WIRO NIR camera for Coordinated GLAST/LAT and NIR Observations

Jay Norris

WIRO Opportunity for GLAST

The director of WIRO would be happy to collaborate with the LAT team for the purposes of utilizing the WIRO telescope for multi-wavelength observations of GLAST-initiated targets.

WIRO is a 2.3-m IR-optimized telescope, 25 miles WSW of Laramie, 41 degrees N latitude. Operated by U. Wyoming. The weather is good to tolerable, 8 months of the year.

Due to low humidity, WIRO NIR sensitivity in winter time can be comparable to that of a 4-m telescope in Hawaii.

WIRO Facility

WIRO is a hands-on observatory:

- You and/or your collaborators do the actual observing.
- This also means that the full observing time can be yours: Dense observations of targets may be obtained.
- This arrangement may be optimal for GRBs and medium-to-bright flaring AGN that will be detected by the LAT.

WIRO has three instruments:

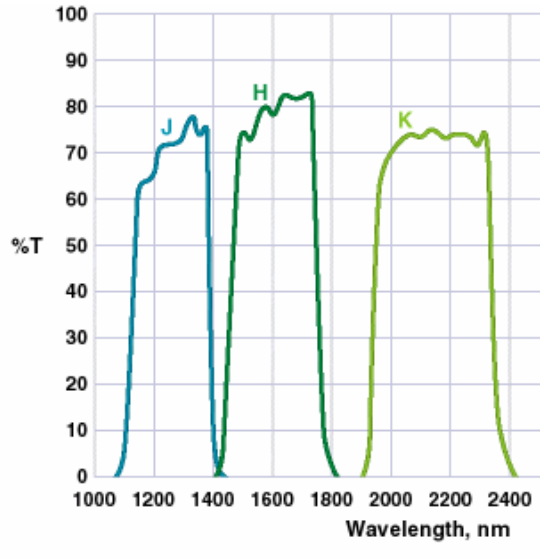
- Prime focus camera
- Volume Phase Holographic spectrometer at Cassegrain
- Goddard/WIRO NIR camera

NIR Camera

Availability:

The 7-10 day period near full moon is less than desirable for visible λλ observations. The present agreement (Swift era) is that our NIR camera utilizes that period. NIR observations are basically impervious to the moon-lit sky.

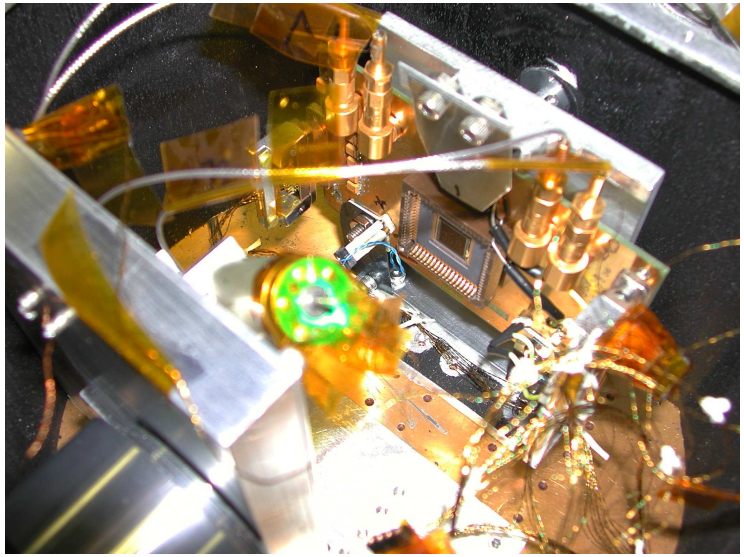
Thus, 1/4-1/3 of each month could be reserved for the NIR camera, into the GLAST era.

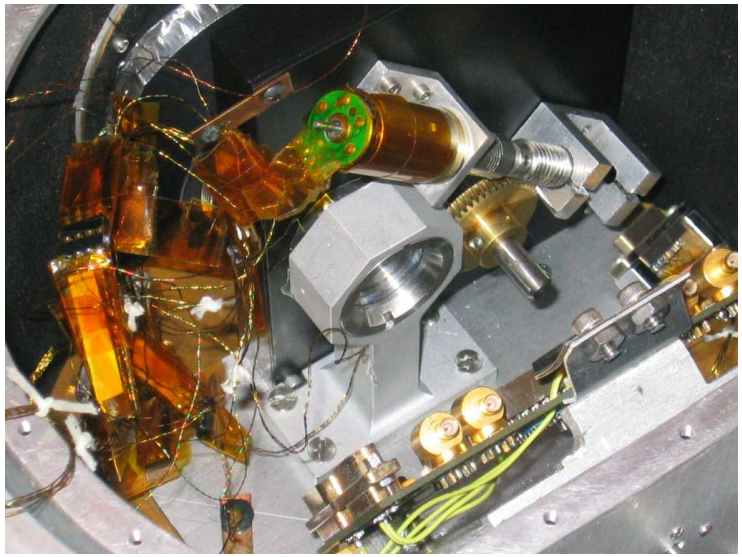


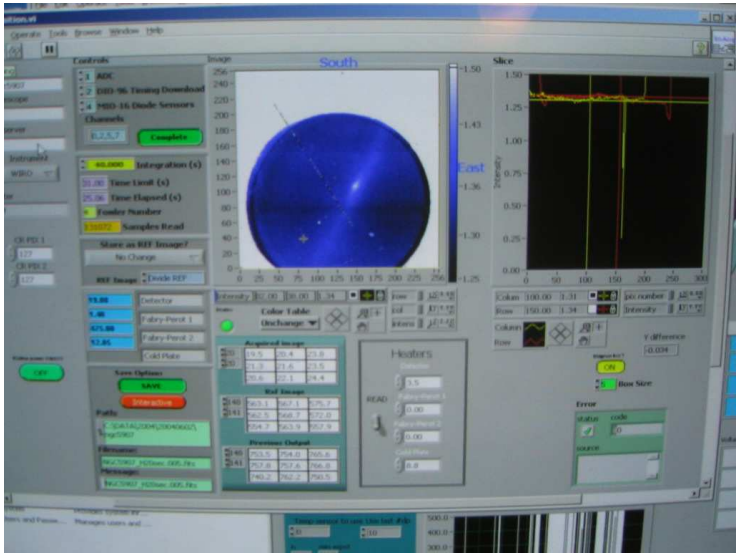
Present NIR camera:

- 6 filter slots, including {J, H, K'}
- InSb detector, 256^2 pixels, 1.7 arcmin FOV
- In 1-hr integration ~ 20.5-21 (J band)

NIR Camera



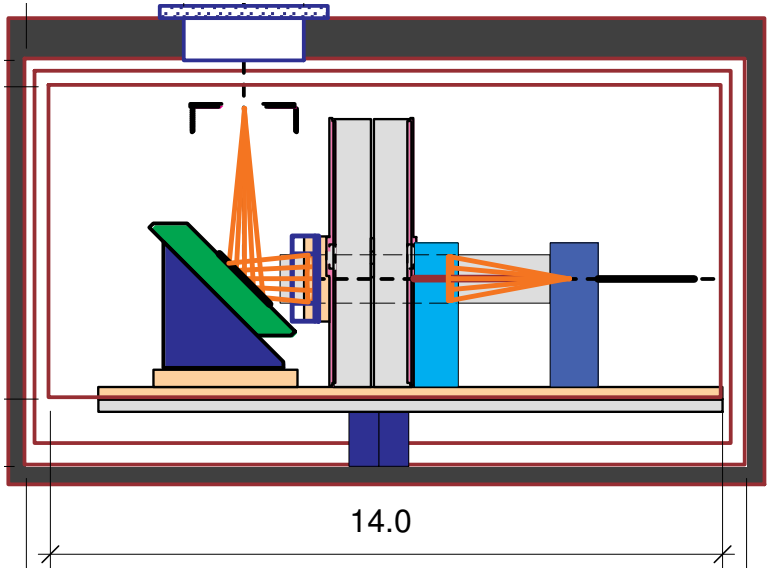




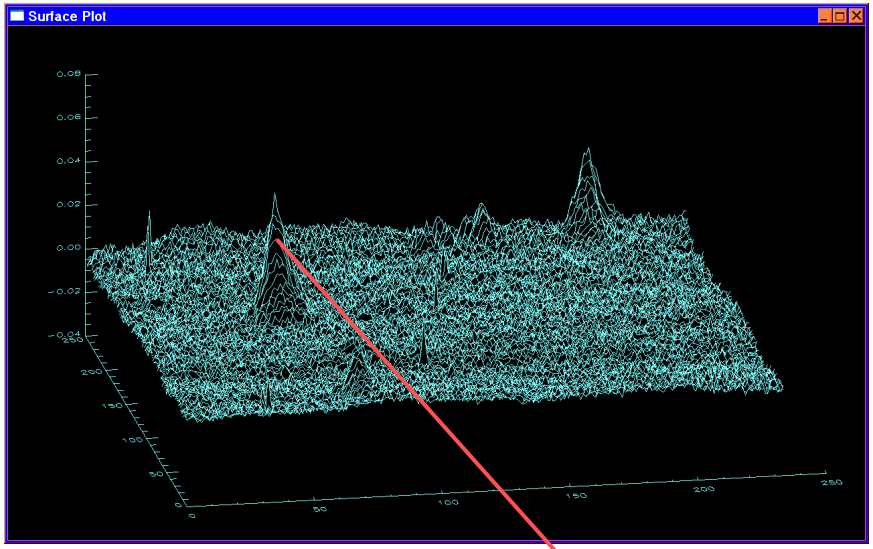
Upgrading the NIR Camera …

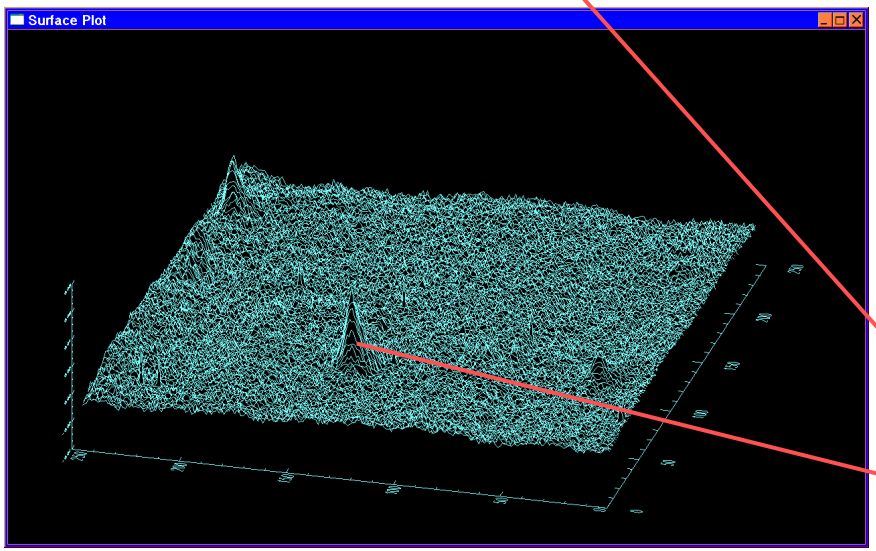
… To a cryo-cooled model (no cryogens). Cryo-cooler, cold box, and optics are designed and ordered. Implementation of new camera mostly financed by Swift. Engineering runs scheduled for new camera in ~ 4-6 months.

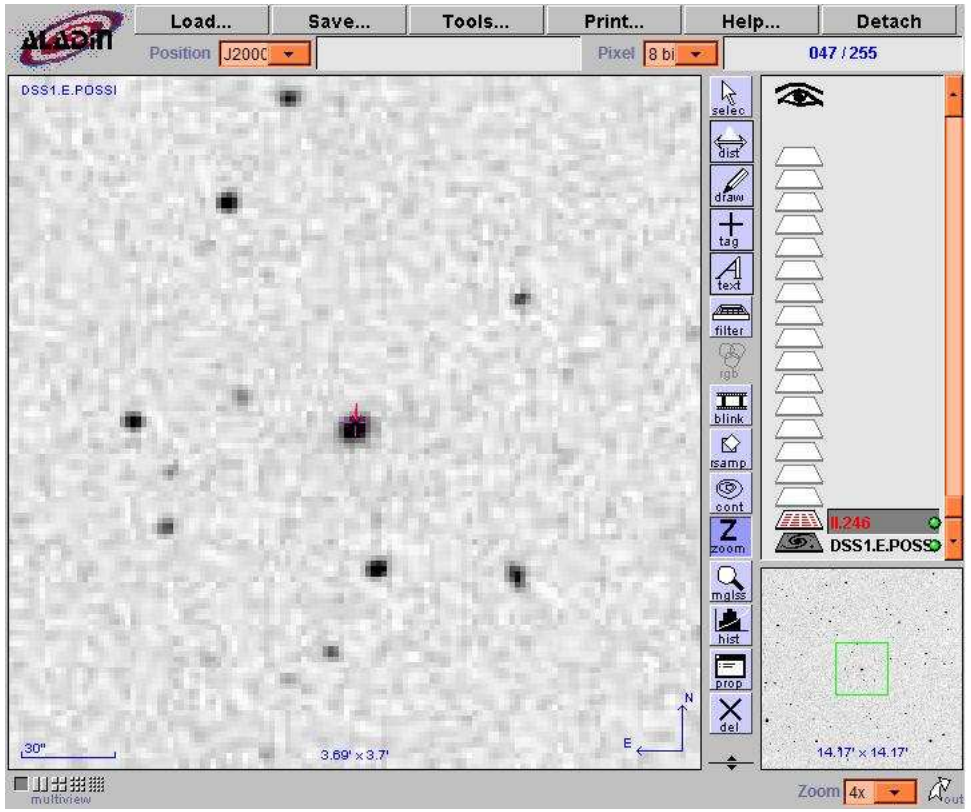
- New design: two 10-slot wheels, includes grism
- Optics optimized from R through K'.
- Same detector for near term; room for larger detector
- FOV may be slightly larger.



BL Lac Observation



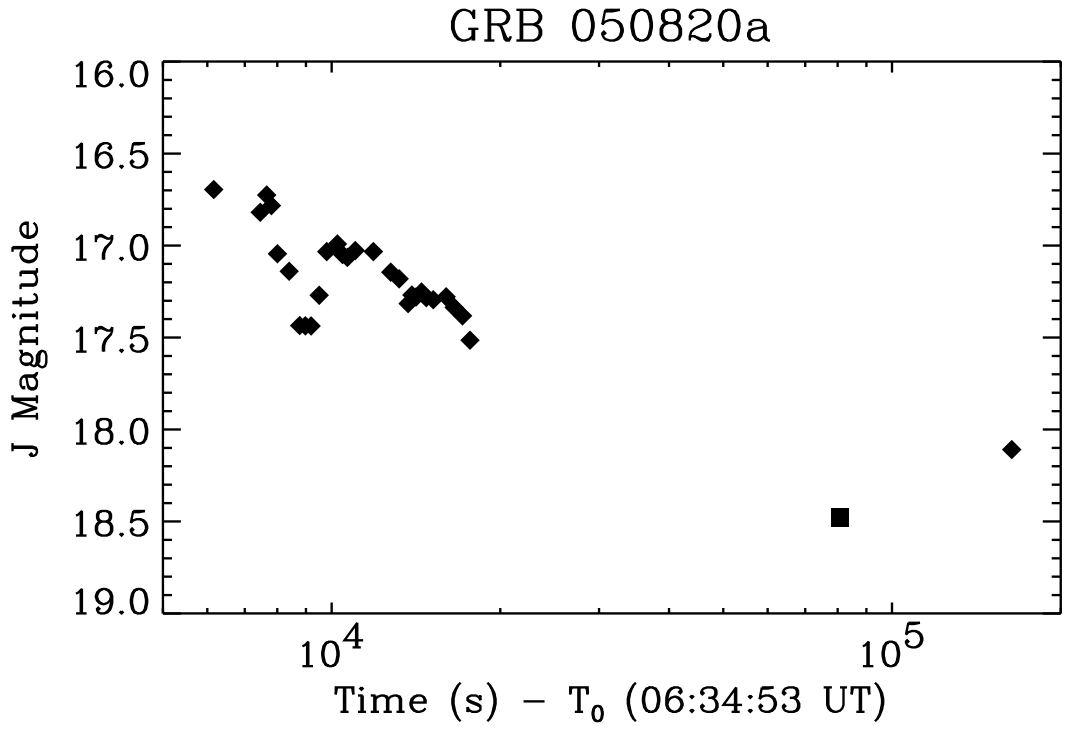


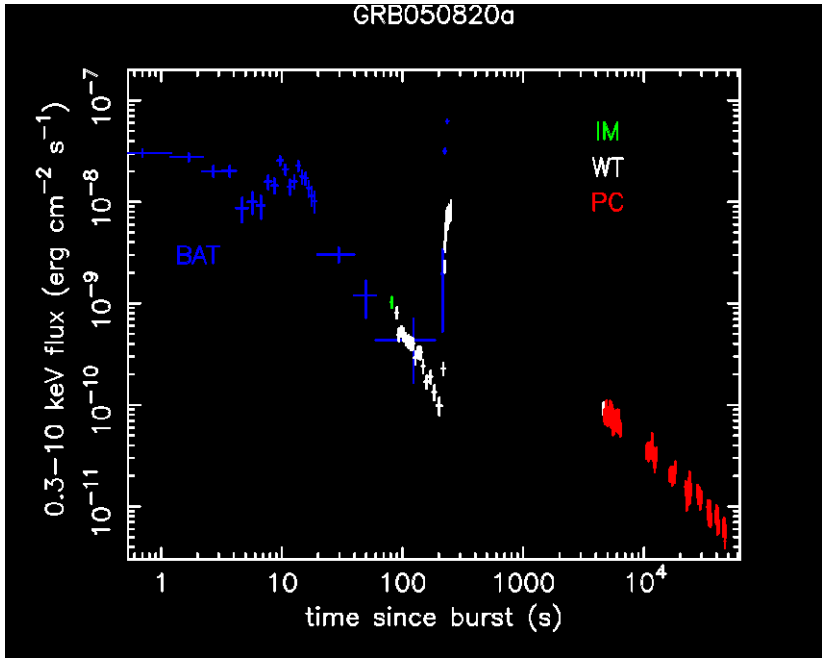


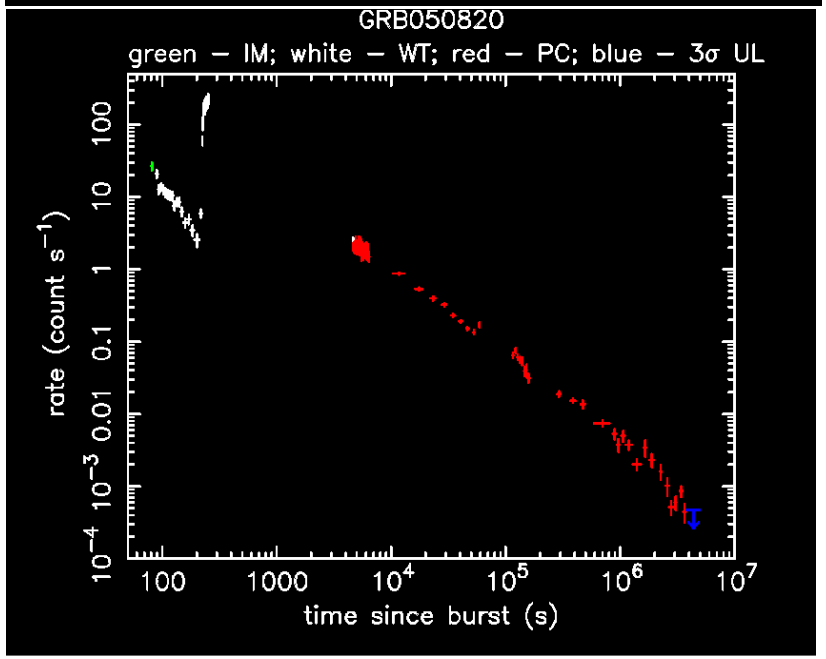
10 × 50-s WIRO observation of BL Lac (14.8 mag, J band)

Dense Observations of GRBs

WIRO/Goddard NIR Camera







Arrangements Possible for GLAST

The WIRO Director would be happy to make an arrangement with the LAT team. For the cost of observing runs ($20K/yr):

LAT-initiated targets would receive 1/4-1/3 of the WIRO observing time, with the NIR camera.

Also, any GLAST affiliates with grants — e.g., to fund travel for observers performing the runs — would facilitate such an arrangement.