

# **images script**

M. Ehle & Rosemary Willatt (ESAC) April 2007

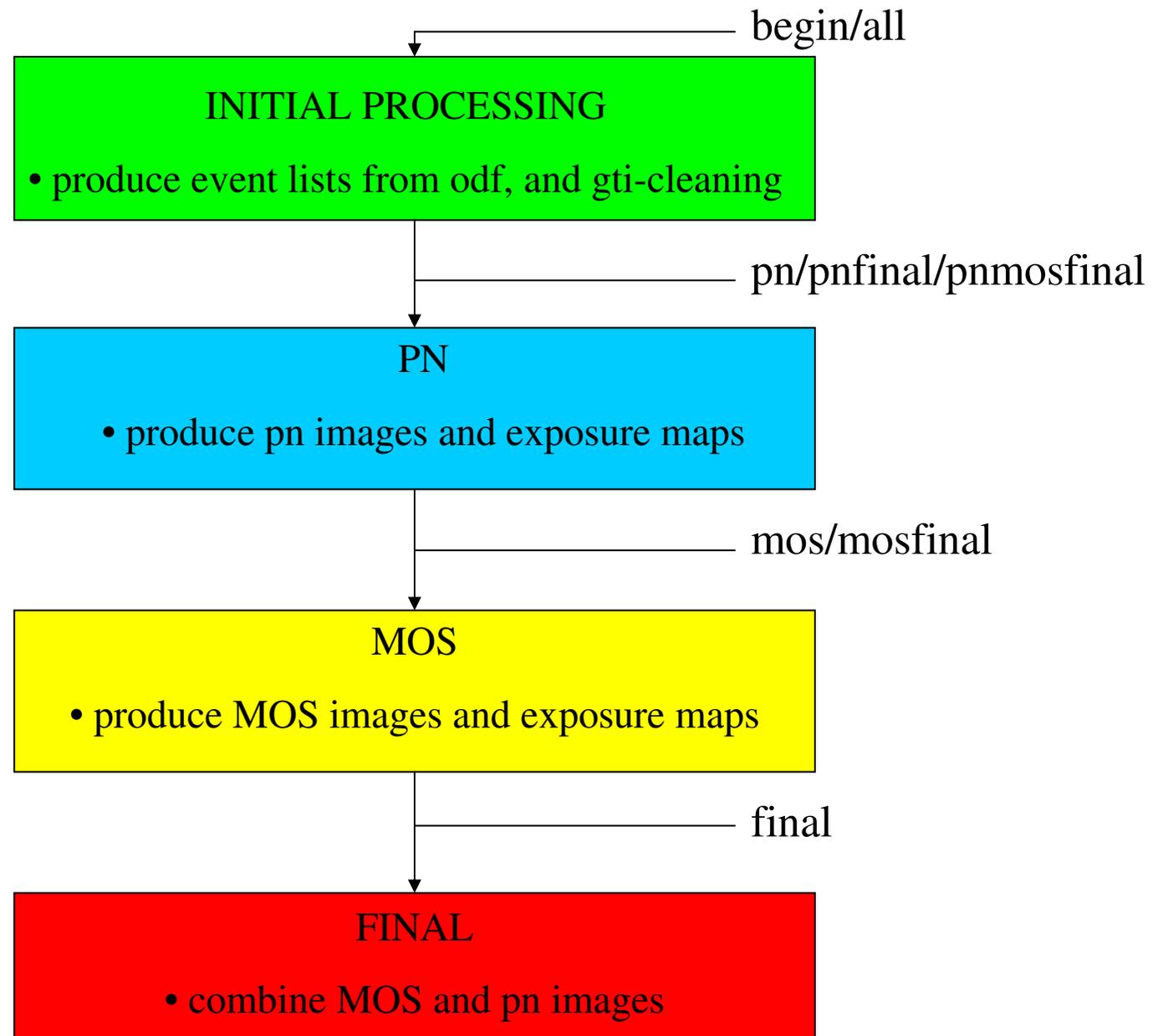
# motivation

- use XMM-Newton archival data
- produce attractive and scientifically valid images
- used by scientists to illustrate work
- used to populate XMM-Newton Image Gallery

# Script Format

- based on script by Wolfgang Pietsch and Michael Bauer (MPE Garching)
- bash shell script
- input file for user-defined parameters
- script divided into sections which can be executed separately

# Processing Flow Chart



# Initial preparation

- cifbuild and odfinger
- epchain, emchain, omichain (optional)
- preparation of gti files using user-defined count rate threshold
- gti cleaning

# Separately for each camera

- Cleaning of bad pixels and columns
  - using calibration information
  - user defined
- Subtract OoT events (pn only)
- Make images, exposure maps and masks;  
several energy bands in one go
- Smooth images (Gaussian) with masks

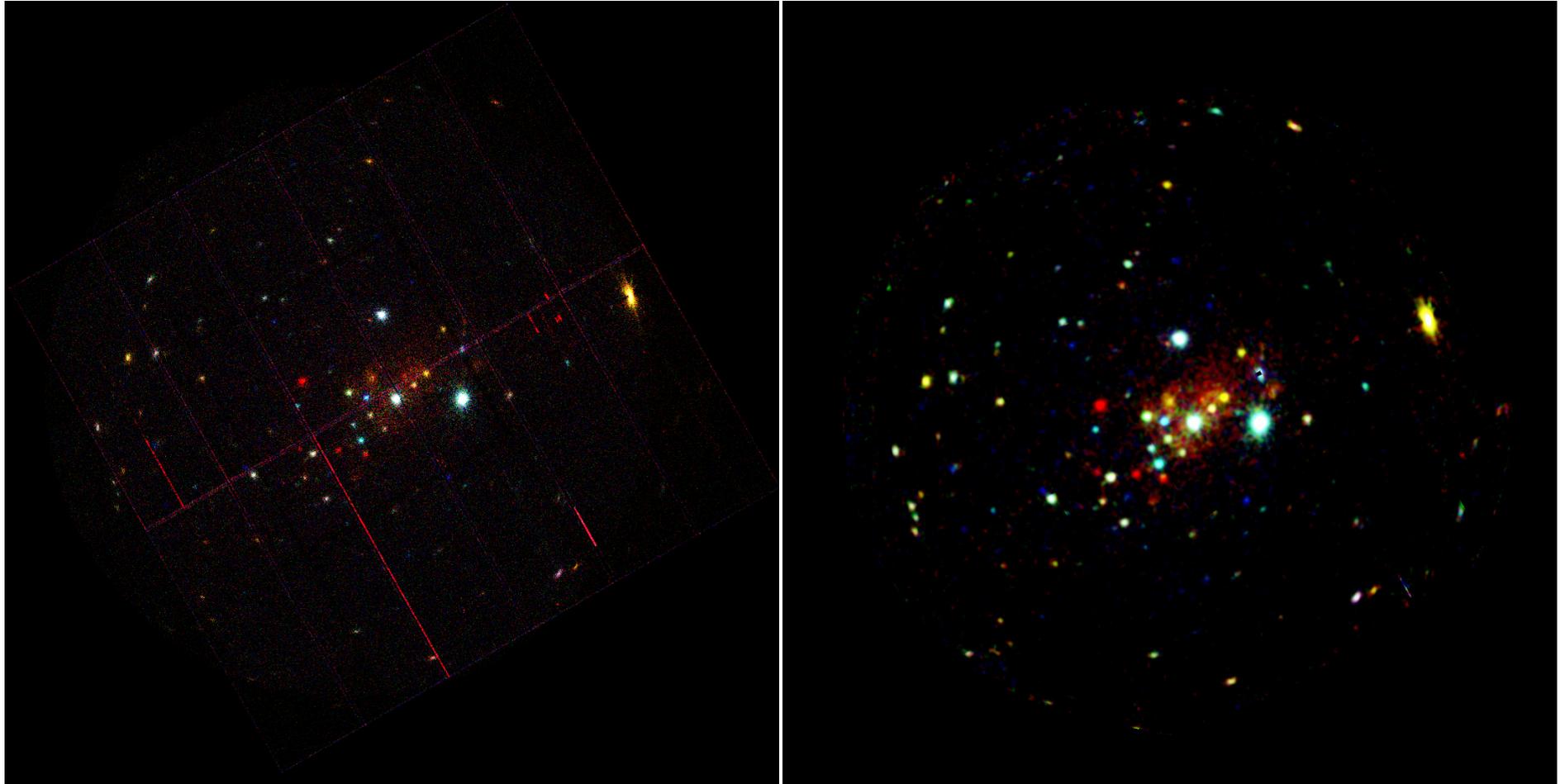
# Combining images from all cameras

- Make combined exposure map and mask
- Weight pn against MOS cameras in each band
- Use images, exposure maps and masks to combine images from all cameras

# Creating False-color images

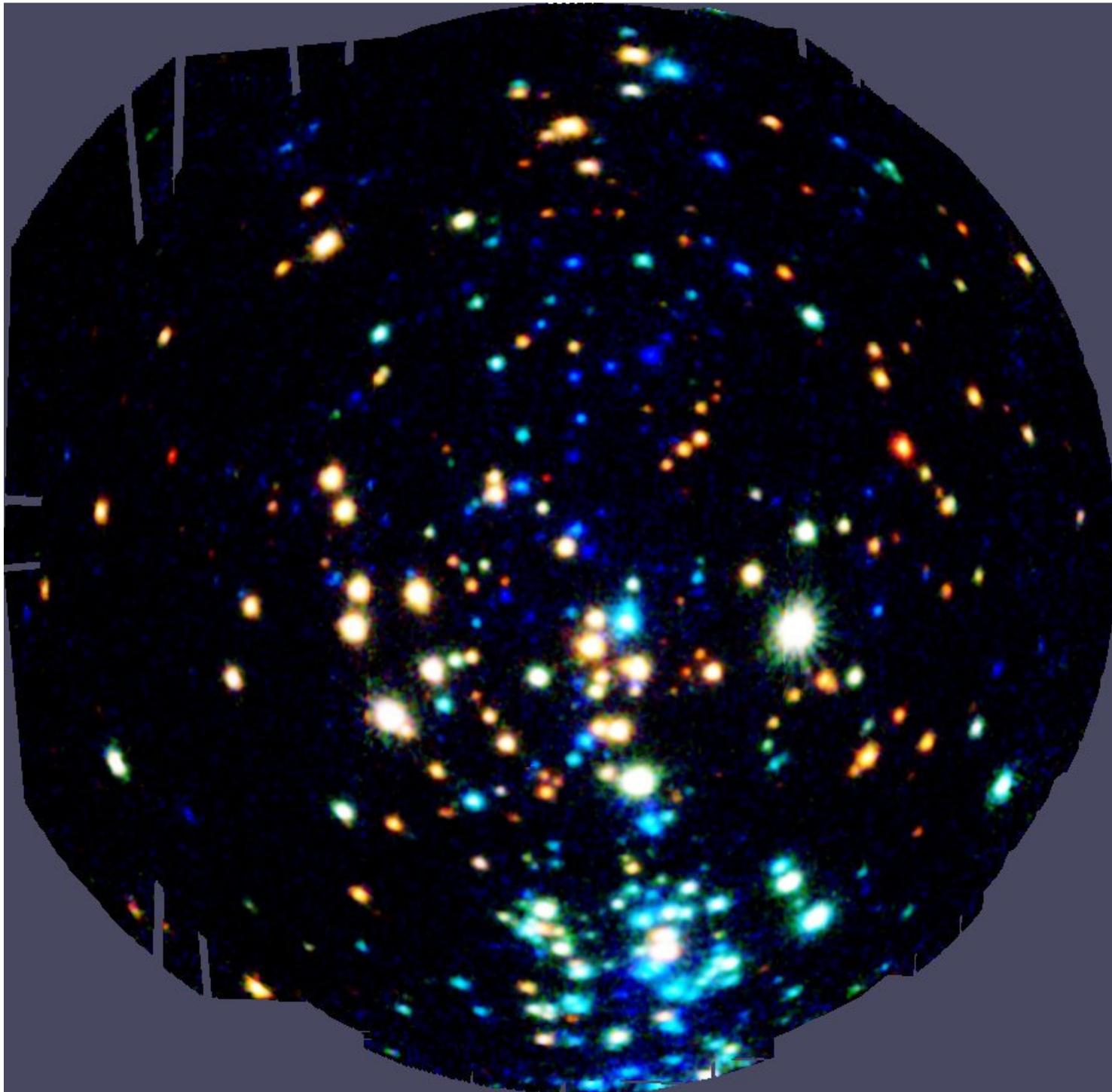
- (Not part of the script but shortly explained in documentation)
- Photoshop & fits liberator plugin (by ESO/ESA)
- Or ds9  $\Rightarrow$  Frame: New Frame RGB
- Or Gimp  $\Rightarrow$  for each Layer: Colors  $\Rightarrow$  Filters: Colors: Compose

# Examples of images: SN2004dj in NGC 2403

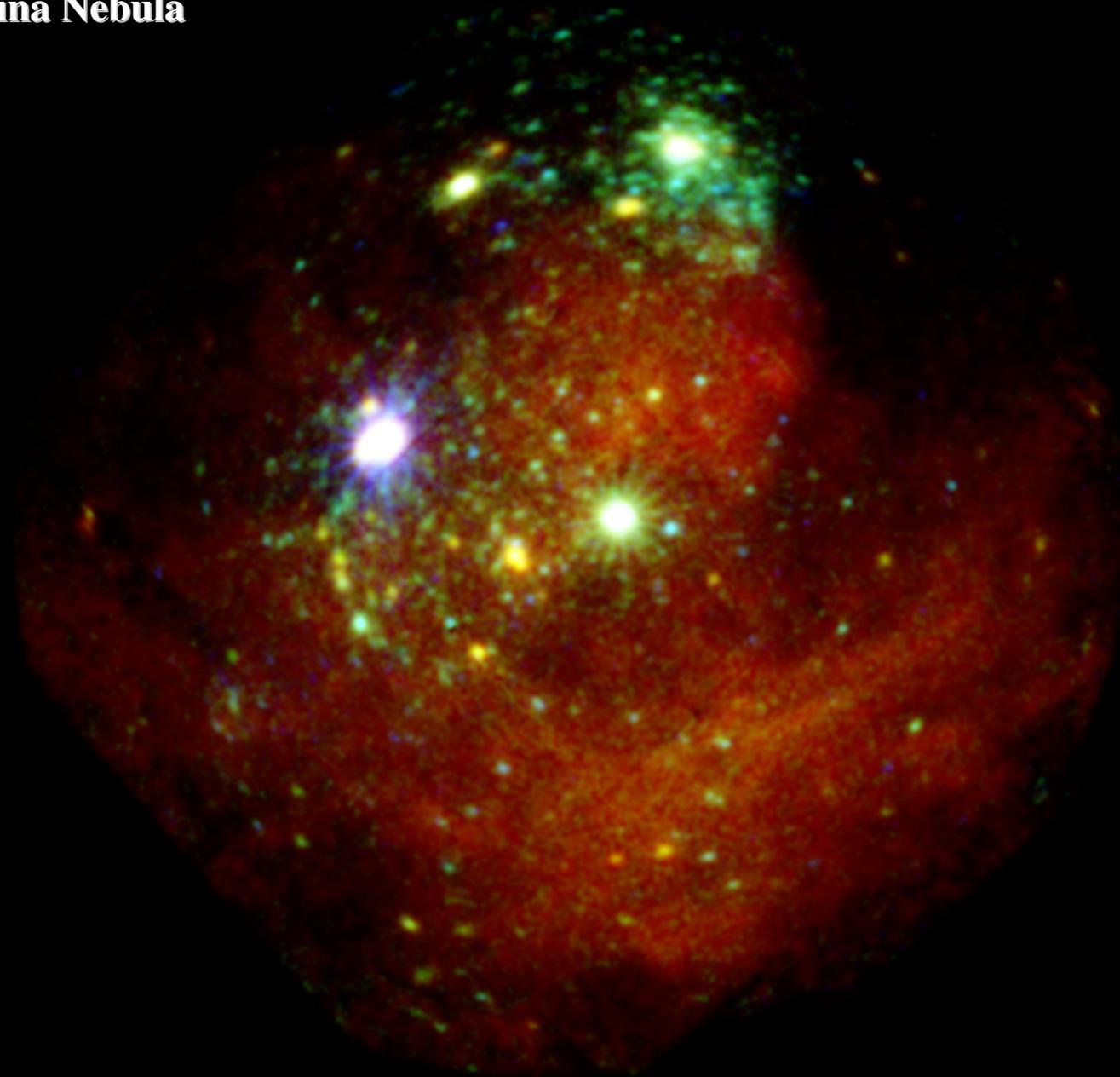


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OMC2



**WR25 Carina Nebula**



M 83



# Plans

- Currently under testing with more public data sets; documentation nearly ready
- Release to beta-testers, e.g. BGWG members within the next 1-2 weeks
- Afterwards: incorporation of comments, reports ⇒ public release ~June via BGWG pages?
- Eventually also for SAS workshop, 19-21 June