

# OPERATIONAL IMPLEMENTATION OF SUOMI NPP REGIONAL SERVICES AT EUMETSAT

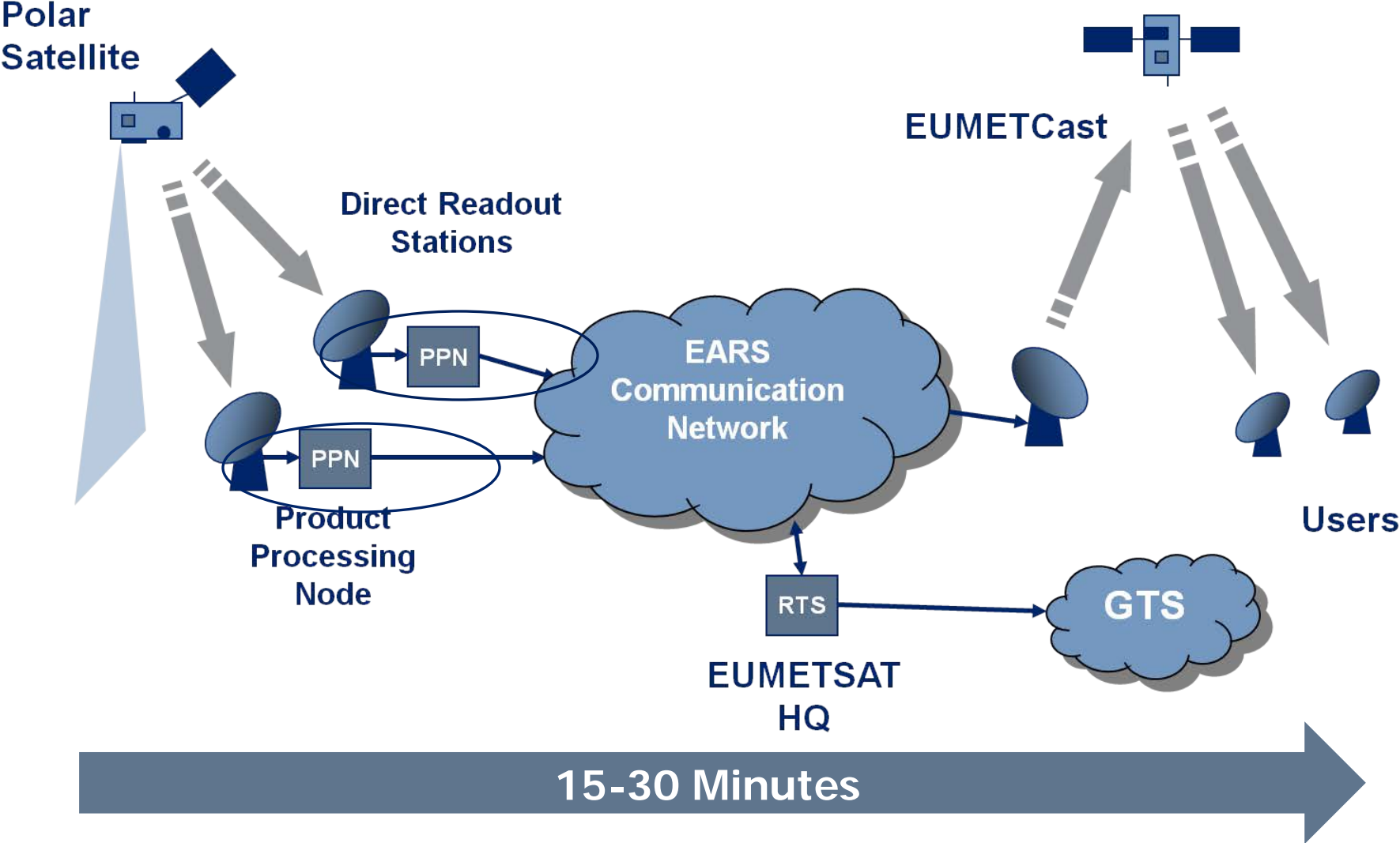
ESTER ROJO



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- EARS overview
- Product Processing Nodes
- CSPP implementation
- ATMS, CrIS, VIIRS processing
- Operational Monitoring

# EARS – System Overview



# Product Processing Nodes

- Inclusion of S-NPP, IASI, NWC → Move from Solaris to Linux in 2012.
- IBM x3690 X5
  - RHEL 6.0, 64 bit
  - 20 cores (2x Intel Xeon e7-4870 @2.4 GHz 10 cores each with 2 threads each)
  - 64 GB RAM

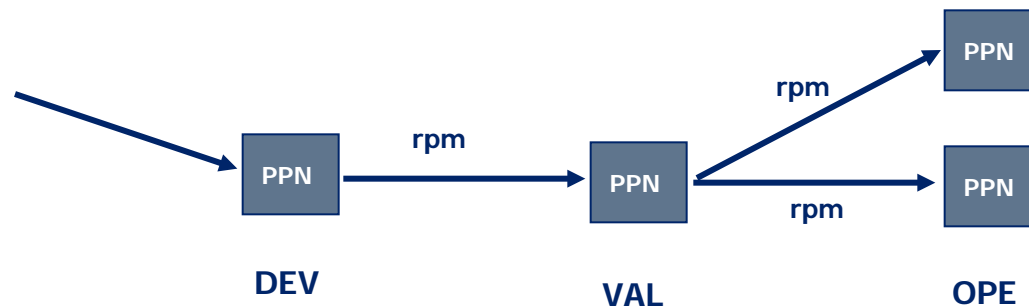


# Product Processing Nodes

- Software running on PPNs:

- CSPP (CIMSS/SSEC)
- RT-STPS (NASA DRL)
- AAPP, OPS-LRS (NWP-SAF)
- PPS (NWC-SAF)
- FY3CL0pp + FY3CL1pp (CMA)
- CVIIRS, EFTS agents, GEMS, CODEM, HRES, KAI (EUMETSAT)

- Installation process:



# Product Processing Nodes

- Important features of SW packages:
  - RHEL compatible
  - Self contained or no particular lib version required
  - Simple, well documented installation and configuration
  - Responsive user support
  - Robust for operational use
  - Efficient resource utilization (RAM, CPU)
  - Processing time (multithread preferred)

# CSPP implementation

- ATMS, CrIS operational since May 2013, VIIRS since October 2014
- Currently running CSPP SDR 2.1
- Installation as per release package, no compilation needed, all scripts unchanged.
- No Internet connection on PPNs: not possible to retrieve ancillary data with scripts provided.

Ftp server set up by CIMSS. Ancillary data automatically retrieved via gateway server at EUMETSAT.

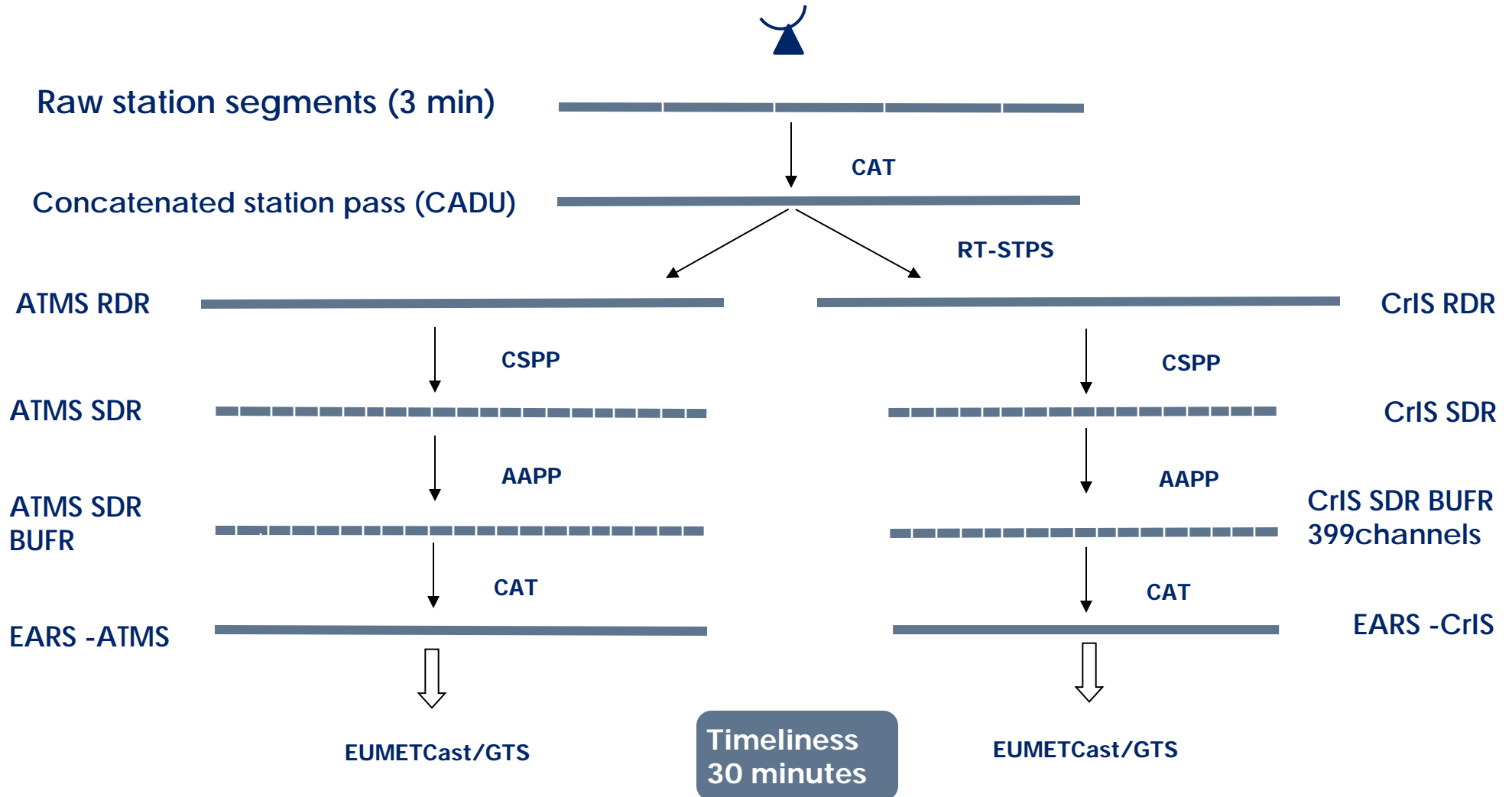
# CSPP implementation

- ATMS/CrIS processing based on full station pass
- VIIRS processing based on 6 minutes segments

	Processing Time	#cores	Required RAM
ATMS (15-20min)	1-2 min	1	16 GB
CrIS (15-20min)	5-6 min	8	16 GB
VIIRS (6 min)	3-4 min	4-6	48-64 GB



# ATMS/CrIS processing



# VIIRS processing

- Original VIIRS SDR HDF5 too large for dissemination (limited bandwidth in EUMETCast)
- New Compact VIIRS SDR format developed (see Stephan Zinke's talk)
- Removal of duplicate granules

# VIIRS SDR Granule Selection



Svalbard



Lannion



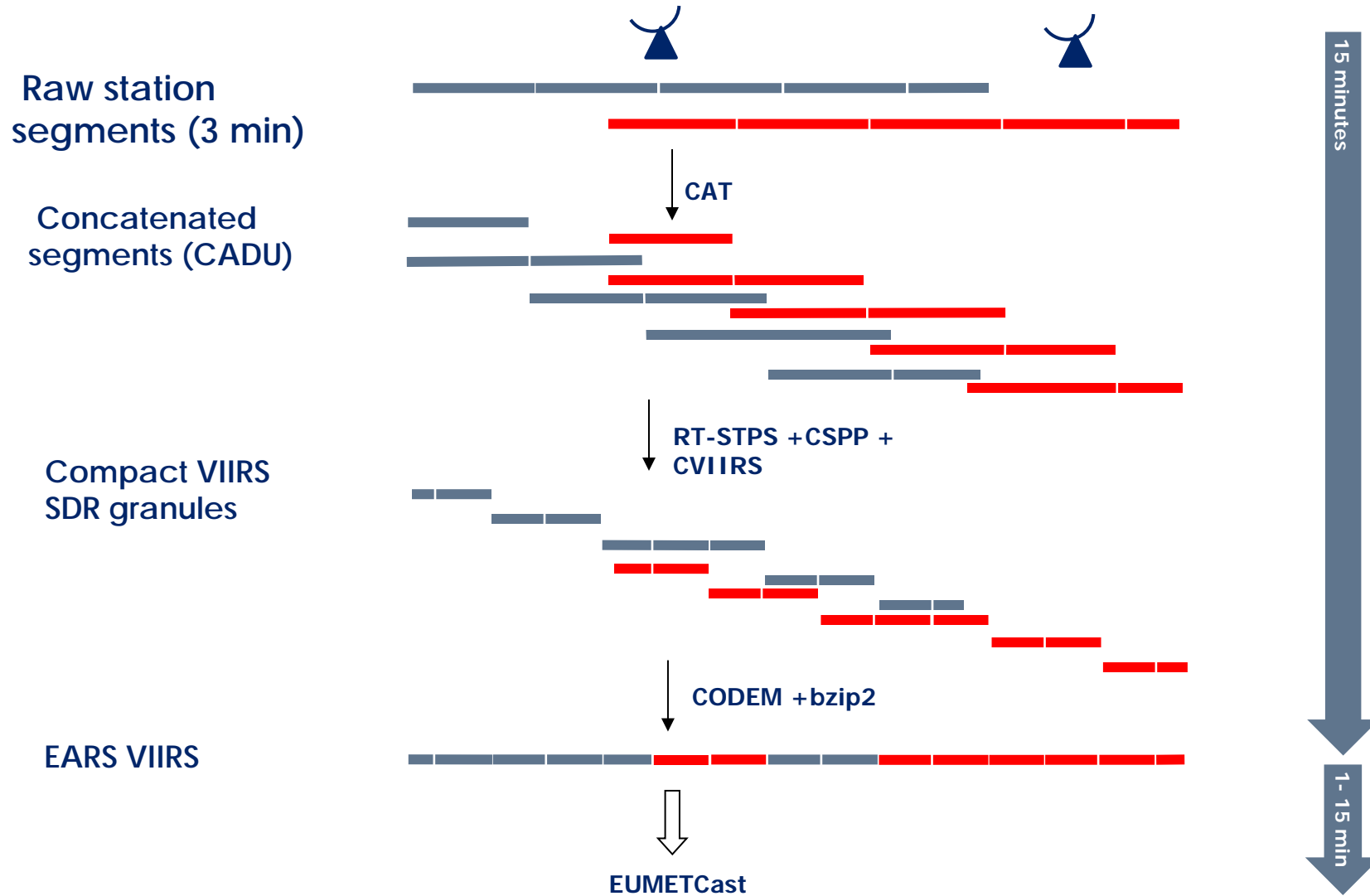
Maspalomas



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EUMETCast  
User Station

# VIIRS processing



# Operational Monitoring

- Monitoring done at EUMETSAT HQ.
- Expectations based on schedule files received from stations.
- Parsing log files to track processing sequence.
- Alarms raised in Control Room when
  - Expectations not met
  - Link outage
  - HW problem
  - SW problem

# GEMS monitoring

GEMS Monitoring - Windows Internet Explorer  
 http://omasif.eumetsat.int/GEMS/

Generic Event Monitoring Software (GEMS) v3.8.1

checked at 15.100.07.18.01  
 Status: ok

last updated at: 15.100.06.53.39.941

	Facility	Sound	Alarms	Filter	Last Event Reception	Real-Time	History
<input type="button" value="Disable"/>	COMMS	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.100.06.02.04.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	DRAPSO	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	14.300.10.04.43.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	DVB_CBAND_AFR	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.100.06.53.27.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	DVB_CBAND_SAM	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.100.06.53.27.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	DVB_EUR_UPLINK	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.009.11.04.14.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	DVB_KUBAND	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.100.06.53.27.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	DVB_KUBAND_S	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.007.07.07.01.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	<b>EARS</b>	<input type="button" value="Sound=ON"/>	<b>1</b>	<input type="button" value="Filter"/>	<b>15.100.06.52.57.000</b>	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	EDS_TPDS_OPE_FBUS	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.100.06.29.50.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>
<input type="button" value="Disable"/>	EDS_TPDS_OPE_GNAS	<input type="button" value="Sound=ON"/>	0	<input type="button" value="Filter"/>	15.100.04.21.03.000	<input type="button" value="Real-Time"/>	<input type="button" value="History"/>

Local intranet | Protected Mode: Off

EARS Real-Time Events - Windows Internet Explorer

Timestamp - Host - Process      Event last updated at: 15.100.07.16.55.857

15.100.05.47.31.767 atdar04  
 SmartServer-ears      Service [EARS], activity [2015-100-03:57:12], total alert duration [20h13m06s], The last FDES pass of IASI service has not been received at the node.

1 pending alarm(s)      Display only : 1 event(s)

# SMART monitoring

EARS - Controller IASLATMS,CRIS : Total Duration [24 hours] / End [1 hour from now]									
Start	End	Satellite	Station	pass@node	to EUMETCast	User Station	Timeliness	buftr to EXGATE	
099-10:33:12	099-10:48:44	npp	sva	099-10:49:49	2 of 2	2 of 2	28m23.999s	2 of 2	
099-12:03:32	099-12:15:21	npp	ath	099-12:15:42	2 of 2	2 of 2	22m48.562s	2 of 2	
099-12:07:24	099-12:22:14	npp	lan	099-12:21:32	2 of 2	2 of 2	23m39.002s	2 of 2	
099-12:14:30	099-12:29:35	npp	sva	099-12:30:04	2 of 2	2 of 2	27m11.085s	2 of 2	
099-13:42:19	099-13:57:27	npp	mas	099-13:58:43	2 of 2	2 of 2	26m15.573s	2 of 2	
099-13:47:35	099-14:02:33	npp	lan	099-14:01:57	2 of 2	2 of 2	25m23.633s	2 of 2	
099-13:56:43	099-14:10:47	npp	sva	099-14:11:25	2 of 2	2 of 2	25m51.707s	2 of 2	
099-15:23:55	099-15:36:34	npp	mas	099-15:36:55	2 of 2	2 of 2	22m24.184s	2 of 2	
099-15:34:28	099-15:50:02	npp	kan	099-15:51:40	2 of 2	2 of 2	26m44.339s	2 of 2	
099-15:39:48	099-15:52:25	npp	sva	099-15:52:58	2 of 2	2 of 2	20m38.222s	2 of 2	
099-17:23:18	099-17:34:40	npp	sva	099-17:35:24	2 of 2	2 of 2	21m36.912s	2 of 2	
099-19:06:27	099-19:17:42	npp	sva	099-19:18:11	2 of 2	2 of 2	20m31.639s	2 of 2	
099-20:48:50	099-21:01:12	npp	sva	099-21:02:02	2 of 2	2 of 2	21m08.331s	2 of 2	
099-22:30:33	099-22:44:23	npp	sva	099-22:44:48	2 of 2	2 of 2	24m49.042s	2 of 2	
099-22:44:22	099-22:54:50	npp	ath	099-22:54:56	2 of 2	2 of 2	16m30.825s	2 of 2	
100-00:11:48	100-00:26:46	npp	sva	100-00:27:20	2 of 2	2 of 2	27m07.402s	2 of 2	
100-00:21:55	100-00:33:36	npp	lan	100-00:32:53	2 of 2	2 of 2	17m23.425s	2 of 2	
100-00:24:59	100-00:37:32	npp	ath	100-00:37:48	2 of 2	2 of 2	21m09.822s	2 of 2	
100-01:52:43	100-02:08:13	npp	sva	100-02:08:48	2 of 2	2 of 2	27m19.999s	2 of 2	
100-01:58:19	100-02:07:05	npp	kan	100-02:07:27	2 of 2	2 of 2	12m51.947s	2 of 2	
100-02:01:14	100-02:16:43	npp	lan	100-02:16:17	2 of 2	2 of 2	22m44.043s	2 of 2	
100-02:07:48	100-02:22:43	npp	mas	100-02:23:47	2 of 2	2 of 2	24m20.091s	2 of 2	
100-03:33:19	100-03:48:53	npp	sva	100-03:50:06	2 of 2	2 of 2	26m00.613s	2 of 2	
100-03:38:35	100-03:52:13	npp	kan	100-03:53:11	2 of 2	2 of 2	22m40.629s	2 of 2	
100-03:41:53	100-03:55:34	npp	lan	100-03:55:00	2 of 2	2 of 2	21m56.649s	2 of 2	
100-03:48:26	100-04:01:54	npp	mas	100-04:02:19	2 of 2	2 of 2	22m32.694s	2 of 2	
100-05:13:37	100-05:29:04	npp	sva	100-05:29:55	2 of 2	2 of 2	26m07.897s	2 of 2	
100-05:19:08	100-05:34:34	npp	kan	100-05:35:56	2 of 2	2 of 2	24m53.254s	2 of 2	
100-06:53:42	100-07:09:08	npp	sva		0 of 2	0 of 2		0 of 2	

EARS - Controller VIIRS : Total Duration [24 hours] / End [1 hour from now]									
Start	End	Satellite	Stations	Duration	Segments	To EUMETCast	User Station	Timeliness	
099-08:51:52	099-09:08:56	npp	sva	00:17:04	12 of 12	12 of 12	11 of 12	17m39.978s	
099-10:22:54	099-10:49:56	npp	ath-lan-sva	00:27:01	18 of 18	18 of 18	18 of 18	18m28.763s	
099-12:02:29	099-12:30:56	npp	ath-lan-sva	00:28:27	18 of 18	18 of 18	18 of 18	18m27.517s	
099-13:42:03	099-14:11:56	npp	mas-lan-sva	00:29:52	20 of 20	20 of 20	20 of 20	18m41.452s	
099-15:23:03	099-15:52:51	npp	mas-kan-sva	00:29:52	21 of 21	21 of 21	21 of 21	21m16.066s	
099-17:22:33	099-17:35:21	npp	sva	00:12:48	9 of 9	9 of 9	9 of 9	15m51.646s	
099-19:06:23	099-19:17:46	npp	sva	00:11:22	8 of 8	8 of 8	8 of 8	15m28.626s	
099-20:48:48	099-21:01:36	npp	sva	00:12:48	9 of 9	9 of 9	9 of 9	14m59.824s	
099-22:29:48	099-22:55:24	npp	sva-ath	00:25:36	17 of 17	17 of 17	17 of 17	17m08.082s	
100-00:10:48	100-00:37:50	npp	sva-lan-ath	00:27:01	18 of 18	18 of 18	18 of 18	17m20.231s	
100-01:51:48	100-02:23:06	npp	sva-kan-lan-mas	00:31:17	22 of 22	22 of 22	22 of 22	17m49.589s	
100-03:32:48	100-04:02:40	npp	sva-kan-lan-mas	00:29:52	21 of 21	21 of 21	21 of 21	18m10.222s	
100-05:12:22	100-05:35:08	npp	sva-kan	00:22:45	14 of 14	14 of 14	14 of 14	15m47.062s	
100-06:53:22	100-07:10:26	npp	sva	00:17:04	0 of 8	0 of 8	0 of 8		

# Central Operations Report

- The Central Operations Reports are issued half-yearly. They provide summary performance information about the main operational data services we provide to the user community.

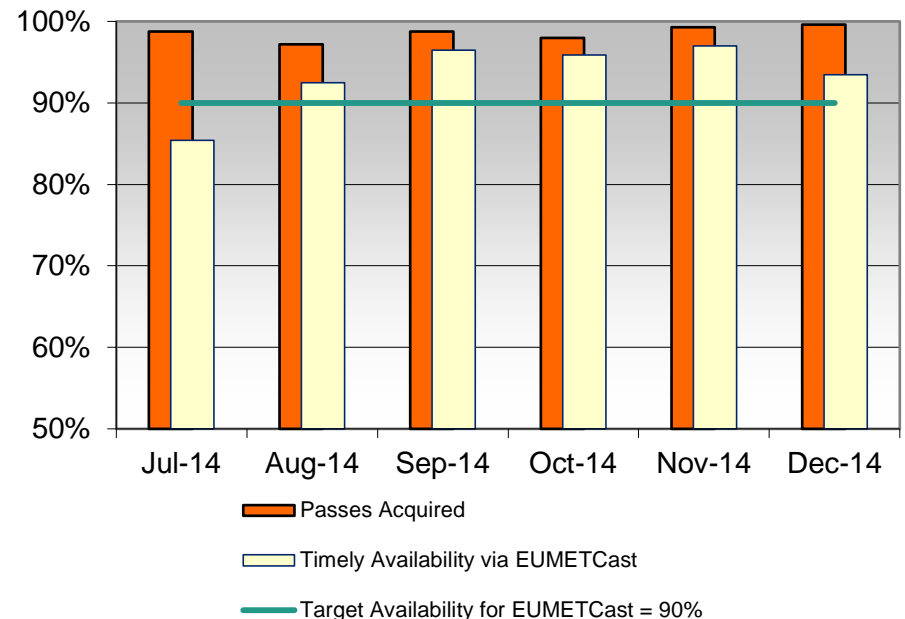
## Regional Data Service → EARS-ATMS

This service provides SDRs derived from the data produced by the ATMS (Advanced Technology Microwave Sounder) instrument onboard NASA-NOAA's Suomi NPP satellite.

Availability shown on the chart is that of the BUFR-formatted SDRs received by users (relative to scheduled passes).

### Events which impacted availability:

**July :** The added VIIRS dataflow (reported in the previous issue) continued to impact the timeliness of ATMS data until the problem was resolved in July by improved network load-balancing.





Questions?