

Summary of visit to TNG - InfraRed imager.

Cooling and cryogenics.

1. Uses same cooling head (closed cycle cooler) but with larger, water cooled, compressor.
2. Operational pressure 300 psi inlet, 160 psi outlet, i.e pressure differential 140 psi.
3. Zero leaks in system. Only top ups in He to replace that lost by disconnection of He lines.
4. Uses five nines pure He.
5. Similar lengths of He lines.
6. Zero problems with contamination.
7. Cooled mass is approx. twice INGRID, Radiative area approx. three times INGRID.
8. CCC sounds smooth and sweet, without any knocking or cogging.

Mechanical mechanisms.

1. Uses external stepper drives through wobble plate vacuum feedthroughs
2. Much faster filter positioning times (< 10 sec. For max delay).

Array.

1. Same array – working at 78 – 80 Kelvin. Warmer is better for sensitivity.
2. Do have hot pixels but not quantified. Not important as number low.
3. Dark current effectively zero ! in 200 sec integration
4. Quadrant gradient exists but much smaller and inverse geometrically to ours. They have problem that gradient is proportional to signal on array. Our problem is that gradient is greater with no signal. Suggest that the TNG instrument has N channel output drivers where as we use P channel drivers. This means that localized heating of the drivers occurs for us in no signal condition, for them max current and heating occurs at max signal.
5. No linearity measurements to show but confident that lin is good.
6. Gain is set to 7 e⁻ / ADU.
7. Our flat field looks flatter.
8. Slower readout time governed by array controller. (2 secs readout ?).

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