TNRT Users Meeting for Call for Proposals in Cycle 1
Jan 8th, 2025 @Online

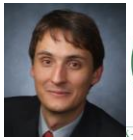
Introduce new open modes with its spec in Cycle 1

NARIT: National Astronomical Research Institute of Thailand (Public Organization),
Ministry of Higher Education, Science, Research and Innovation, Thailand

Koichiro Sugiyama, Acting Manager of CRAE / Chief Scientist of TNRO

On behalf of: Nobuyuki Sakai, Bannawit Pimpanuwat, Phrudth Jaroenjittichai, Apichat Leckngam, Wiphu Rujopakarn, Boonrucksar Soonthornthum, Saran Poshyachinda (NARIT), Busaba H. Kramer (MPIfR/NARIT), and all the radio center/observatory CRAE/TNRO members.

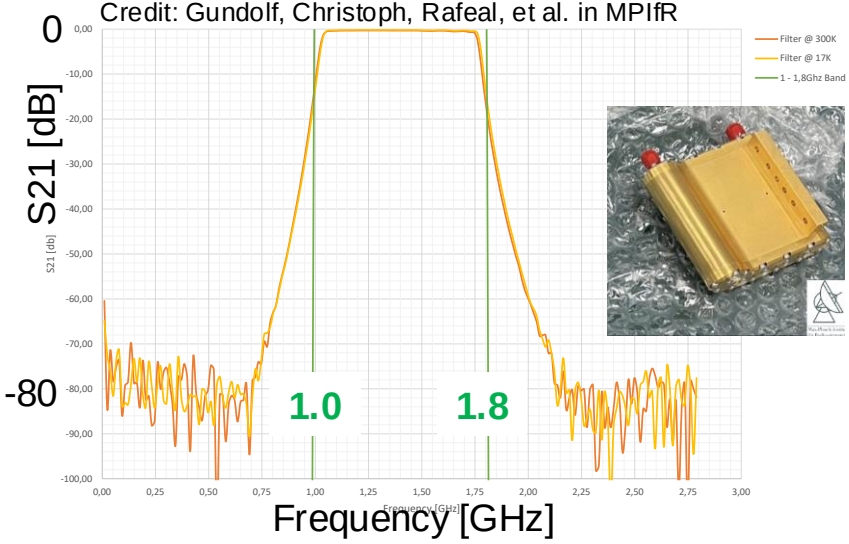
Upgraded the L-band system, No. 1



Installation of high-/low-pass filters with MPIfR

- Gundolf Wieching, Christoph Kasemann, et al. in MPIfR have produced high-/low-pass filters for TNRT: 30 dB attenuate in 1.75-1.85 GHz, & 80 dB attenuate at max
  - Mitigate the RFI monster (1.805–1.845 GHz), & Cancel intermodulation due to RFI from out-band
- Completed installation in the mid-Nov 2023, with Christoph & Rafael (MPIfR)

Credit: Gundolf, Christoph, Rafeal, et al. in MPIfR



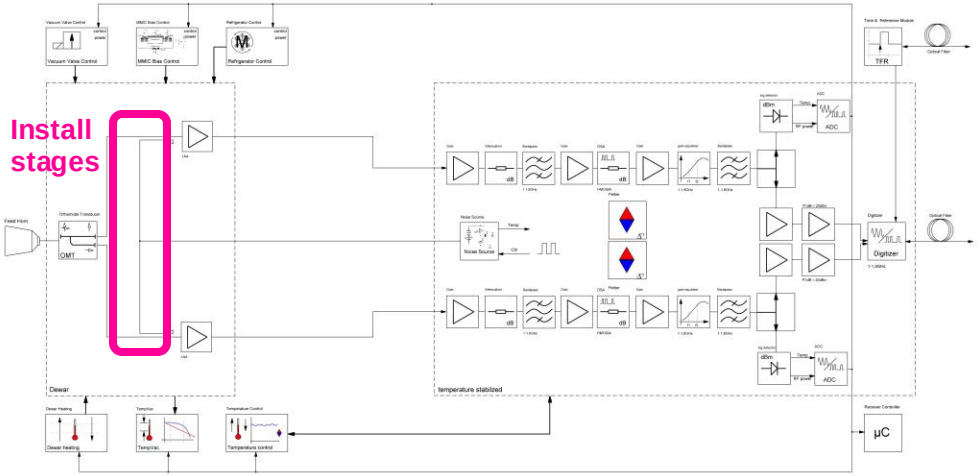
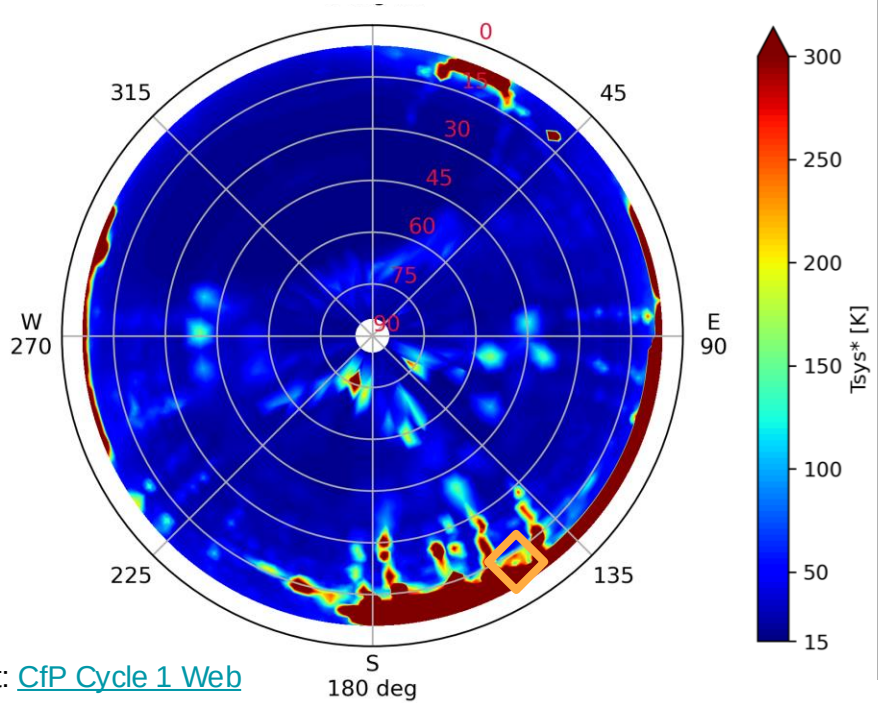


Diagram in the L-band receiver box ©Christoph Kasemann, MPIfR

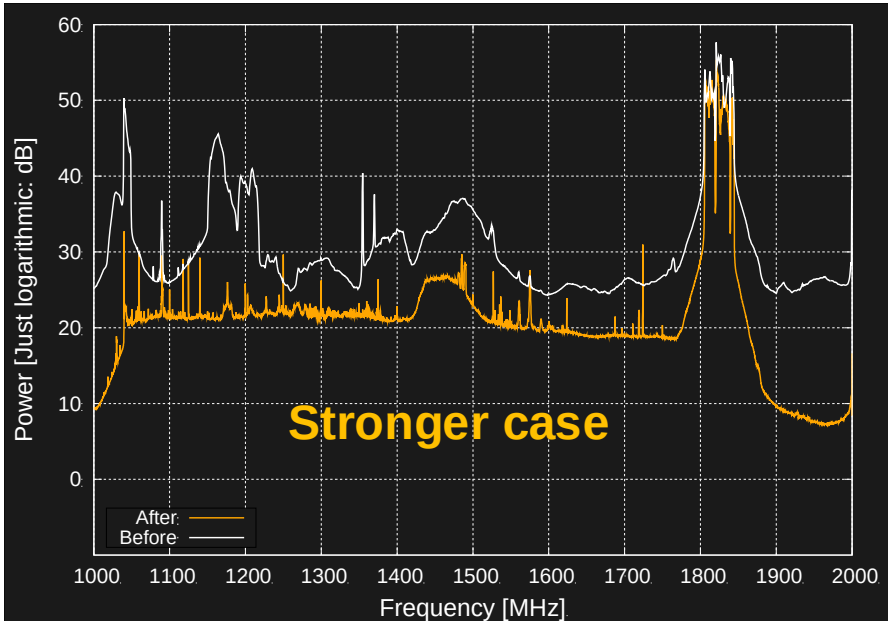
Upgraded the L-band system, No. 1

Installation of high-/low-pass filters with MPIfR

Before: April 2023, 1.63-1.67 GHz



On November 23rd, 2023

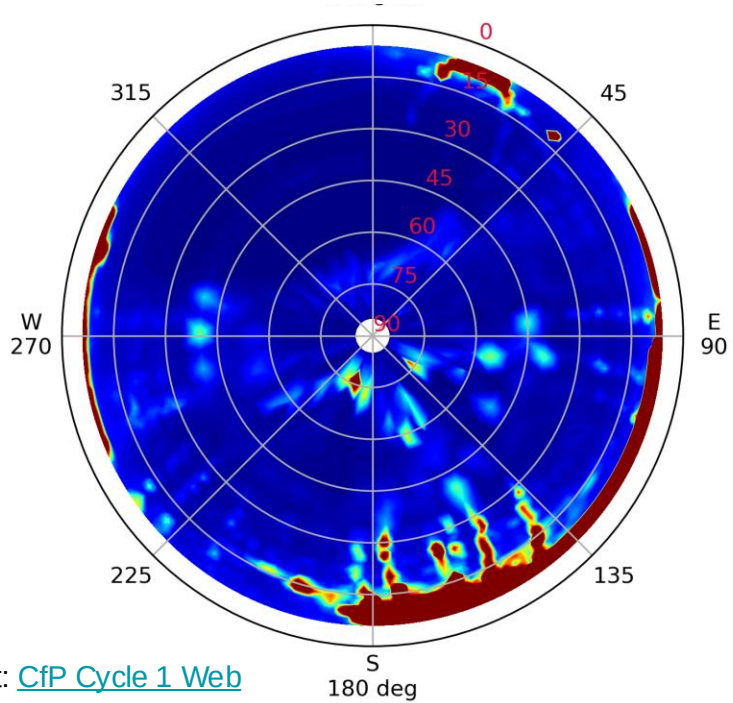


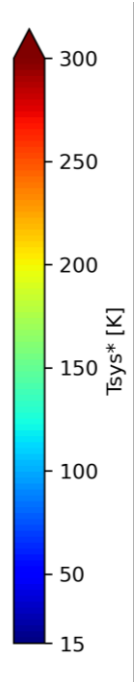
Credit: CfP Cycle 1 Web

Upgraded the L-band system, No. 1

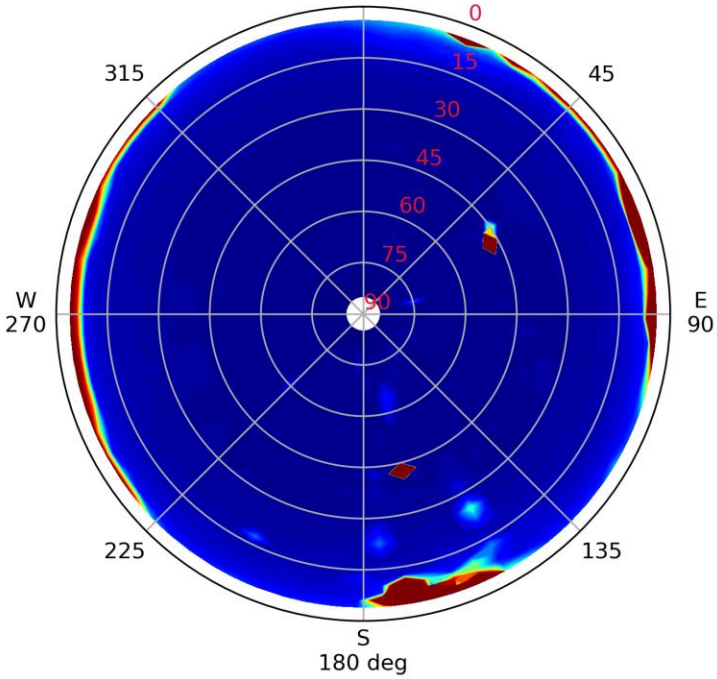
Installation of high-/low-pass filters with MPIfR

Before: April 2023, 1.63-1.67 GHz





After: March 2024 (this Cycle 1)

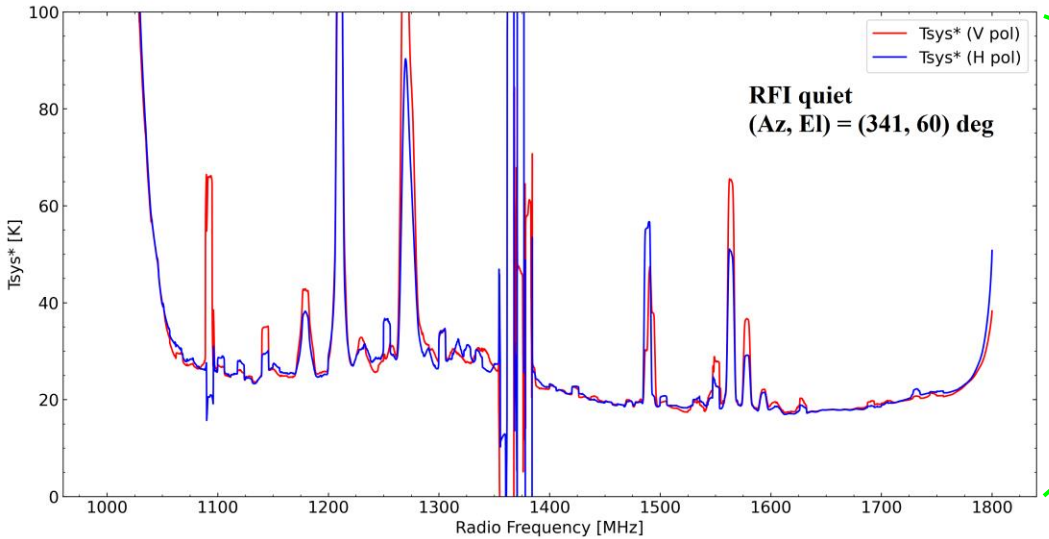


Credit: CfP Cycle 1 Web

Upgraded the L-band system, No. 1

Installation of high-/low-pass filters with MPIfR

*T*sys* distribution in 1.0 – 1.8 GHz: **RFI <u>Quiet</u>** case



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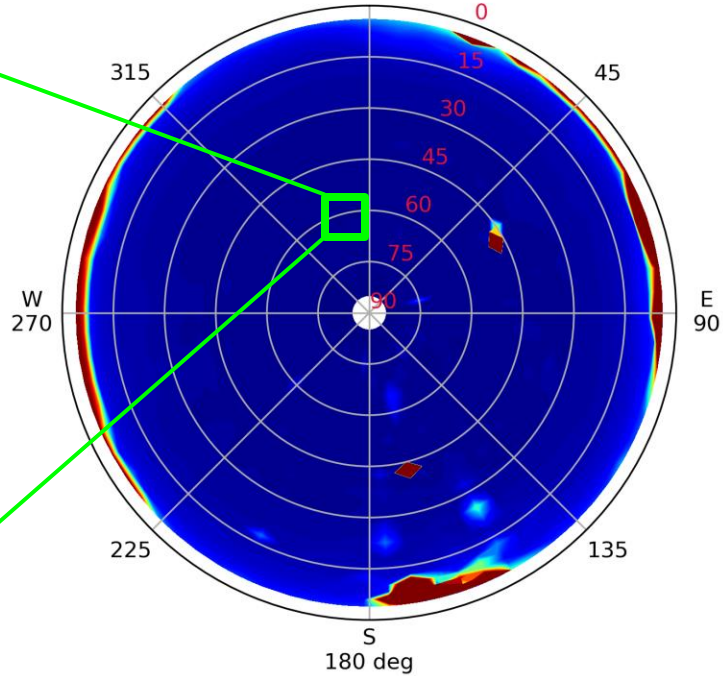
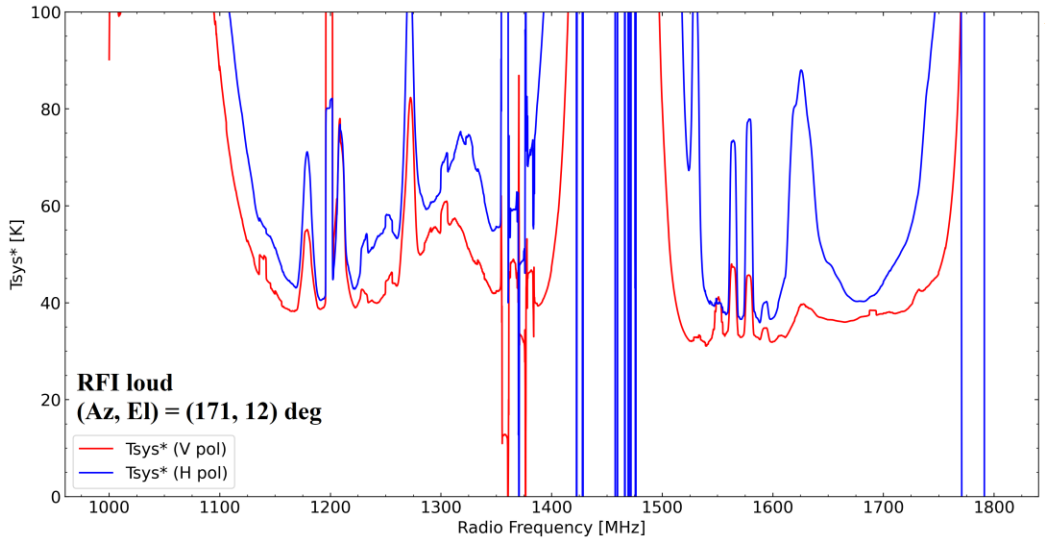


Credit: CfP Cycle 1 Web

Upgraded the L-band system, No. 1

Installation of high-/low-pass filters with MPIfR

*T*sys* distribution in 1.0 – 1.8 GHz: **RFI <u>Loud</u>** case



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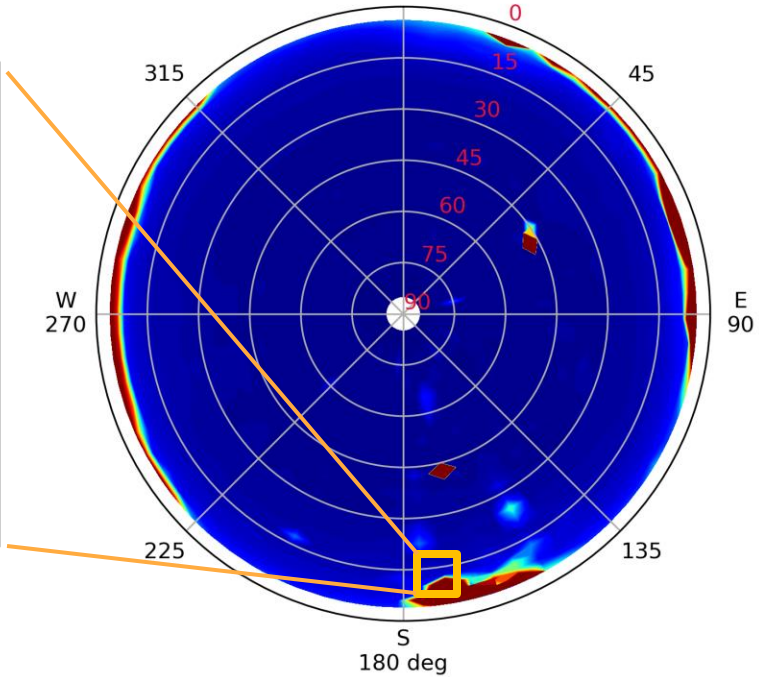
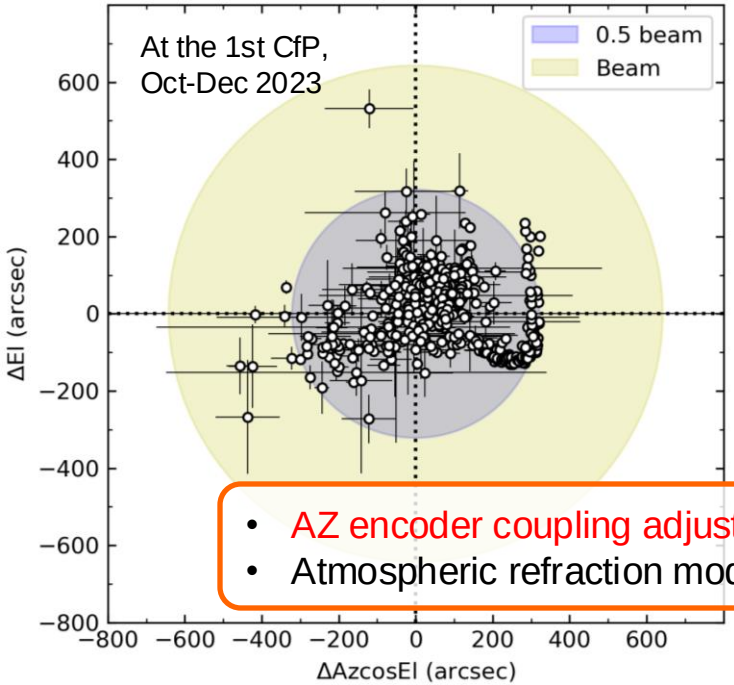


Credit: CfP Cycle 1 Web

Upgraded the L-band system, No. 2

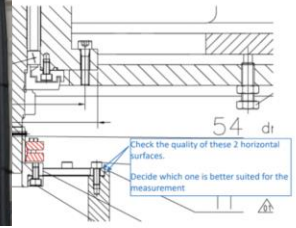
Perfection of Dynamic Pointing Tuning in L-band

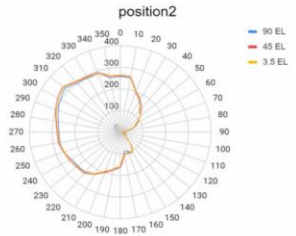
(led by Nobuyuki Sakai, Bannawit Pimpanuwat, et al.)



- AZ encoder coupling adjustment
- Atmospheric refraction model evaluation

Credit: Kitipoom, Nikom, & Apichat





Max. measured data: 328 um at around 300-310 degree

Upgraded the L-band system, No. 2

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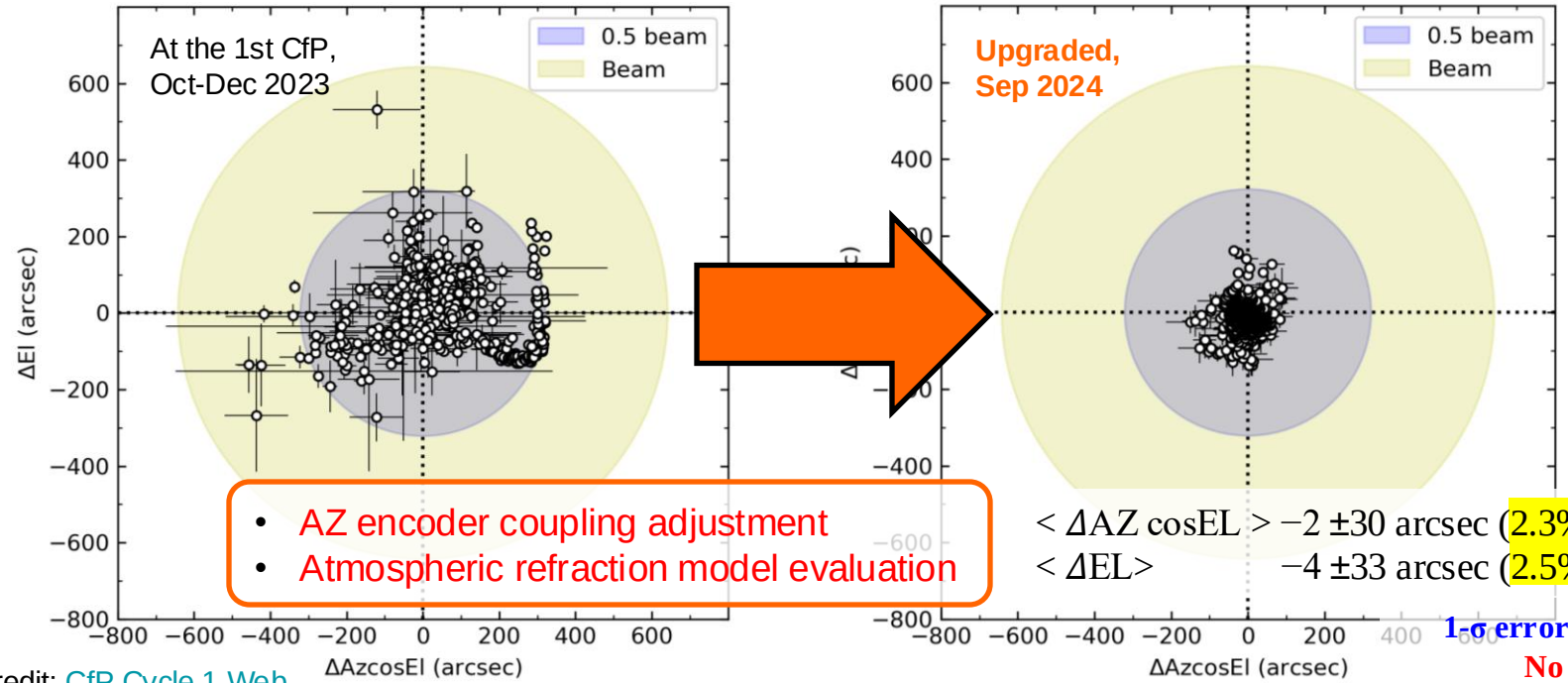
Plot Credits: N. Sakai



**

Beam size
In L-band
≈ 1,300 arcsec

**

- AZ encoder coupling adjustment
- Atmospheric refraction model evaluation

< ΔAZ cosEL > −2 ±30 arcsec (2.3% beam size**)

< ΔEL> −4 ±33 arcsec (2.5% beam size**)

1-σ errors are OK (< 5%)

No systematic error

Credit: CfP Cycle 1 Web

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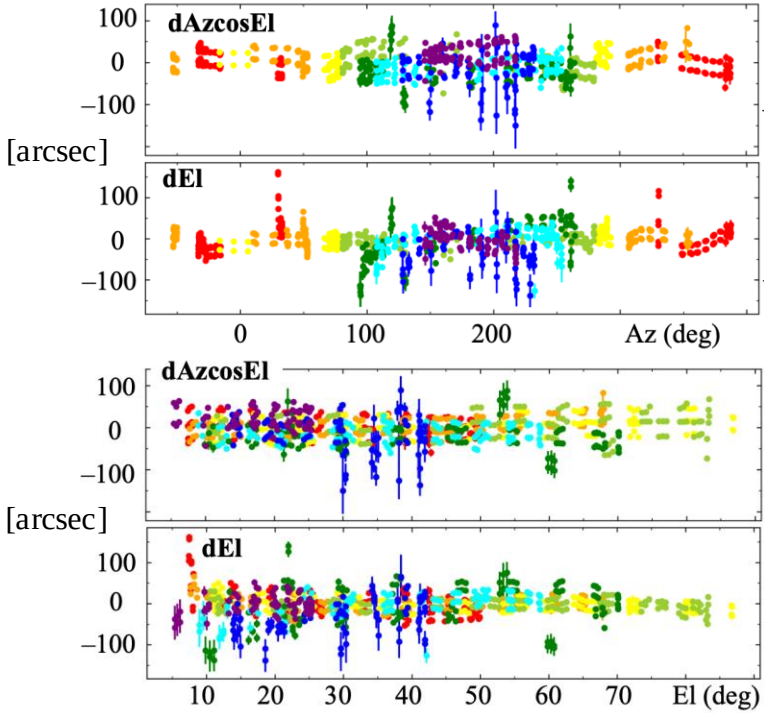
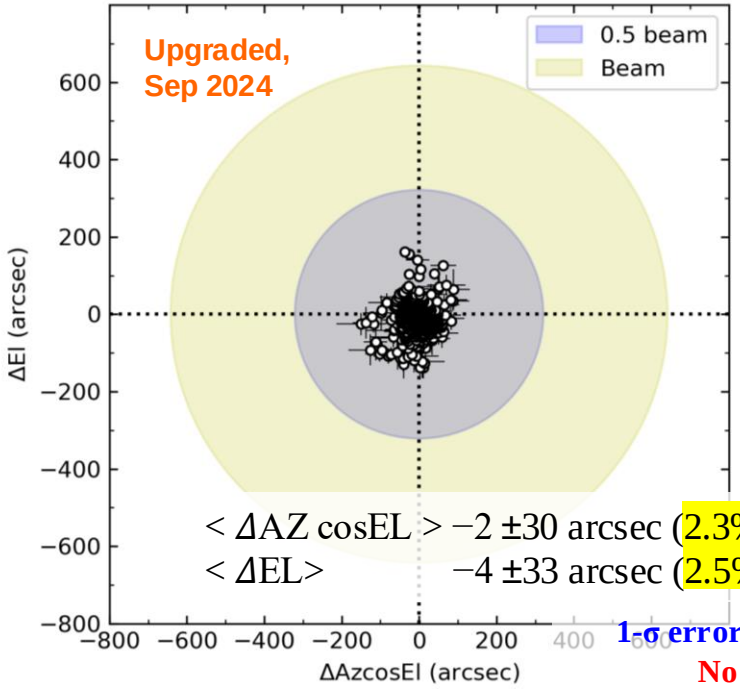


Plot Credits: N. Sakai



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This Call for Proposals with TNRT, Cycle 1

- Deadline: **31st January 2025, 16:00 UT**

Webpage:

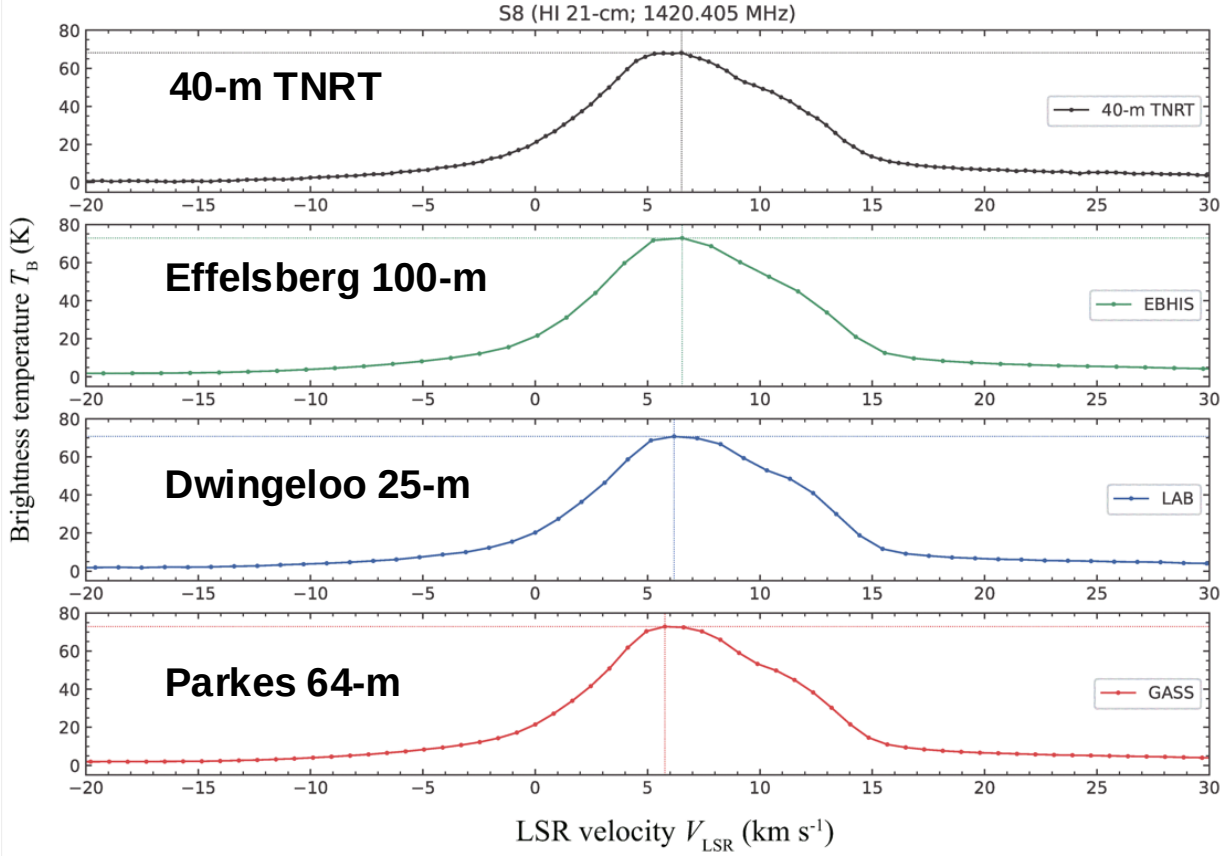
- What's new?
  - Upgraded spec. : Perfection of dynamic pointing tuning, & Mitigation of RFI impacts
  - Frequency range : 1.63 − 1.67 GHz ➔ **1.0 − 1.8 GHz**, full band in L-band
  - Polarizations : V ➔ **V & H** (* NOT "full-stokes of polarimetry" mode yet)
  - Observation modes : OH maser lines, Continuum, **+ 21-cm HI line** emissions
- Open-use hours : Up to 1,000 hrs/semester
- Note.: Still in Resident Shared Risk Observing for a part of obs. mode
- **Privilege for students**, encouraging sciece proposals from youth!

Slide credit: N. Sakai

TNRT H I commissioning

- Thanawat Nakmorn (Jeng, KAIST)
- Internship student

- Nobuyuki
- TNRO scientist



- H I standard region S8 (Williams 1973) was observed with TNRT
- Peak Brightness of TNRT data
  - Consistent with others within 4–7%
- Velocity scaling of TNRT data
  - Consistent with others within errors

➔ Ready to use for scientific obs and opened in this cycle 1

*** On-going commissioning for HI Mapping ***

Let’s move on Q&A,

Contact whenever:
tnrtprop@narit.or.th

User Support Scientists:
Koichiro Sugiyama
Nobuyuki Sakai
Bannawit Pimpanuwat

NARIT (Public Organization)
260 Moo 4, T. Donkaew, A. Maerim, Chiangmai, 50180 Thailand

Image credit: D. Singwong, N. Thoonsaengngam, & NARIT / TNRO / CROE.

E.g.,

- Status Report ➔ https://indico.narit.or.th/event/218/page/840-status-report
- How to submit? ➔ Write in the format, and submit via email
  - https://indico.narit.or.th/event/218/page/841-proposal-submission
- Privilege for students? ➔ https://indico.narit.or.th/event/218/page/842-privilege-for-students
- How to perpare the scheduling and operations? ➔
  - https://indico.narit.or.th/event/218/page/843-policy-for-obs-data
- How long period for the data protection? ➔ 12 months (= 1 year)
- User support ➔ Contact whenever you have any questions, via email to

  tnrtprop@narit.or.th

  You can find User support scientists through the link below:
  https://indico.narit.or.th/event/218/page/844-user-support