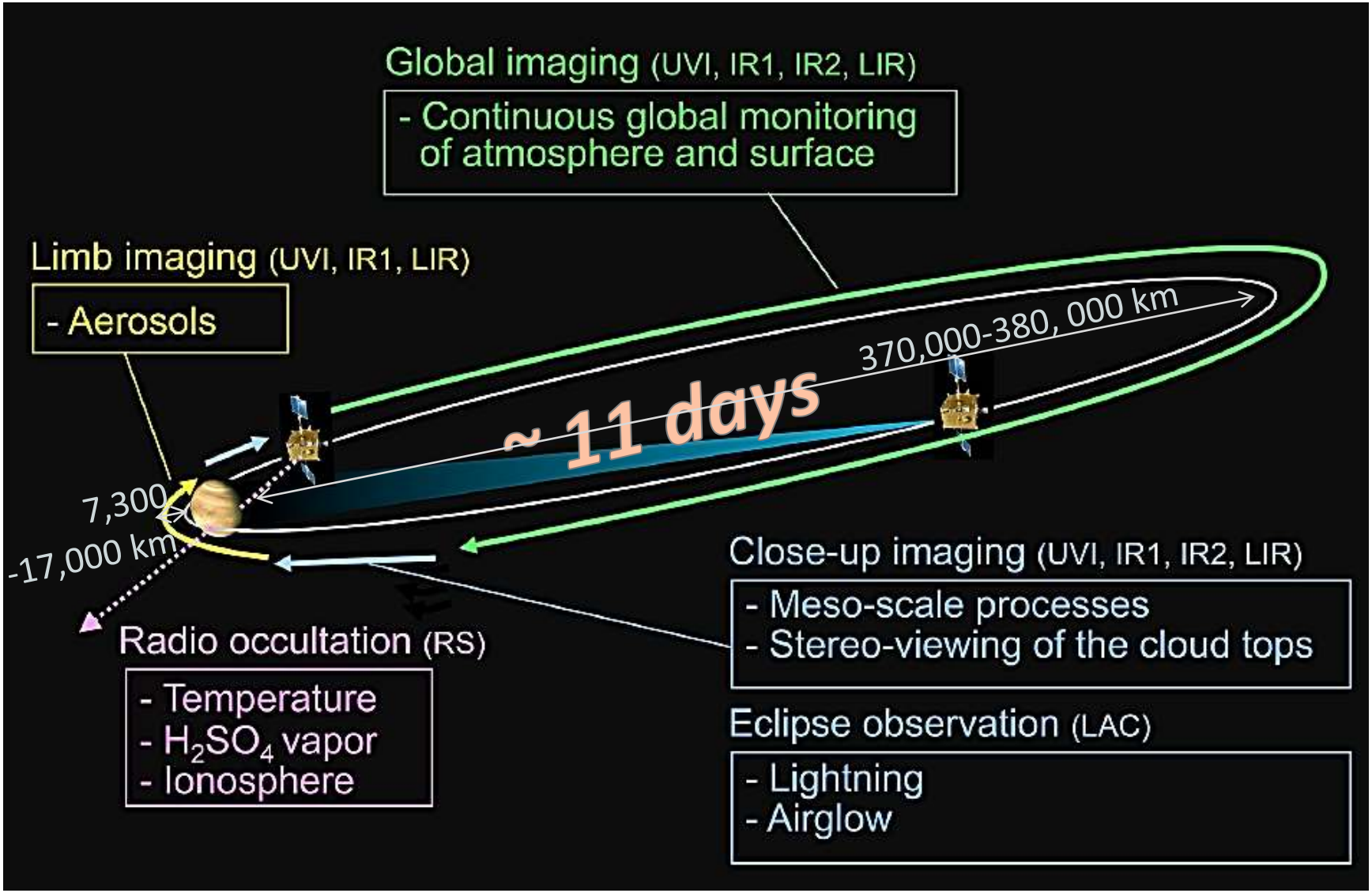
Ground/space-based coordinated observations

- Have been used for Venus atmosphere observations
  - **Different targets using different methods**
    e.g. Vertical wind profile; winds measurements from Ground-based telescopes, Messenger (flyby) and Venus Express [Peralta et al. in prep.]



[McNutt et al. 2008]

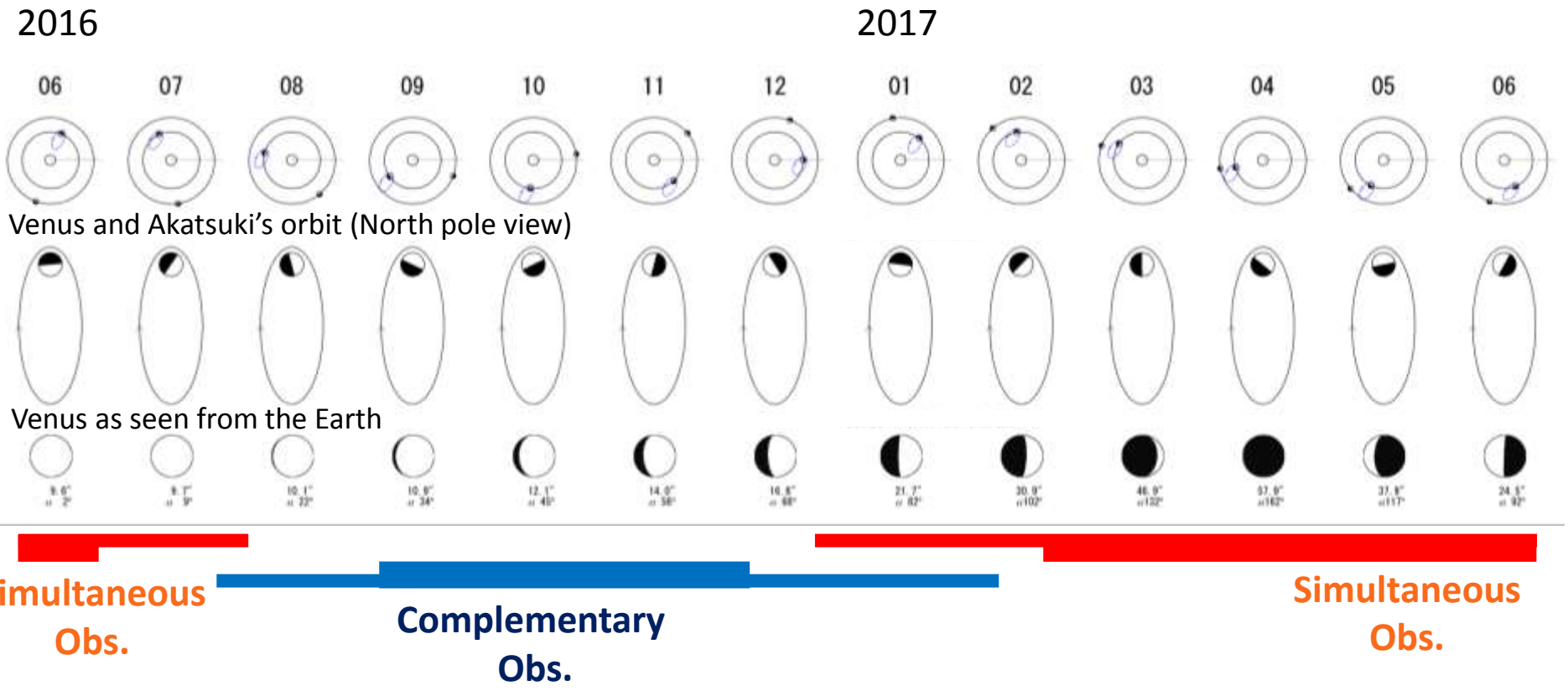
Akatsuki's observational plan



[Nakamura et al. 2016]

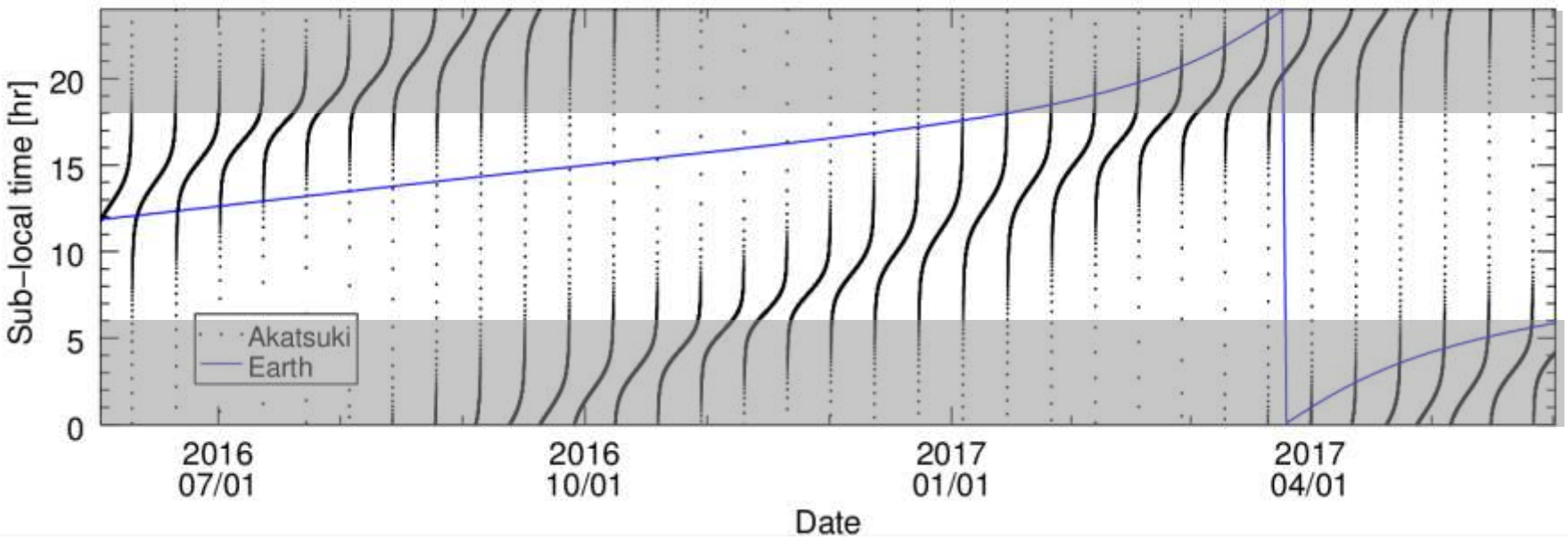
2016 2nd half – 2017 1st half

- Akatsuki's last delta-v was conducted in April 2016, and a next one is scheduled at the end of 2018.
  →We can make a plan for 2016-2017 observations



2016 2nd half – 2017 1st half

- Akatsuki and ground-based observations



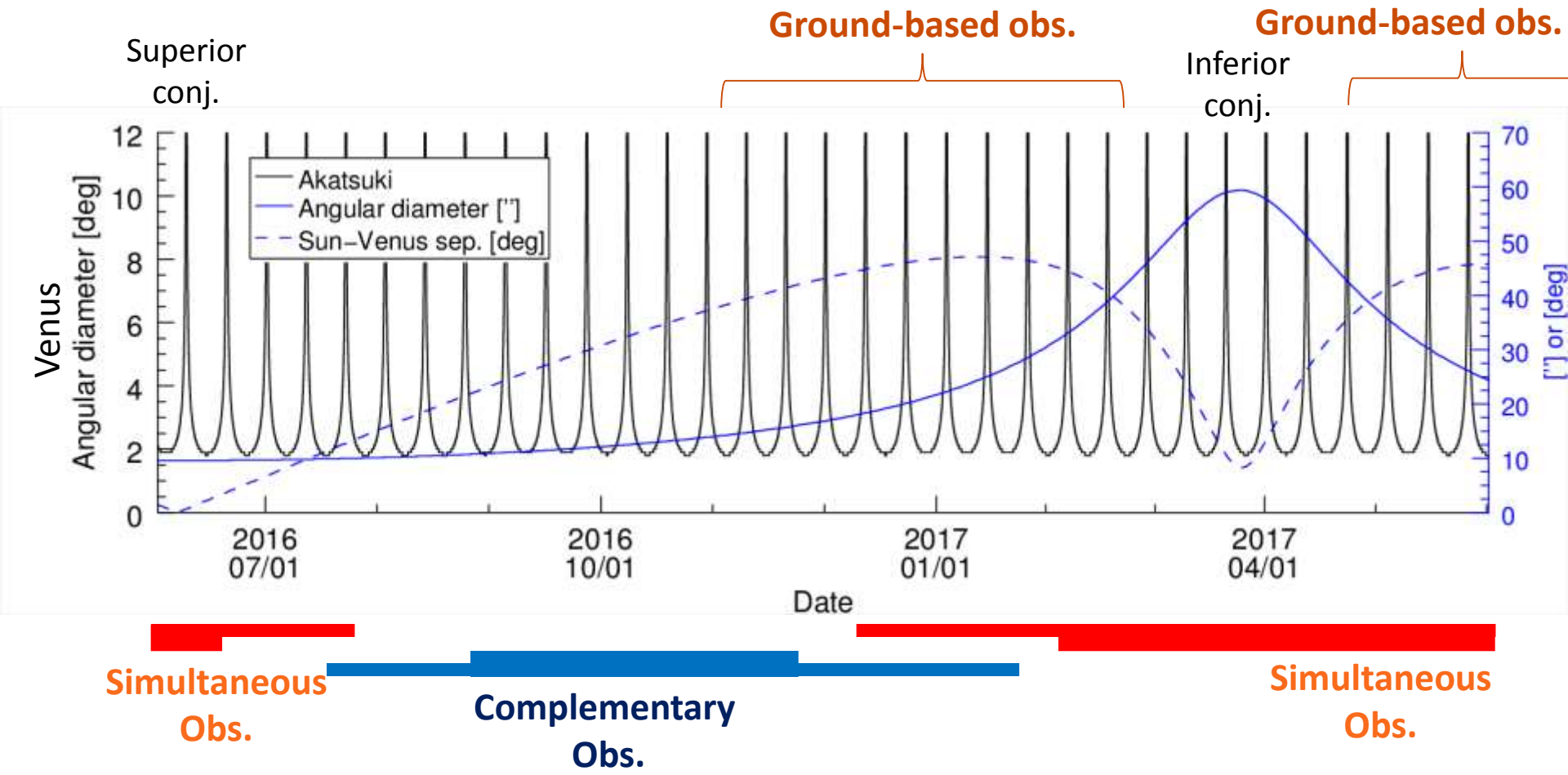
Simultaneous Obs. (Dayside)

Complementary Obs.

Simultaneous Obs. (Nightside)

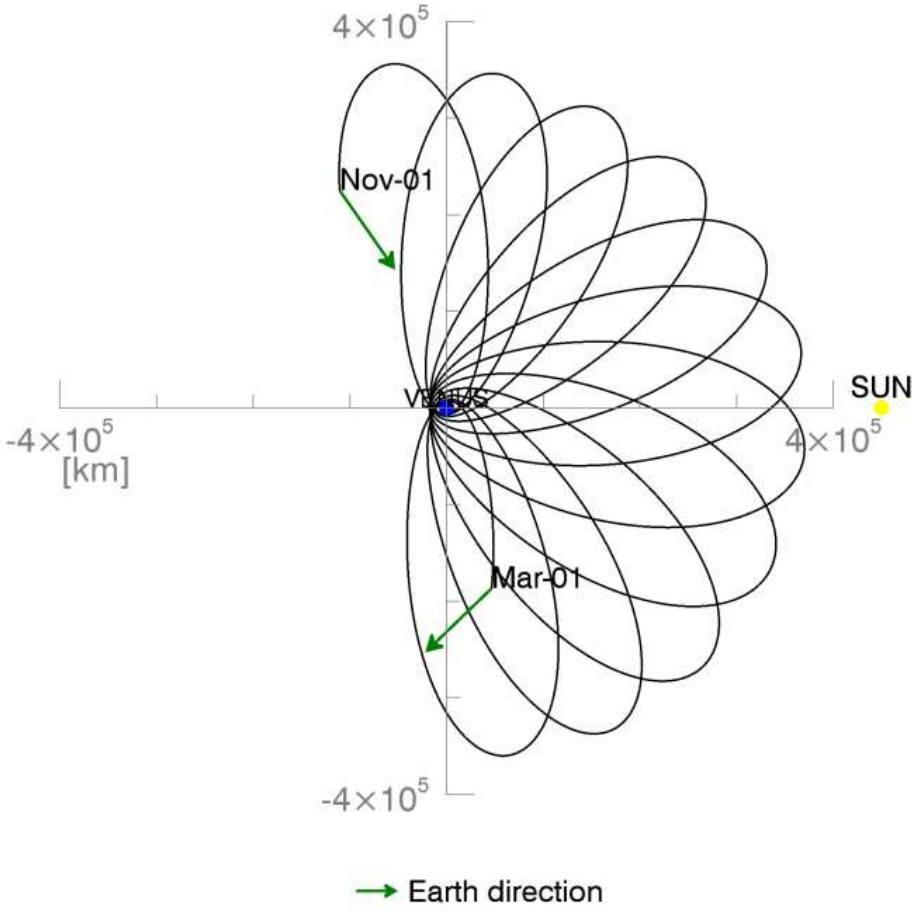
2016 2nd half – 2017 1st half

- Akatsuki and ground-based observations

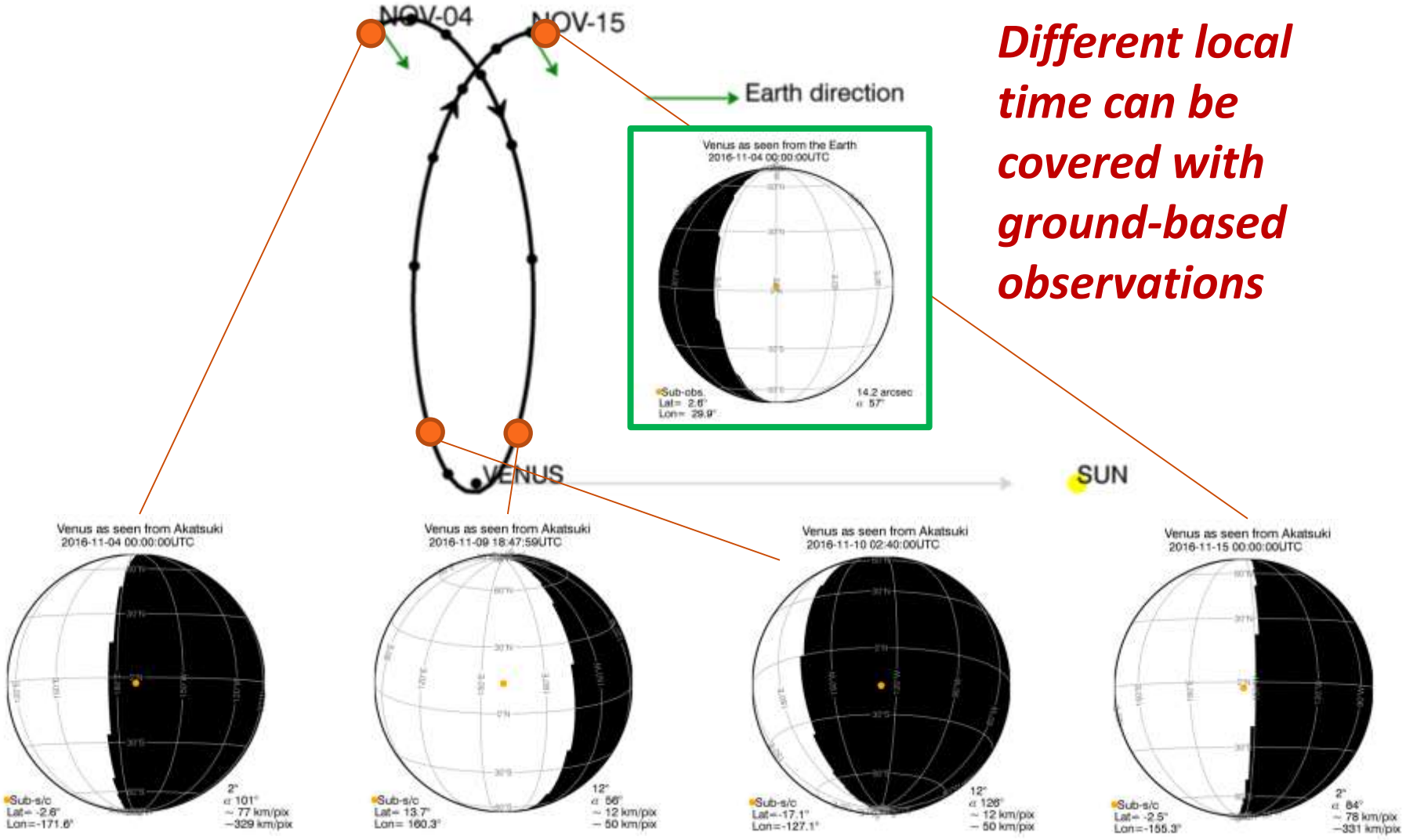


Akatsuki's observation

- Nov 2016-Feb 2017



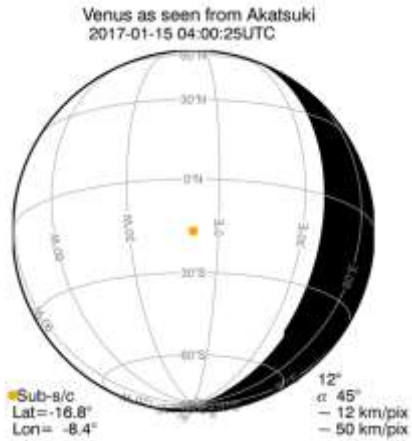
Observation plan; Nov 2016

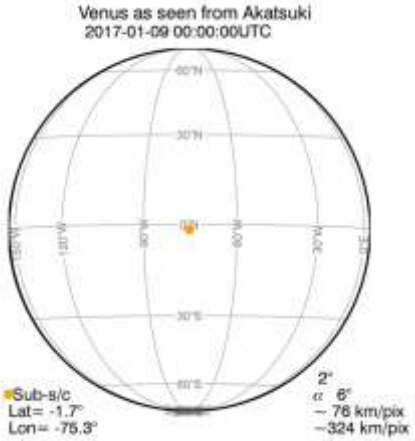


Different local time can be covered with ground-based observations

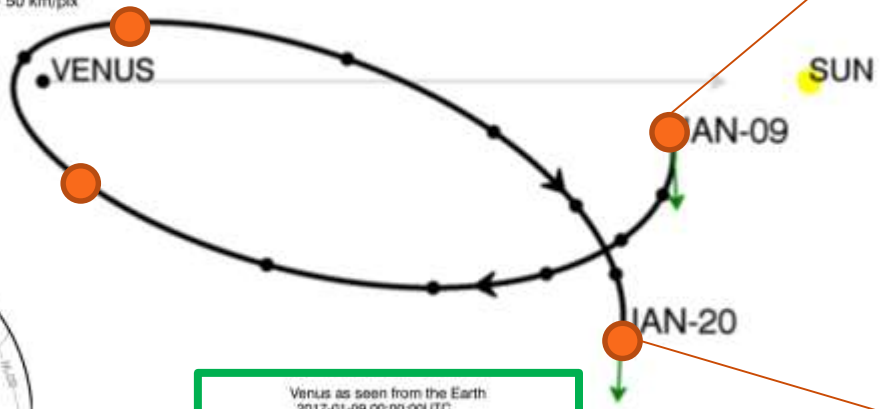
Almost opposite geometry

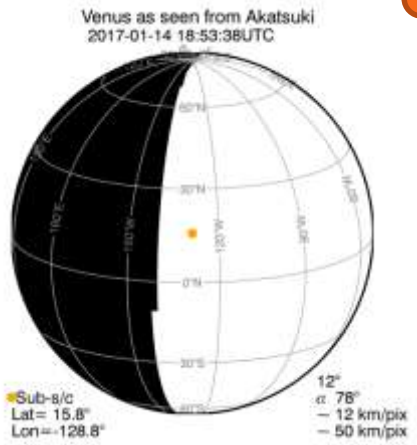
Observation plan; Jan 2017



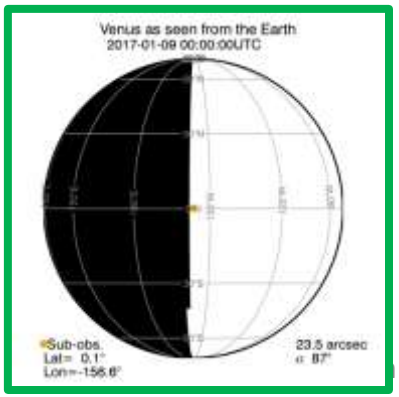


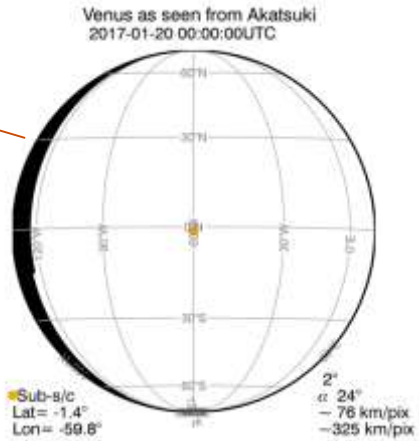
Simultaneously same location observations are possible



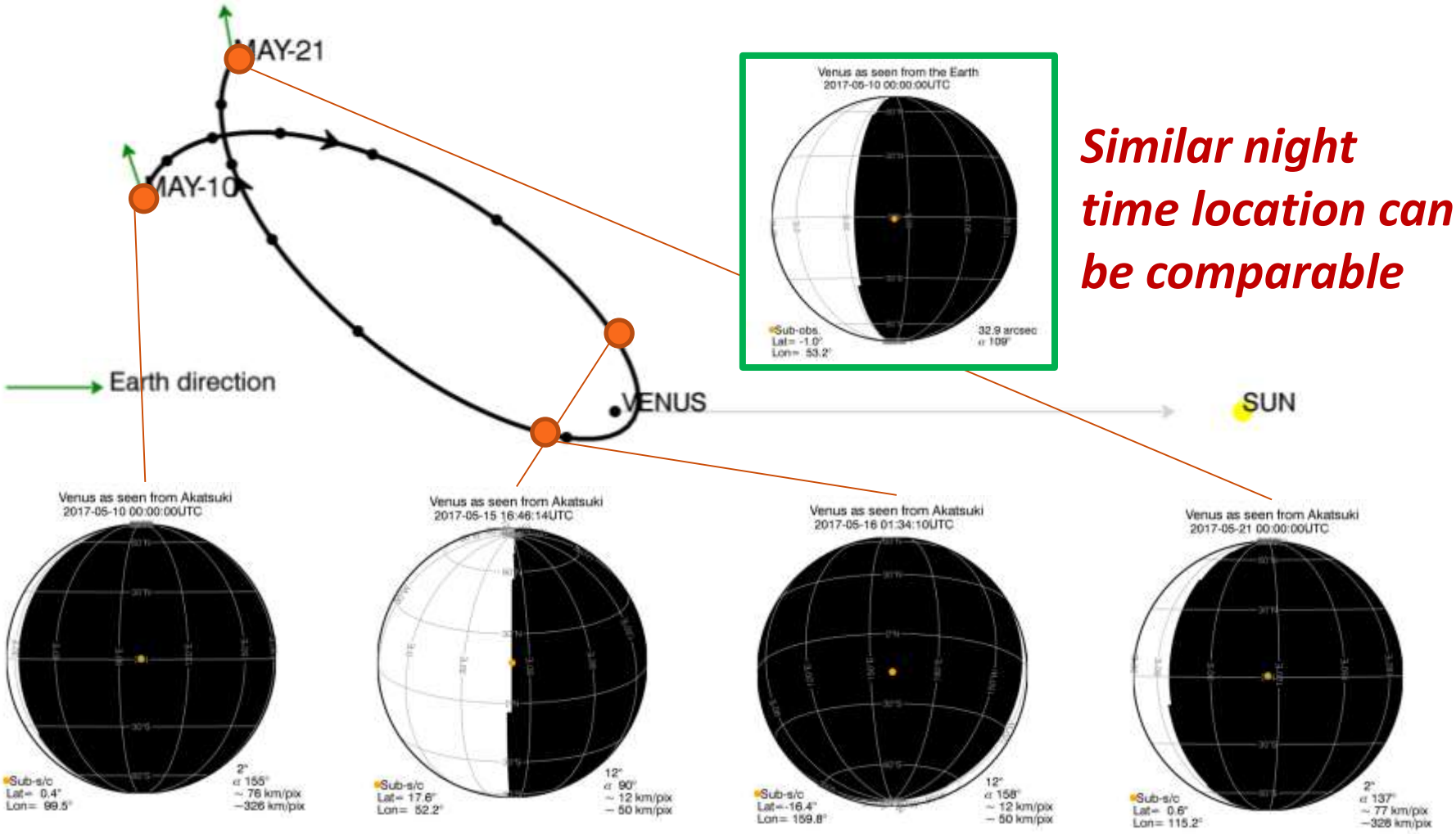


Similar geometry





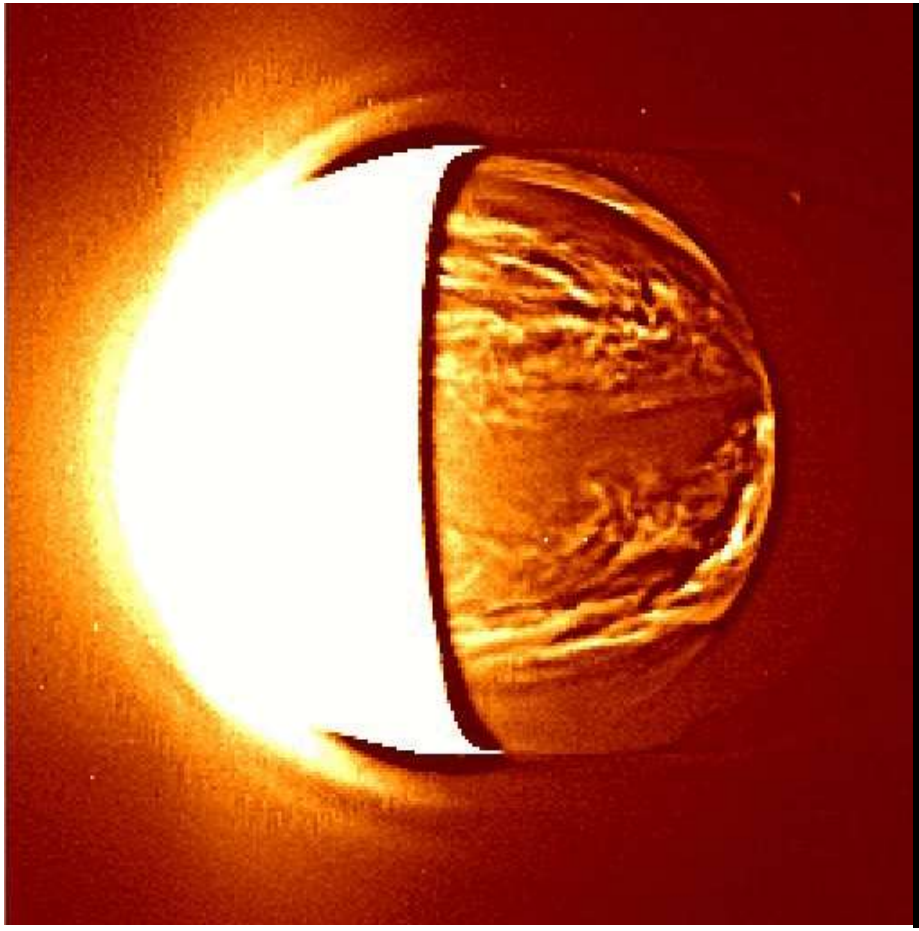
Observation plan; May 2017

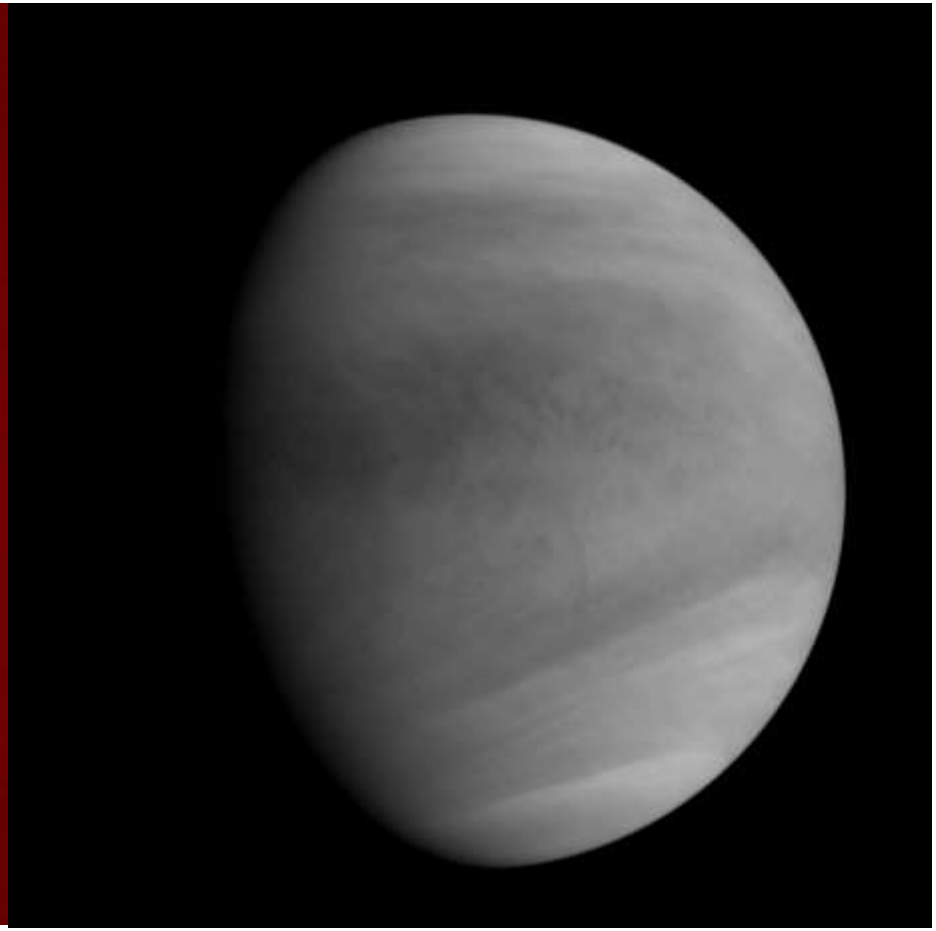


Similar night time location can be comparable

The night side (lower) clouds of Venus
29 Mar 2016

The day side (upper) clouds of Venus
7 Dec 2015





[JAXA]