

P07: Updates from NsIR Management Committee

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Abstract: We present a few highlights about the operation and management of the IR-side Nasmyth (NsIR) platform with the major upgrade by Nasmyth Beam Switcher (NBS). We report the ongoing characterization of the instrument system with NBS, and summarize needs of strategic discussion for productive operation transition with the upgrade.

Features of the current NsIR:

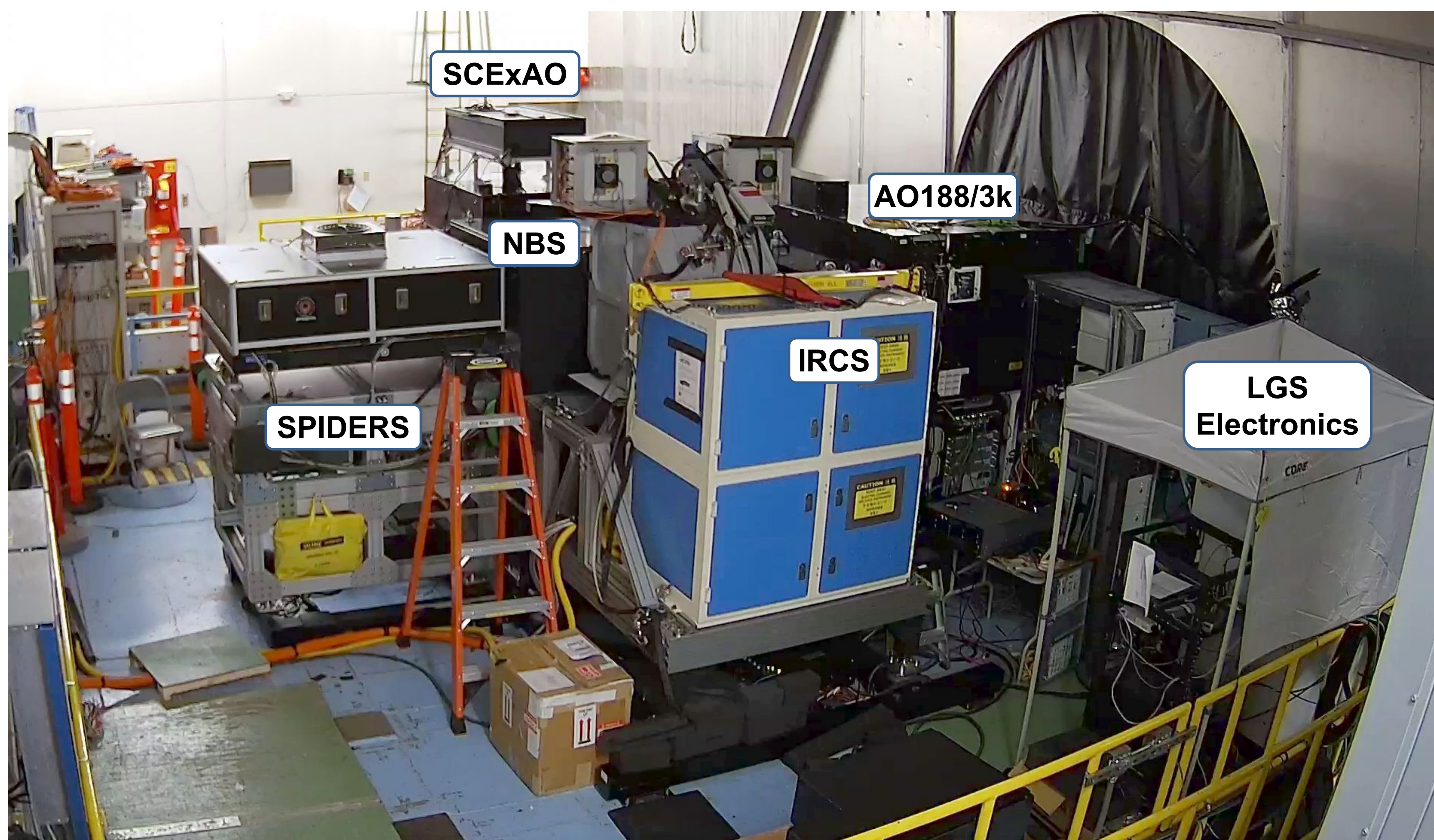
- It is **no longer needed to crane instruments for scheduled observations** thanks to NBS. This has led to significant effort saving, operational stability, and risk mitigation.
- This implies instead that there is a loss of flexibility which the labor-intensive but dynamic operation enabled in the past.
- Also, a ~15%-higher background is expected in the K band and beyond.
- AO3k/188, a “hybrid” (half externally resourced) facility, is in operation with some continuous upgrades and commissioning.
- Still the majority of the instruments are PI-type.
- Since the removal of the AG/SH unit last year, the over-weighting risk against the floor load budget has been substantially mitigated.

Key questions for current & future operation:

- How should we exploit the transition to the static operation productively rather than featuring the restrictions?
 - Intentional periodic refresh of instrument lineup?
 - Better definition of interfaces to instruments mechanically (via NBS and Common Platform) and resource-wise (power, coolant, heat, etc).
- How can we be further effective to address the observatory-wide challenge of resource shortage?
 - Operation simplification as well as performance optimization of the AO facility.
- What is a good balance between static, stable operation and active developments keeping sustainability?

NBS Status

- NBS was successfully installed in summer 2025
- NIRWFS-v2 and LTAO-WFS were also installed and tested successfully
- Engineering observations to confirm the performance and operation of IRCS and SCExAO with NBS were done in October 2025
- Detailed performance check and analysis are still ongoing

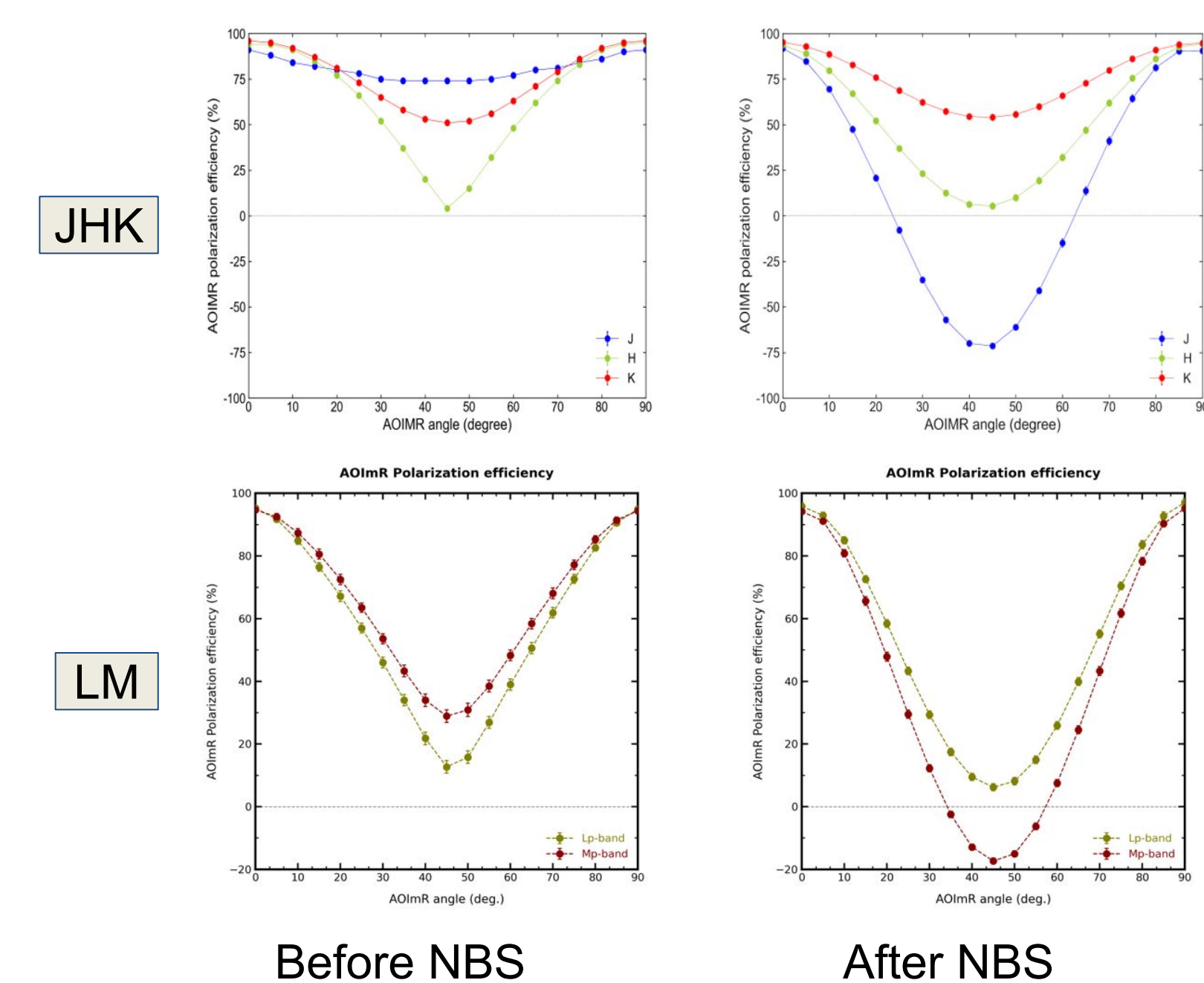


NBS+IRCS engineering results

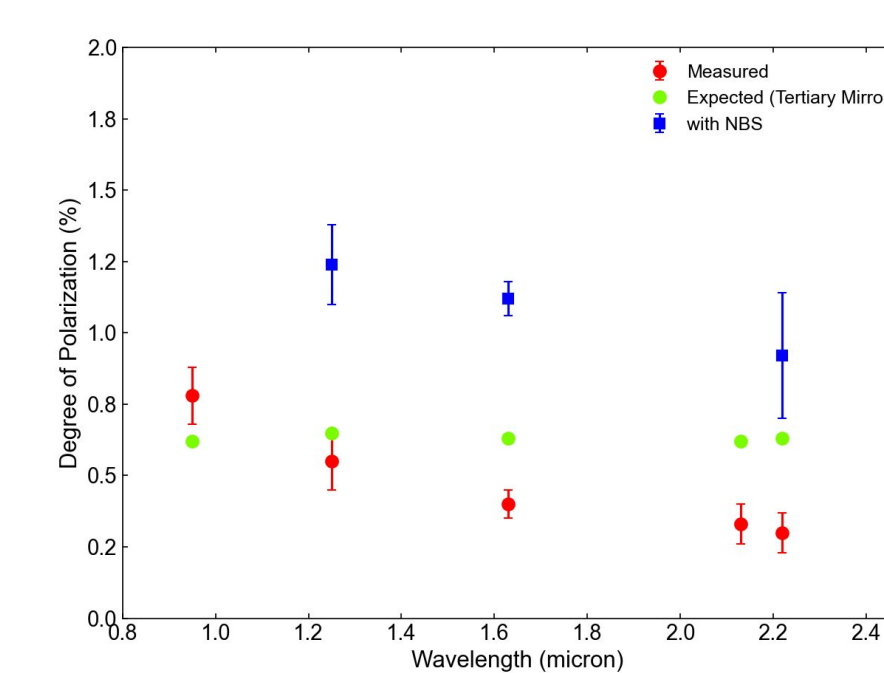
•Zero-magnitude

Band	Zero mag before NBS	Zero mag after NBS
J	26.16	25.84
H	26.22	26.04
K	25.36	25.24

•Polarization efficiency vs Image Rotator angle A large change in J-band was found.



•Instrumental polarization



Recent updates & upcoming plans

- A few PI-type projects are flying by:
 - SPIDERS: This is a stand-alone instrument from HAA/NRC in Canada (PI: Marois) mainly for technology demonstration of novel high-contrast techniques. The engineering observations were carried out during the SCExAO engineering time (in parallel to SCExAO by splitting the beam) around the Christmas and new year from 2025 to 2026, and from late May to early June, in total for several half nights. Now the instrument is off NsIR.
 - ULTIMATE-Start: The LTAO commissioning is ongoing. After the first engineering observation in Dec and subsequent engineering works, there will be the second run soon.
 - NINJA: The NIR long-slit spectrograph utilizing LTAO is now being prepared for transportation to the summit and subsequent engineering works.
- Troubleshooting of Acquisition Unit #1 (AU1) of AO188 is ongoing. The major repair work has preliminarily been scheduled in August.
- Discussions will be carried out for detailed work plans before and during the telescope downtime from mid Nov.

Summary & future perspectives

- The NsIR management committee continues to run regular (basically weekly) meetings to share updates and upcoming work plans among members either for instrumentation or operation on NsIR. These communications have been very helpful for efficient planning and risk mitigation.
- In addition, we would like to accommodate opportunities to discuss how to update and improve the NsIR platform strategically. Given the resource shortage is an observatory-wide challenge, it is hard to discuss more than short-term plans, but nevertheless we should pursue being both productive and resource effective. How to promote collaboration with communities external to the observatory is perhaps one crucial key.