XMM-Newton data reduction

- XMM-Newton satellite , PN instrument
- from raw data to clean event file

Software

- **FTOOLS** software for data analysis in FITS format (Flexible Image Transport System)
- test by typing “fhelp ftools”
- **SAS** (Scientific analysis software) link: FTOOLS wrapper, tuned for XMM-Newton
- IDL (Interactive data language) link
- test by typing “idl”, help by typing “?”
- ds9 and fv for FITS image visualisation

SAS setup

- copy /data/jnevalai/XMM/sas_setup.script into your home directory
- edit the keyword **XMM_DATA_PATH** to point to your /wrk/*yourname*/XMM (which will be referred as */your_data_path*)
- execute “source sas_setup.script” to activate paths to SAS software
- write into .cshrc (so it will be executed when opening a new terminal)
- SAS starts by typing “sas”, test by typing “sashelp”
- must have FTOOLS active before running “sas”

Script installation

- copy /data/jnevalai/XMM/install.script into your home directory
- execute “source install.script” (only once, the first time you install the scripts)
- the above command creates subdirectories “pipe”, “data” , “scripts” and “IDL” under */your_data_path*
- and copies programs into “IDL” and “scripts”, check this

Obtaining data

- Go to XMM-Newton data archive http://xmm.esac.esa.int/xsa/index.shtml
- login/register
- Query with name “A1795” or “A3112”
- retrieve ODF
- copy the tar file to */your_data_path*/pipe/data

Processing the raw data

- go to */your_data_path*/pipe/data
- copy there a file */your_data_path*/pipe/scripts/do_chain
- edit the parameters

  - 3. parameter is your tar file

  - 4. parameter is the object name (≡ *objname*)

  - 5. parameter is the observation ID (≡ *obsid*)

  - 6. parameter is the observation date

  -7. parameter is the instrument ID, use “P” for PN
- execute “source do_chain” (after starting SAS and FTOOLS)
- program creates event files PN.FITS.gz and PNOOT.FITs.gz in

  /your_data_path/pipe/data/*objname/obsid*/PN