AAPP status report and preparations for processing METOP data

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Status of AAPP version 5

Development of AAPP version 6 for METOP

Future requirements, including NPP and NPOESS

AAPP – a reminder

- Maintained by EUMETSAT Satellite Applications Facility for Numerical Weather Prediction (NWP-SAF)
- Lead institute - Met Office
- ~175 licensed users worldwide

Since last ITSC ...

- AAPP v5.1 released 18 July 2005, following NOAA-18 launch
- Updates:
  - 5.2 – MHS navigation correction (09/8/2005)
  - 5.3 – various bug fixes (31/1/2006)
  - AMSU-B coefficient file gross limits, notified by email (see appendix)
- Reminder – AAPP v5 is fully Linux compatible

AAPP v6

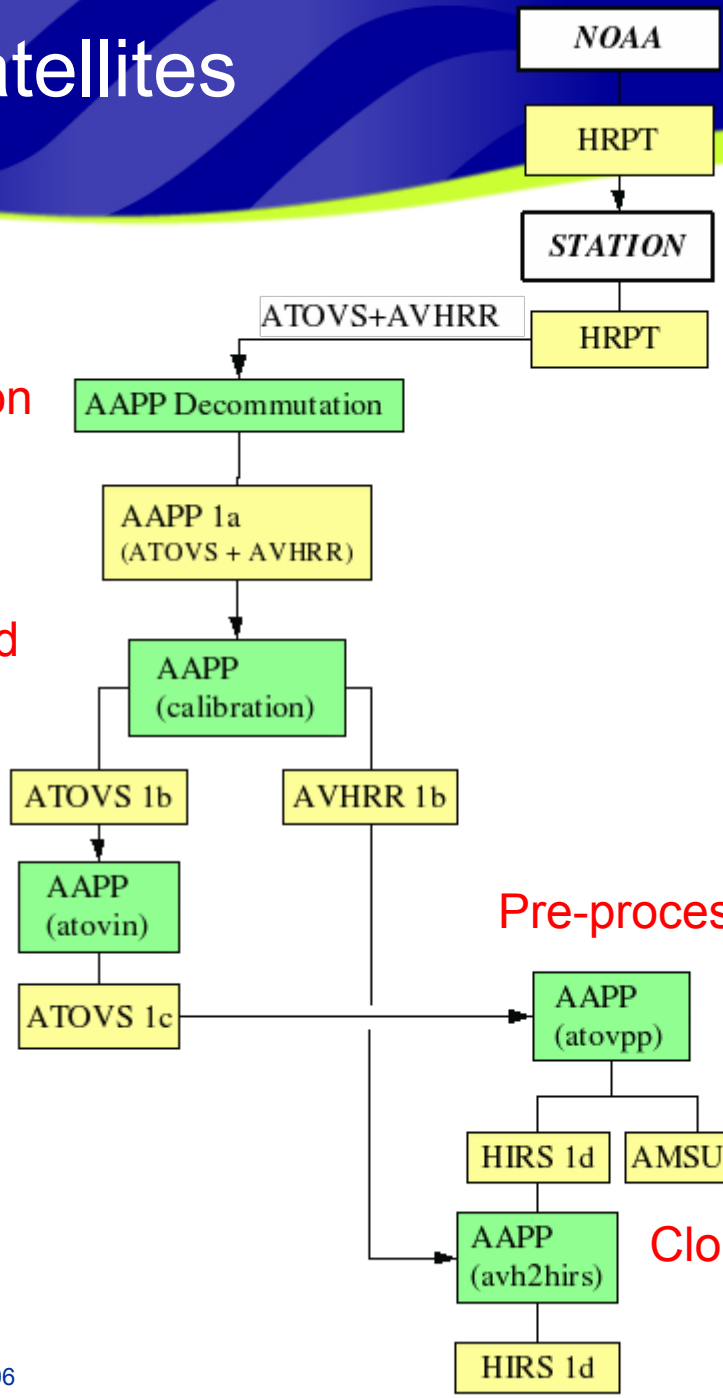
- AAPP v6 to be released October 2006 – as soon as EUMETSAT have approved it
- Beta testing complete - thanks to the beta testers
- Main changes are:
  - ***Supports METOP + NOAA satellites***
  - ***New build system***
  - ***Supports IASI***
  - ***BUFR encode/decode (level 1c)***
- Users will need to re-register via **www.nwpsaf.org** (note new domain name – though the old will still work)
- FTP distribution now an option

METOP support

- METOP tools form a “front end” to AAPP
- Format conversion step

  “EPS Level 0” → AAPP level 1a
- One file per instrument – no decommutation
- IASI level 1 processor “OPS-LRS” **(Operational Software – Local Reception Station)**. Based on CNES/Thales OPS delivered to EUMETSAT. *Optional – only supplied if requested.*

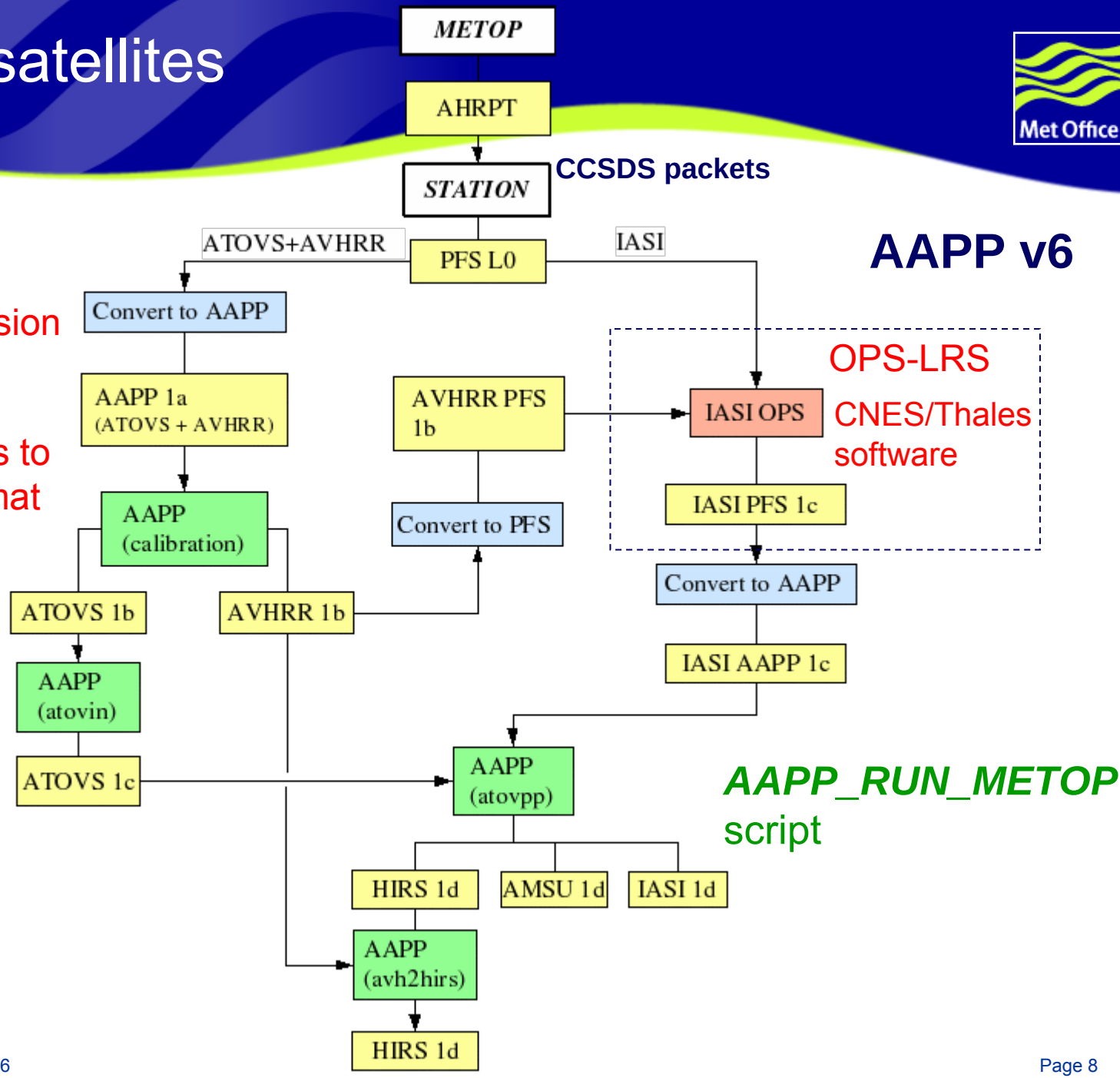
NOAA satellites



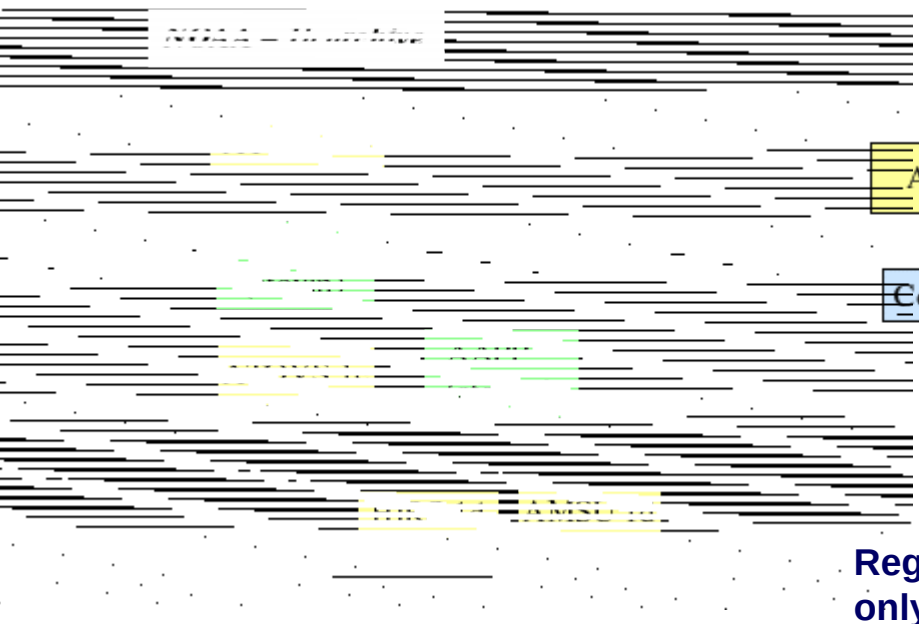
Existing capability

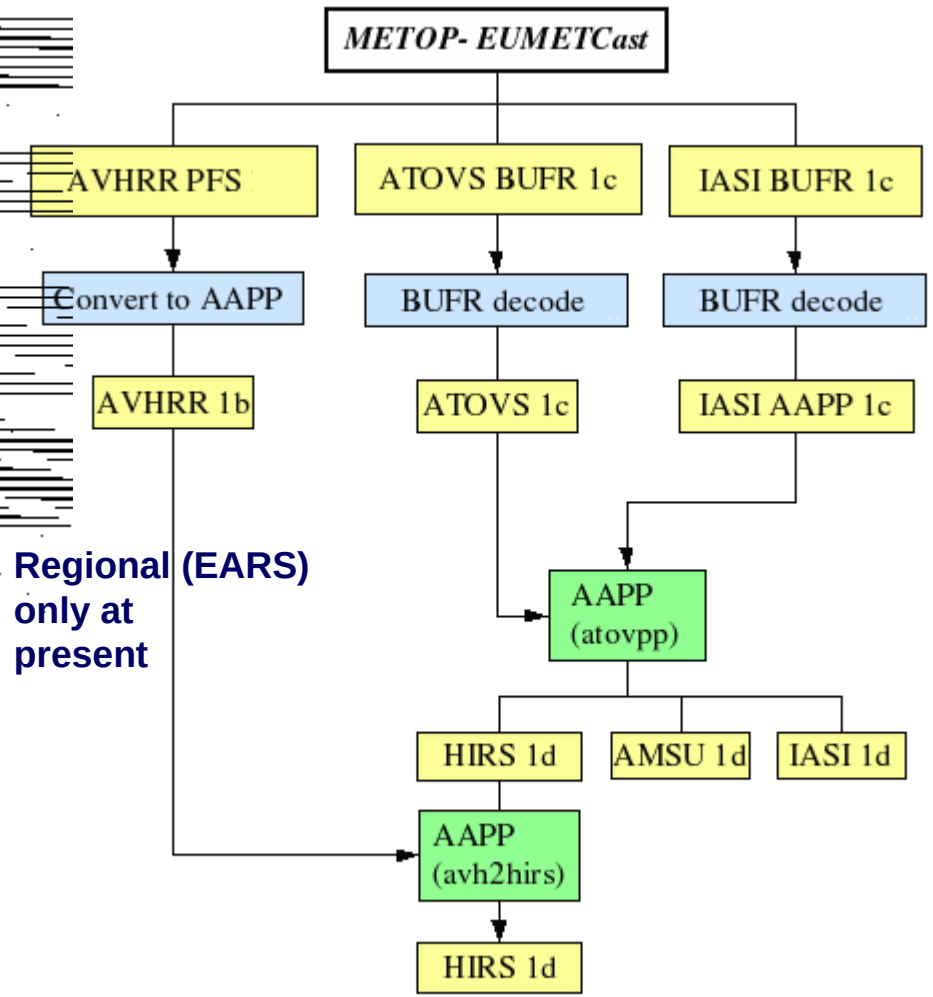
AAPP_RUN_NOAA
script

METOP satellites



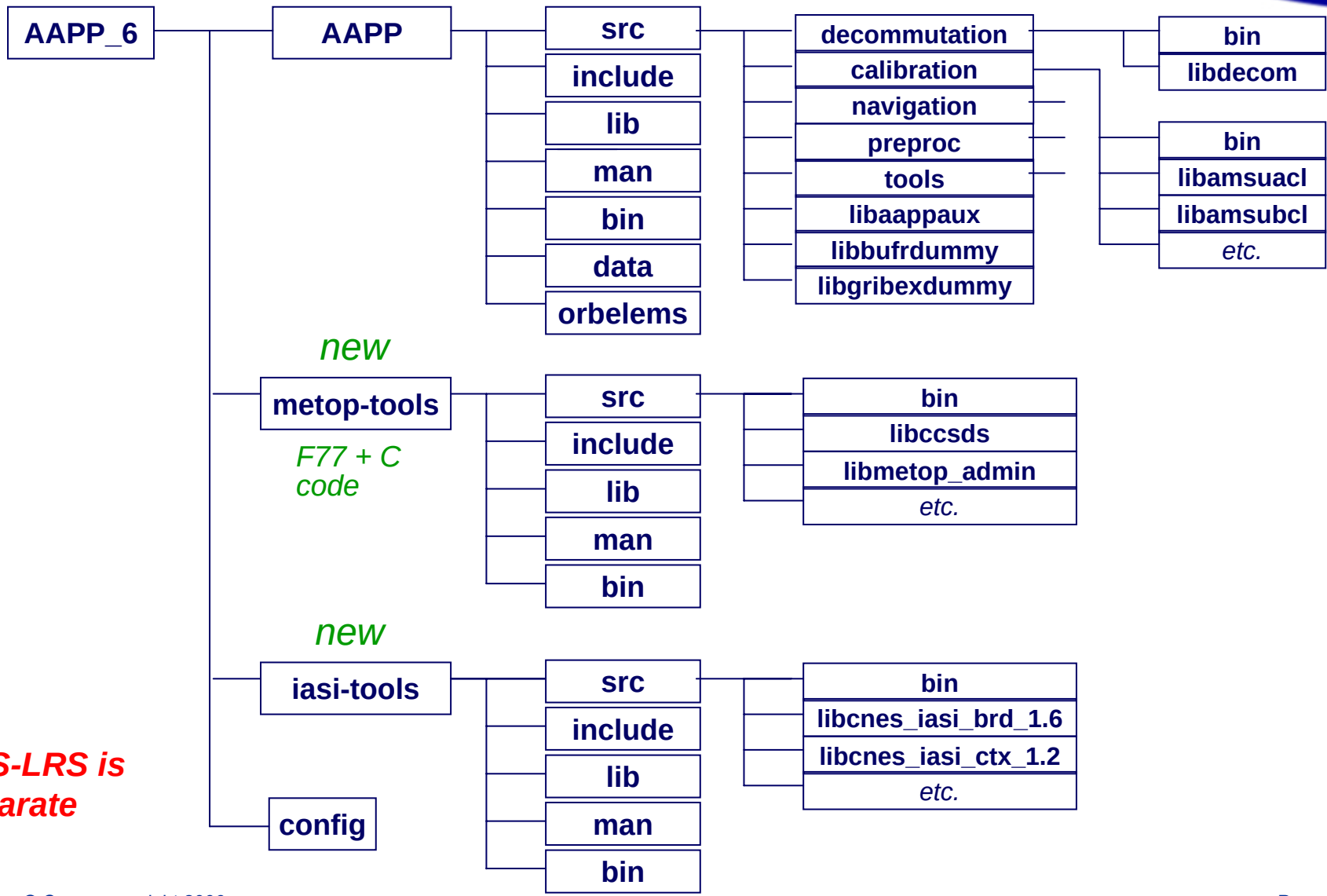
Global and regional data





Regional (EARS) only at present

New directory structure



New build system

```
tar –xvzf AAPP_6_1.tgz

./configure --station=exeter \
  --fortran-compiler=g77 \
  --site-id=UKM \
  --external-libs="-L/home/radsat/ECMWF/lib -lbufr“

make
```

Updated build system was as a result of requests from users

Other build commands:

```
make install; make lib; make bin; make dat; make clean
perl Makefile.PL
```
(re-generates all Makefiles)

Supported platforms / compilers:

AIX, AIX-Hitachi, HPUX, IRIX, Solaris, g77, g95, ifc, ifort, pgf90

Easy to add additional platforms: just create a new configuration file

No longer uses *imake*

Issues for METOP local reception

1. Does your local system deliver EPS Level 0 format?
   - If not, may be able to use METOPizer tool – see www.eumetsat.int Home > Access to Data > User Support > Useful Programs & Tools
2. Does your system deliver 1 file per pass or smaller granules?
   - 1 file per pass necessary if HIRS calibration is required
   - IASI OPS-LRS can cope with either, but “dump mode” is easier
   - Concatenate L0 granules if necessary
3. File naming convention (example)

Test cases – supplied with AAPP v6

- NOAA-16 and NOAA-18 HRPT (same as AAPP v5)
- METOP L0 simulated data – format conversion and onward processing
- BUFR encode/decode – using simulated METOP global data granule (3 min) provided by EUMETSAT
- OPS-LRS – dump mode test case, using *ops_process_dump*

Who are the METOP users?

- Survey carried out earlier this year, following NWPSAF/CIMSS liason meeting
- Via AAPP and ITWG mailing lists
  - 26 responses
  - 21 Direct Readout users or institutes (METOP capability)
  - 18 Regional users (EARS/RARS)
  - 19 users interested in processing IASI
    - IAPP METOP support for AMSU/MHS/HIRS ?
    - IASI Retrieval package – CIMSS ??

Future support to NPP and NPOESS – direct readout

- NPP launch – late 2009 (?)
- A direct-readout package ***IPOPP*** is being developed by CIMSS + NASA + IPO
- IPOPP will generate both level 1 and level 2 products.

  The level 1 "Sensor Data Records" (SDRs - radiances) are of particular interest to NWP
- AAPP will be extended to accept the SDRs for ATMS, CrIS and VIIRS (HDF-5 format)
- Formats still not published – *we need IPO to release them ASAP!*
- Map ATMS to CrIS – same as AMSU to IASI

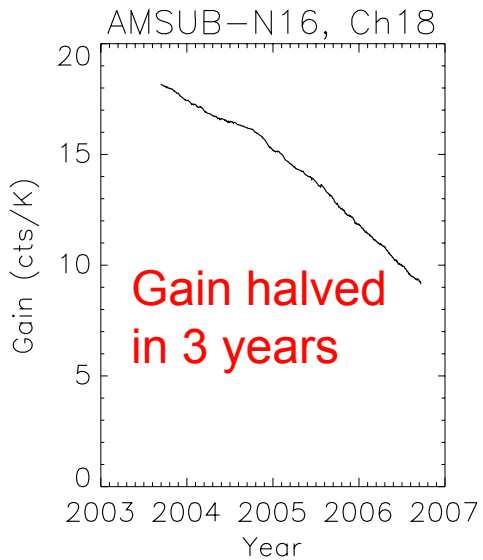
Collaboration between NWP SAF and CIMSS

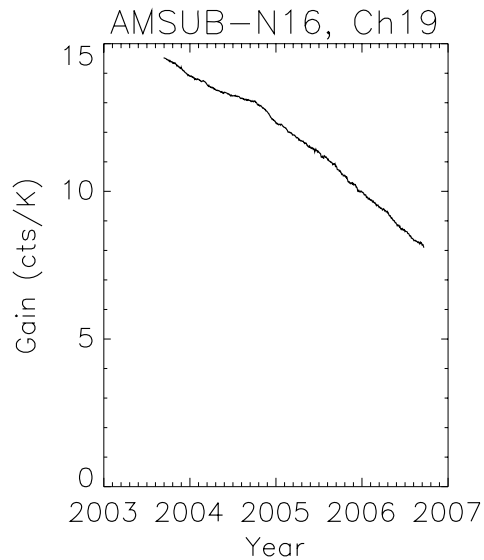
Future support to NPP and NPOESS – global data

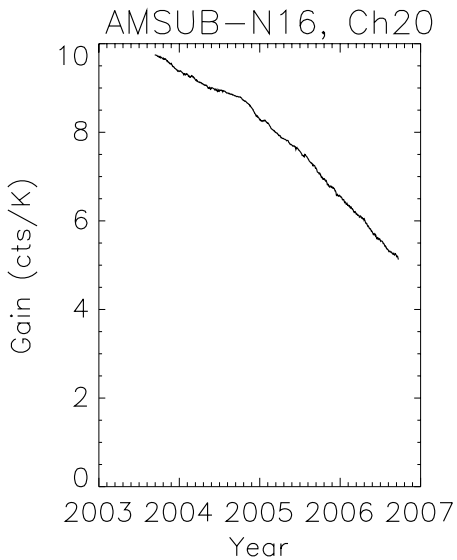
- Global SDRs archived by NOAA CLASS (together with level 2 products)
- For operational NWP use, global data will be distributed by the OSDPD Data Distribution Server – in BUFR format (i.e. similar to AIRS)

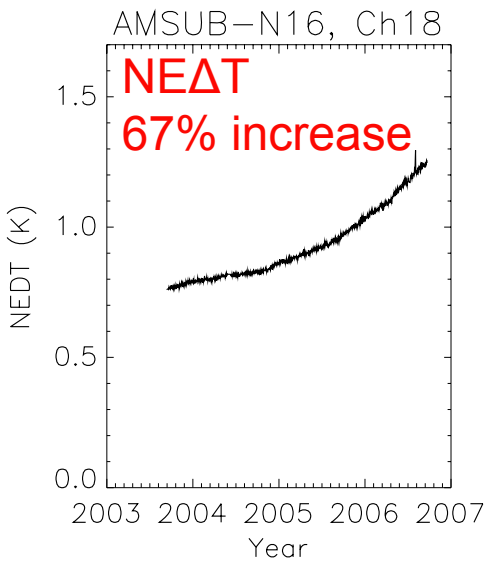
AAPP will be able to read NPP global data also

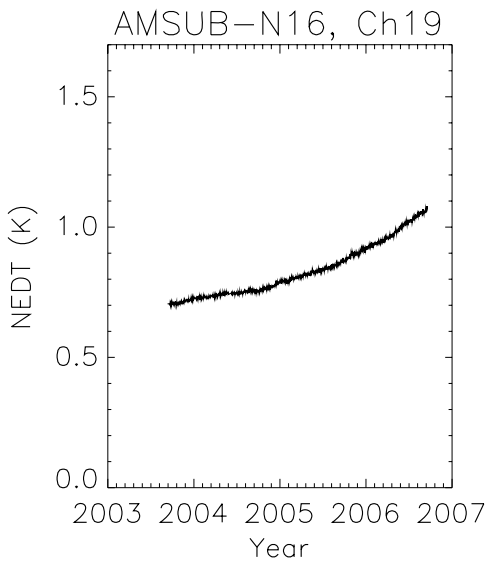
Appendix – NOAA-16 AMSU-B degradation

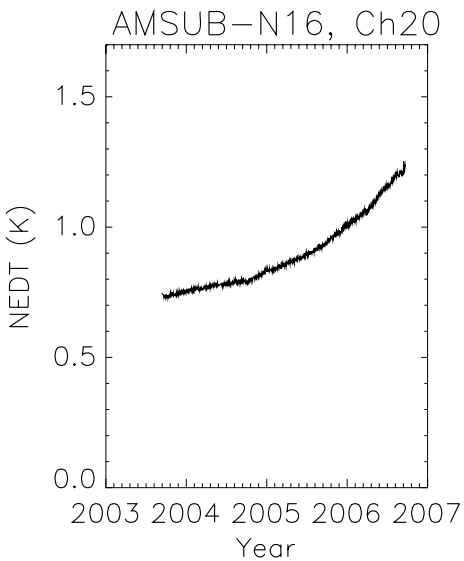




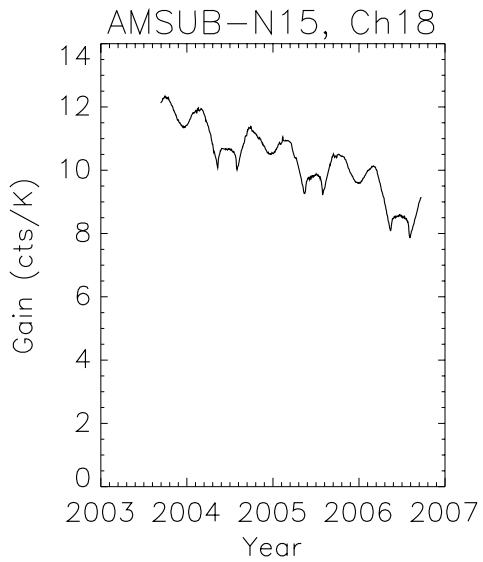


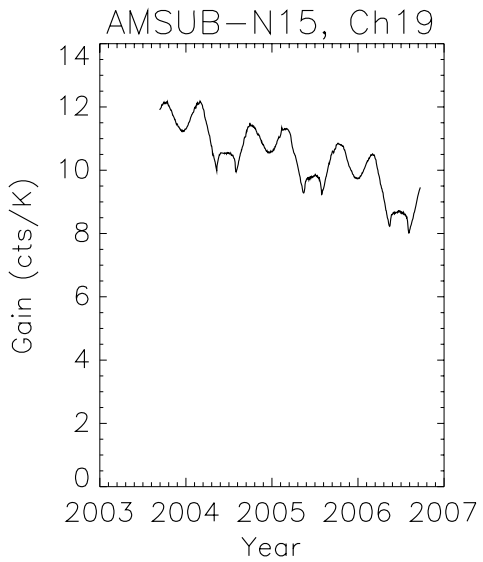


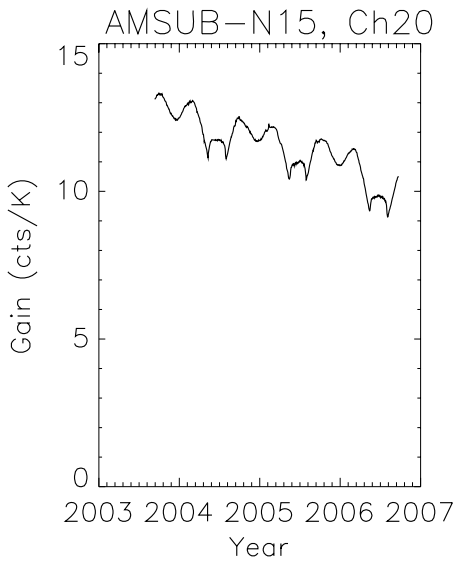


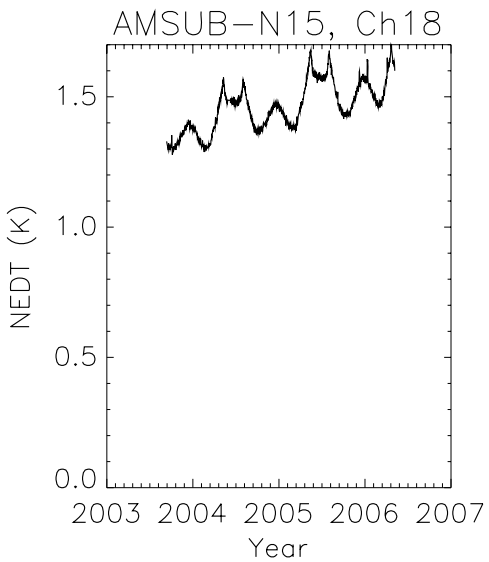


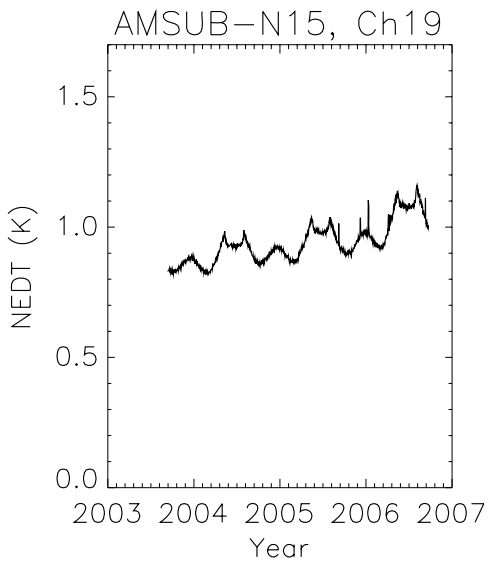
Compare NOAA-15

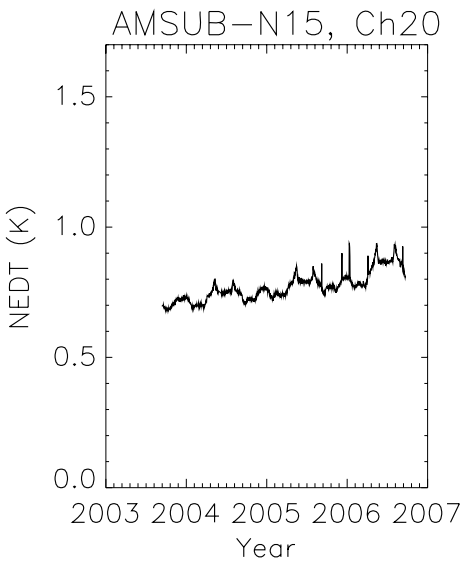












Conclusions

- AAPP is used worldwide to pre-process direct-readout, regional and global polar orbiter data
- Available via NWP-SAF web site www.nwpsaf.org
- Version 6, supporting METOP has been beta-tested and release is imminent
- Updates likely when real METOP data become available
- Work will start soon to extend for NPP and NPOESS – but still need detailed format information from IPO