1. Science Objective of FUJIN
The FUJIN project aims at studies of the planetary atmospheres and plasmas by observations using an optical telescope lifted up to the polar stratosphere by a scientific balloon.

2. FUJIN-1 Experiment in 2013
- Flight Window: May/June in 2013
- Location: Taiki Aerospace Research Field, Hokkaido, Japan
- Purpose: System function test and observation of Venus
- Result: Unfortunately due to a failure in the bus system provided by JAXA the FUJIN-1 experiment was canceled. Since its functions have been thoroughly checked through the various tests on the ground and in a vacuum chamber, it was decided that the FUJIN-1 experiment was closed to proceed the next step.

3. FUJIN-2 Experiment in 2015
- Flight Window: April/May in 2015
- Place: SSC/ESRANGE, Kiruna, Sweden
- Target Planets: Venus, Jupiter and Mercury
- Observation Wavelengths: Venus 365 nm and 418 nm, Jupiter 889nm and 750nm
- Flight Plan: FUJIN-2 will be launched at ESRANGE operated by SSC and recovered in the large impact area north of Kiruna after one or two days flight in the turn-around period.

4. FUJIN-2 System
Two industrial PCs control sub-systems of FUJIN-2. Data are downlinked and commands are uplinked through the e-link system provided by SSC/ESRANGE.

5. FUJIN-2 Optics
- Telescope: Cassegrain with Nasmith focuses
  - Aperture: 400 mm
  - Filters: 10 pcs
  - Detector: CCD camera
- Star sensors with wide and narrow field-of-view guide the telescope to a target planet. A tip-tilt mirror installed in the optical path corrects guiding errors of the telescope mount to stabilize the image at the center of field-of-view. Observation wavelength is selectable by changing filters in a wheel.

6. Scientific Purposes
- Venus
  - Dynamics of Venusian upper atmosphere including super-rotation by tracking cloud pattern seen in the ultraviolet region.
  - Chemistry, lightening, airglow and aurora.
- Jupiter (Option)
  - Cloud physics and dynamics of the Jovian atmosphere
  - Satellites and gas and plasma emitted from them
- Mercury (Option)
  - Formation mechanism of sodium atmosphere and tail

7. FUJIN-3 Experiment
- Fujin-2 will be launched during the turn around period while the wind direction in the stratosphere changes.
- During the summer season the easterly wind is dominant in the stratosphere. A balloon can fly along a circle in almost constant latitude back to the launch site. FUJIN-3 will try observation for two weeks and a few days by a circumpolar flight.

8. Future Plan
The following developments are being considered after FUJIN-3:
- utilization of a super-pressure balloon for longer flight,
- a meter-class telescope,
- and a mobile gondola that can move to the center of polar vortex where more stable environment is expected.

Reference