

# XMM-Newton Optical Monitor Status

U.S. Observers Meeting, 2008 May 30

Rick Shafer, NASA/GSFC Code 665

derived from:

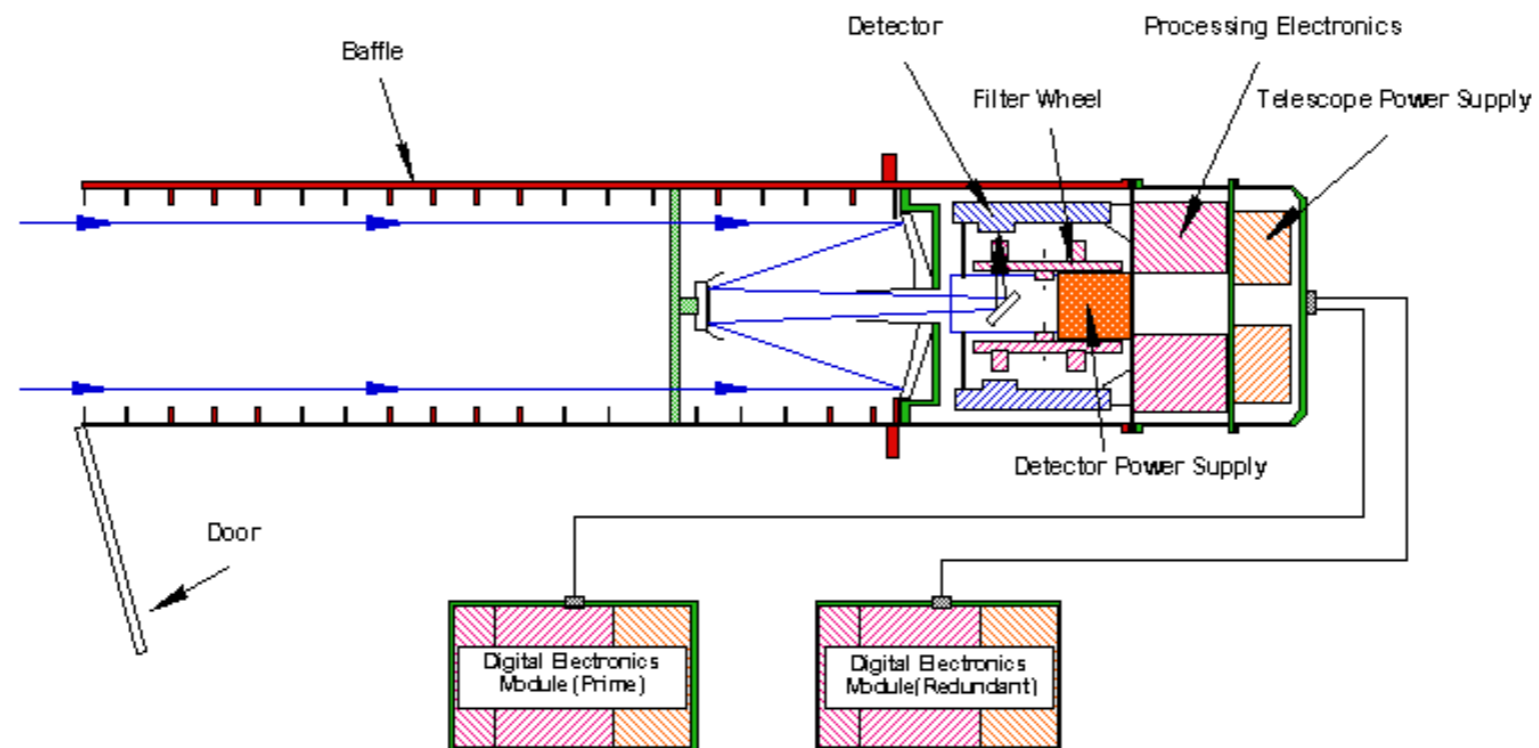
OM Source Catalogue: Kip Kuntz (JHU)

OM Software: Martin Still (MSSL)

SOC Calibration Portal / ESA UG Meeting 2008 May: A. Talavera (ESA  
SOC)



- Summary of Instrument
- Calibration Updates
- OMCat: The OM Source Catalogue

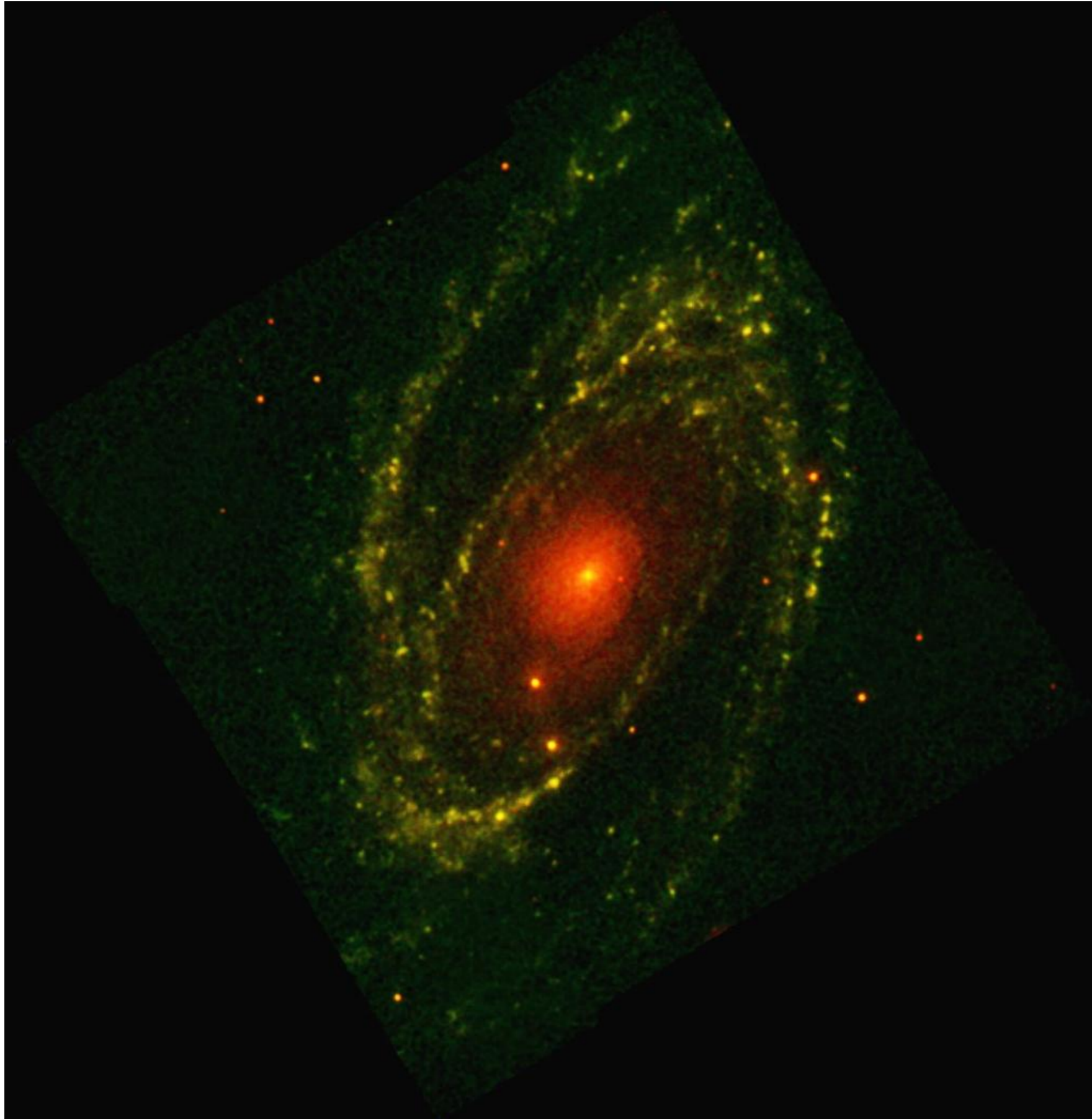


# The OM Summary

- 30 cm R-C optical/UV telescope, coaligned with X-ray axis
- 6 Filters (UBV + 3 UV passbands)
- Micro-channel plate amplified CCD
- Choice of Observing Modes: Coverage, Resolution, Time Resolution, Grism.

# OM Point Source Properties

- PSF 1.4 – 2 arc sec, positions  $<0.5$  arc sec
- Individual Observations of 1-5 ks.
  - Source detections: 15 – 23 mag
- Point Source detection Software - Single Observation only



M 81 seen with OM  
(231, 291, 344 nm)

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# Optical Monitor calibration: status 2008

## PHOTOMETRY

- Aperture photometry: count rate dependent PSF for all filters, corrected for time dependent sensitivity degradation
- OM instrumental magnitude system and colours
- Conversion to standard Johnson UBV
- AB system defined and implemented (useful mainly for UV)
- Absolute flux calibration: “mean” count rate to flux conversion based in WD standard stars and AB system Flux

## GRISMS

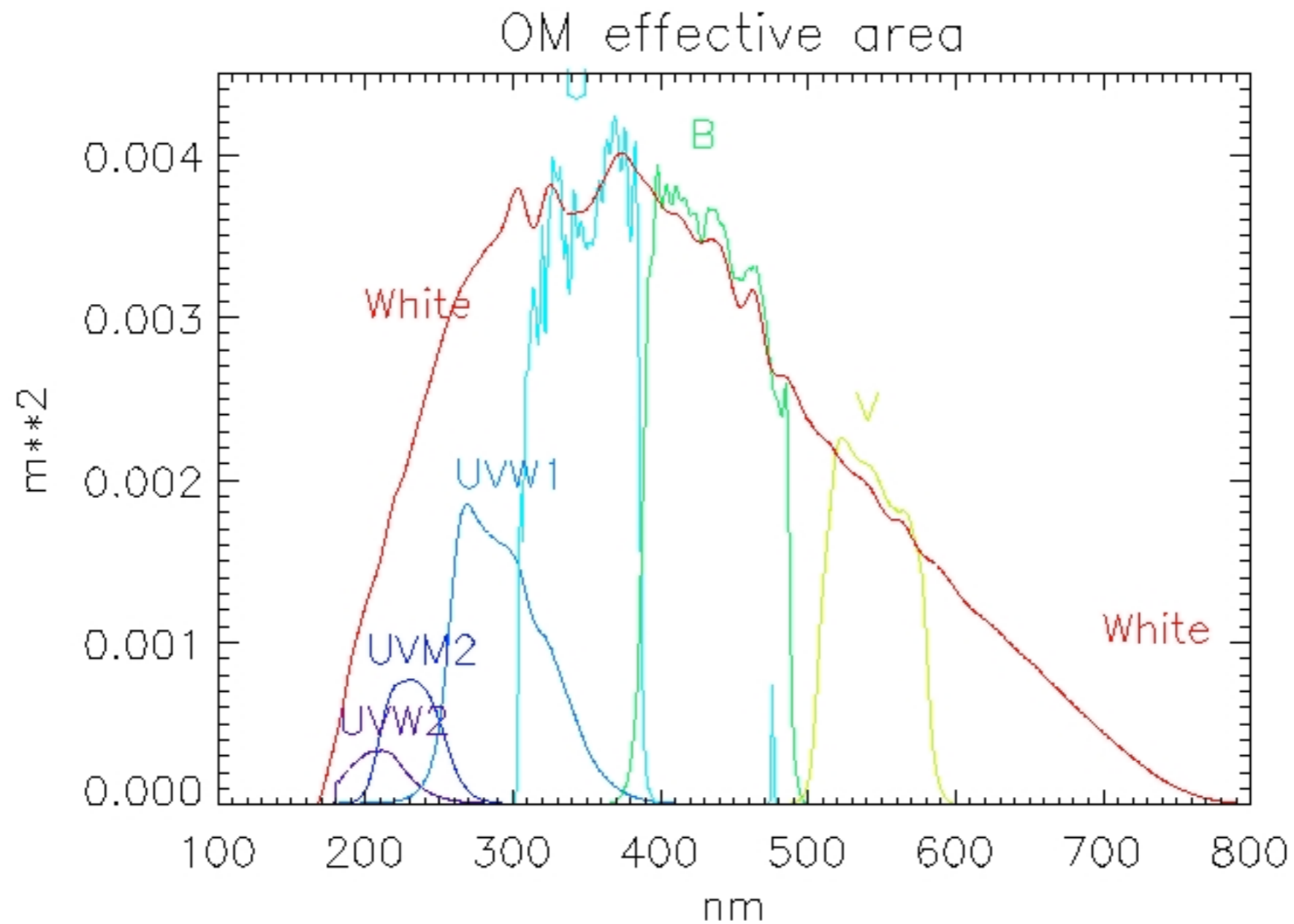
- Full spectral extraction: spectrum in absolute flux versus  $\lambda$

## BORESIGHT & ASTROMETRY

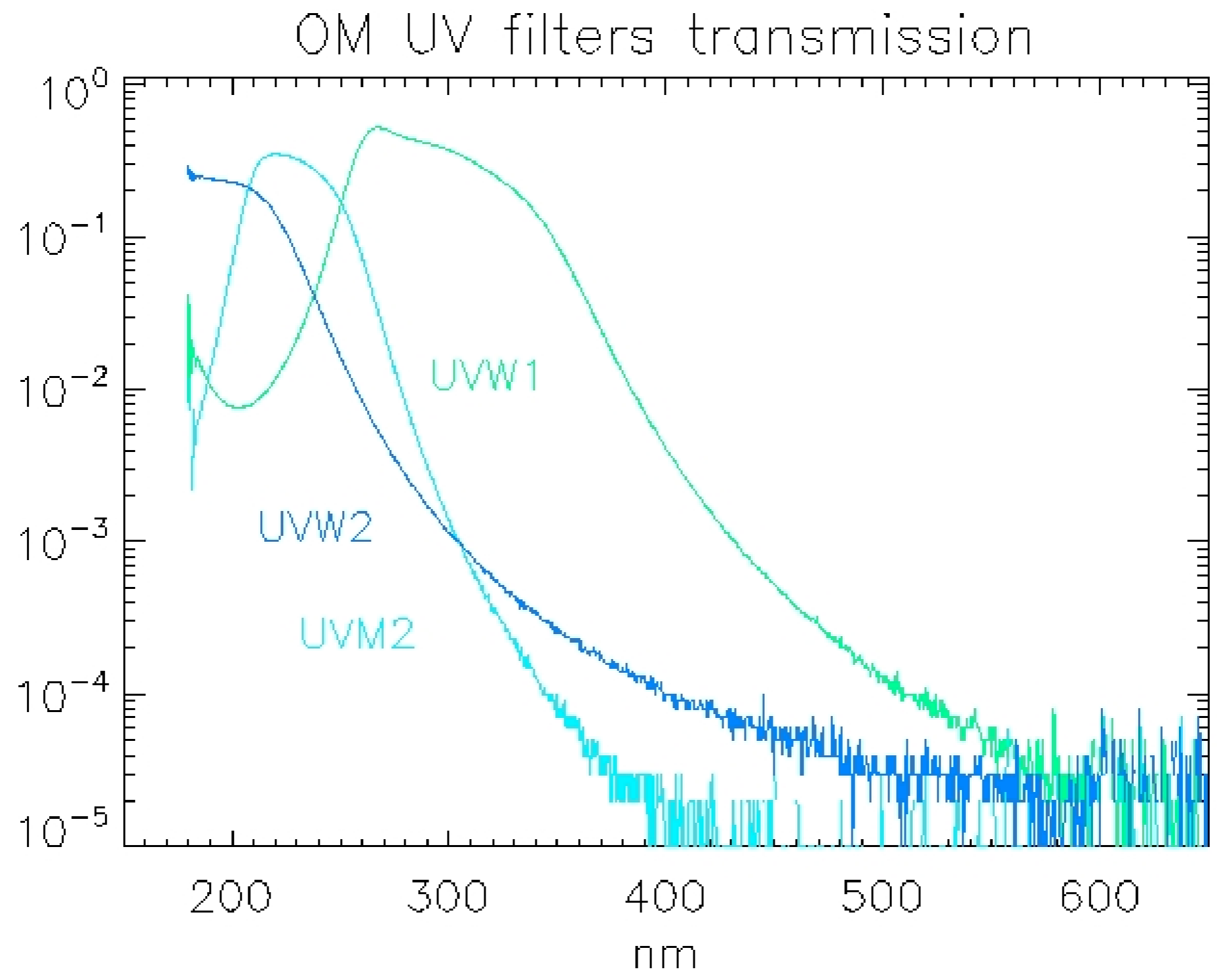
- RA & Dec for all detected sources in photometry and all extracted grism spectra

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# Improved Effective Area

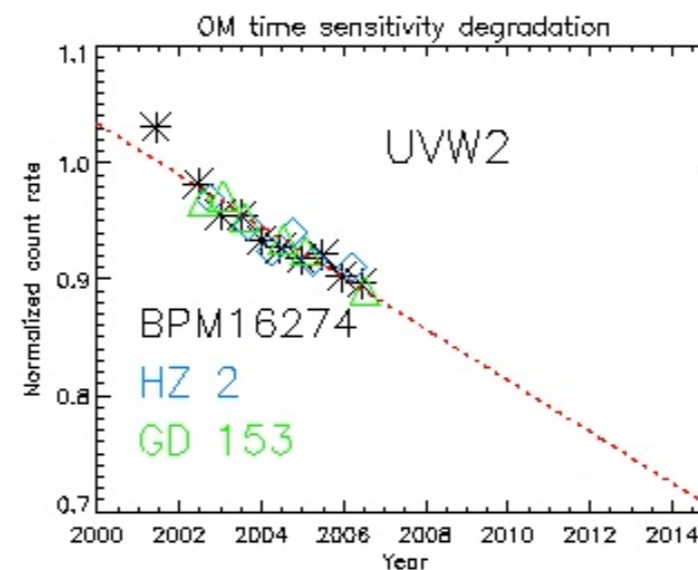
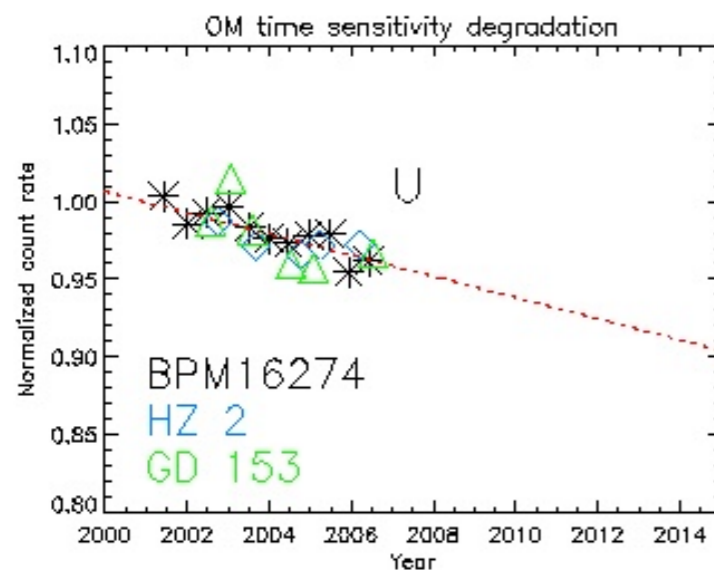
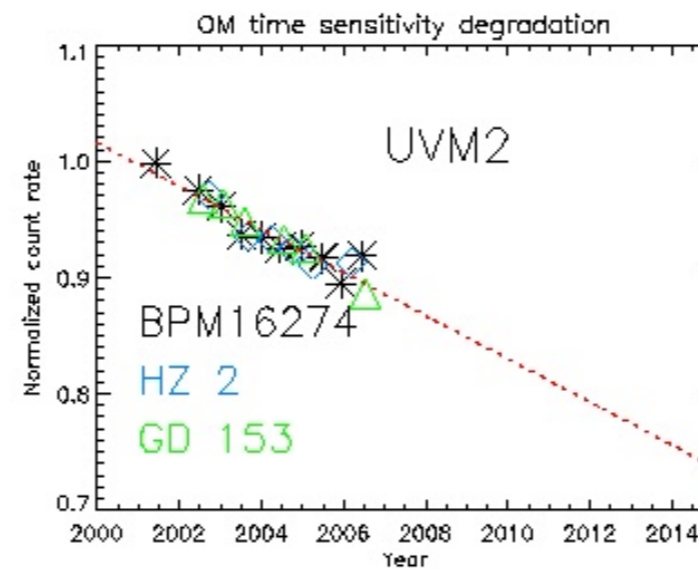
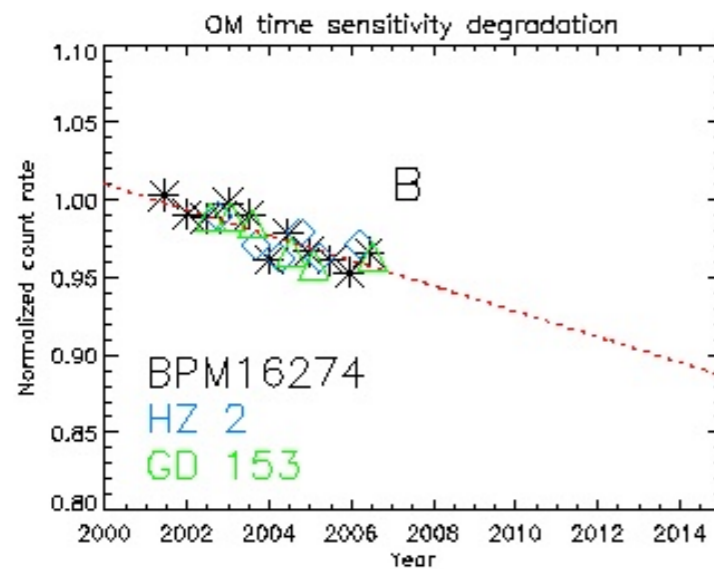
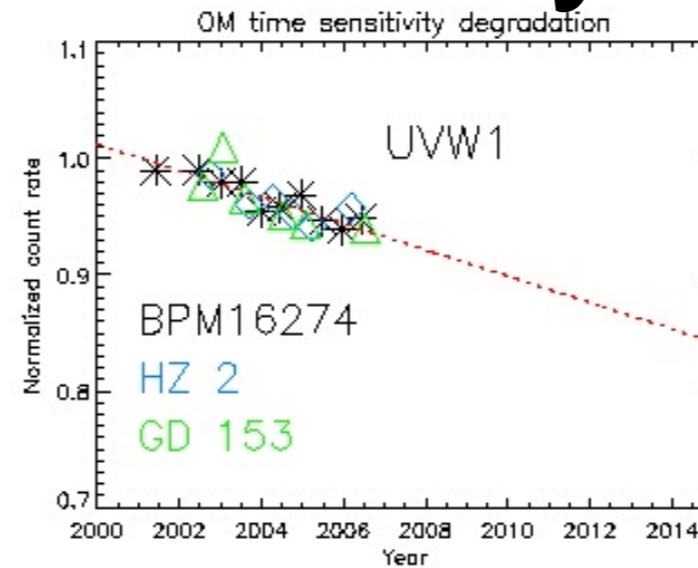
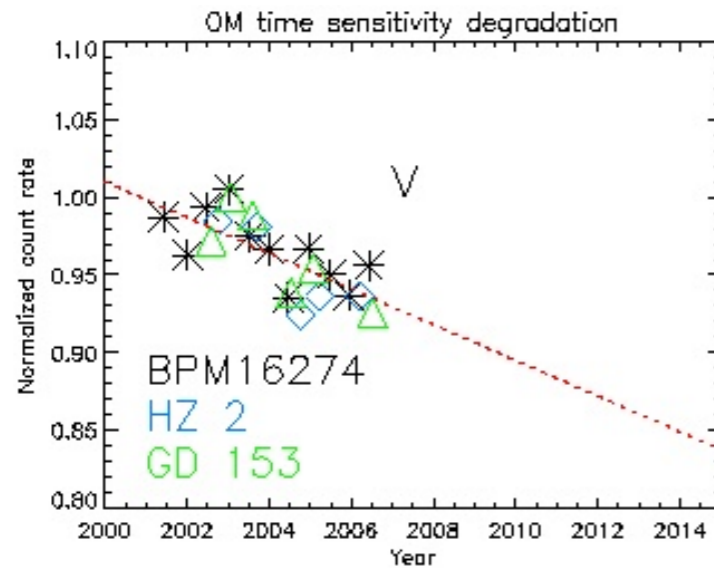


# UV Filter Red Leak





# Secular Sensitivity Degradation



Last observations might indicate a slow down of the sensitivity loss !!!

# Calibration Updates

- Astrometry: Monitoring boresight variation (FAQ)  
Operational boresight will be changed this month
- Astrometry in grisms: improve algorithm in SAS
- Evolution of small and large scale sensitivity variations
- Continuous photometric monitoring: white dwarfs observations
- Improve fast mode photometry
- Grisms wavelength and sensitivity variation across the f.o.v.
- Grisms time sensitivity degradation: determination & correction
- Tools for interactive data reduction/analysis within SAS:  
omphotom (SAS 7.1)
- OM Catalogue: 2008 !!!

# SAS 8.0 OM

## Improvements

(via Martin Still)

- Improved accuracy for detecting low flux sources
- Improved source quality flagging (reduced number of spurious detections in the UV)
- Correlation with USNO-B1.0 catalogue yields improved fine aspect corrections.
- Better mosaics, deeper source lists
- UV Source catalogue pipeline in XSA (July)

# OMCat

(Kip Kuntz et al. 2008)

- Every source detected in the publicly available OM observations (as of 2006 Sept 1)
- 2950 unique fields ( $\sim 0.5\%$  of the sky)
- $\sim 1$  Million 3 sigma sources

# OMCat Production

- Initial standard pipeline: *omichain*
- USNO-B1 based post processing positions (shifts up to 2")
- Intensities, and “postage stamps” sub-images
- Catalogue updated at intervals to include all public data

# SAS OM Catalogue

