# PANSY radar system

- The PANSY radar started its construction in Dec. 2010 as the first MST/IS radar in the Antarctic and succeeded in the detection of the first echo from the Antarctic atmosphere in March 2011.
- Continuous Tropo/Strato/Mesosphere observations started in June 2012.
- The PANSY radar is able to observe 3d winds and/or plasma parameters in the 1.5-500 km altitude range with vertical and temperal resolutions of 75m and 1min, respectively.
- Operations in the Antarctic became feasible by developments of class-E amplifiers, light weight and tough antennas, and versatile antenna arrangements.

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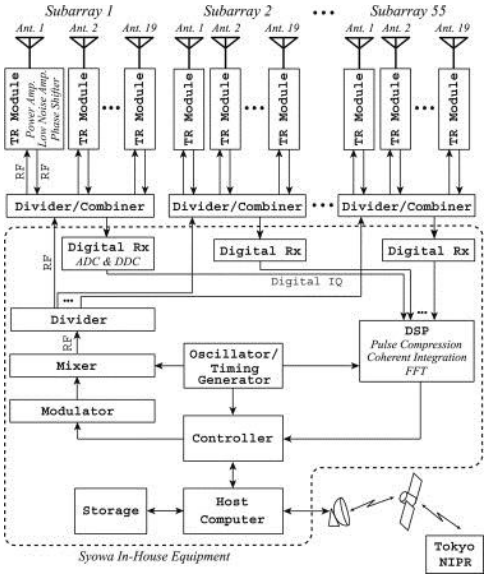
| System | Pulse Doppler radar |
| | Active phased array system |
| Center frequency | 47 MHz |
| Antenna | An irregular array consisting of 1045 crossed Yagi antennas |
| | Effective diameter about 160 m (18,000 $m^2$) |
| Transmitter | 1045 Solid-state TR modules |
| | Peak Power: 520 kW |
| Receiver | (55+8) Channel digital receiving systems |
| | Ability of imaging and interferometry observations |
| Peripheral | 24 Antennas for E-layer FAI observation |

Configuration of the PANSY radar




General block diagram of the PANSY radar

(Sato et al., J. Atmos. Solar-Terr. Phys., 118A, 2-15, 2014.)