



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

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



- 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 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

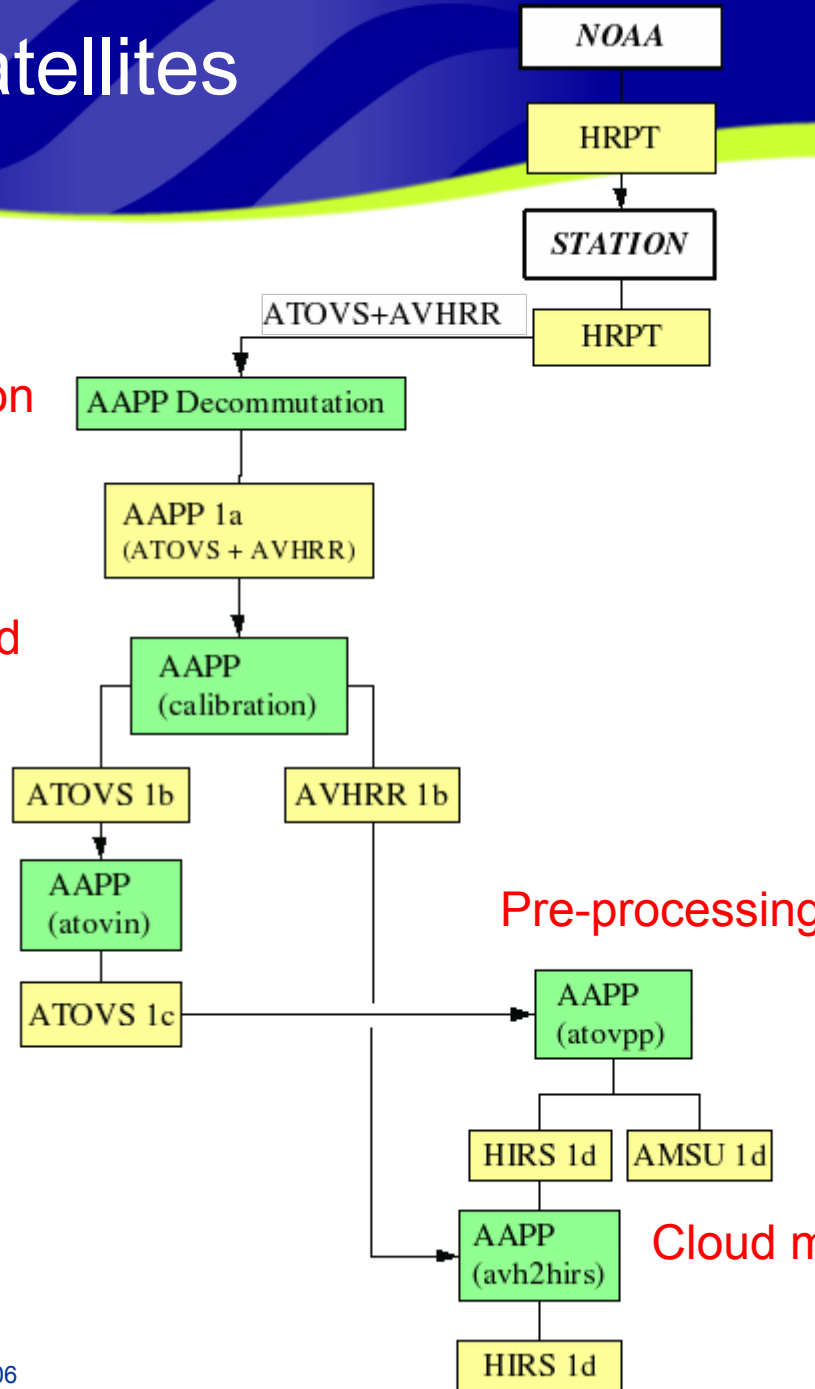
- METOP tools form a “front end” to AAPP
- Format conversion step
 - **“EPS Level 0”** → **AAPP level 1a**
- One file per instrument – no decommutation
- IASI level 1 processor “OPS-LRS” (**Operational Software – Local Reception Station**). Based on CNES/Thales OPS delivered to EUMETSAT. *Optional –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

Decommutation

Calibration and navigation

Existing capability

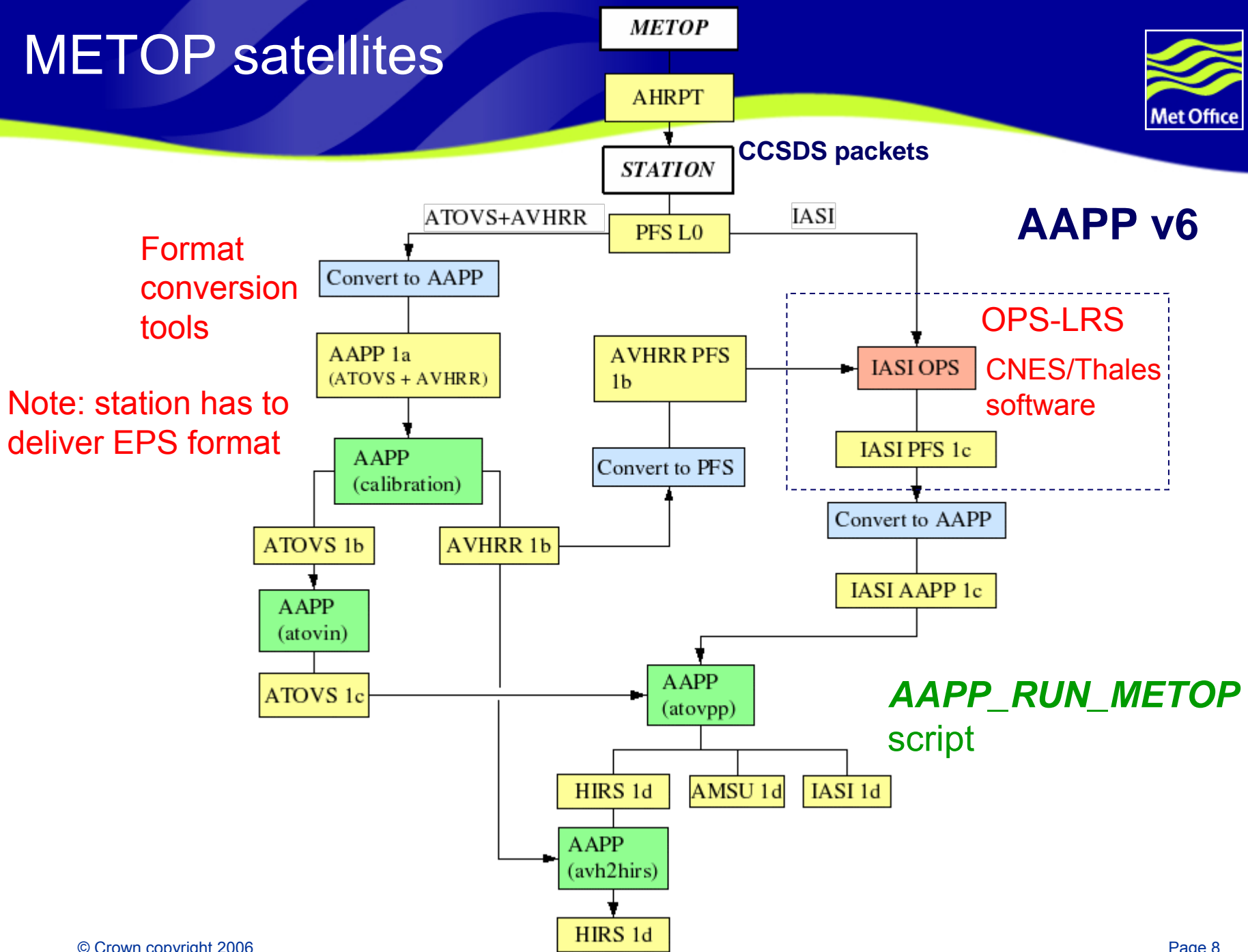
AAPP_RUN_NOAA
script



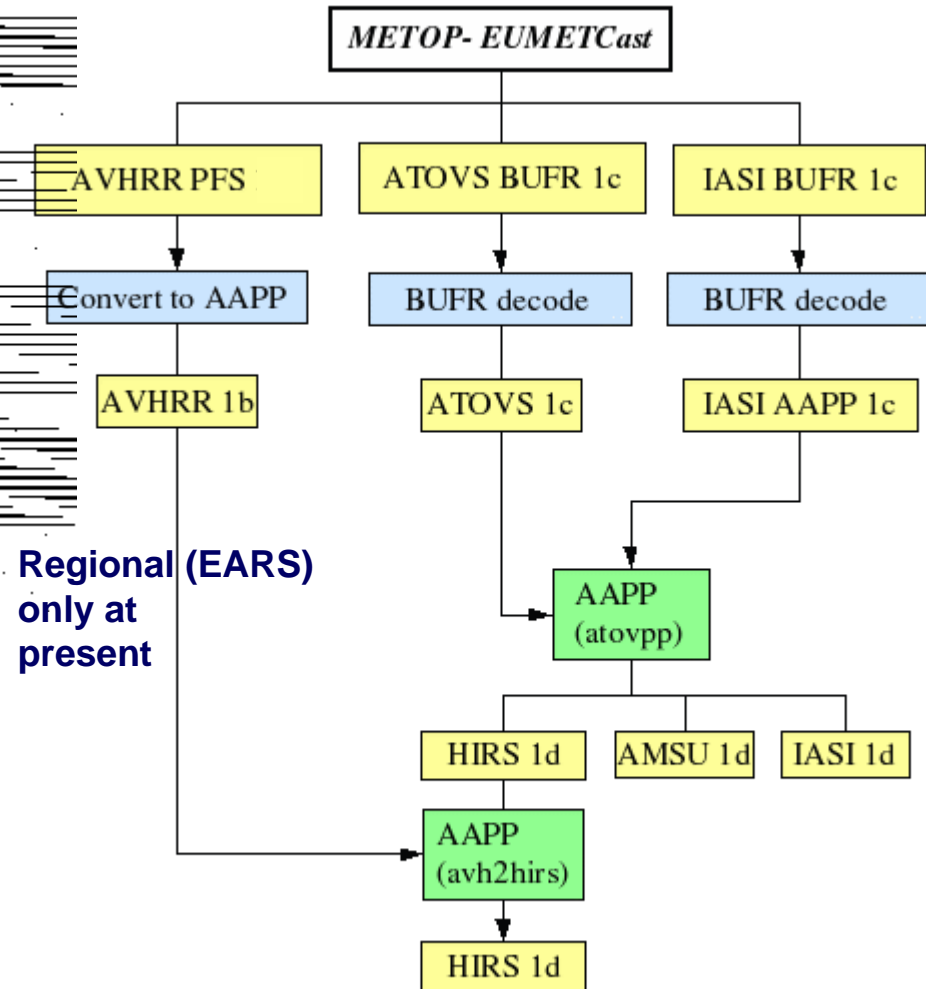
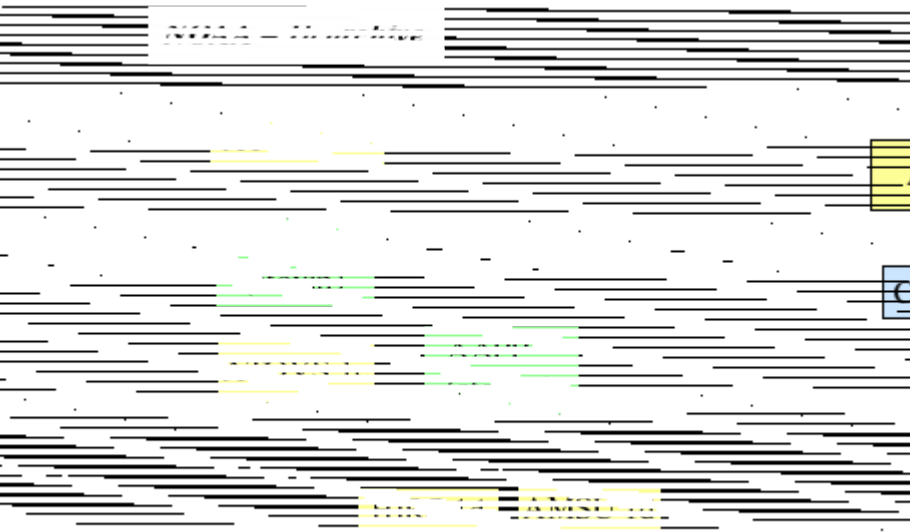
Pre-processing

Cloud mask

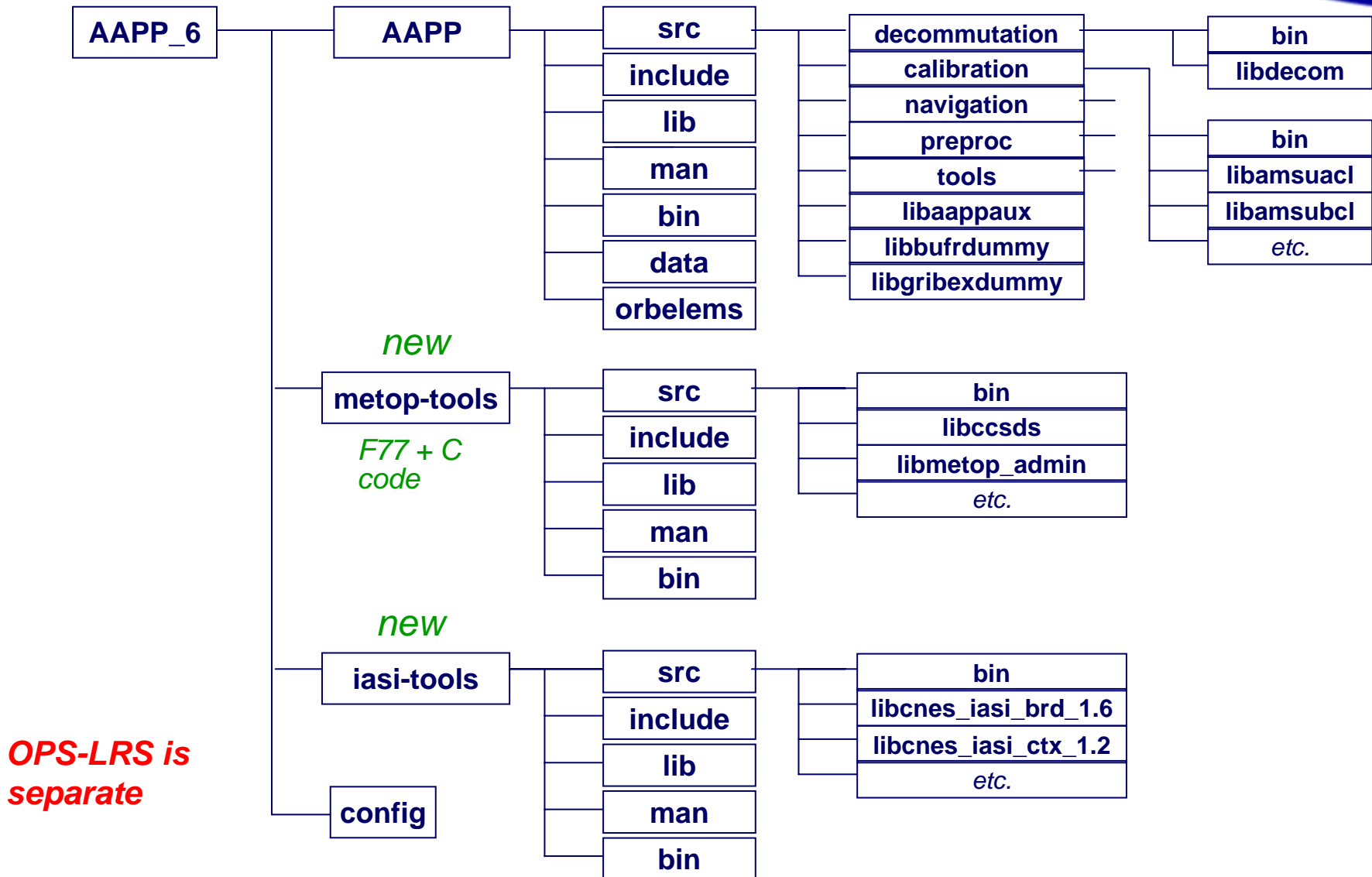
METOP satellites



Global and regional data



New directory structure



```
tar -xvzf AAPP_6_1.tgz
```

Updated build system was as a result
of requests from users

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

```
make
```

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*

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)

AMSA_xxx_00_M02_20020808181206Z_20020808195406Z_N_O_20020808201206Z

Instrument Level Satellite Start time End time generation time



- 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

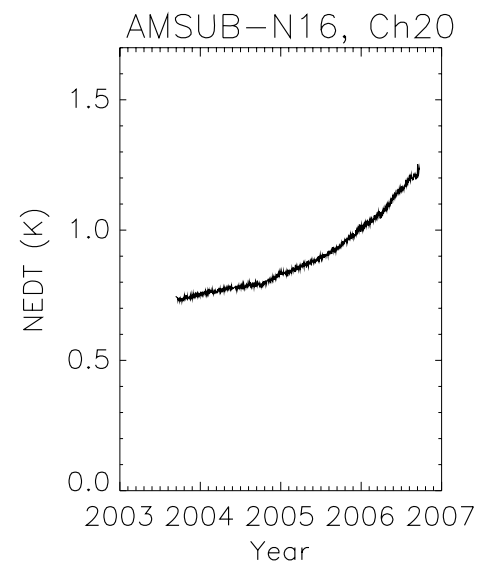
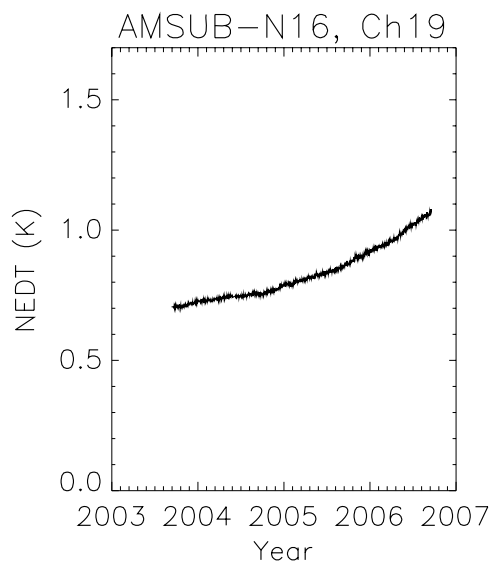
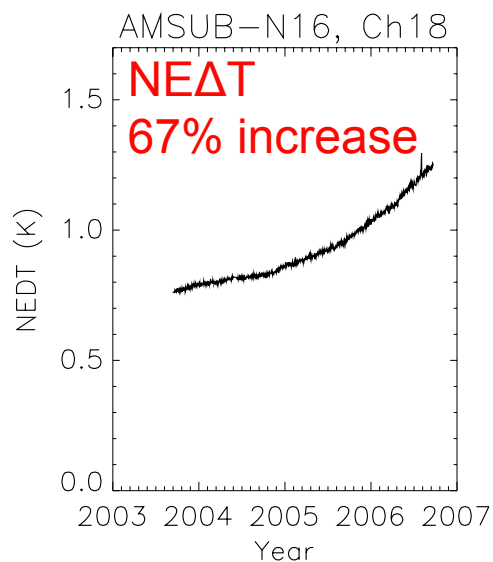
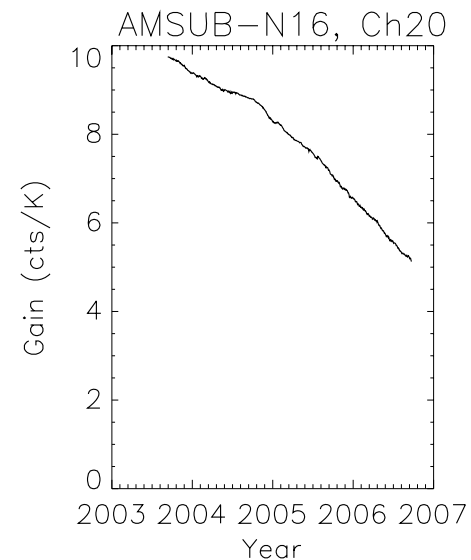
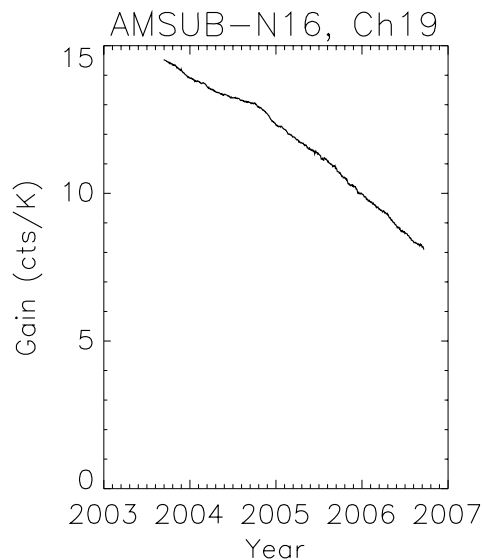
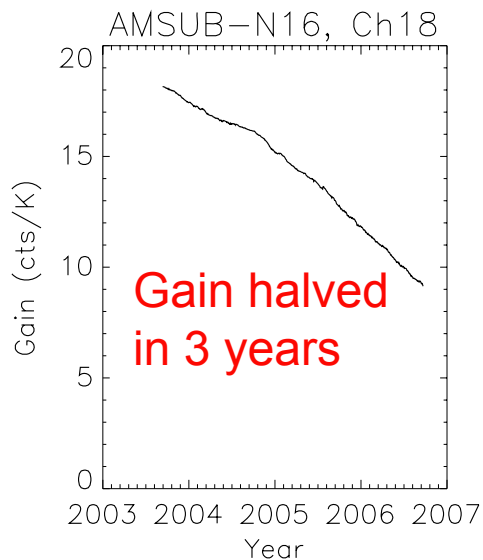
Future support to NPP and NPOESS – global data



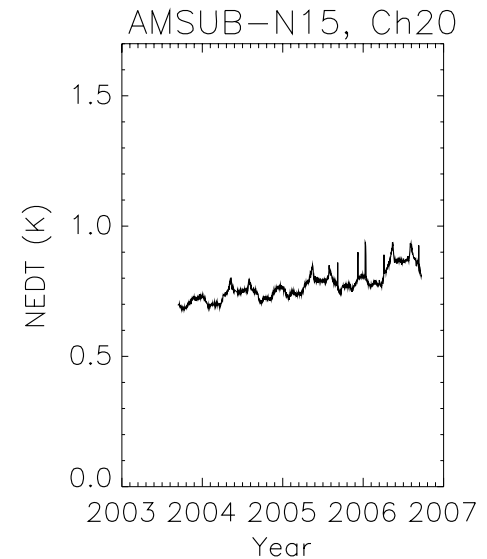
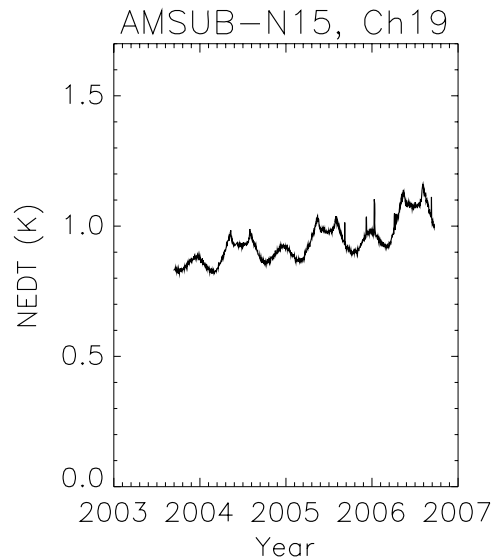
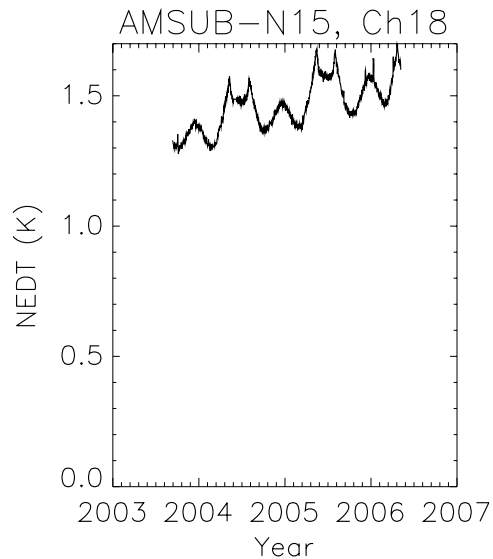
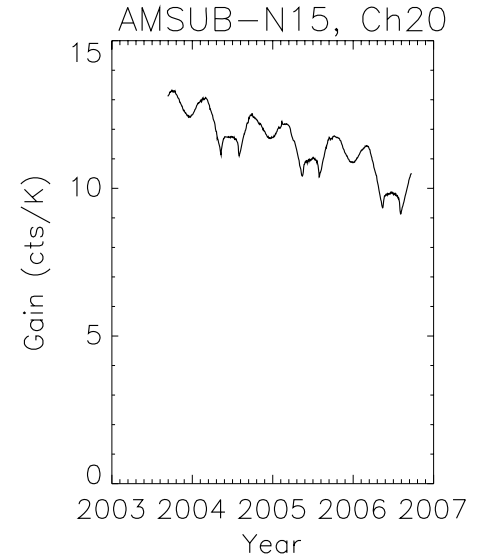
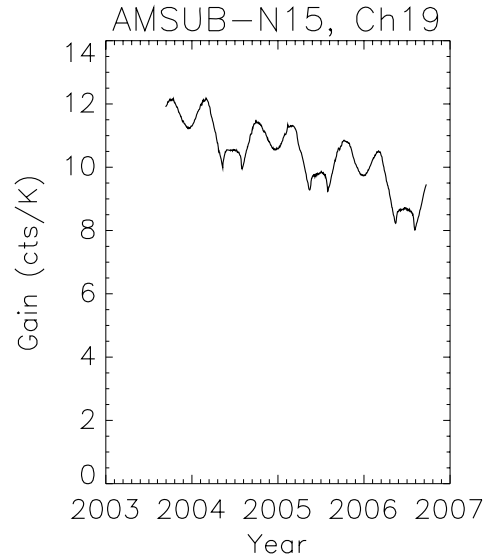
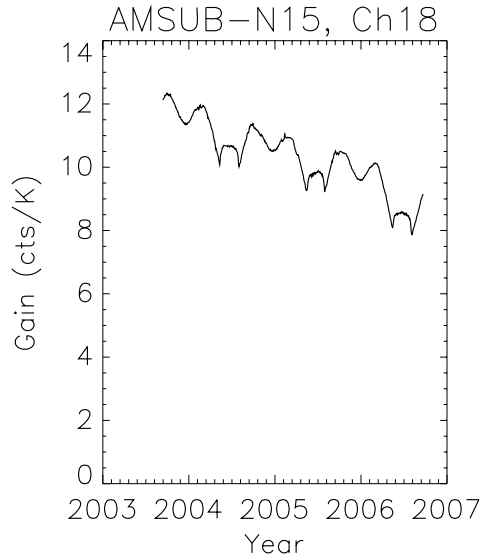
- Global SDRs archived by NOAA CLASS (together with level 2 products)
- For operational NWP use, global data will be distributed by the OSDPD Data Distribution Server – in BUFR format (i.e. similar to AIRS)

AAPP will be able to read NPP global data also

Appendix – NOAA-16 AMSU-B degradation



Compare NOAA-15



- 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



International TOVS Study Conference, 15th, ITSC-15, Maratea, Italy, 4-10 October 2006
Madison, WI, University of Wisconsin-Madison, Space Science and Engineering Center,
Cooperative Institute for Meteorological Satellite Studies, 2006.