



Science & Technology Facilities Council
Rutherford Appleton Laboratory

GGSPS status

Andy Smith & Martin Bates
RAL



Outline

- Reporting period Sep 2009 – Sep 2010
- Operations: GERB-1 and 2 processing status
- GERB-1 Edition 1 reprocessing
- New development:
 - Updates to operational processing
 - Port to Linux
 - Operational efficiency improvements
- Future work



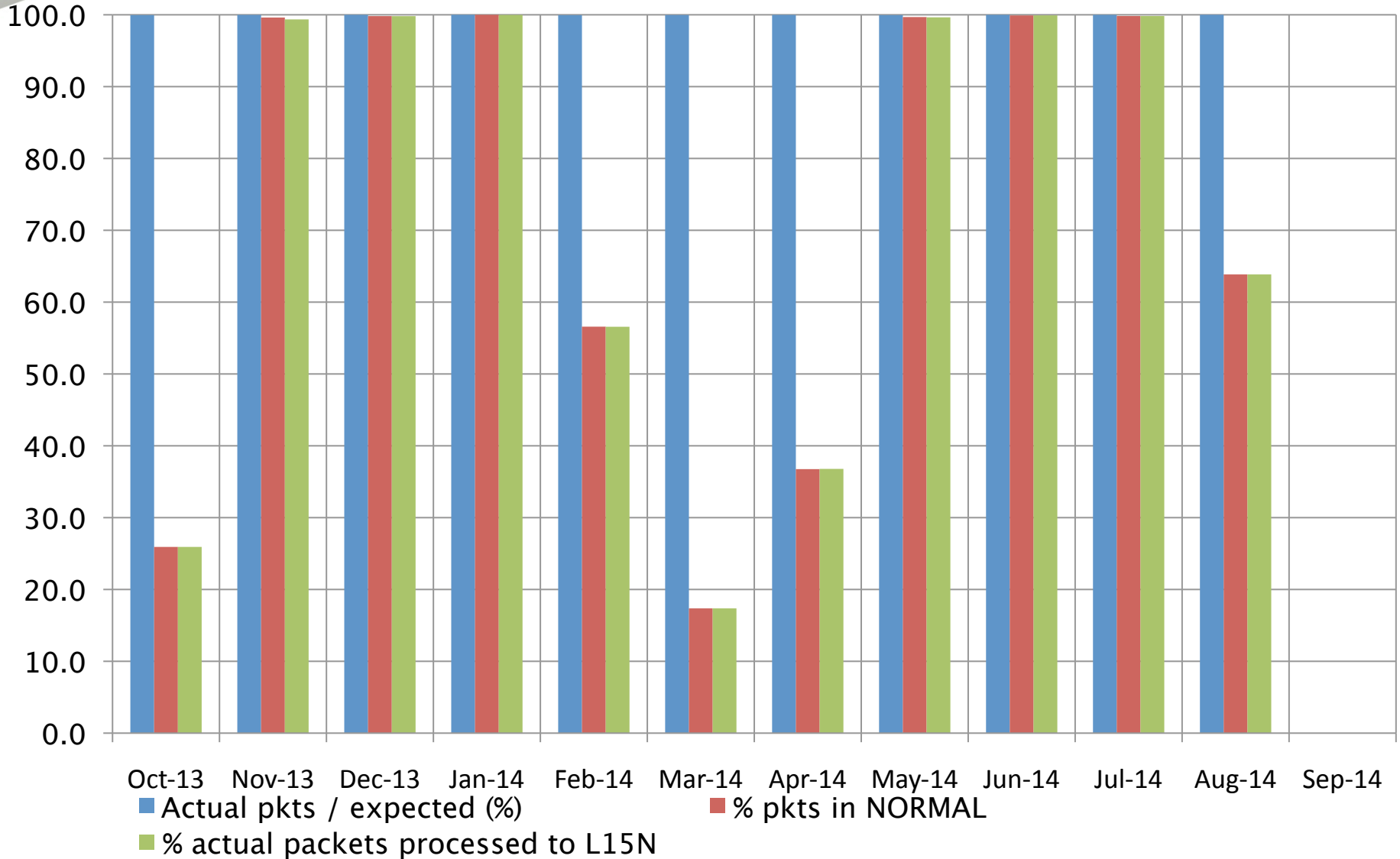
GERB-1 NRT processing ops

- GERB-1/MSG-2 operational
 - G1 mostly in NORMAL mode
 - Sun Avoidance ops : ~5 hours science data/day:
 - 19-Aug to 29-Oct-2009,
 - 13-Feb to 20-Apr-2010
 - 19-Aug to 29-Oct-2010
- QA checks still require high level of ops effort
 - Typically 0-3 mirror anomalies/day found by QA
 - max ~7/day?
- No significant GGSPS s/w / h/w problems this period



G1 summary stats

GERB-1





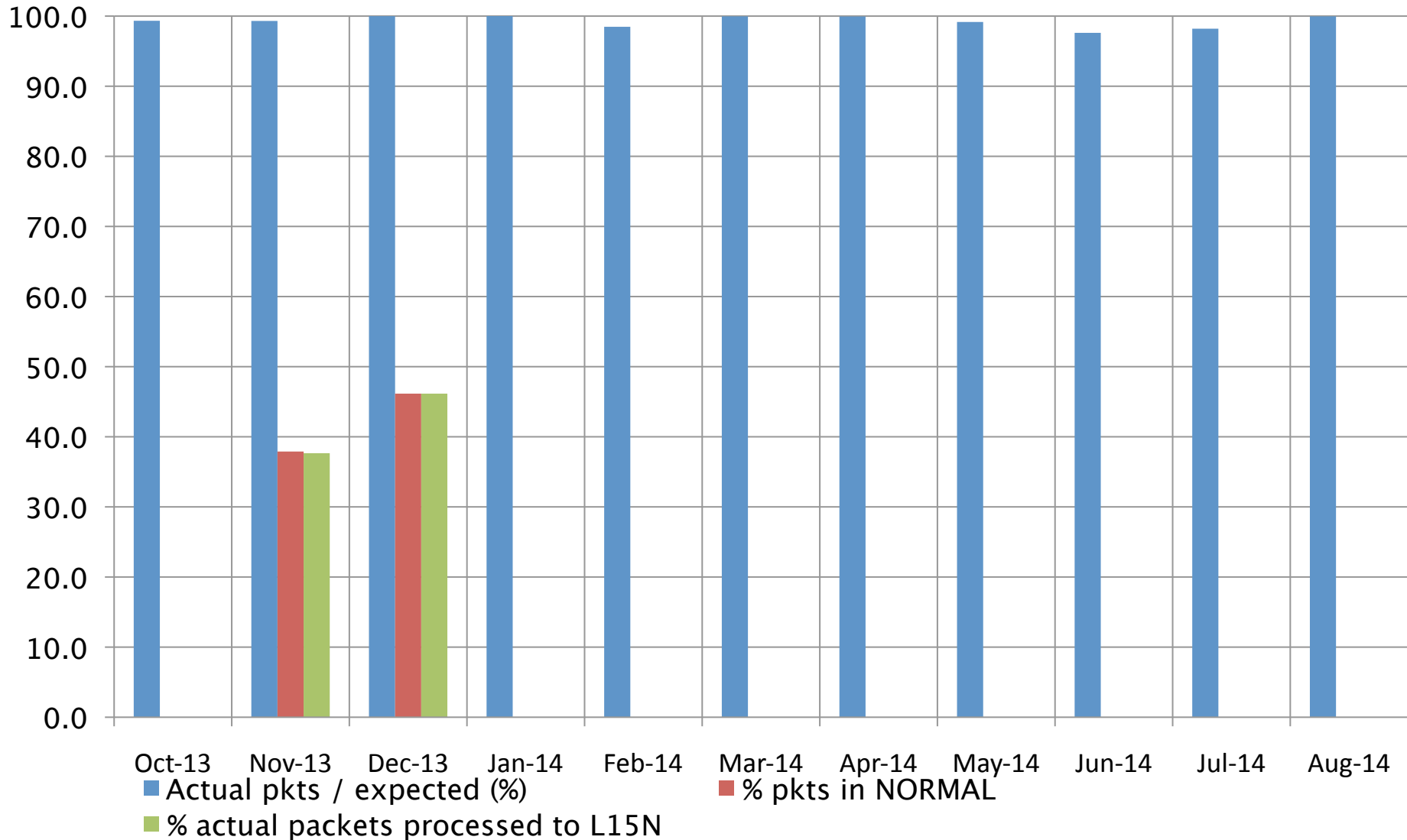
GERB-2 NRT processing ops

- GERB-2/MSG-1: back-up
 - G2 mostly in SAFE or SUNBLOCK mode
 - NORMAL mode 19-Nov to 15-Dec-2009 (not Edition data)
- Data gaps:
 - Spacecraft outage 30-Jul 01:05-14:30
 - Periods of missed data due to antenna maintenance etc
- GGSPS processing problems:
 - Can't process FORCING mode yet
 - No major s/w / h/w problems in this period



G2 summary stats

GERB-2





Product downloads

- Via GGSPS WWW, Sep-09 to Sep-10:
 - G1 L15N (validation only): 0 requests
 - G2 L15N ED01: 0 requests
 - G2 L2 ED01: 54 requests, 5 users, 48GBytes (equivalent to ~16 months of SOL & TH)
 - Via BADC (G2 ED01): Sep-09 to Sep-10
 - 33 named users, 19 currently registered for data access
 - 39GB downloaded by 4 users in Sep-09
 - 0-4 users per month since, trickle of downloads
 - Stats cover only Edition data from GGSPS/BADC
 - N.B. Much higher use for NRT data from RMIB
- Sep-2010 No recent Edition data available (G1 Ed01 release due soon)



GERB-1 Ed01 re-processing

- Ed01 cal applied to NRT data starting 22-Oct 2009
 - Product files are not named Edition, not accessible yet
- Re-processing pre-Oct 2009 for release
 - 24-Apr-2007 to Apr-2009 processed
 - Deliver all L1.5 data to RMIB by ~31-Oct?
 - Detailed QA checks will take much longer
- Rules for “pulling” anomalous data: details TBD
 - Maximise data coverage while maintaining consistency with GERB-2 Ed01
 - Also consider required QA effort



Development

Port GGSPS to run on Linux: background

- Essential to ensure GGSPS ops can continue to 2018
- Tru64 Operating System & hardware not supported
- GERB-2 processors are 8 years old
- GERB-1 processors are 5 years old
- Ingres database no longer licensed
- Port processing s/w to run on Linux
- Port embedded SQL s/w to use Postgres



Development

Port to Linux: progress

- 79 unit tests passed, i.e. all planned tests plus some extras
- 11 out of 18 planned integration tests completed
- Full System Test planning in progress
- Testing includes product validation: ensure equivalence
- Updated s/w merged with operational code where possible



Development

Transfer to Linux-based operations:

- Plan to move G1&2 ops is TBD, but aim to move soon after ported software is ready
- i.e. this change will affect NRT Edition data processing
- Ops hardware to be purchased by Dec 2010



Development: L1.5 processing

- Processing code “frozen” for GERB–1 Edition 1
 - No changes to science processing algorithms
 - Some necessary code changes due to Linux work, where no risk or where tests show no change to products
- Geolocation: TSOL jitter transfer by SFTP
 - Formalises existing transfers from EUM
 - New file formats – small code change but does it affect the L1.5 output values? Tested extensively.
 - In ops since May 2010
 - Doesn’t improve on current geolocation



Development: L1.5 & QA

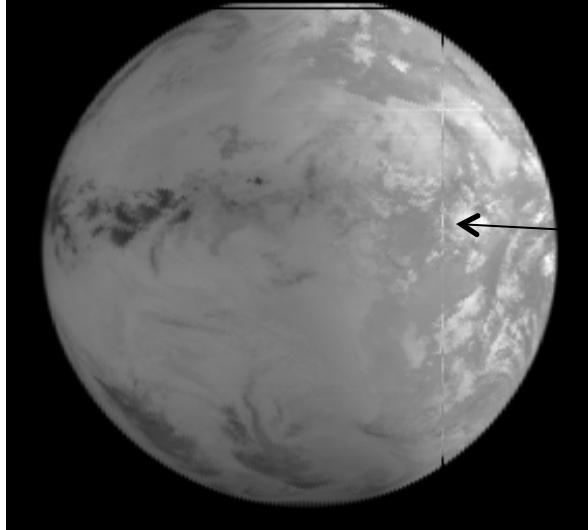
- Geolocation: tool to compare GGSPS and RGP
 - Done under “ops efficiency” funding to save future costs
 - Essential if GGSPS geo is used in future ops
 - Groundwork for improved geo., e.g. axis misalignments



Development: L1.5 & QA

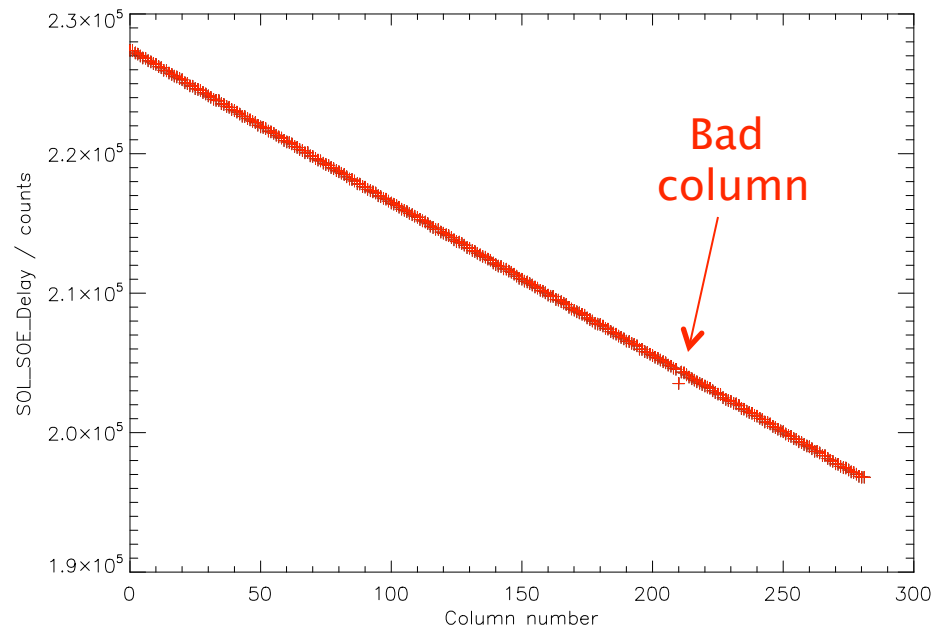
- Detect mirror pointing anomalies
 - Offline tool available soon
 - Detection post-processing: no flagging in product, whole product “pulled”, i.e. 6 scans lost
 - Build into L1.5 processing 2010/11
 - Automation could flag affected columns in product.
 - Activate for Ed01?
- Improve movie s/w for QA checks
 - Improved operator detection of anomalies
- Both changes raise questions for Ed01
 - QA improved, but not consistent with earlier Ed01

Mirror Anomalies

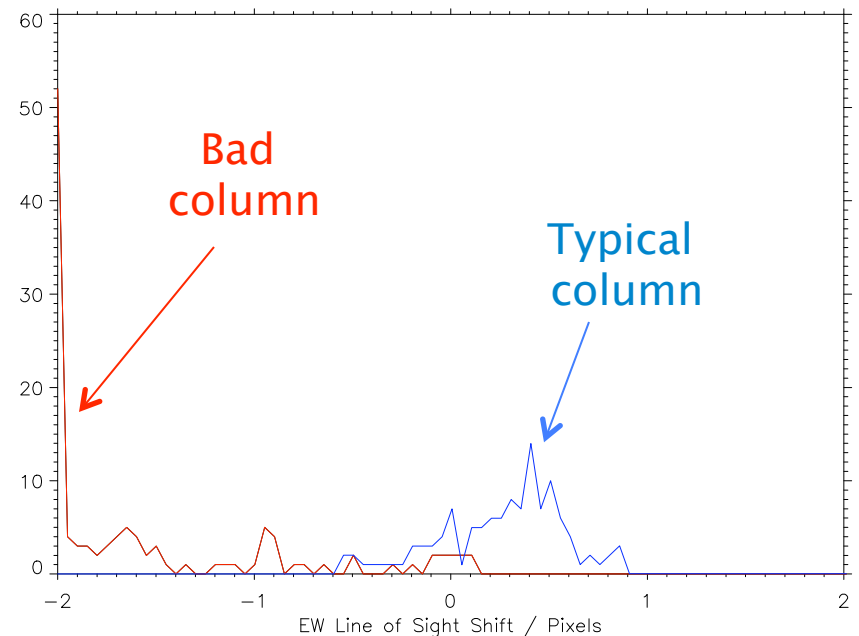


GERB looking at “wrong” column

Detectable through:



SOL_SOE_Delay: Line of Sight in wrong position at start of acquisition



Mirror position (FIFO) data: Line of sight moves during acquisition
Overly sensitive (false positives)



Development

- Transfer of raw data via SFTP/removal of leased line
 - TSOL jitter and SEVIRI header also moved to SFTP
 - Interface tests done Dec '09 - Mar '10
 - SFTP started operationally May 2010
 - Leased line contract ended July 2010
 - No major problems so far...
 - Saves ~£21k/year on line costs



Next steps

- Complete GERB-1 reprocessing & QA
- Support new product releases when validated
- Complete Port to Linux
 - Integration tests,
 - System Tests and
 - product validation
 - Prepare for transfer into operations
- Ops efficiency work ongoing through 2010-11