

**3rd Coordination Meeting  
(DBNet)  
22th – 25th, Oct / 2018  
(Meteo-France / Saint Mandé)**

**INPE/INMET**

**Brazilian Institute for Space Research  
National Institute of Meteorology**

**Sérgio de Paula Pereira (INPE)**

# Receiving Sites in Brazil

- - Cachoeira Paulista (INPE)
- - Cuiabá (INPE)

(above stations fully operational for NOAA-18; NOAA-19; METOpB, and S-NPP. NOAA-20 being tested.

- - Brasília (INMET)  
fully operational for NOAA-18; NOAA-19; and METOpB,
- - Natal (INPE) – Waiting for funds to replace old Station  
There is one DARTCOM Station available (standing-by)
- - Fortaleza (Funceme) – suspended
- - **(SIVAM) – Agreement and Working Plan being signed**

# INPE STATIONS UPGRADE

- **Cuiaba:**

- 1(one) New X-BAND System (2016) 1.5m Antenna
- 1(one) New L-Band System (2016) 1.5m Antenna
- 1(one) (current) L-Band System (2012) 1.5m Antenna

- **Cachoeira Paulista:**

- 1(one) New X-BAND System (2016) – 1.5m Antenna
- 1(one) New L-Band System (2016) - 1.5m Antenna
- 1(one) Old L-Band System 1.8m Antenna (2004)
- 1(one) L-Band System (2012) 1.5 Antenna  
(this Station has been shut-off, planned to be moved to NATAL)

<b>HRPT Stations</b>	<b>Operational since:</b>	<b>Expected/ planned start-up</b>	<b>Satellite</b>
INPE - Cach. Paulista	2006		NOAA – METOp – S-NPP
INPE – Cuiabá	Sept – 2007		NOAA – METOp – S-NPP
INMET - Brasília	Oct – 2007	.....	NOAA – METOp
SIVAM – Belém.....	TBC.....	Nov-2018	NOAA – METOp
SIVAM – Porto Velho...	TBC.....	Nov-2018	NOAA – METOp
SIVAM – Manaus...	.....	.....	..... <b>Out of Service</b>
INPE - (Natal)	.....	.....	..... <b>Out of Service</b>
INPE - Boa Vista .....	.....	<b>suspended</b>	
FUNCEME – Fortaleza	.....	<b>suspended</b>	

# TIMELINESS ()

- **Level-1c BUFR files** generated by INPE/Cachoeira Paulista Proc.Center (data coming from INPE-Cuiaba, INMET-Brasilia and CPTEC-Cachoeira Paulista). Data being placed on GTS within “timeliness”:

## From Cach. Paulista:

ATOVS most within 23 min

IASI, ATMS and Chris most within 30 min

## From Cuiaba:

ATOVS most within 25 min

IASI, ATMS and Chris most within 30 min

## From INMET:

ATOVS most within 20 min

IASI, most within 28 min

# AAPP VERSION

- Cuiaba - INPE: version 7.15
- Cachoeira Paulista INPE: version 7.15  
Virtual environment (testing 8.2)
- Brasilia-INMET: 7.15

# Moving to Virtual Environment

- Moving all DBNet processing systems into Virtual Environment

**Great effort.....** aiming improvement of efficiency in management, support and use of resources and, hopefully, performance.  
(all computers in rack mounting units)

## Servers ( Testing AAPP and OPS-LRS Softwares)

Physical server ( called CAJARY)

Virtual machine (VM) called ITAJAI

Table 01 - Test environment servers

Servers	Cores	RAM (GB)	Storage	Aggregate	OPS-LRS (Threads)	Priority Xen vCPU
Physical Server	48 (4 CPU)	148	Local Disk	-	8	-
VM - Version 1	4 (2 cores per socket)	4	NFS 1GB	FSAS	4	Normal
VM - Version 2	8 (4 cores per socket)	8	NFS 1GB	SAS	4	Normal
VM - Version 3	8 (4 cores per socket)	8	NFS 1GB	SAS	8	Normal
VM - Version 4	8 (4 cores per socket)	8	NFS 1GB	SAS	8	High
VM - Version 5	8 (4 cores per socket)	8	SAN 2GB	SAS	8	High

The physical server uses AMD Opteron(tm) Processor 6344 and the virtual machines uses Xen Server Intel(R) Xeon(R) CPU E5-2660 0 @ 2.20GHz - Dom0 - 16 CPU



In average, the best achieved Virtual Machine performance remained about 7% below the physical hardware (CAJARY).

Test performance AAPP process between physical and virtual machines

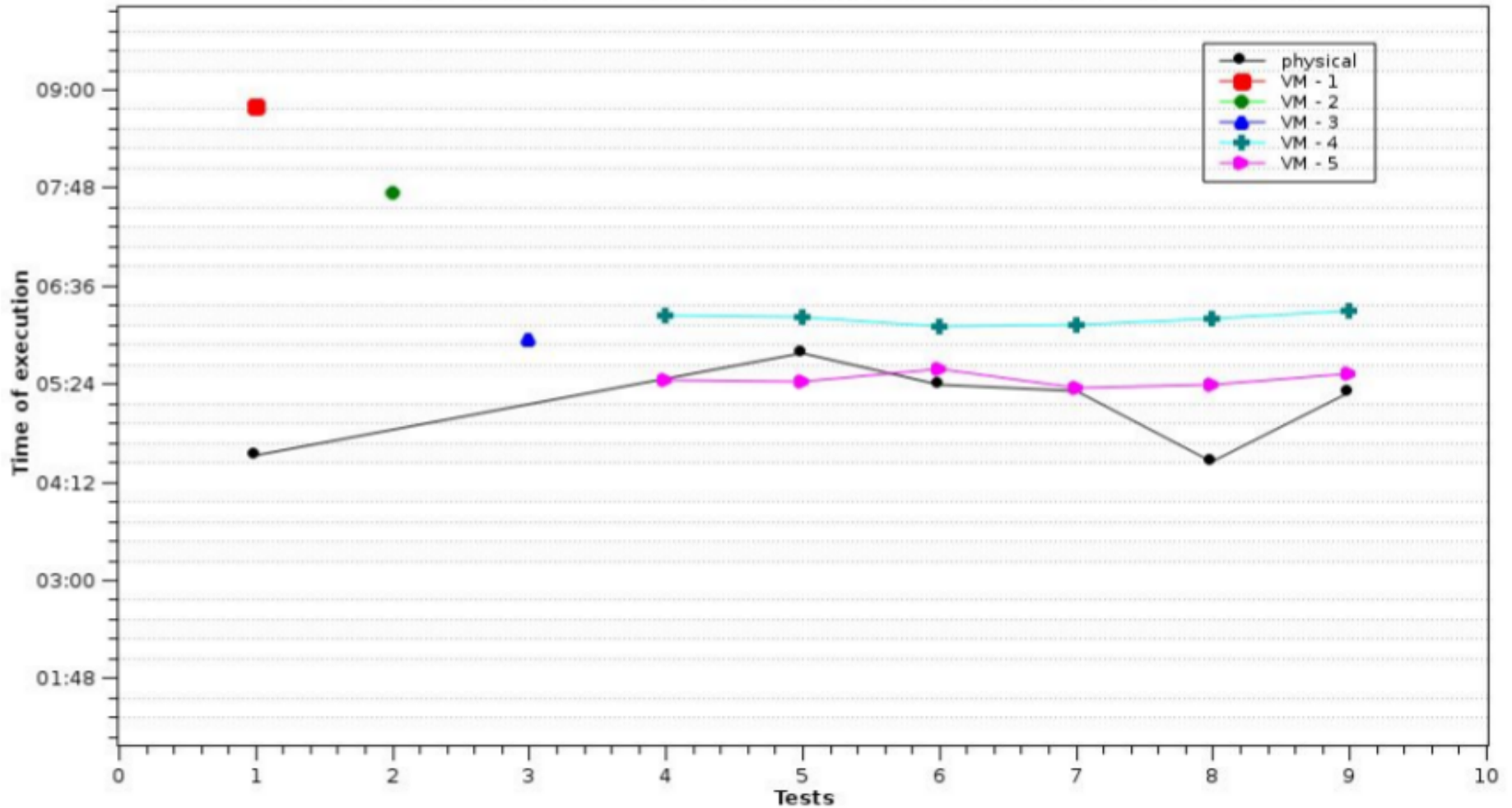


Figure 01 - Tests performance AAPP

# Insertion of SIVAM Stations in DBNet

- PORTO VELHO and BELEM STATIONS
- Initial test results:

Pass of 28-sept-2018 12:02:37z (Belém Station)

***AHRPT: 267 Megabytes***

***EPS-L0 HKTM, AVHRR and IASI: 162 Megabytes***

***Pass duration: 10m 07s***

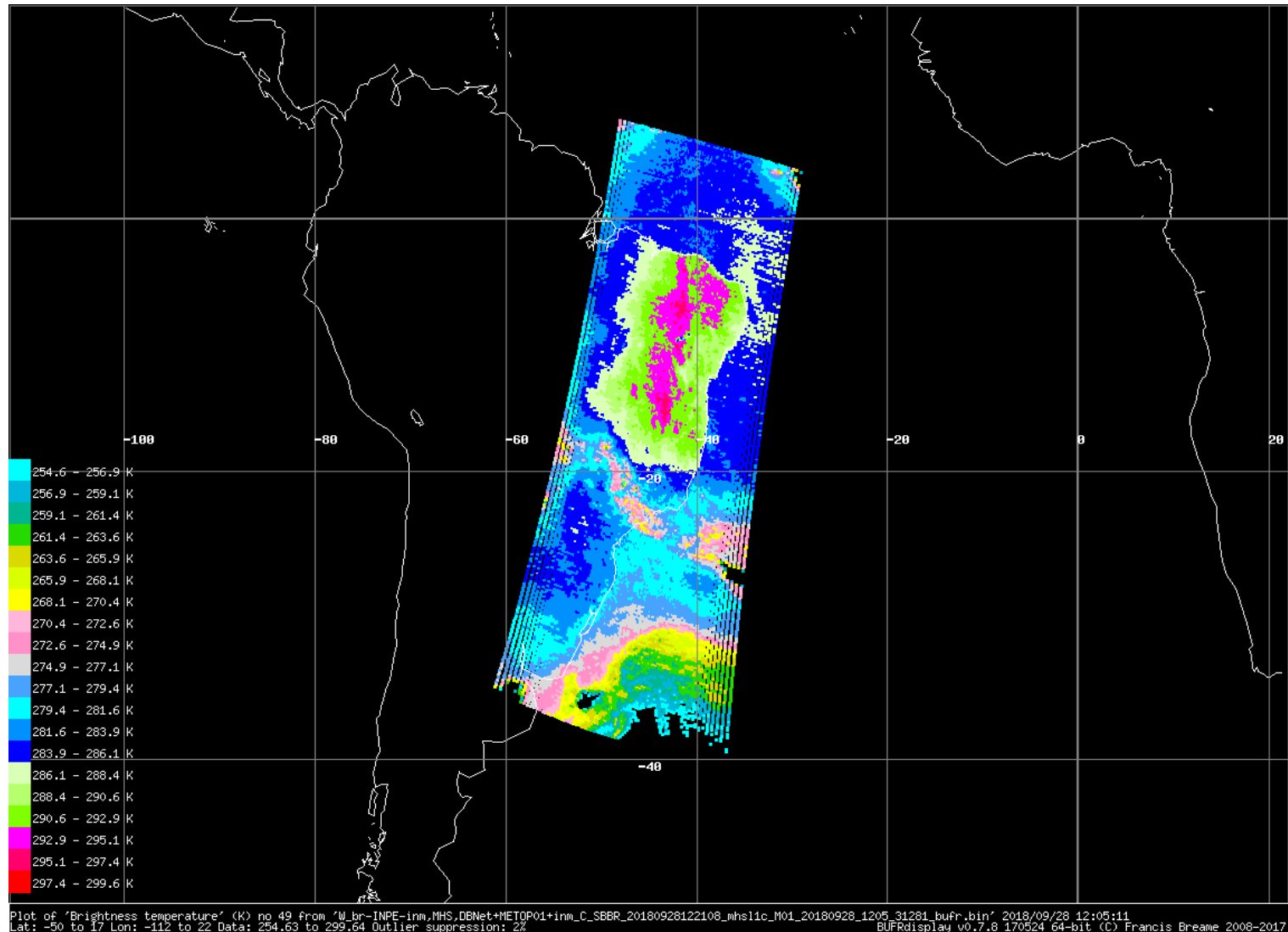
Process. time: AHRPT to EPS-L0: 1min 40sec

Process. Time: ***EPS-L0 to Bufr (W\_br...): 07 min 11sec***

*(virtual environment)*

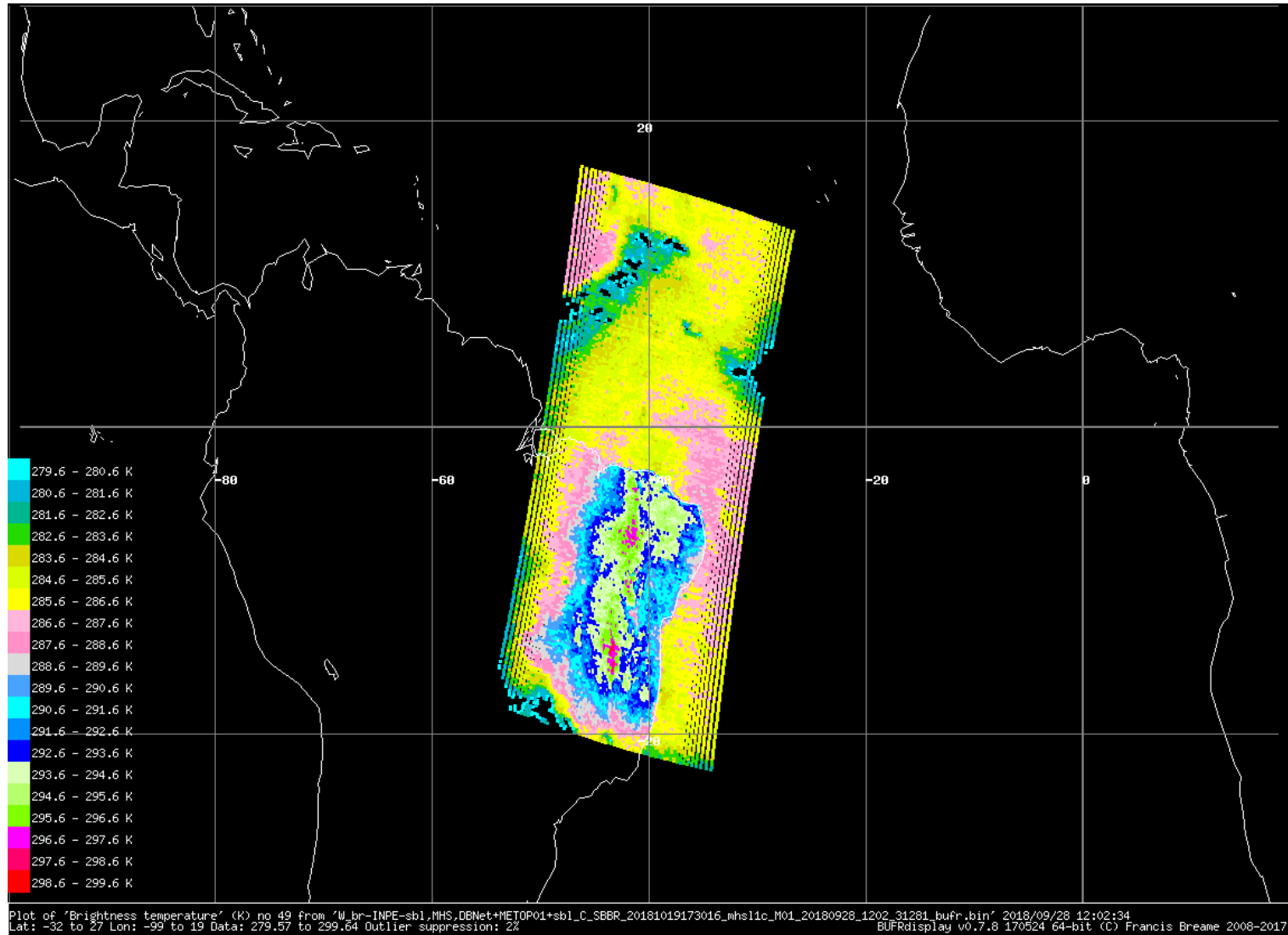
# Coverage of the NOAA and METOP satellites for the new sub-centre Belém-PA

METOPB-ATOVS from INM sub-centre (INMET Brasília-DF) for coverage comparison



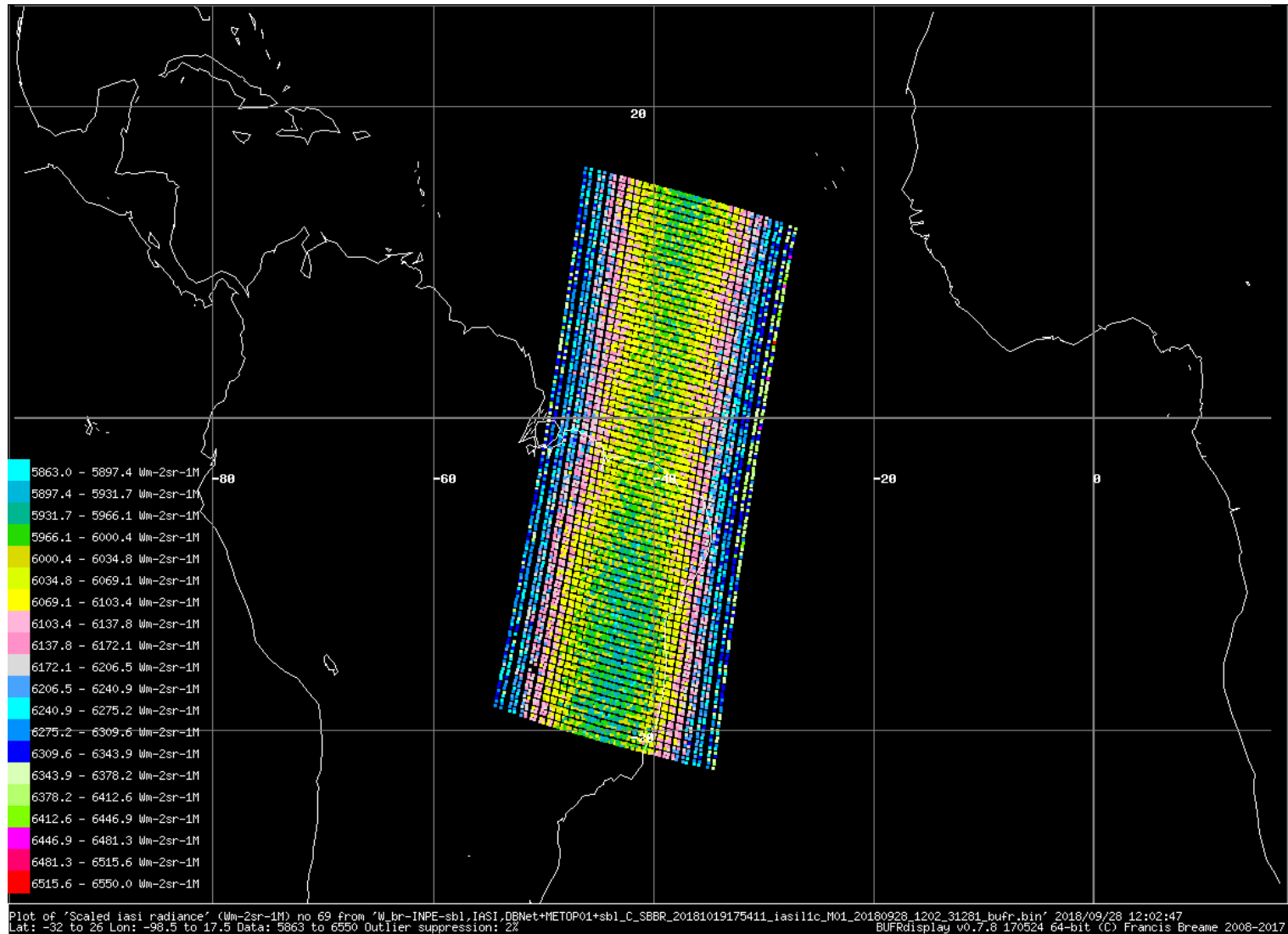
METOPB-MHS, ch2, 20180928\_1205 UTC – Subcentro INM (INMET)

# METOPB-ATOVS from SBL sub-centre (SIPAM/CR Belém-PA)



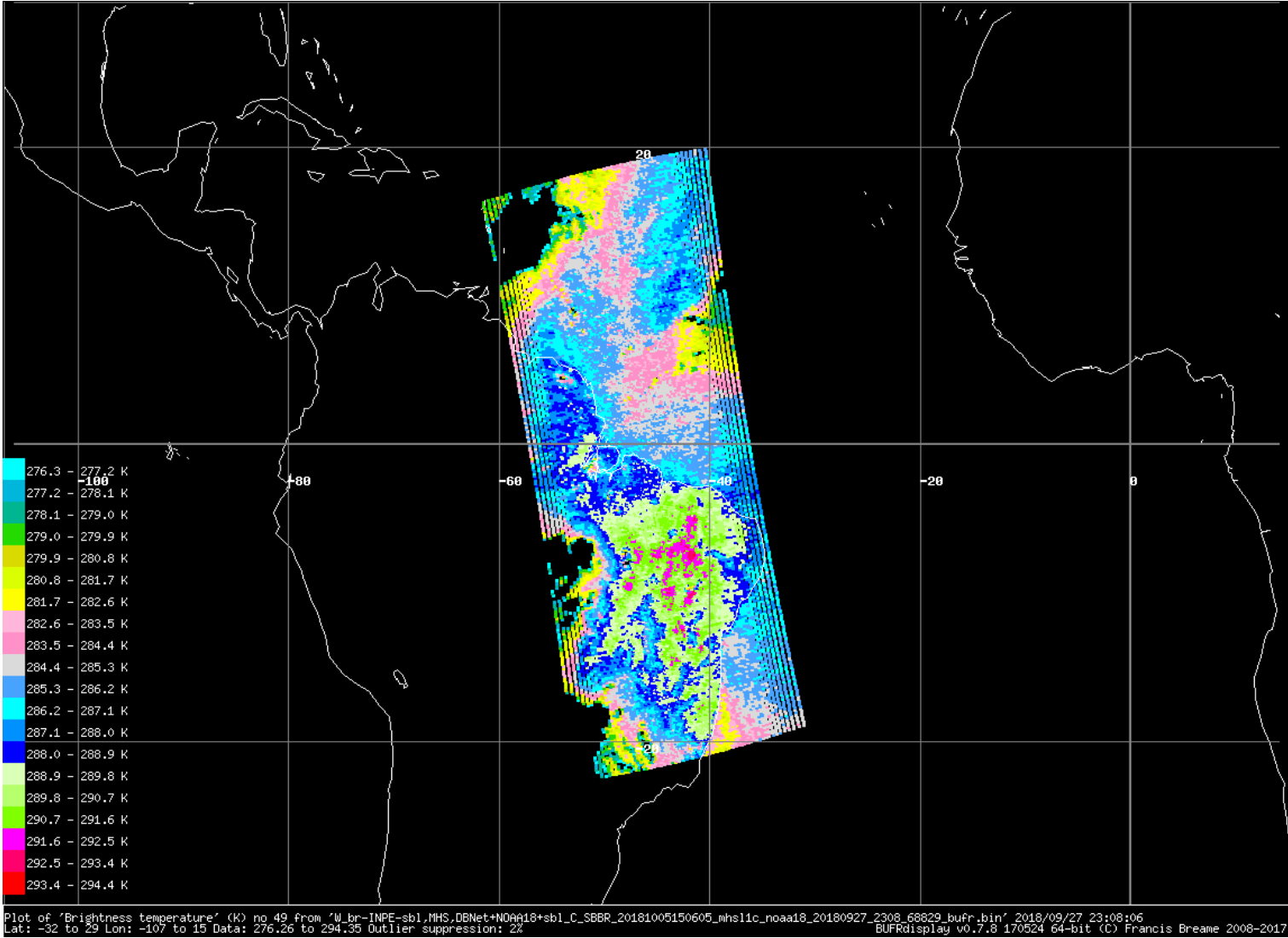
METOPB-MHS, ch2, 20180928\_1202 UTC – SBL sub-centre (SIVAM-Belém)

# METOPB-IASI from SBL sub-centre (SIVAM/ Belém)



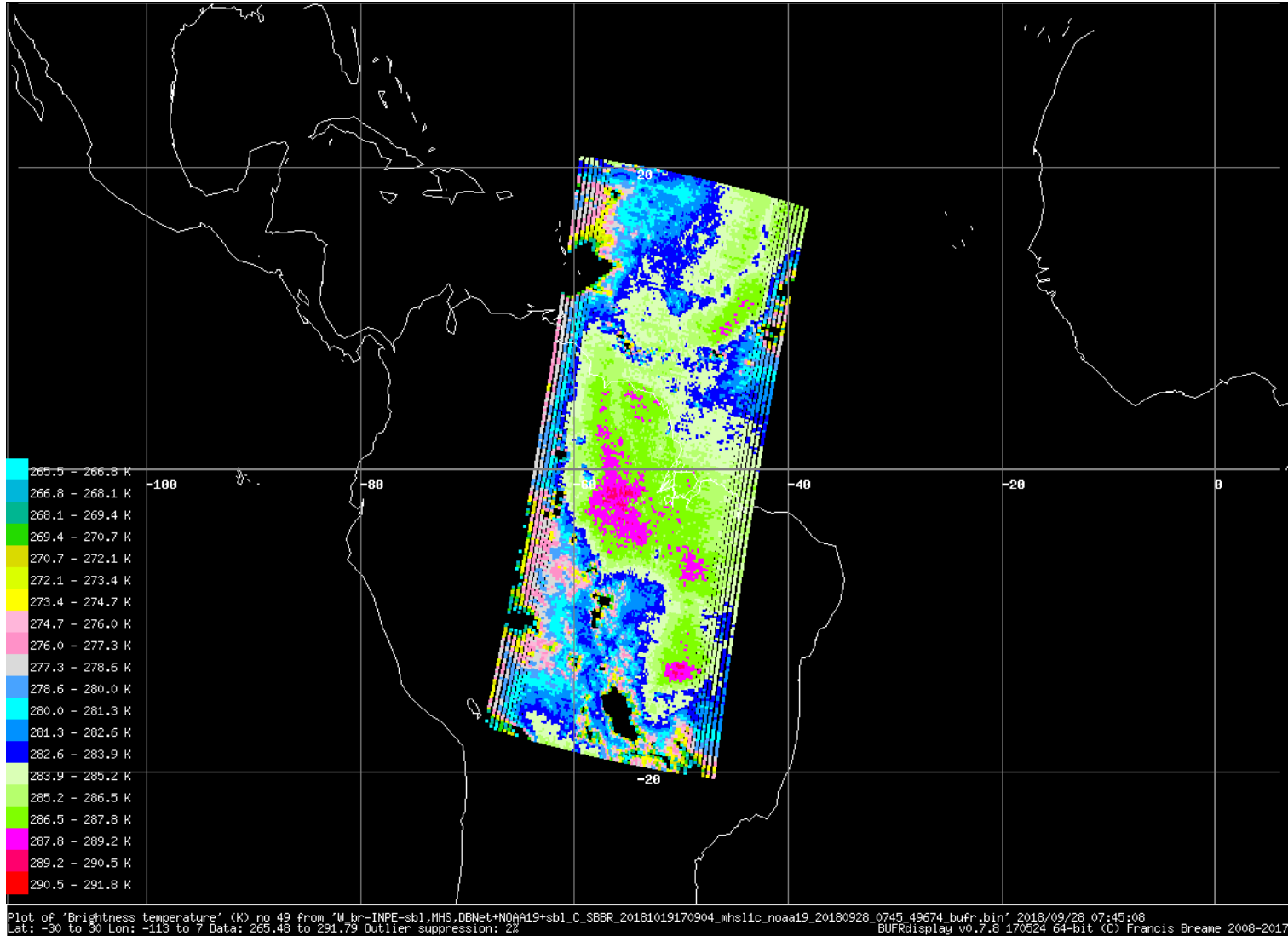
METOPB-IASI, ch16, 20180928\_1202 UTC – SBL sub-centre (SIPAM-Belém)

# NOAA18-ATOVS from SBL sub-centre (SIVAM - Belém)



NOAA18-MHS, ch2, 20180927\_2308 UTC – SBL sub-centre (SIVAM-Belém)

# NOAA19-ATOVS from SBL sub-centre (SIVAM - Belém)



NOAA19-MHS, ch2, 20180928\_0745 UTC – SBL sub-centre (SIVAM-Belém)

# Proposal for Changing Identifiers in BUFR Header for INPE-Brazil

Presently BUFR data is identified only as SBBR (Brasília-DF Centre )

With the addition of new sub-centers, the files returning from the GTS may present ambiguity that preclude their adequate retrieval.

We suggested changing the centre according to the local reception station. Based in WMO table



## Proposal for Changing Identifiers in BUFR header for INPE-Brazil

SBAF	Rio de Janeiro/Afonso, RJ	Brazil
SBAM	Amapa/Amapa, AP	Brazil
SBBH	Belo Horizonte/Pampulha, MG	Brazil

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<b>CCCC</b>	<b>Location Name</b>	<b>Country Name</b>
SBBR	Brasilia/Intl., DF	Brazil
SBCP	Campos/Bartolomeu Lisandro, RJ	Brazil
SBCY	Cuiaba/Ma. Rondon, Mt	Brazil
SBES	Sao Pedro da Aldeia, RJ	Brazil
SBGO	Goiania/Santa Genoveva, GO	Brazil
SBJR	Rio de Janeiro/Jacarepagua, RJ	Brazil
SBME	Macaee, RJ	Brazil
SBMN	Manaus/Ponta Pelada, AM	Brazil
SBPA	Porto Alegre/Salgado Filho, RS	Brazil
SBRF	Recife/Guararapes, PE	Brazil
SBRJ	Rio de Janeiro/Santos Dumont, RJ	Brazil
SBSC	Rio de Janeiro/Santa Cruz, RJ	Brazil
SBSP	Sao Paulo/Congonhas, SP	Brazil
SBUR	Uberaba, MG	Brazil
SBVT	Vitoria/Goiabeira, ES	Brazil

## Suggestion

There are Identifiers in table 03 (CCCC) for substitution:

**SBBR – Brasília/Intl.,DF:** It will be the identification for the INMET-Brasilia Station;

**SBCY – Cuiabá/Ma.Rondon,MT:** SBBR would be replaced by **SBCY** for Cuiabá Station;

**SBSP – São Paulo/Congonhas,SP:** SBBR would be replaced by **SBSP** for Cachoeira Paulista Station

**SBMN – Manaus/Ponta Pelada, AM:** SBBR would be replaced by **SBMN** for SIVAM /MANAUS Station

Identifiers that should be added:

**SBBL – Belém-PA:** for SIVAM – Belém Station ,

**SBPV – Porto Velho-RO:** for SIVAM – Porto Velho Station as SPV sub-centre;

**SBNT – Natal-RN:** for INPE-Natal Station

## Inclusion of new sub-centres

Based on WMO306-CommonTable, the following new sub-centres must be included,

18 – SIVAM – Porto Velho-RO – **sbv** (acronym)

19 – SIVAM – Belém-PA – **sbl** - (acronym)

Table 04 – WMO306 – Common Table

### REGION III

46 Brazilian Space Agency –  
INPE

10 Cachoeira Paulista (INPE)  
11 Cuiaba (INPE)  
12 Brasilia (INMET)  
13 Fortaleza (FUNCEME)  
14 Natal (Navy Hygrog. Centre)  
15 Manaus (SIVAM)  
16 Natal (INPE)  
17 Boa Vista  
25 São Paulo University – USP

# Submission by Sergio Ferreira

## New entries in Common Code Table C-12

*Submitted by Sergio Ferreira (Brazil)*

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### Summary and Purpose of Document

This document proposes two new entries in Common Code Table C-12 in order to represent new regional units of Amazon Protection System (SIPAM)

WORLD METEOROLOGICAL  
ORGANIZATION  
COMMISSION FOR BASIC  
SYSTEMS

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THIRD MEETING OF  
INTER-PROGRAMME EXPERT  
TEAM ON  
CODES MAINTENANCE

### ACTION PROPOSED

The meeting is requested to approve the contents, for inclusion within the next update to the WMO Manual on Codes.

IPET-CM-III / Doc. x.x (x)  
x. May -2019

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ITEM X.X

ENGLISH ONLY

>>>>THE END

Thanks....