

# The Circumpolar Stratospheric Telescope FUJIN for Observations of Planets

\*Makoto Taguchi<sup>1</sup>, Yukihiro Takahashi<sup>2</sup>, Masataka Imai<sup>2</sup>, Toshihiko Nakono<sup>3</sup>, Yasuhiro Shoji<sup>4</sup>, Yukiko Shirafuji<sup>1</sup>

1. Rikkyo University, 2. Hokkaido University, 3. National Institute of Technology, Oita College, 4. Osaka University

In order to understand physical phenomena in the planetary atmospheres and plasmas continuous monitoring of their temporal variations and evolutions is necessary. A balloon-borne telescope system has been developed for a new platform of optical remote sensing of them from the polar stratosphere. Especially in the polar region a planet can be monitored from a balloon-borne telescope all day long for a selected observation period. The project name is FUJIN or the god of wind in Japanese. FUJIN-2 is equipped with a 400 mm Cassegrainian telescope with a Nasmyth focus, and lifted by a scientific balloon up to the stratosphere where atmospheric seeing and transmittance, especially in the near ultraviolet and infrared regions, are much better than the ground level. Attitude of the gondola of FUJIN-2 is controlled by a three-axis stabilized system with an active decoupling motor, a pair of control moment gyro and sun sensors. We are planning a long duration flight from ESRANGE in Kiruna in Sweden in 2020 for the earliest case. Westward trans-Atlantic or circumpolar flights during summer season realize a continuous observation of planets for about a week or three weeks, respectively. FUJIN-2 can also be used as a mobile observatory for a transient object like a comet.