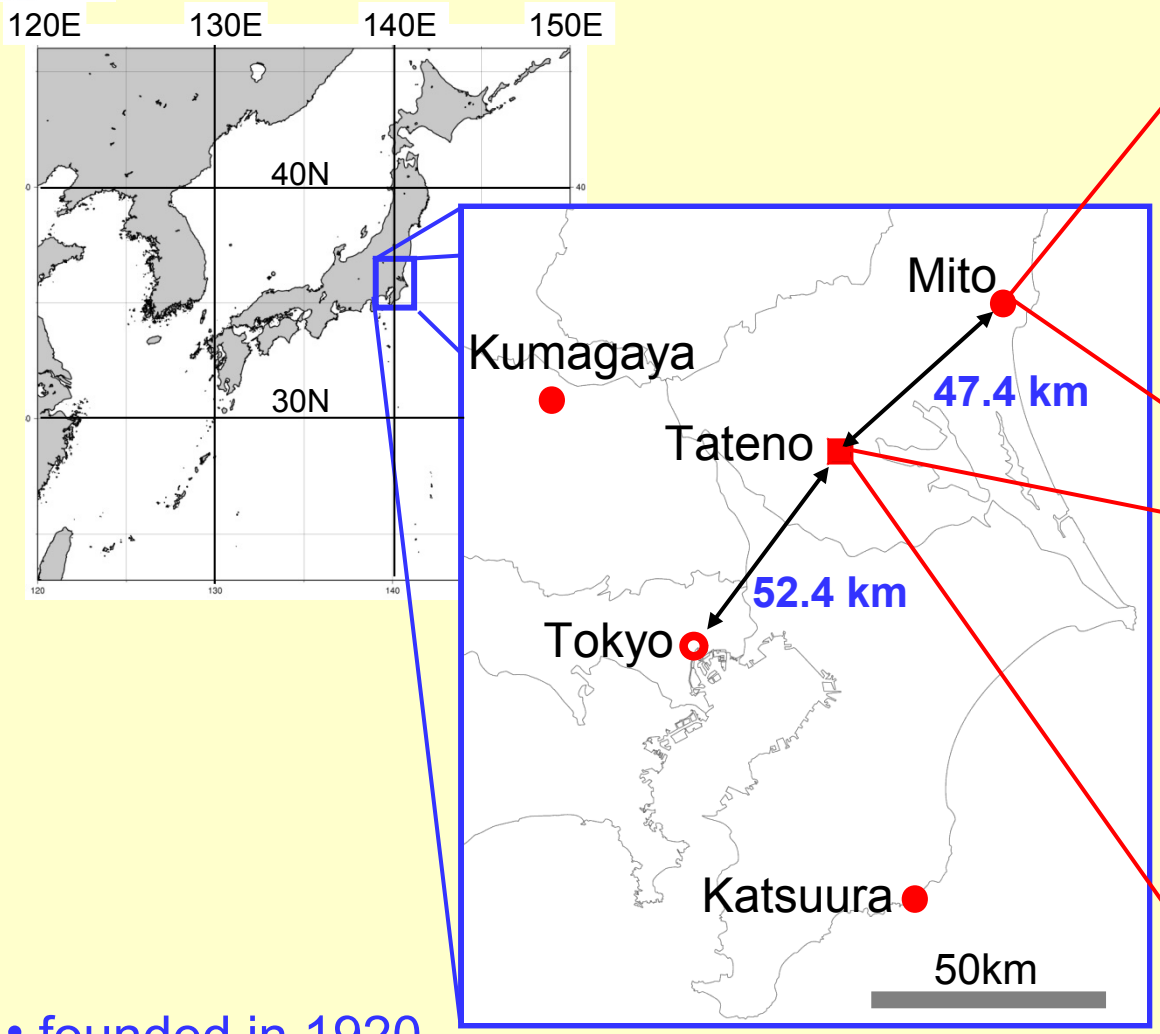
Site Report: Japan - Tateno

Hakaru MIZUNO and Masamichi NAKAMURA
Japan Meteorological Agency
(GRUAN ICM-2, 2-4 March 2010)

The Aerological Observatory, JMA



Wind profiler (Mito)

Aerological Observatory

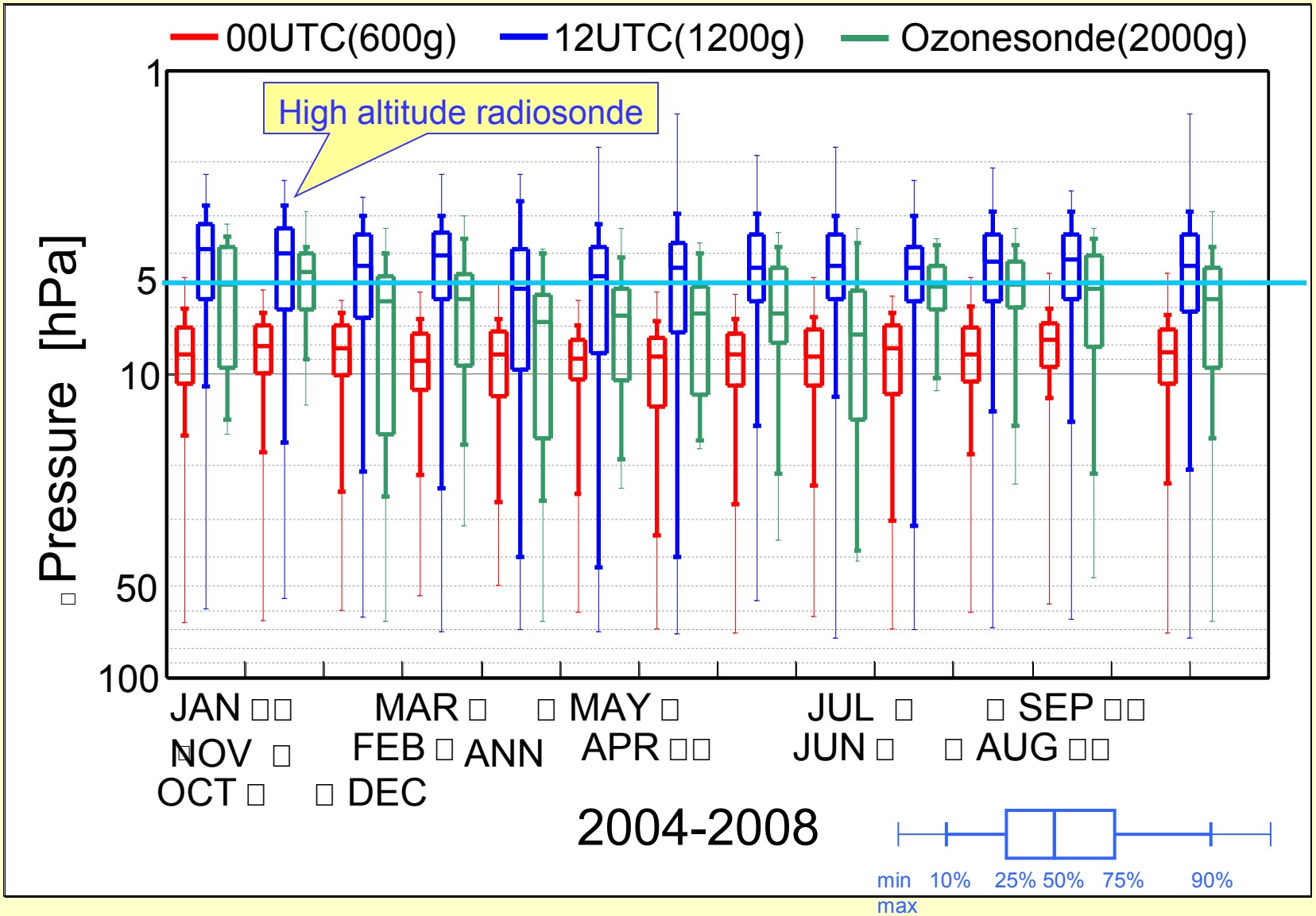
- founded in 1920.
- Tateno (47646) is the station name.
- located at about 50 km northeast of Tokyo.

Upper-air Observations

- Radiosonde
  - Meisei RS2-91 (until Nov. 2009)
  - Vaisala RS92-SGPJ (since Dec. 2009)
  - 00 UTC (09 LST), 12 UTC (21 LST)
  - 06 UTC (15 LST)*, 18 UTC (03 LST)*

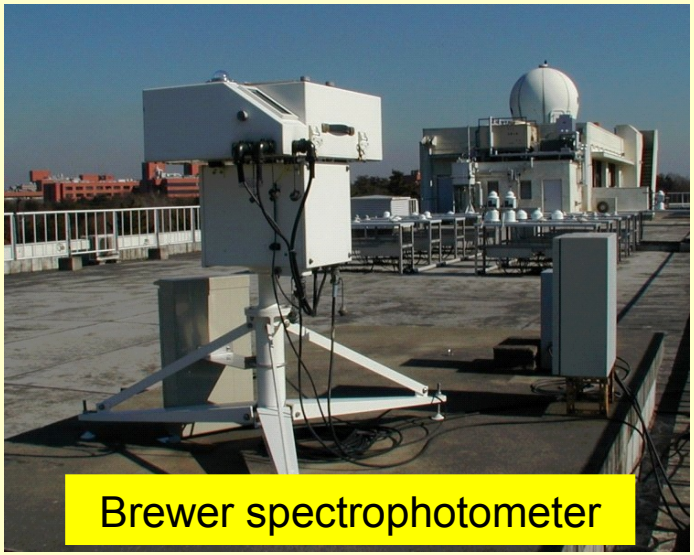
    * In typhoon conditions
- Ozonsonde
  - KC (until Nov. 2009)
  - ECC (since Dec. 2009)
  - 06 UTC (15 LST) on Wednesday

Observation Height Coverage of Radiosonde



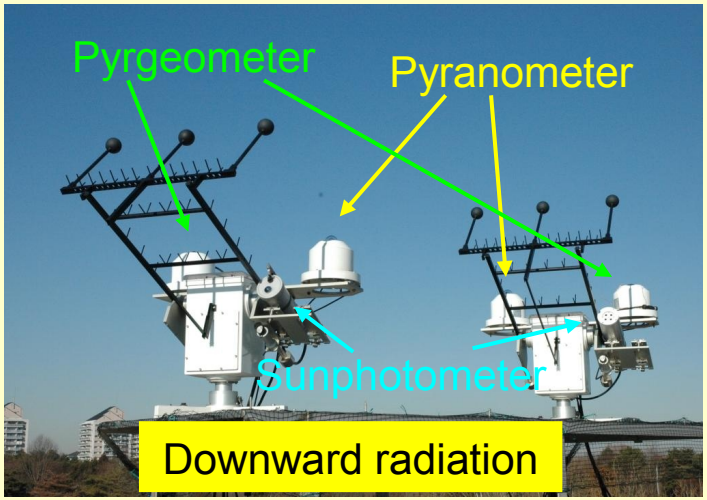
Observations

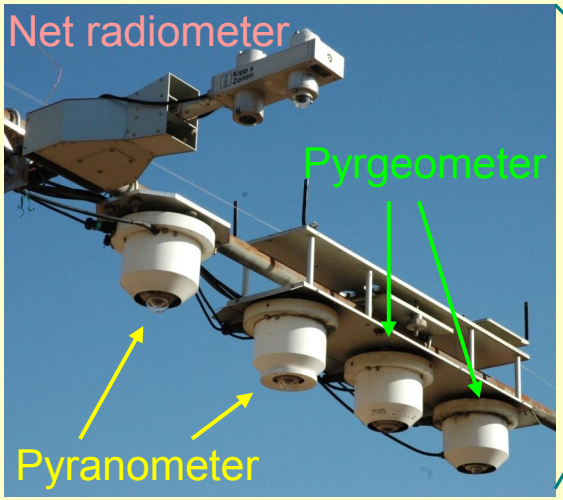
BSRN since 1996

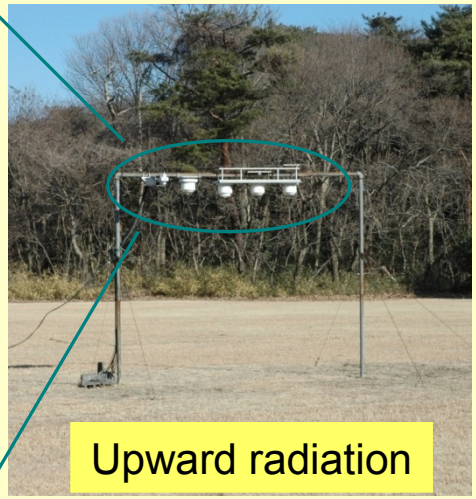


Ozone Observation

Ultraviolet Radiation Observation

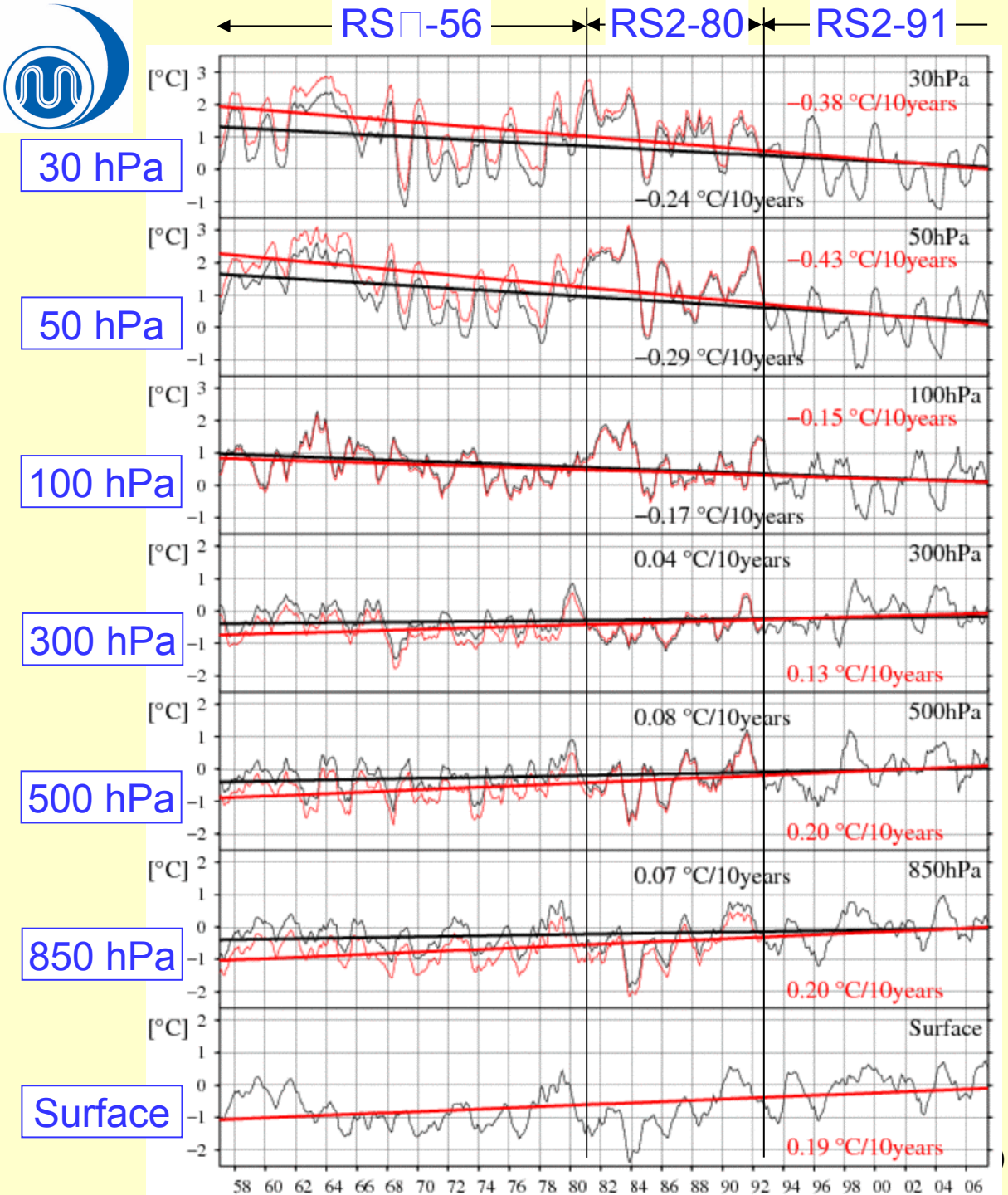


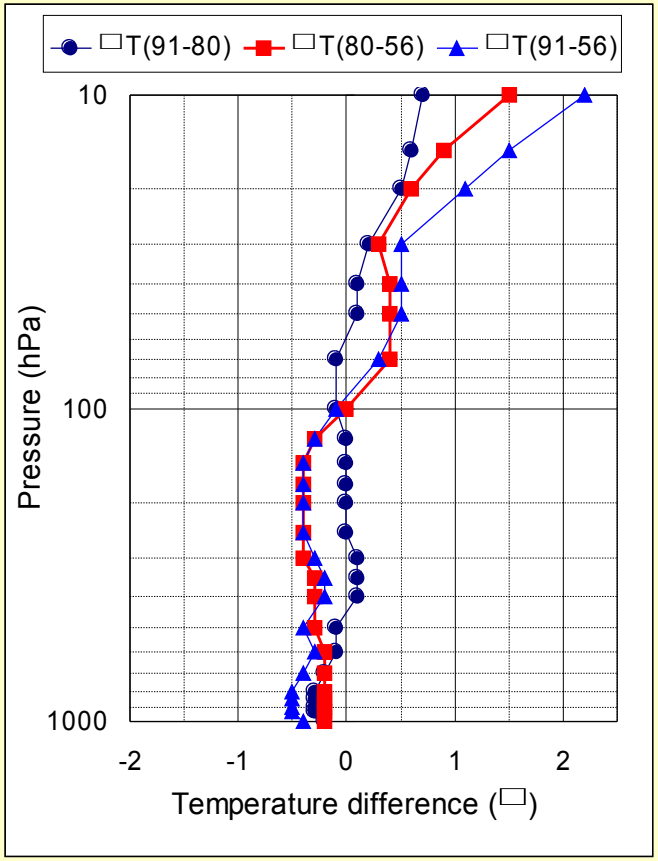




Radiation Observation

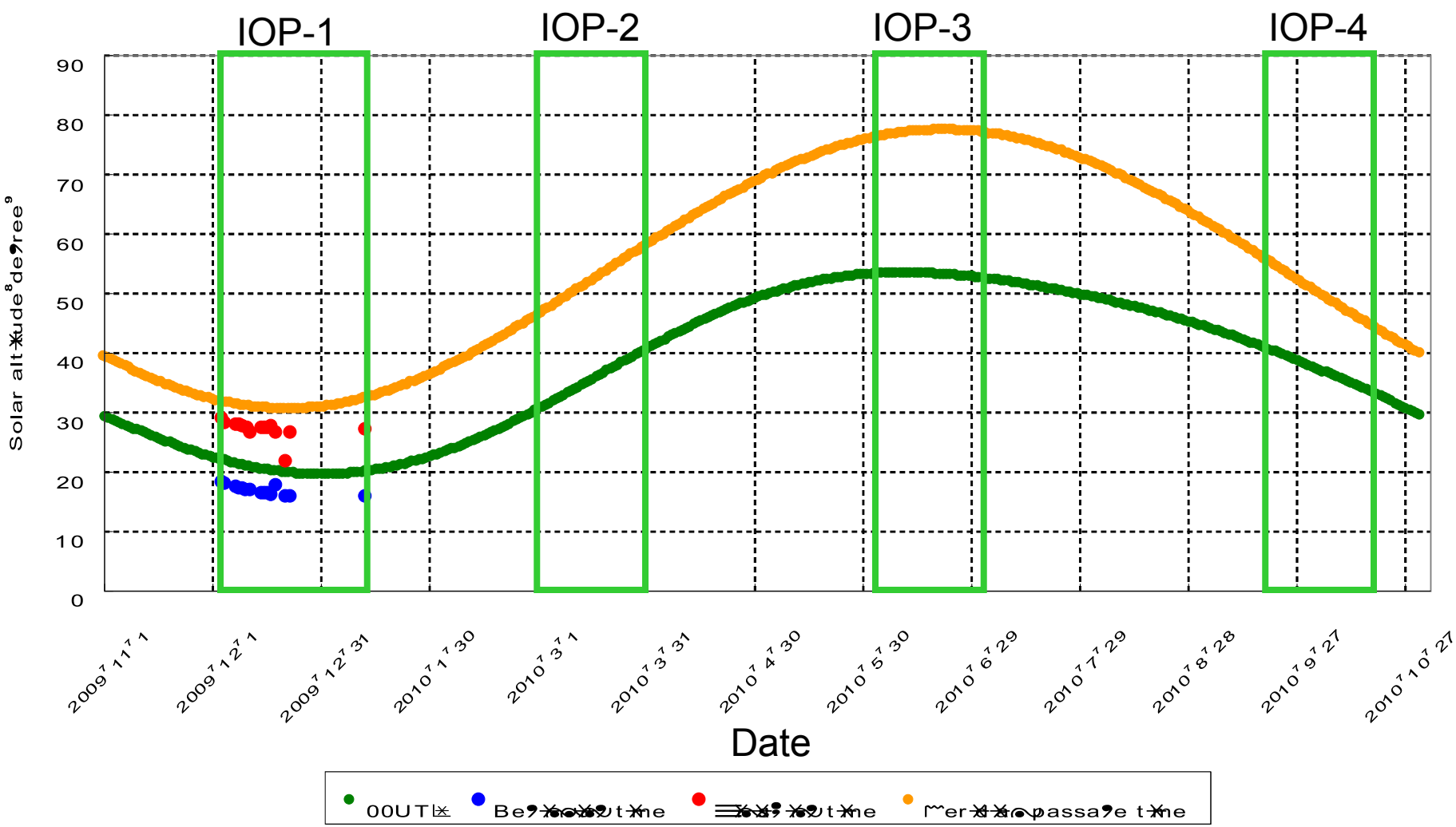
Temperature trend for 12 UTC (21 LST) considering historical changes of radiosonde





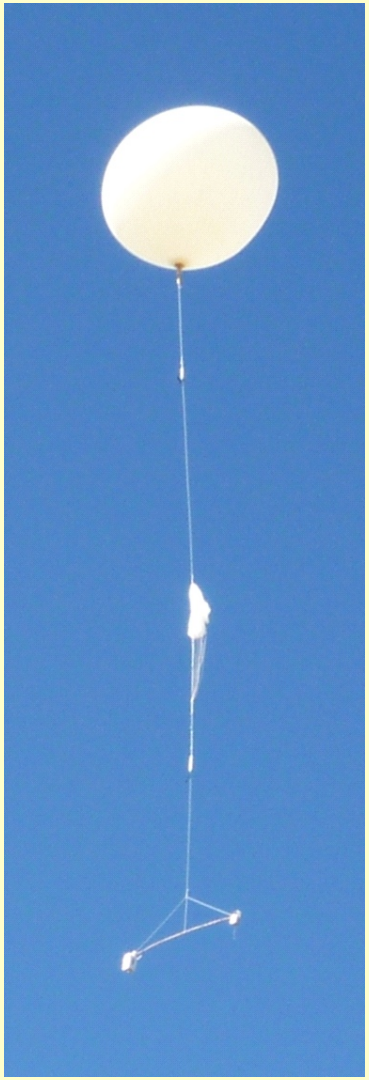
Uesato et al., 2008: J. Aerological Observatory, **68**, 15-22

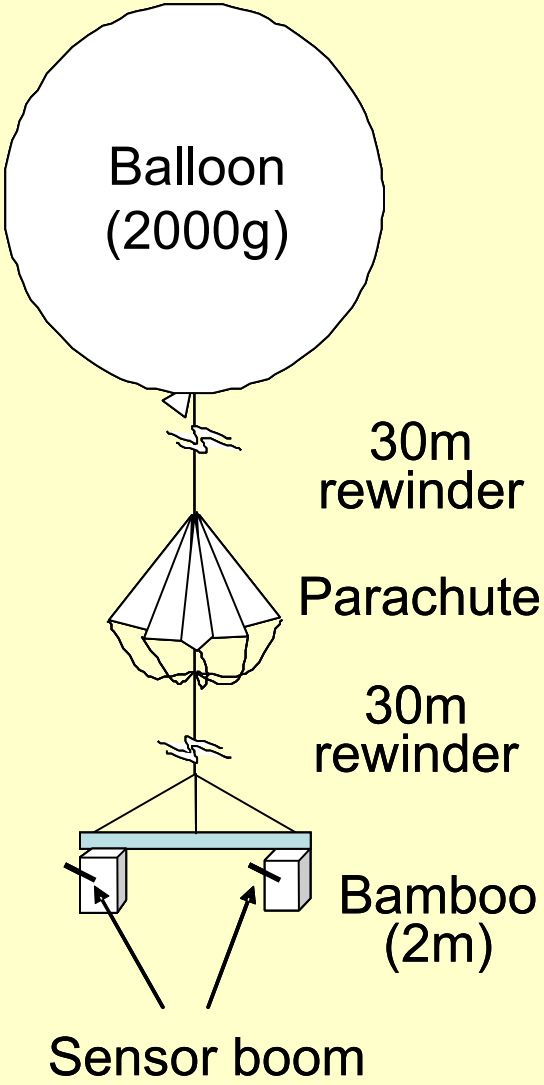
Comparison of Vaisala RS92-SGPJ with Meisei RS2-91



15 flights in each observation time of 00 UTC (09 LST) and 12 UTC (21 LST) for each IOP

Flight configuration of dual sounding

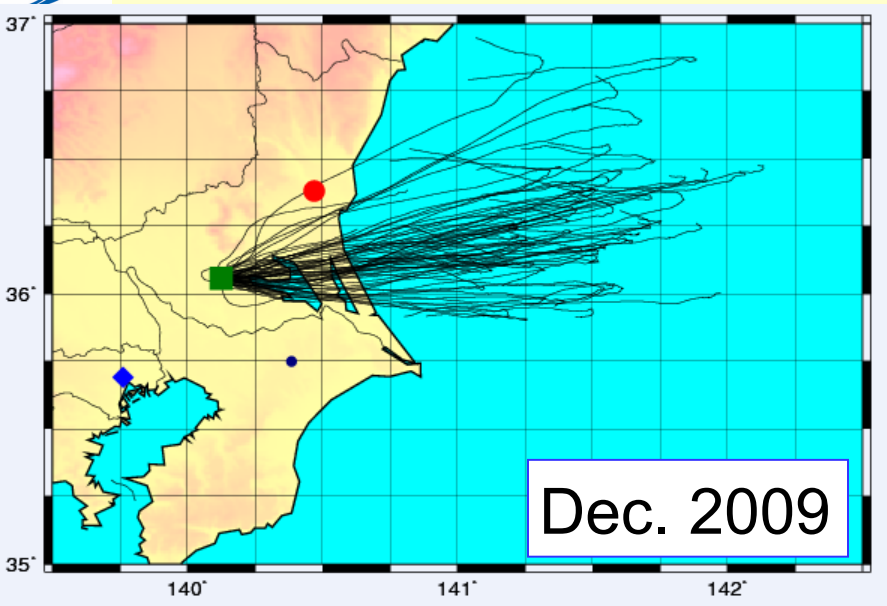


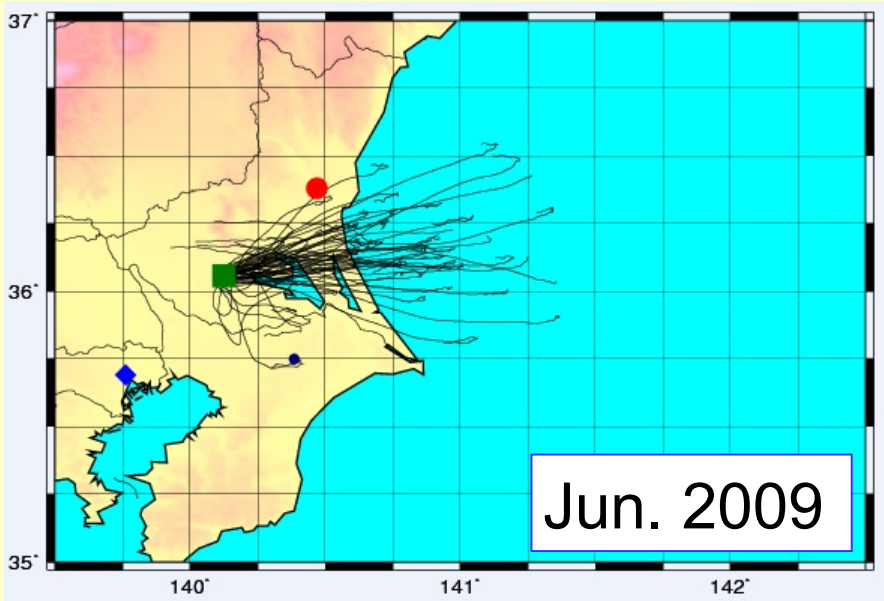


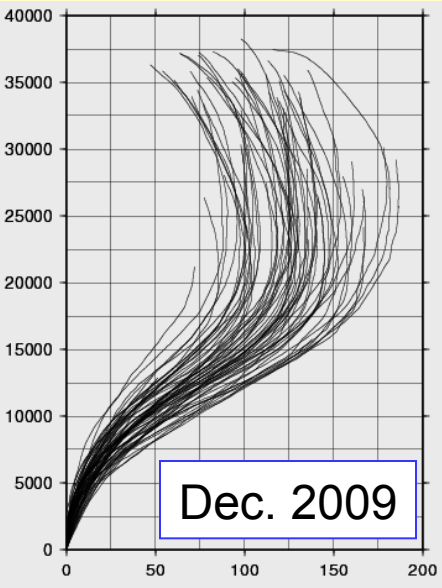
Meisei RS2-91

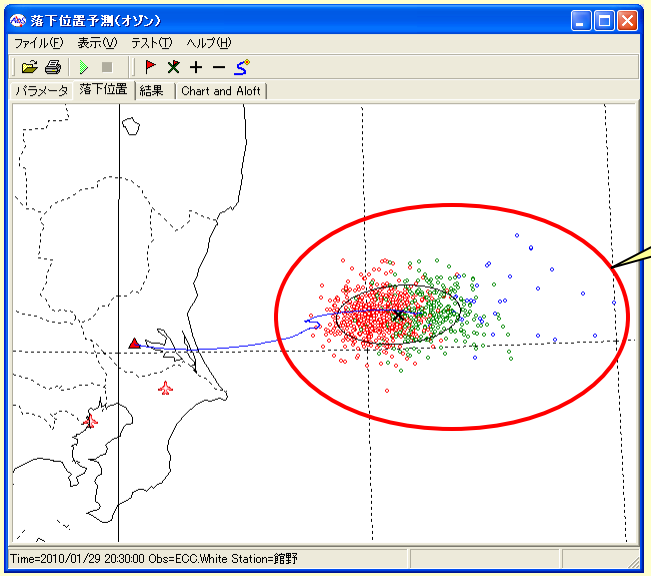
Vaisala RS92-SGPJ

Trajectories of radiosondes



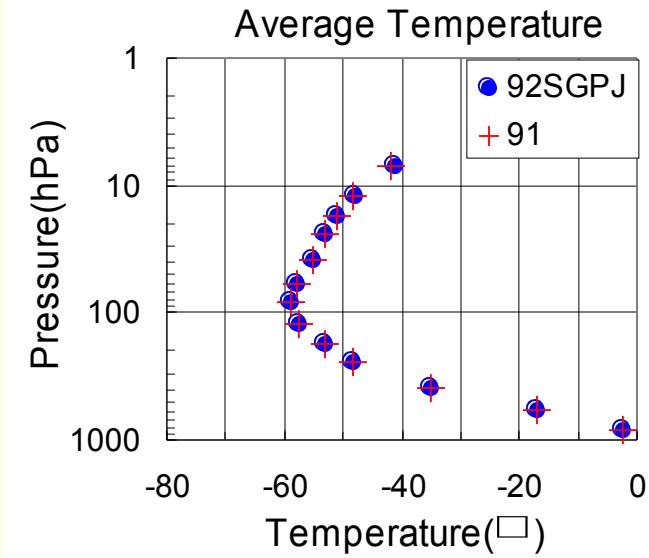


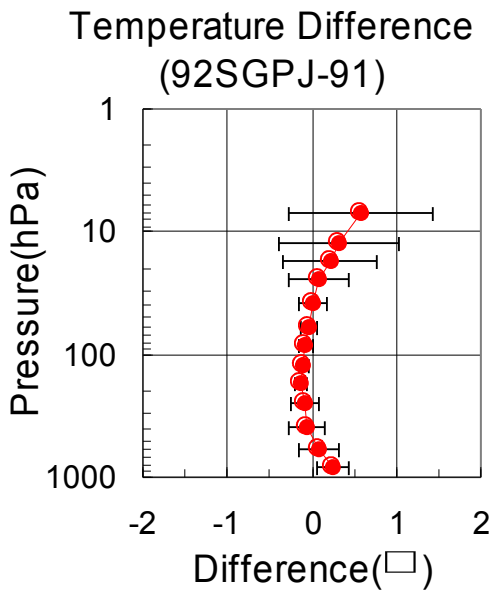


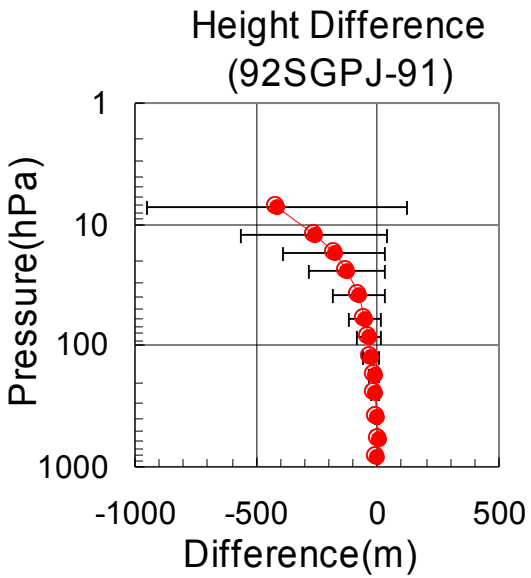


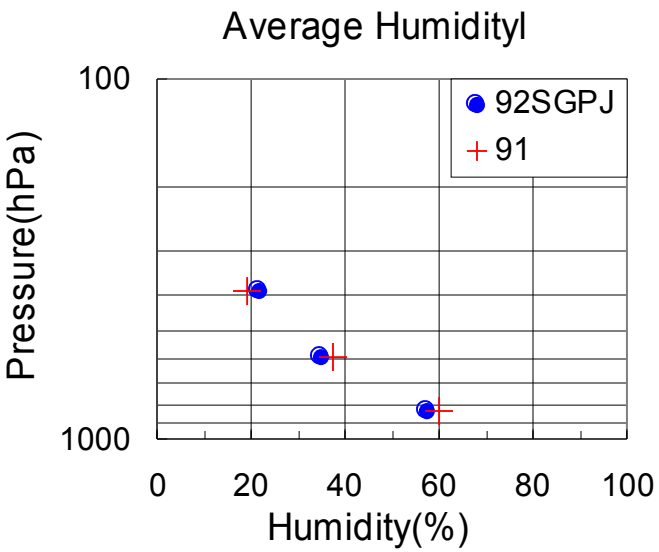
Prediction of landing location

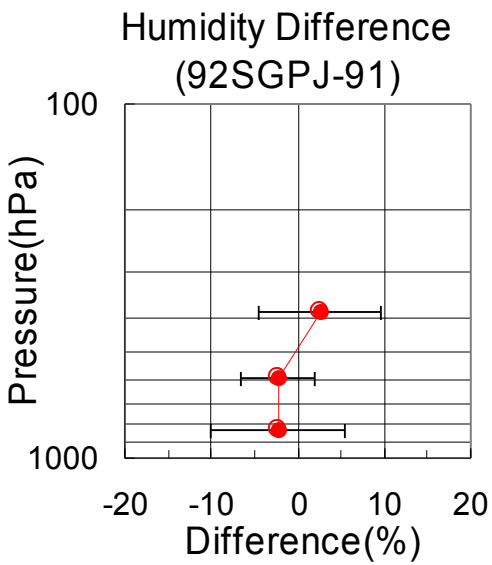
Comparison of RS92-SGPJ and RS2-91, 12 UTC (21 LST)

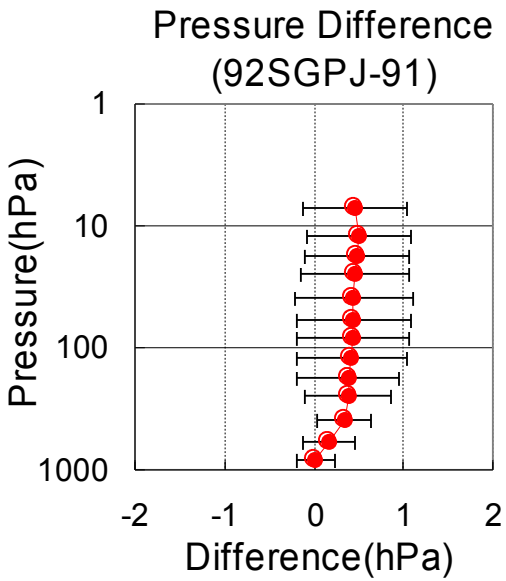




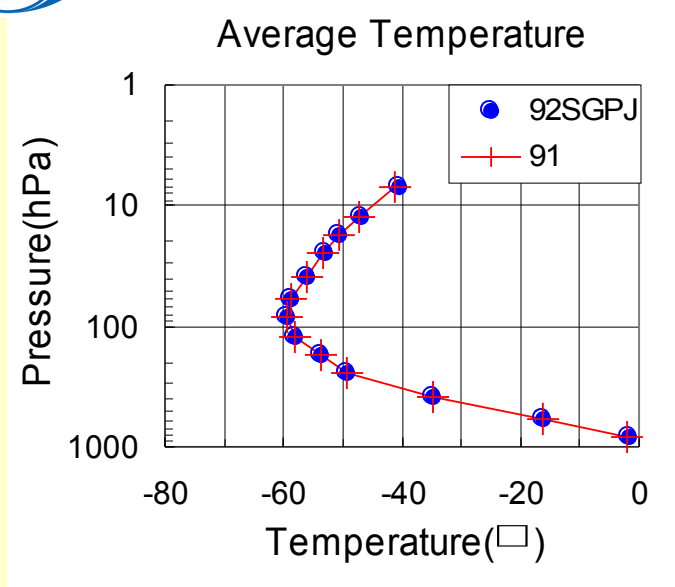


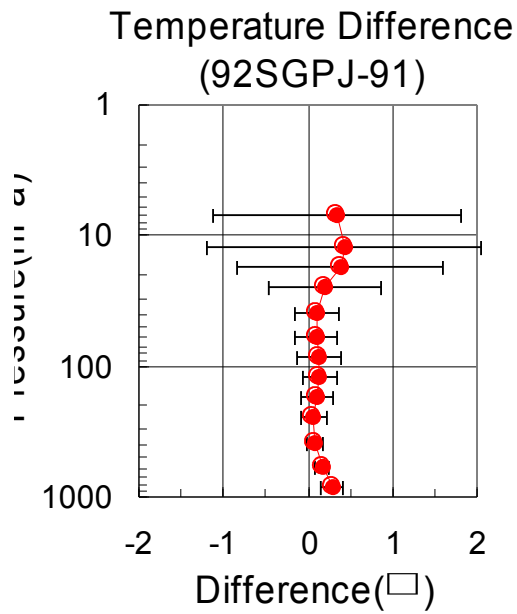


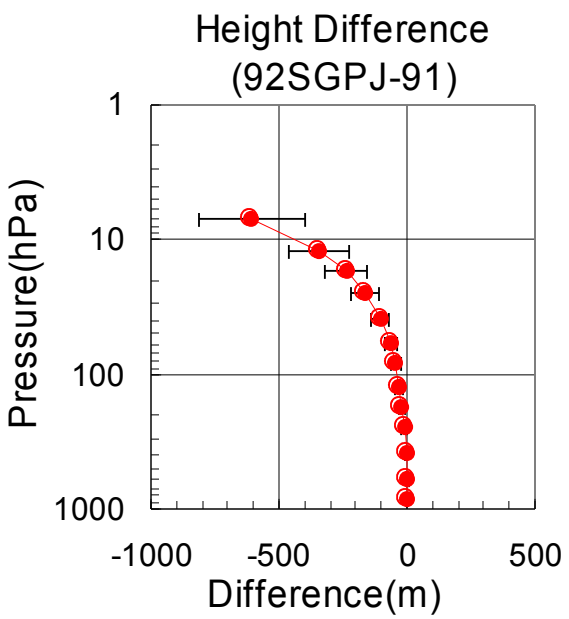


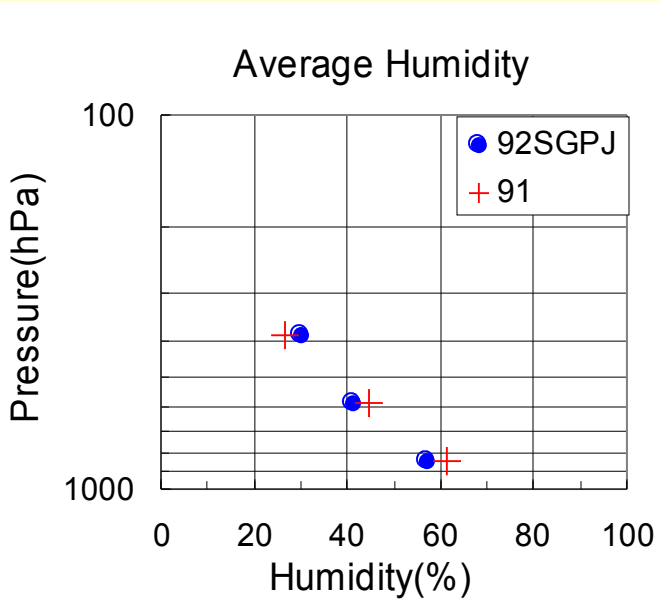


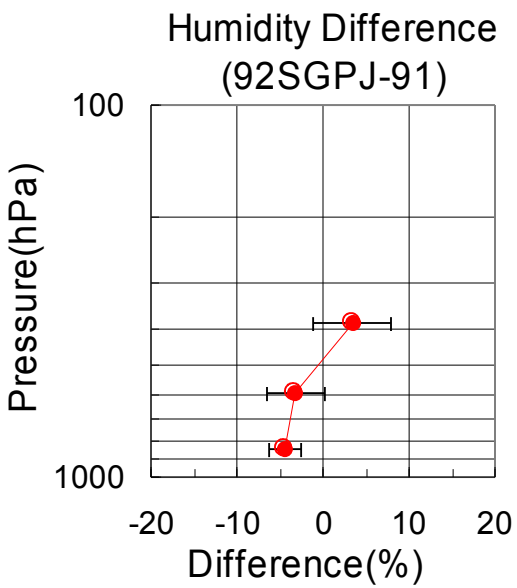
Comparison of RS92-SGPJ and RS2-91, 00 UTC (09 LST)

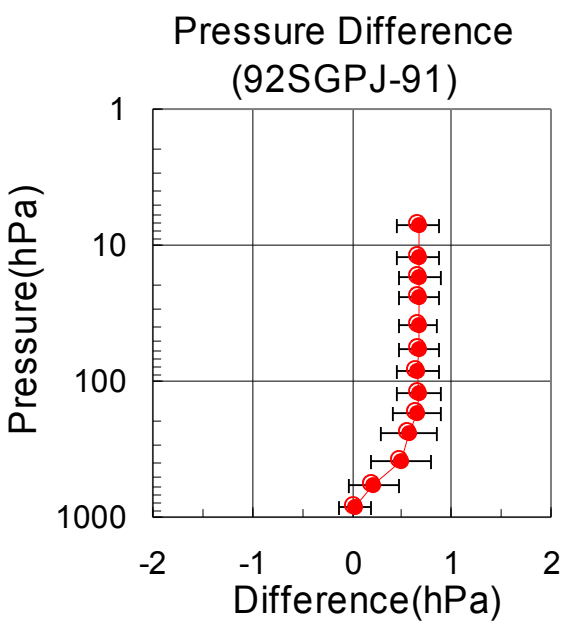












Results of the comparison

1. Temperature
   - From the surface to 20-hPa, the absolute differences of temperature between RS92-SGPJ and RS2-91 were less than 0.3 □ both in daytime and in night.
   - Below 30-hPa level in daytime and 20-hPa level in night, standard deviation of the temperature differences are less than 0.5 □.
2. Relative humidity
   - The differences of RH between the radiosondes were from -4.4 to +3.4 % in daytime, and from -2.3 to +2.6 % in night on average.
   - Measurement of RH below -40 □ is not performed in Japan due to low accuracy of RH sensors.
3. Pressure
   - RS92-SGPJ showed 0.02 to 0.50 hPa higher values in night, and 0.03 to 0.68 hPa higher values in daytime on average.