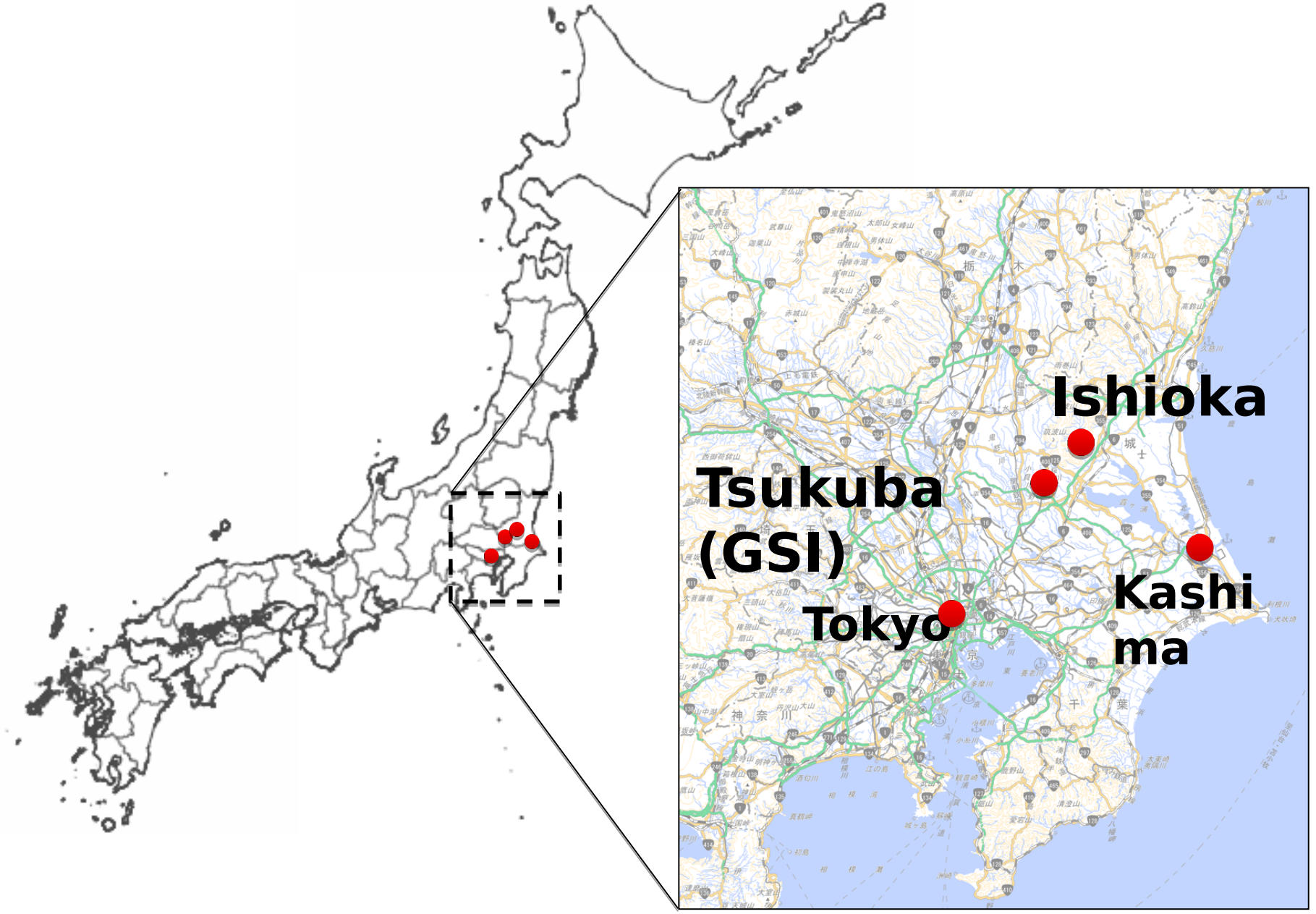
Status Report of GSI

Masafumi Ishigaki
(Geospatial Information Authority of Japan; GSI)

9 Nov. 2018

Location of GSI and Ishioka



Ishioka Geodetic Observing Station

国土地理院

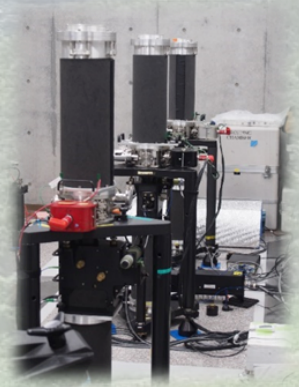
Diameter	**13.2 m**
Optics	**Ring Focus**
Surface Accuracy	**< 0.1 mm RMS**
Slew Rate	
Az	**12 deg/sec**
El	**6 deg/sec**

Equipment for VLBI observation

Observation building

Ishioka Geodetic Observing Station

国土地理院



Gravity measurement facility

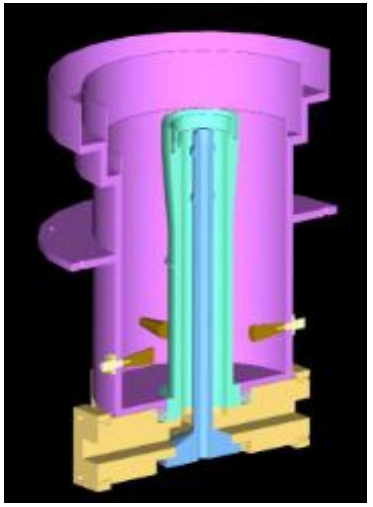
Observation building

GNSS observation stations

Observational Status in 2018

国土地理院

- Legacy S/X observation
  - R1 (26)
  - R4 (24)
  - INT (81)
  - AOV (7)
  - T2 (3)
  - APSG (1)

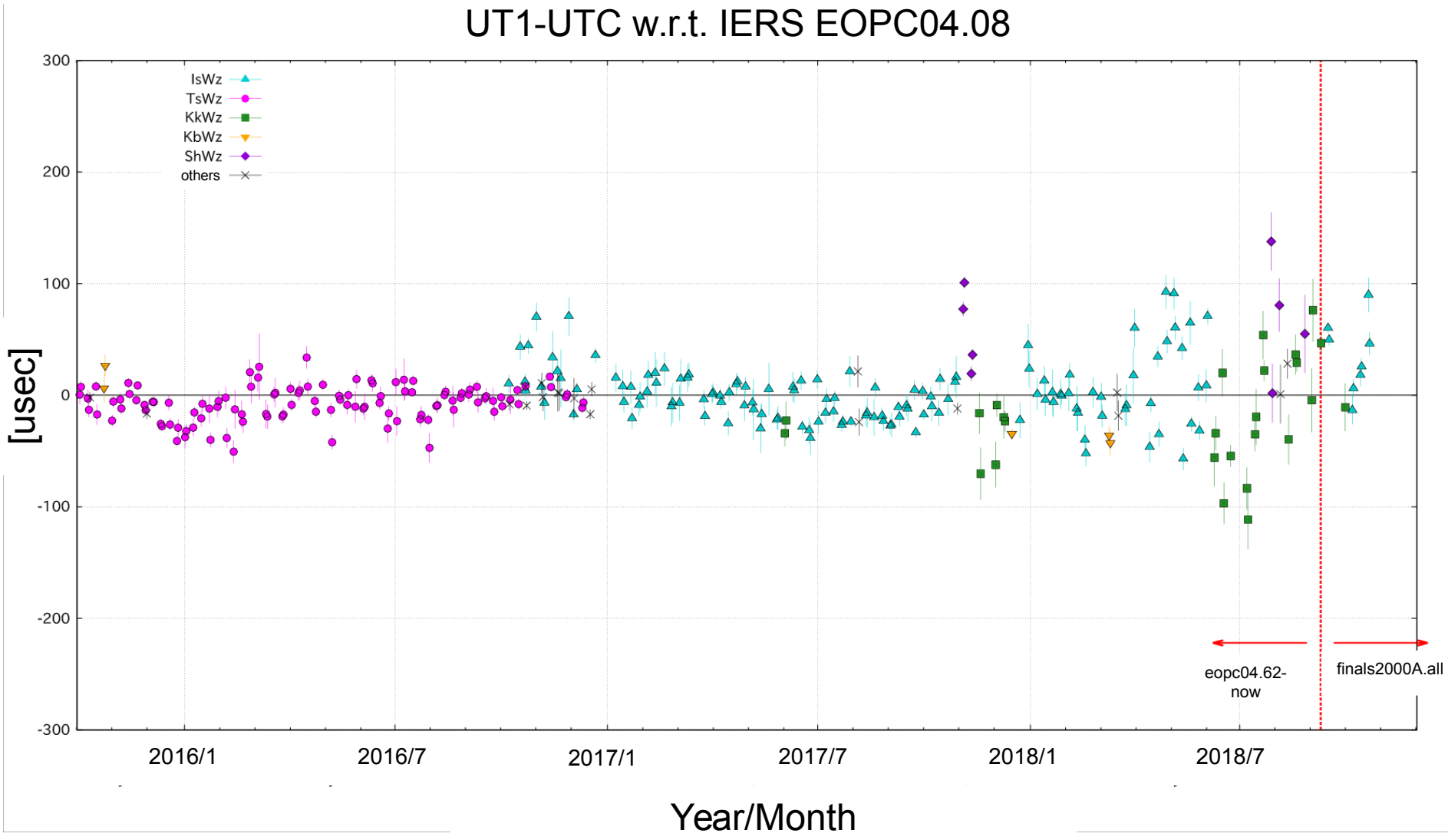


Triband

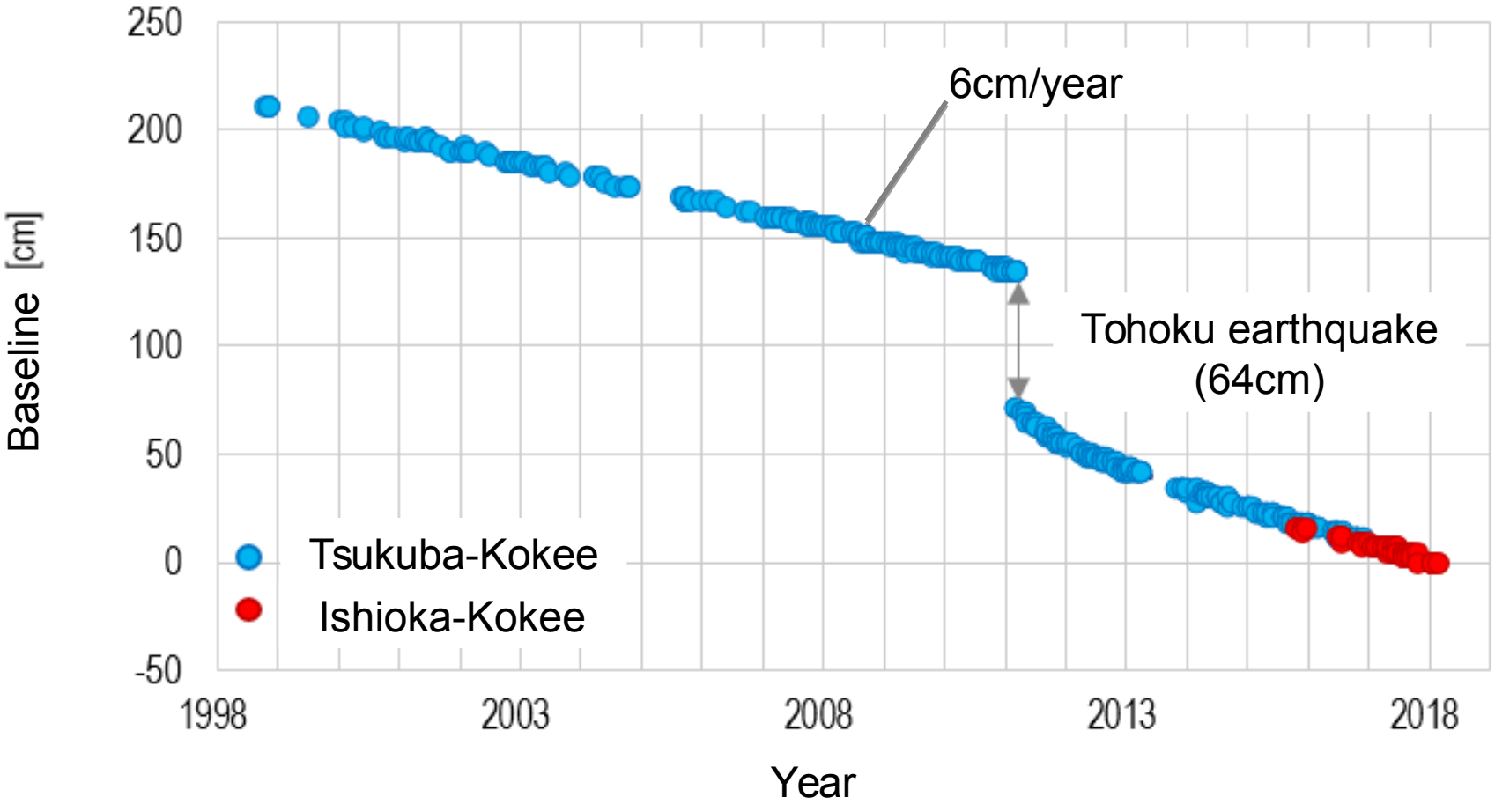
- Broadband observation
  - VGOS Test (7)
  - AOV broadband experiment
  - Broadband observation with NICT

QRFH

Legacy Observation: INT2



Baseline Analysis



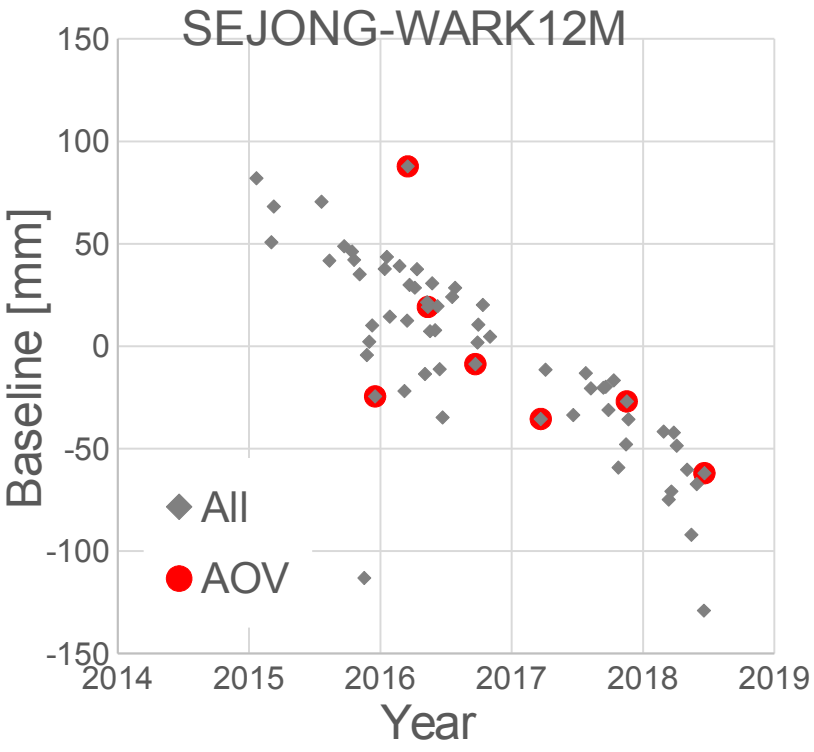
AOV Sessions in 2018

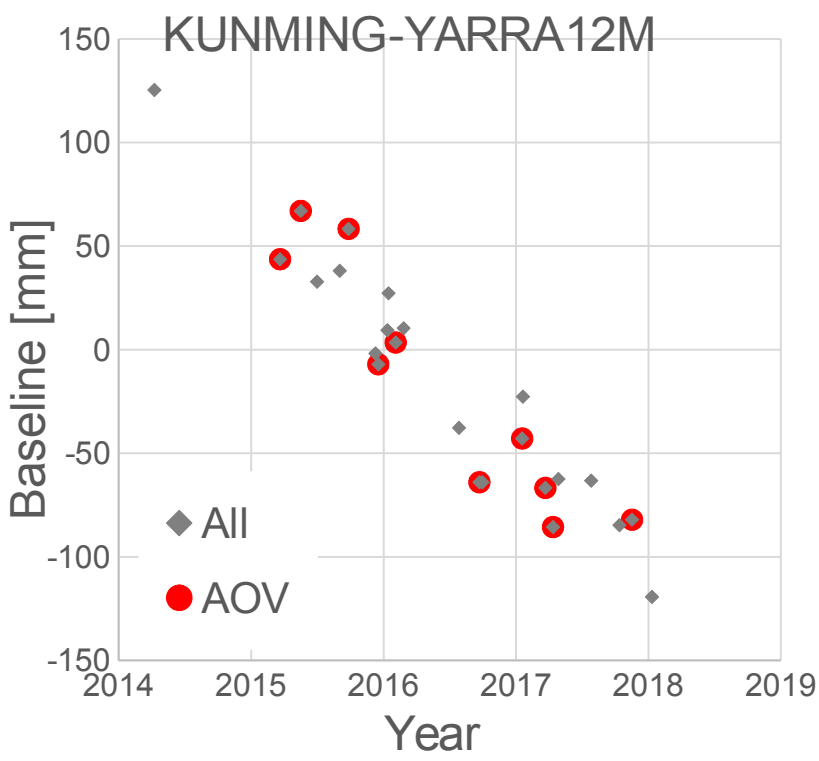
- Involved in almost all AOV sessions so far
- GSI also
  1. makes schedules
  2. carries out correlation
  3. provides feedback to participating stations

Session	Date	Stations	Sked.	Corr.
AOV019	23-Jan	HoIsKbKeKmShT6UrWwYg	SHAO	SHAO
AOV020	27-Feb	IsKeKgK1SyWwYg	GSI	GSI
AOV021	20-Mar	HoIsKeKmShUrWwYg	SHAO	SHAO
AOV022	1-May	BdHoIsKeKmShSvWwYgZc	UTAS	SHAO
AOV023	21-May	HoIsK1KgVmWwYg	UTAS	GSI
AOV024	19-Jun	HoKeK1KvSyWwYg	GSI	GSI
AOV025	24-Jul	HoKeKmShT6UrWwYg	SHAO	SHAO
AOV026	7-Aug	HoKeKgK1KvUrVmWwYg	UTAS	SHAO
AOV027	18-Sep	HoIsKeKmWwYg	SHAO	SHAO
AOV028	16-Oct	HoIsKbKeKvVmWwYg	GSI	GSI
AOV029	22-Nov	HoIsKbKeKmShT6UrWwYg	SHAO	SHAO
AOV030	11-Dec	HoIsKeKvUrWwYg	UTAS	GSI

Correlation & Analysis of AOV

- GSI provides correlation results alternately with SHAO
- It takes ~1 month from the end of observation to release of correlation report





Feedback to stations in AOV

国土地理院

- GSI provides feedback to AOV participating stations as a correlator in order to
  - ✓ share the problems among correlator, scheduler and stations
  - ✓ improve the data quality of following sessions

- The feedback is focusing on
  - ✓ SNR of each band
  - ✓ Data recording time
  - ✓ Phase cal etc.

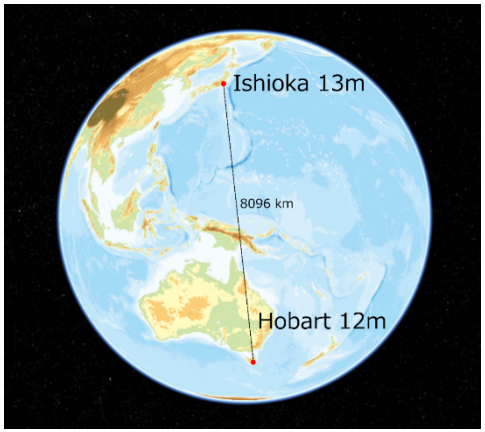
AOV Broadband experiment with Hobart

- Ishioka and Hobart succeeded in broadband experiment in August to September 2018
- Performance test of VGOS stations before joining VGOS Test of IVS

① 2018/8/8 UT4:30-5:00 (f18220)

② 2018/9/4 UT2:30-4:00 (f18247)

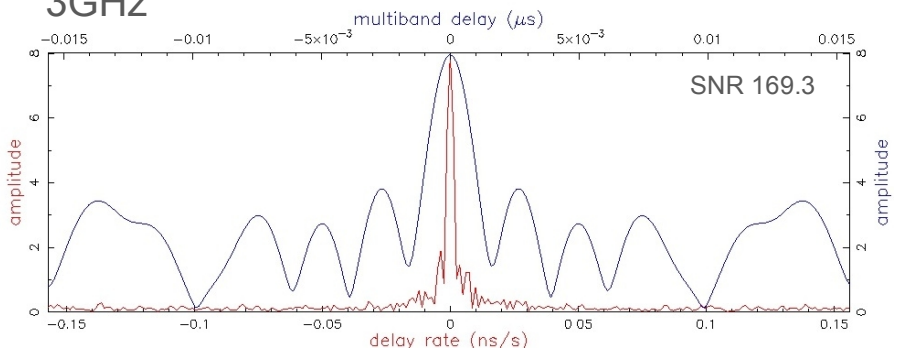
③ 2018/9/10 UT2:30-4:10 (f18253)



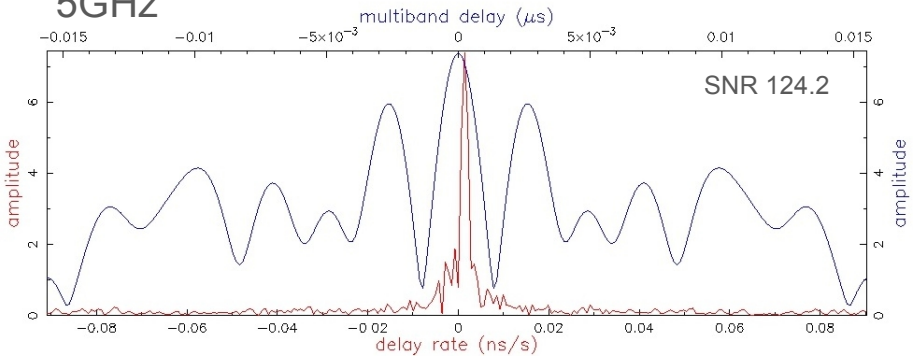
AOV Broadband experiment with Hb

- The data were correlated in UTAS
- Detect fringes in each band

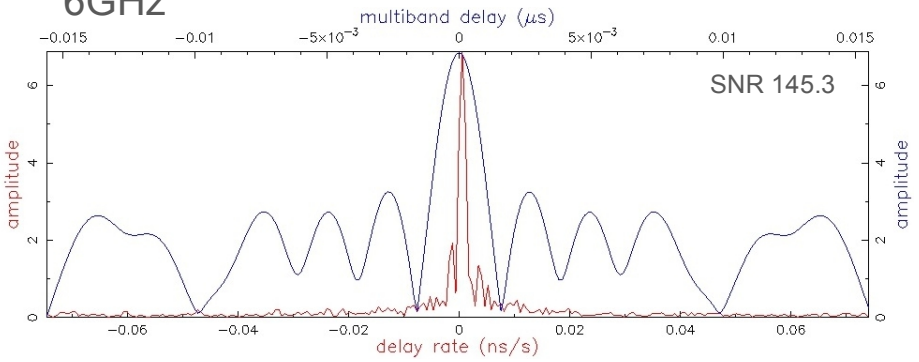
3GHz



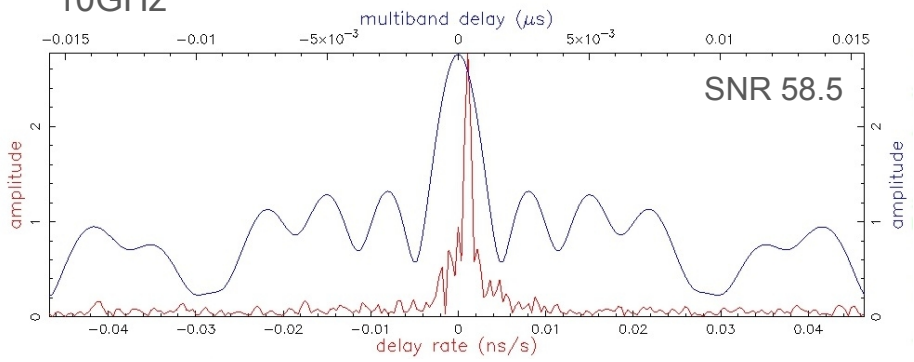
5GHz



6GHz

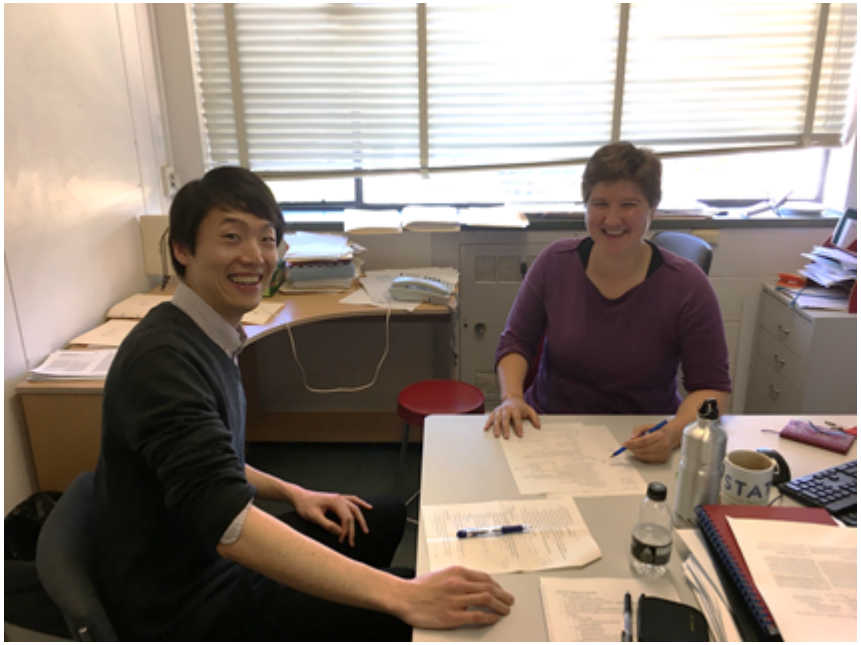


10GHz



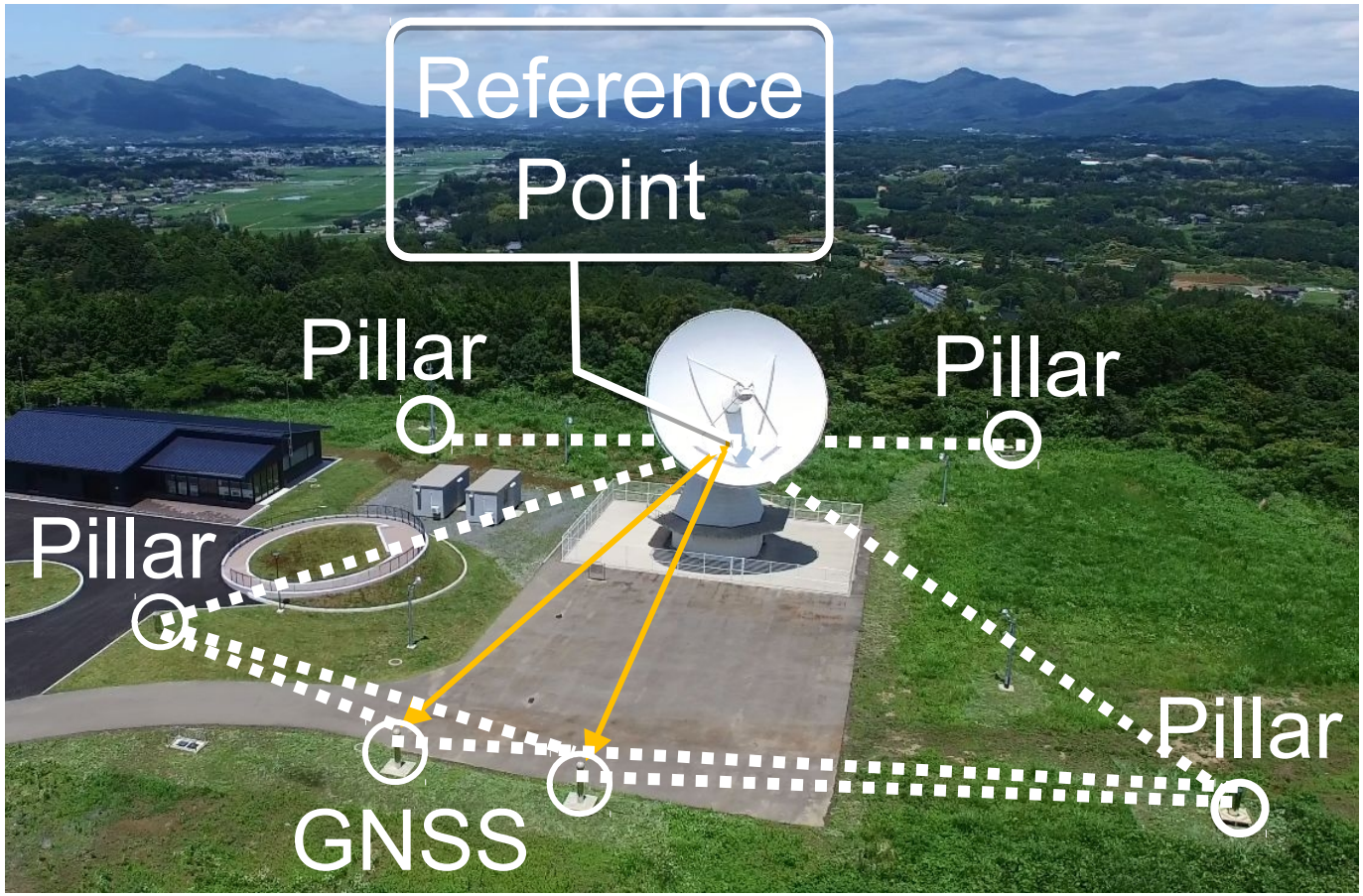
AOV Retreat

- Wakasugi visited UTAS and Mt. Pleasant Observatory from March 7 to 8, 2018
- Discussed several AOV topics



Local Tie Works in Ishioka

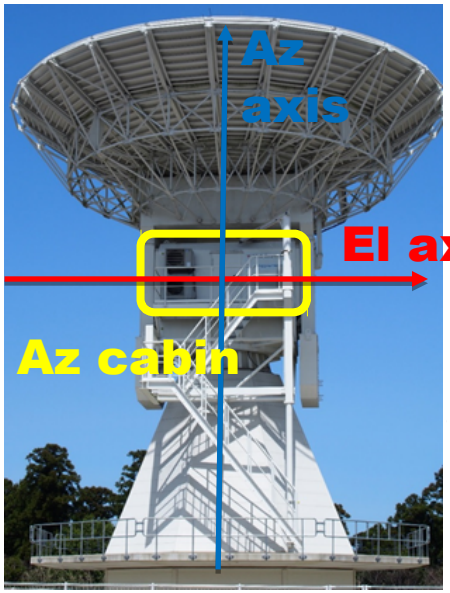
- Need to derive the reference point of VLBI
- Trying two kinds of method

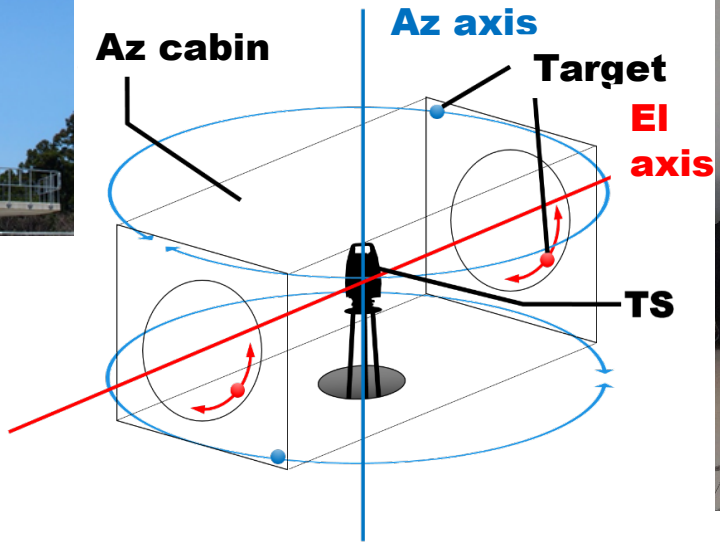


1. Measurement from Inside

August 2018

- Set TS in the vicinity of reference point of VLBI
- Track the trajectory of targets from inside

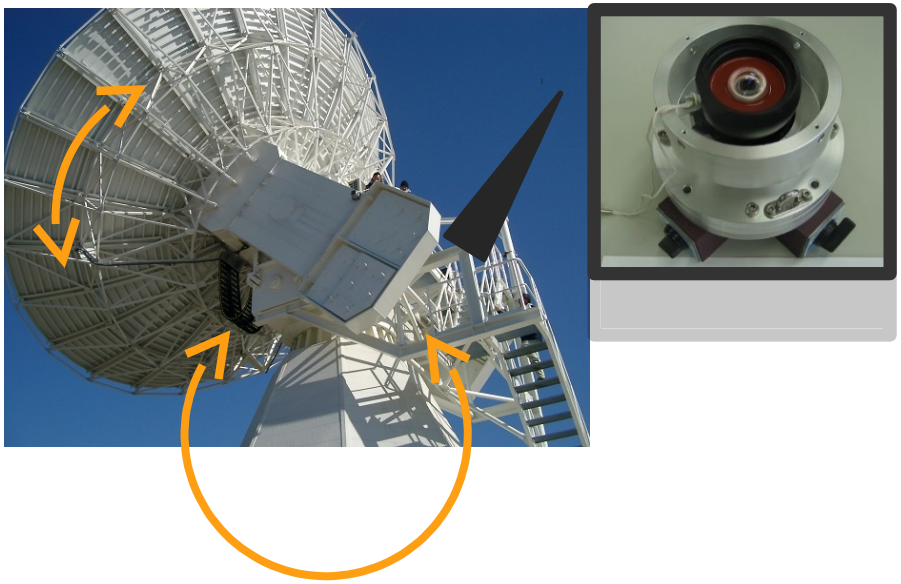


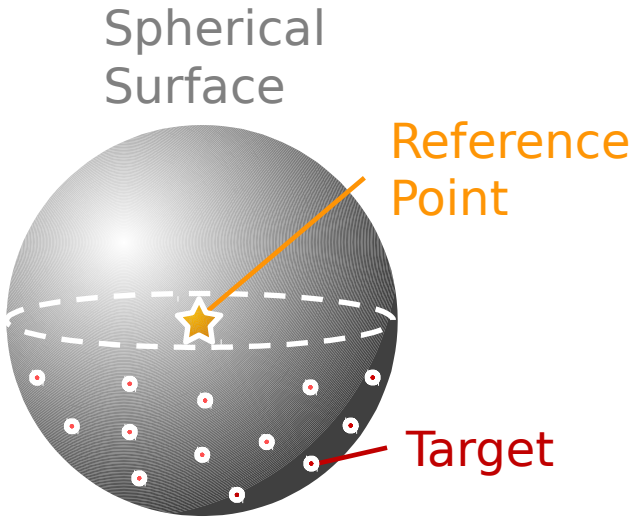


1. Measurement from Outside

November 2018 (Now measuring!)

- Set TS on the pillars
- Track the trajectory of targets from outside





Comparison result is coming soon

Open Observatory of Ishioka

国土地理院

Saturday, October 27, 2018

Future Plan

国土地理院

- Continue legacy S/X-band observations

  AOV, R1, R4, T2, APSG and Intensives

- Also participate in VGOS Test of IVS and other broadband observations

→ Broadband experiment with other stations is welcomed!

Summary

国土地理院

- Ishioka station has performed international observations since 2015.
- GSI is involved in AOV as a station, scheduler, and correlator.
- Ishioka station succeeded in the AOV broadband experiment with Hobart.
- Local tie of VLBI-GNSS is now measured in Ishioka.
- GSI will continue to be involved in the AOV sessions as both legacy and VGOS station.

Thank you so much for your kind attention.