FLITECAM First Scientific Observations

February 2014 Flight Series

Ryan T. Hamilton
Deputy Instrument Scientist, FLITECAM

AAS 224th Meeting
Boston, MA
June 3, 2014

SOFIA

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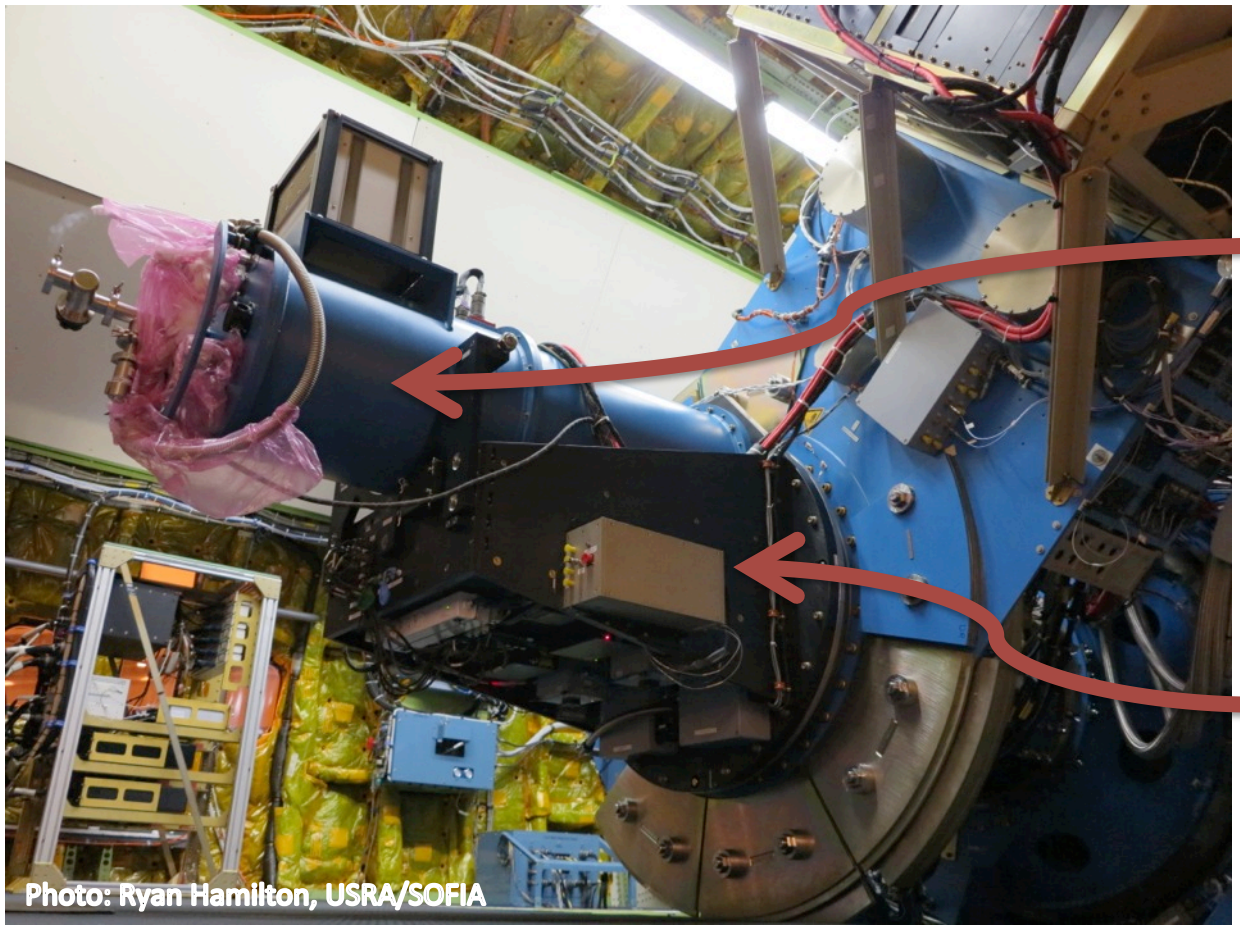
FLIPO



FLITECAM
Ian McLean,
et al.,
UCLA

HIPO
Edward Dunham,
et al.,
Lowell
Observatory

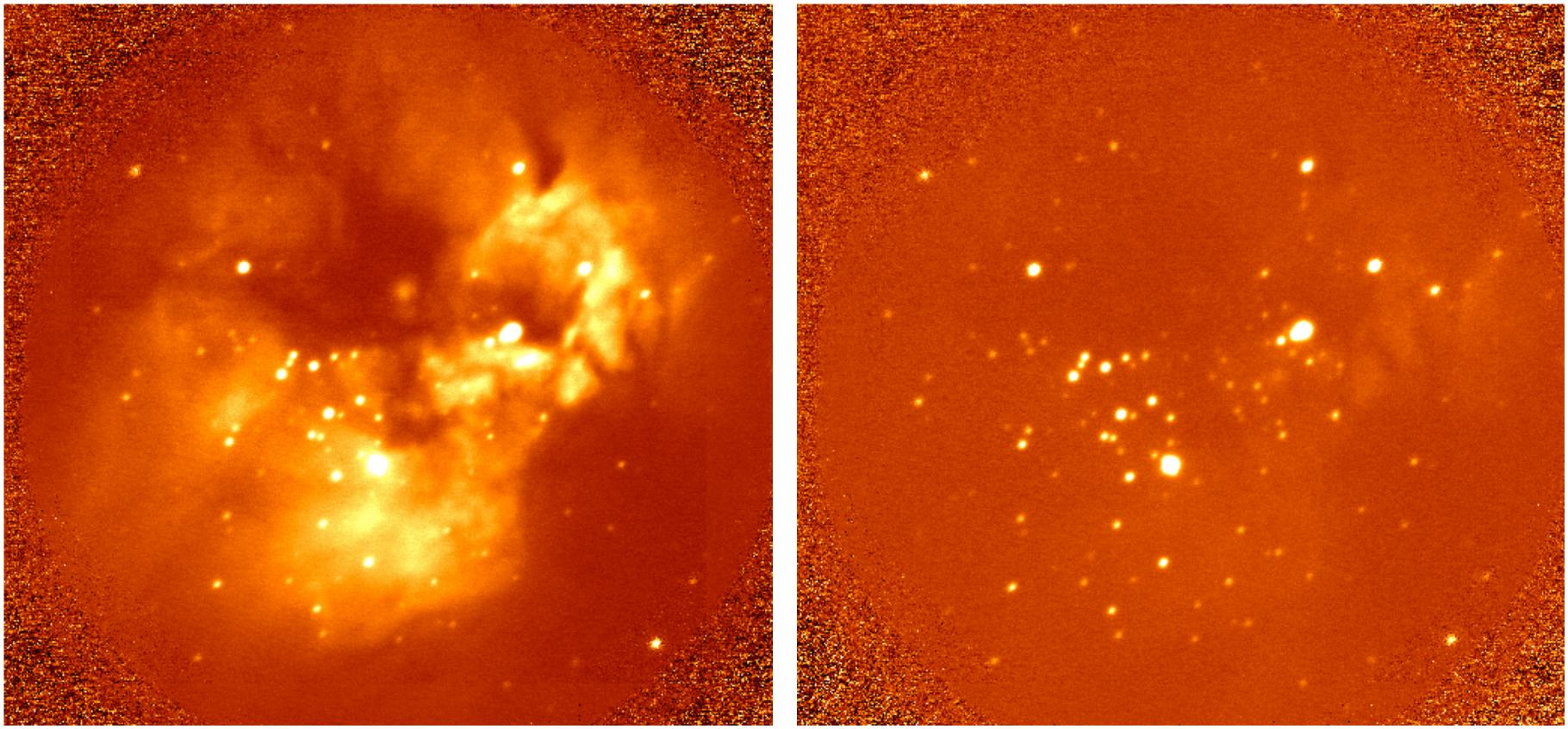
HIPO: 2 simultaneous optical photometric channels
FLITECAM: 1 NIR photometry or spectroscopy

FLITECAM

- 1024^2 InSb, 0.475”/pix
- Imaging
  - JHK, L, L’, M
  - Narrow band L & M, Paschen Alpha +Continuum, PAH, 3.08 micron “Ice”
- Spectroscopy
  - R1300 & R2000, *fixed slits*
  - J band + “gapless” coverage (1.5 to 4 microns)
  - 4.5-5.5 microns in FLITECAM only mode
- 6 flights in Feb. 2014

Sarah Logsdon, Ken Magnone, George Brims (UCLA)
Photo: Chris Johnson

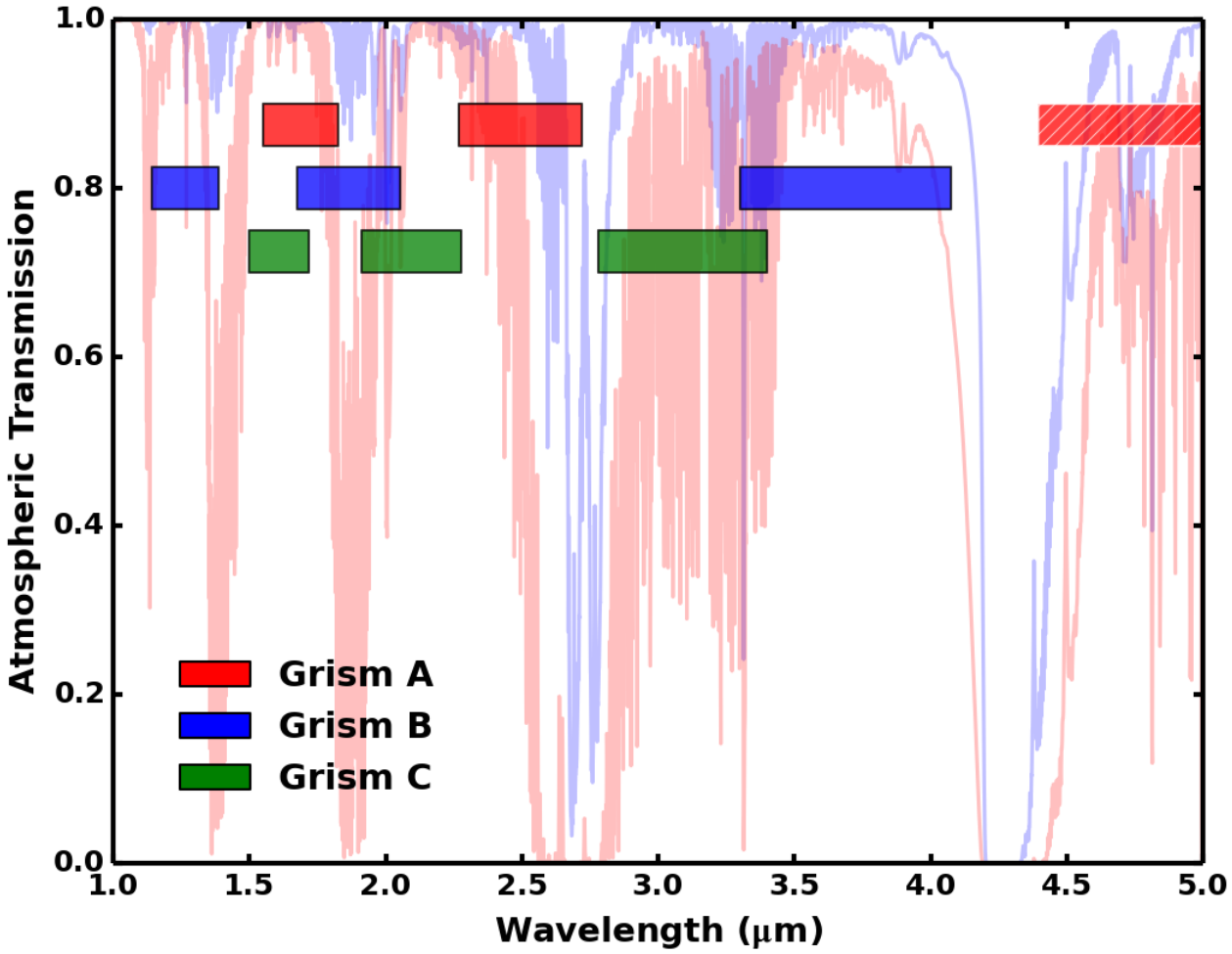
NGC2024: Pa α, +Continuum



Sarah Logsdon, Ian McLean, Eric Becklin
UCLA GTO Observations
Pa α has 10x intrinsic flux of Br γ!

FLITECAM Grisms

Ground Based vs. Stratospheric



SN2014J: Thanks, Universe!

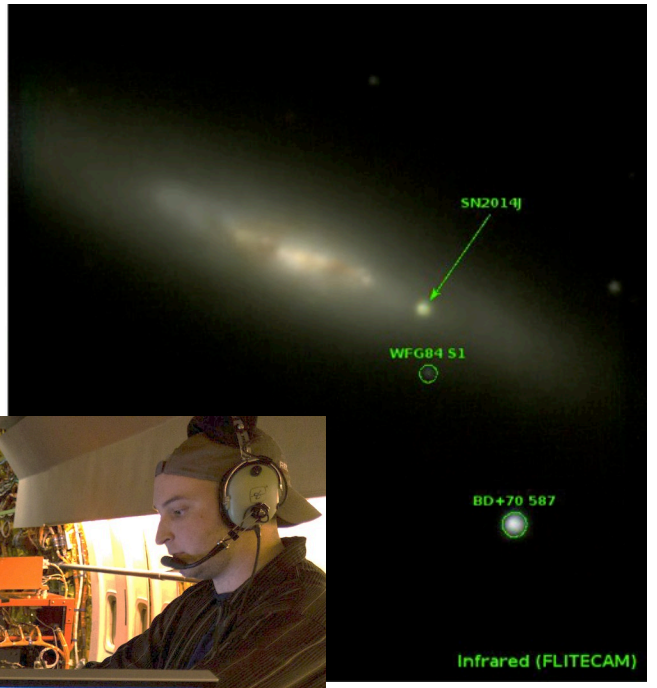


Image Credit:S. Shenoy

Georgi Mandushev & Ted Dunham (Lowell), Ryan Hamilton (USRA/SOFIA), Ian Mclean & Sarah Logsdon (UCLA)
Photo: Chris Johnson, UCLA

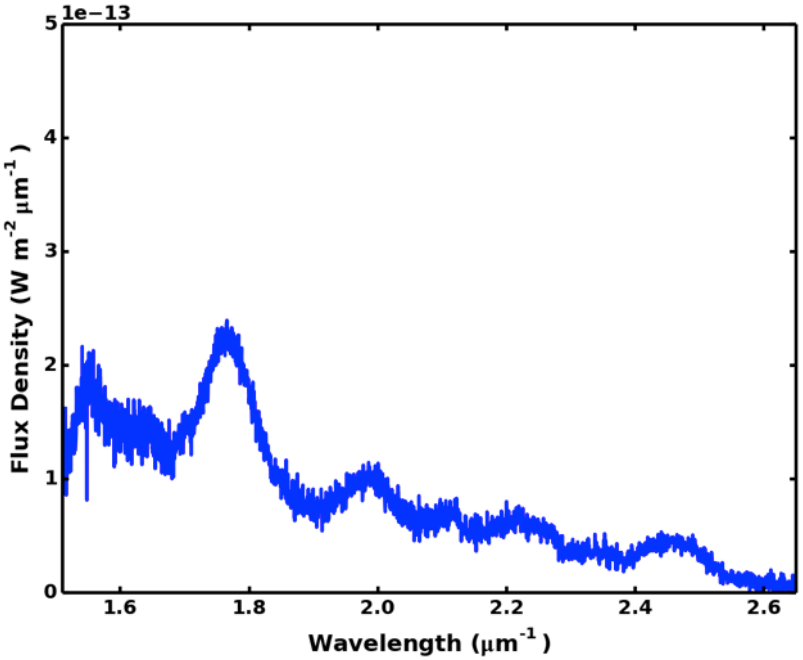
SN2014J with FLIPO

- DDTs:
  - R. Hamilton (USRA/SOFIA)
  - W. Vacca (USRA/SOFIA)
  - J. Spyromillo (ESO)
  - R. Gehrz (U. Minnesota)
- ToO:
  - P. Garnavich (Univ. of Notre Dame)

SN2014J Science

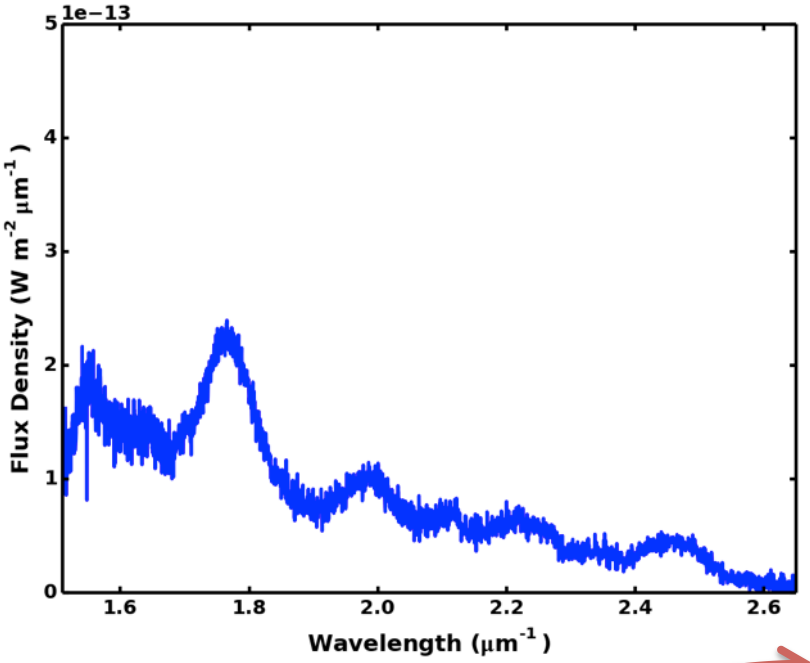
- USRA + UCLA + Lowell DDT:
  - 2.7 - 3.5 micron spectroscopy (!) with FLITECAM
    - Additional USRA project for FORCAST observations, derive Ni mass derivation via [Co II] and [Co III] lines
  - Fast, precise time series monitoring on 2-3 hr baselines with HIPO
  - Just starting to reduce now after instrument calibration work wraps up, but…

SN2014J with FLIPO

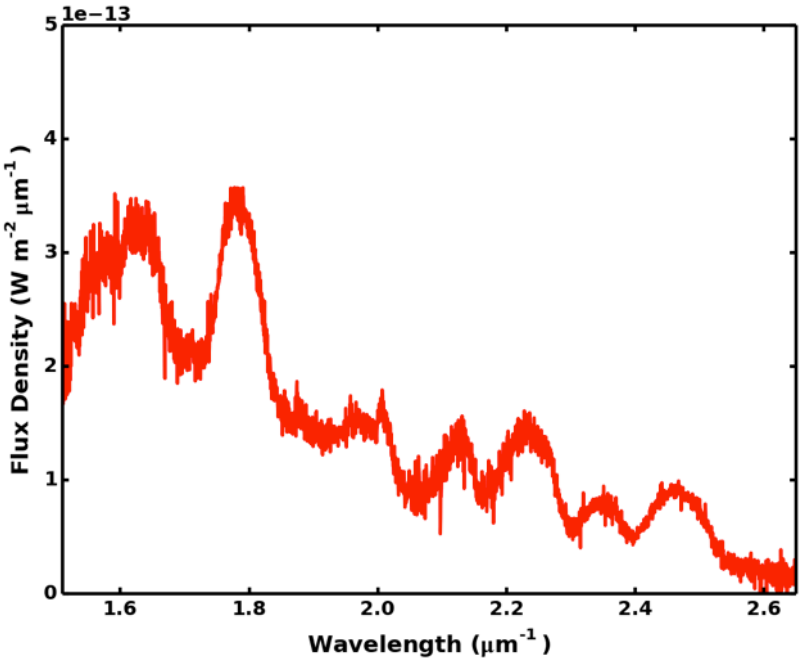


SN2014J: 2/18-19, T_{peak} +18
5 grism settings (4 shown)

SN2014J with FLIPO

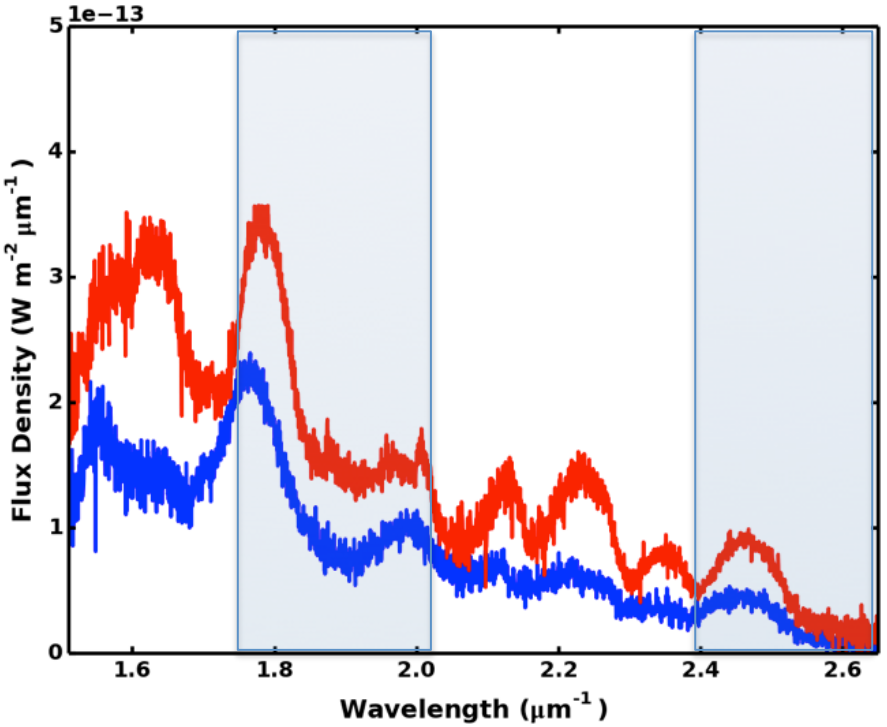


SN2014J: 2/18-19, T_{peak} +18
5 grism settings (4 shown)

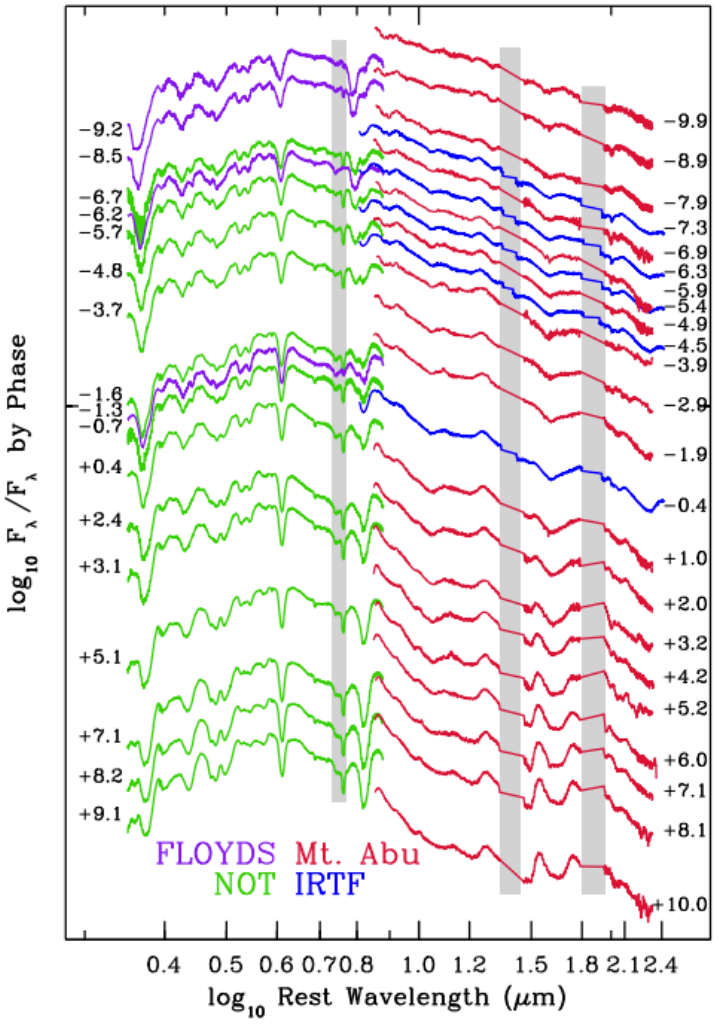


SN2014J: 2/26-27, T_{peak} +26
5 grism settings (4 shown)

SN2014J with FLIPO Compared



Marion et al. 2014



Currently working on 2.7 – 3.5 micron grism data!
(additional J grism data not shown)

ToOs, DDTs, and YOU

- ToOs:
  - Submitted during a call for proposals
  - Cycle 3 call issued! Proposals due July 18 2014 (PDT)
- Known targets, unknown timing
  - Known novae, Periodic variables, Solar System events, etc.
- (Potentially) unknown targets and/or unknown timing
  - New comet, new (super)novae, …
- Data proprietary period same as for the Cycle

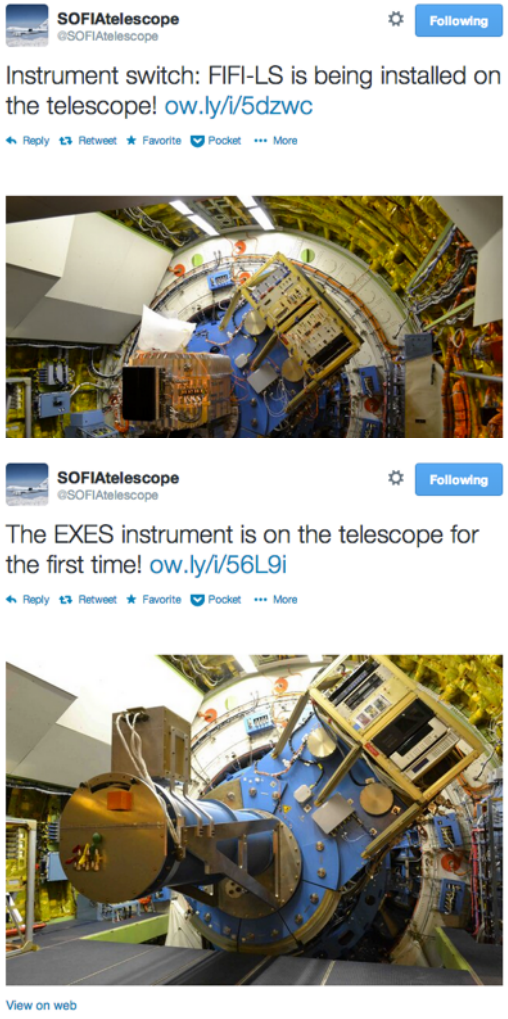
- DDTs:
  - Outside the normal call for proposal period
- Typically for extraordinary/unique events
  - Can still be covered by a suitable ToO
- Brief science case (2 pg. + 1 for figures) sent directly to SMO Director and SOFIA Help Desk
  - eyoung@sofia.usra.edu, sofia_help@sofia.usra.edu
- Data will have NO proprietary period

Be sure to utilize > 1 instrument when possible!

Better chance of activation given instruments fly in preset campaigns

How Do I…

- How do I know what instruments are (immediately) available?
  - sofia_help@sofia.usra.edu
  - Social media: @SOFIAtelescope, Facebook, etc.
  - https://www.sofia.usra.edu
- How do I know if my target is suitable/observable?
  - SOFIA DCS Visibility Tool (VT), SOFIA Instrument Time Estimator (SITE)
    - Some instruments maintain custom/ separate calculators, linked from SITE
- Ask Us!



Current Instrument Status

- FLITECAM available for Cycle 3 proposals
  - Cycle 3 CfP sensitivities update ~June 20th
  - http://www.sofia.usra.edu/Science/
- Possible engineering work this Summer/Fall
  - Improve instrument calibration
- SPIE papers coming soon!
- GI science papers coming soon!
- DDT spectroscopy data release coming soon!


Thanks!


NASA


DLR

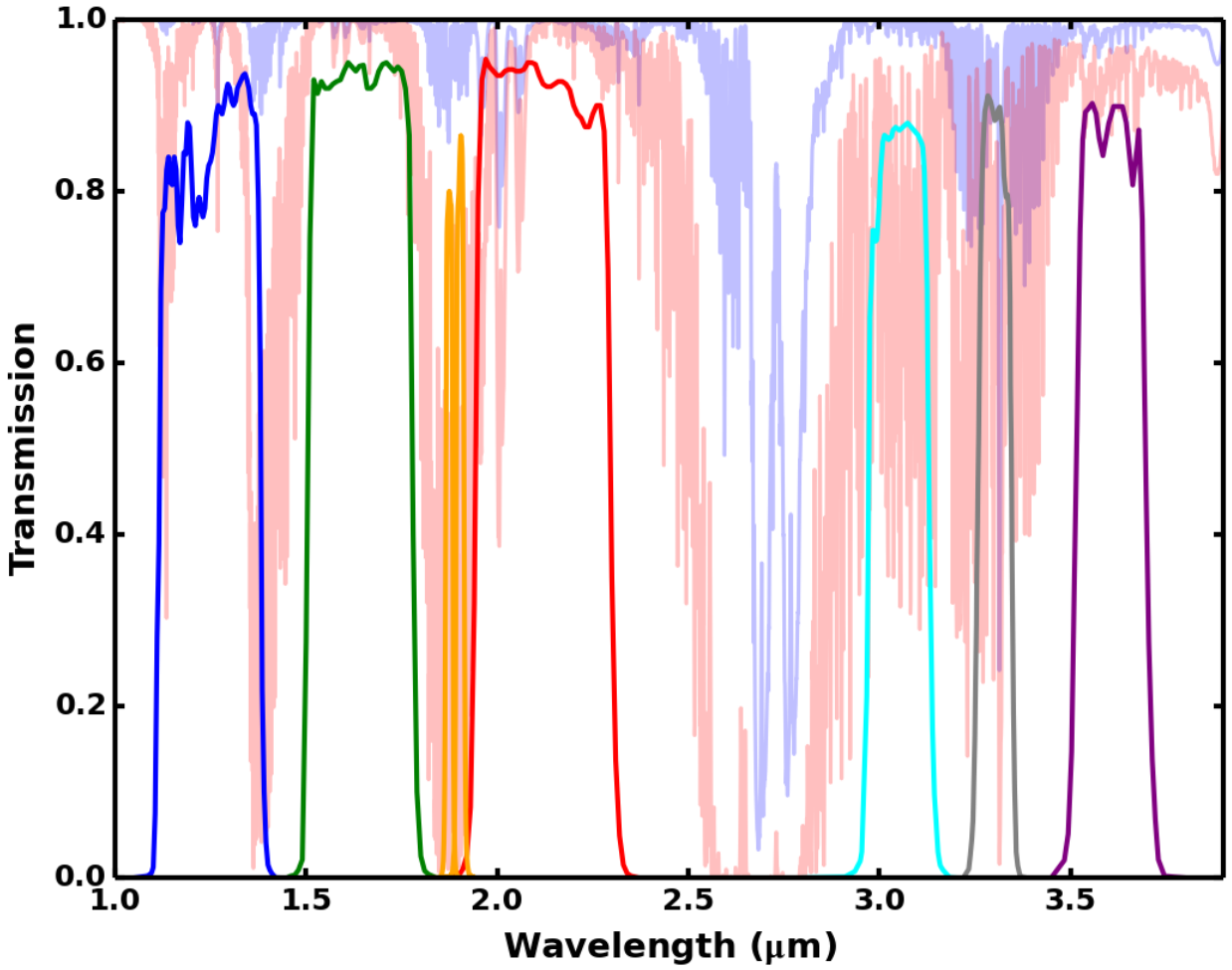

USRA


DSI

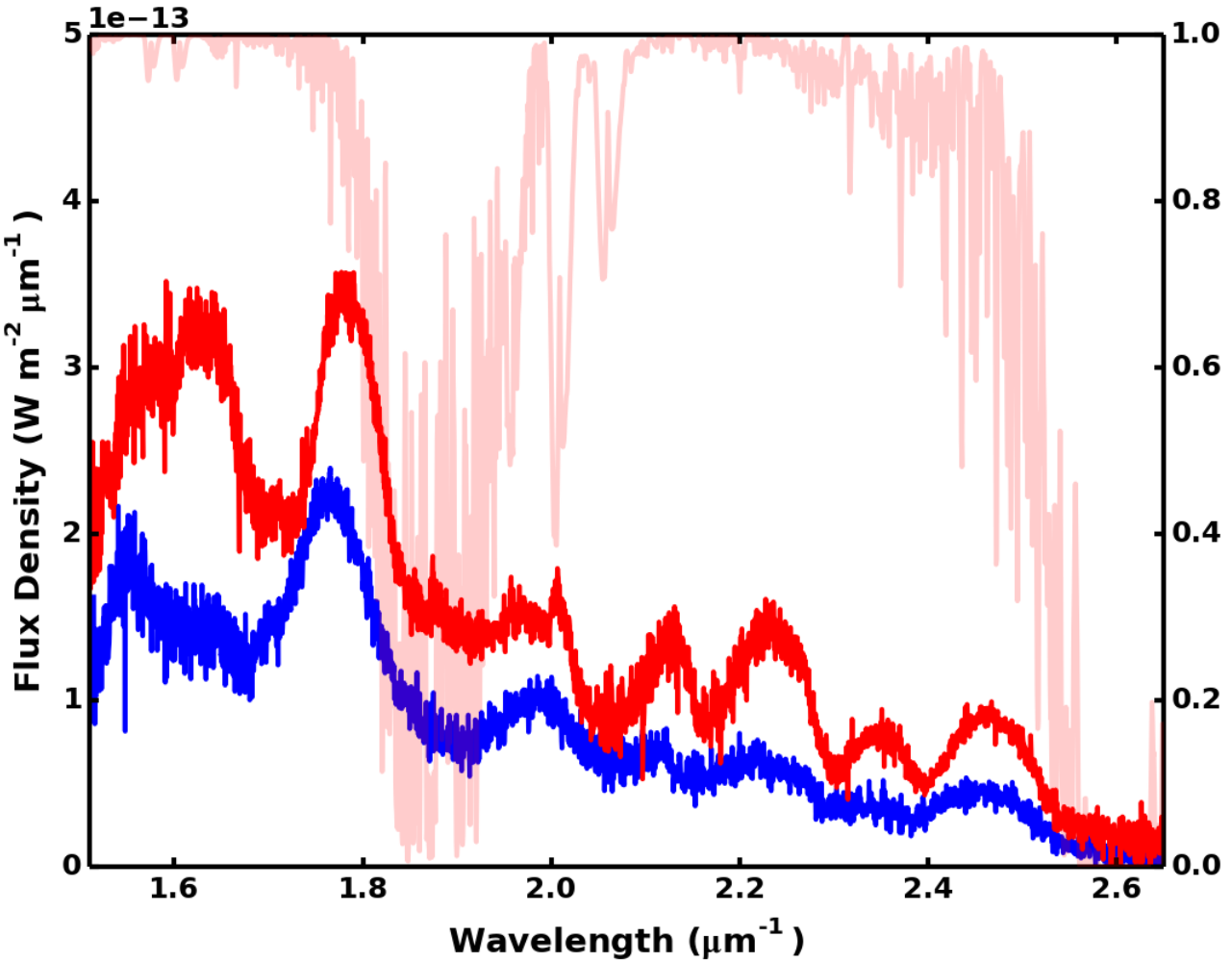
Extra Stuff

FLITECAM Imaging

Ground Based vs. Stratospheric



SN2014J + Ground Xmission



Overview

- FLITECAM Overview/Update
  - Commissioning Complete in Feb. 2014!
- SN2014J Observations (DDT & ToO)
- ToO & DDT Proposals Overview

Photos: Ryan Hamilton, USRA/SOFIA


NASA


DLR


USRA


DSI