Workshop on Physical Retrieval of Clear Air Parameters from SEVIRI

SAF NWC Requirements

28-29 November 2007

P. Fernández

NWC SAF Introduction

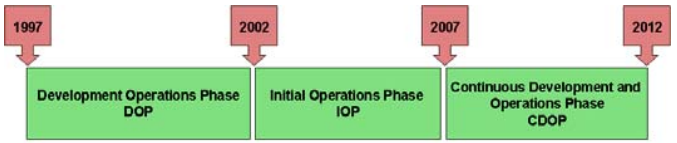
NWC SAF General Objectives:

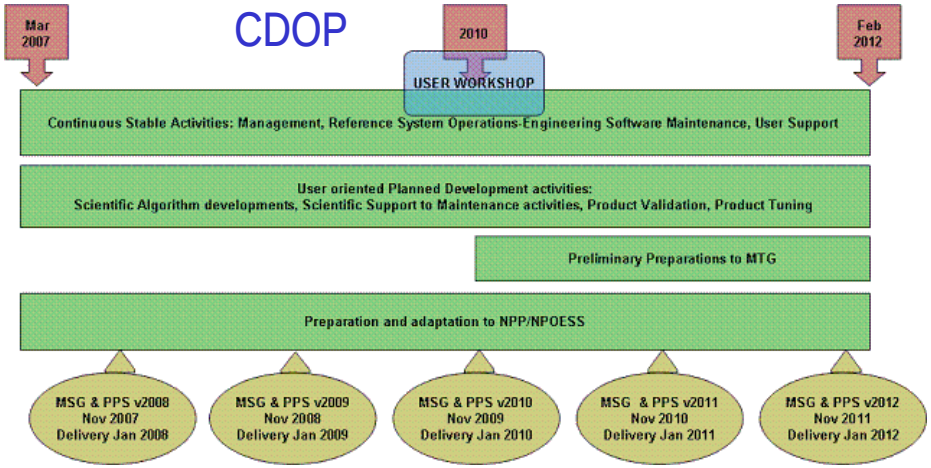
➢ Provide operational services to ensure the optimum use of meteorological satellite data in NoWCasting and Very Short Range Forecasting.

➢ Applicable to MSG and the PPS (NOAA & METOP).

➢ The NWC SAF is responsible for the development and maintenance of appropriate SW Packages, as well as for all related tasks for user's support.

Phases:





➢ After the Development Phase (DOP) , the Initial Operations Phase (IOP) was the transition period for filling the gap between the launch of the MSG-1 geostationary satellite and the launch of the METOP-A polar satellite.

➢ The Continuous Development & Operations Phase (CDOP) is the current phase.

NWC SAF involved organizations:

➢ The NoWCasting SAF belonging to the SAF Network is part of the EUMETSAT Ground Segment.

➢ Under the leadership of the Spanish Meteorological Institute (INM), the SAF NWC is developed by a Project Team involving Météo-France, Swedish and Austrian Meteorological Institutes.

EUMETSAT · INM · METEO FRANCE Toujours un temps d'avance · SMHI · ZAMG

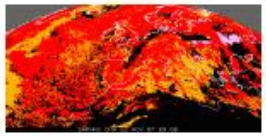
SAF NWC · INM

NWC SAF

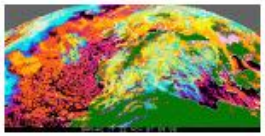
Committed Products

PGE: Product Generation Element

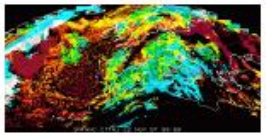
MSG



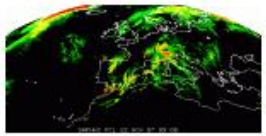
PGE01: CMa (Cloud Mask)



PGE02: CT (Cloud Type)

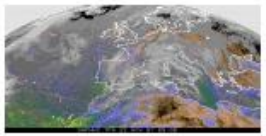


PGE03: CTTH (Cloud Top Temperature and Height)

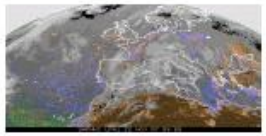


PGE04: PC (Precipitating Clouds)

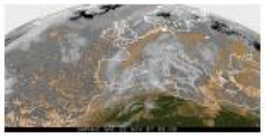
PGE05: CRR (Convective Rainfall Rate)



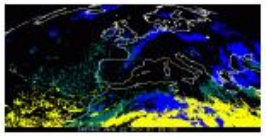
PGE06: TPW (Total Precipitable Water)



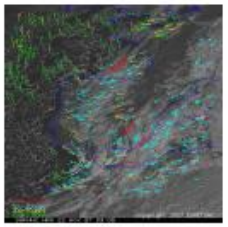
PGE07: LPW (Layer Precipitable Water)



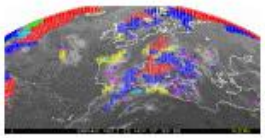
PGE08: SAI (Stability Analysis Imagery)



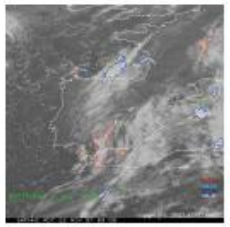
PGE12: AMA (Air Mass Analysis)



PGE09: HRW (High Resolution Winds)

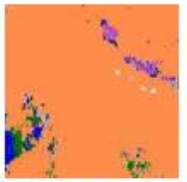


PGE10: ASII (Automatic Satellite Image Interpretation)



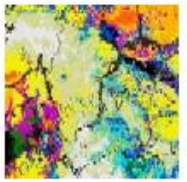
PGE11: RDT (Rapid Developing Thunderstorms)

PPS



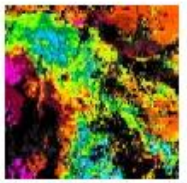
PGE01b: CM (Cloud Mask)

CM AVHRR Examples



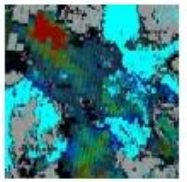
PGE02b: CT (Cloud Type)

CT AVHRR Examples



PGE03b: CTTH (Cloud Top Temperature and High)

CTTH AVHRR Examples



PGE04b: PC (Precipitating Clouds)

PC AVHRR Examples

MSG Product Requirement Table PGE01-02-03-04

PRODUCT	Characteristics and Method	Input Satellite data	Other Input data	Output Format	Spatial Coverage	Generation frequency	Spatial resolution	Accuracy
MSG/PGE01 Cloud Mask (CMa) v1.3	Information on the presence of clouds. Grouped dynamical threshholding technique	MSG/SEVIRI	NWP (not mandatory)	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	Cloud POD (1): > 94.0% Dust flag POD (2): > 35.0% (sea) > 50.0% (Africa) Verification method: (1)SYNOP over Europe (2)Interactive targets over sea and Africa for solar elevation larger than 20 degrees
MSG/PGE02 Cloud Type (CT) v1.3	Major cloud types, fractional clouds, semi-transparency, fog & stratus identification, snow or sea-ice occurrence. Grouped dynamical threshholding technique	MSG/SEVIRI	NWP (not mandatory)	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	POD for low, high opaque and semi-transparent clouds in right class: -low opaque: POD > 85.0% -high opaque: POD > 75.0% -semitransparent high clouds : POD > 80.0% Verification method: Interactive selected targets over European areas and adjacent seas
MSG/PGE03 Cloud Top Temperature and High (CTTH) v1.3	Vertical extension of clouds, cloud top temperature for both opaque and semitransparent clouds according to fit to NWP temp/humidity profile	MSG/SEVIRI	NWP (not mandatory)	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	Opaque clouds: Bias (std) < 500m (1500m) Semi-transparent clouds: Bias (std) < 1500m (1500m) Verification method: Ground based lidar and radar from SIRTA
MSG/PGE04 Precipitating Clouds (PC) v1.3	Statistically based method to estimate precipitation likelihood in three intensity classes	MSG/SEVIRI	NWP mandatory	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	No rain 80% POD rain 70% POD

MSG Product Requirement Table PGE05-06-07-08

PRODUCT	Characteristics and Method	Input Satellite data	Other Input data	Output Format	Spatial Coverage	Generation frequency	Spatial resolution	Accuracy
MSG/PGE05 Convective Rainfall Rate (CRR) v2.0	Precipitation intensities for convective clouds based on multispectral matrix techniques	MSG/SEVIRI	NWP (not mandatory)	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	rms: < 3.5 mm/h rms (root mean square) errors computed: *using INM weather radar products: Echotop, Rainfall Rate from PPI
MSG/PGE06 Total Precipitable Water (TPW) V2.0	Total amount of precipitable water in clear areas.	MSG/SEVIRI	-	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	rms< 5.6 mm Using: *radio-sounding over MSG-N area. *ECMWF analysis profiles over MSG-N area. *IWV GPS over Central Europe
MSG/PGE07 Layer Precipitable Water (LPW) V1.3	Distribution of liquid water and relative humidity per layer in clear air	MSG/SEVIRI	-	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	Low level: rms < 3.1mm Middle level: rms < 3.7mm High level: rms < 0.44 mm Using: * radio-sounding over MSG-N area. * ECMWF analysis profiles over MSG-N area (sea and land separately). * IWV GPS over Central Europe.
MSG/PGE08 Satellite Analysis Imagery (SAI) V1.3	Stability classes in clear air.	MSG/SEVIRI	-	HDF-5	configurable	configurable	SEVIRI IR pixel resolution	Lifted Index rms < 5.6ºC *using radio-sounding over MSG-N area. *using ECMWF analysis profiles over MSG-N area (sea and land separately).

MSG Product Requirement Table PGE09-10-11-12

PRODUCT	Characteristics and Method	Input Satellite data	Other Input data	Output Format	Spatial Coverage	Generation frequency	Spatial resolution	Accuracy
MSG/PGE09 High Resolution Winds (HRW) v2.0	Atmospheric Motion Vectors from HRV data. Tracers calculated through Gradient and Tracer characteristics methods. Tracking made through Euclidean difference and Cross correlation methods.	MSG/SEVIRI	NWP (not mandatory)	BUFR +C4	configurable	configurable	separation between and dimension of tracers configurable	Normalized RMSVD: < 0.44 (High levels) < 0.50 (Medium levels) < 0.56 (Low levels) (25% over optimal accuracy error)
MSG/PGE10 Automatic Satellite Image Interpretation (ASII) V2.0	Cloud images with text and objective attributes overlays. It has a "satellite-only" and a "satellite + NWP" branch	MSG/SEVIRI	NWP (not mandatory)	BUFR	MSG-N	configurable	approx. 70 km	1) "Satellite-only" branch: identifies more systems/details than a forecaster within a reasonable time frame (1 hour) 2) "Satellite + NWP" branch: exhibits clear merits over "satellite only" in case of a good NWP forecast
MSG/PGE11 Rapid Development Thunderstorm (RDT) v1.3	Detection, tracking and discrimination of thunderstorm cloud	MSG/SEVIRI (channel 10.8)	NWP (not mandatory)	HDF-5	configurable	15 minutes	SEVIRI IR pixel resolution	For a POFD=1%, the POD are: a) early stage (before lightning occurrence) 10% b) 30' after lightning occurrence (during development phase): 30 % c) overall detection of convective trajectory 70%
MSG/PGE12 Air Mass Analysis (AMA) v1.3	4 sub-products: air mass classification, objective recognition of dark WV stripe, of equivalent-potential temperature ridges (from NWP), of equivalent-potential temperature gradient zones (from NWP)	MSG/SEVIRI	NWP (not applicable to the WV stripes product)	HDF-5/ BUFR	user-driven (partly fixed to MSG-N; will turn to 'user-driven' from v2008 onwards)	nominally 15 minutes (shall be compatible with Rapid Scan input from v2008 onwards)	pixel-fine / NWP resolution	1) Air mass classification: subjectively acceptable to users 2) Dark stripes: Objectively determined WV stripes match subjective analysis; 3) Objectively determined ridge lines match subjective analysis; 4)Objectively determined Gradient zones match subjective analysis

PPS Product Requirement Table PGE01-02-03-04

PRODUCT	Characteristics and Method	Input Satellite data	Other Input data	Output Format	Spatial Coverage	Generation frequency	Spatial resolution	Accuracy
PPS/PGE01 Cloud Mask (CMa) v2.0	Information on the presence of clouds. Grouped dynamical thresholding technique	AVHRR on METOP and NOAA	NWP (mandatory either forecast, analysis or ERA-40 climatology)	HDF-5	configurable	configurable	pixel resolution	Cloud POD : >95.0% day, 90% night
PPS/PGE02 Cloud Type (CT) v2.0	Major cloud types, fractional clouds, semi-transparency, fog & stratus identification, snow or sea-ice occurrence. Grouped dynamical thresholding technique	AVHRR on METOP and NOAA	NWP (mandatory either forecast, analysis or ERA-40 climatology)	HDF-5	configurable	configurable	pixel resolution	POD for low, high opaque and semi-transparent clouds in right class: -low opaque: POD 70.0% -high opaque: POD > 75.0% -Cs as high, very high or Cirrus: >80%
PPS/PGE03 Cloud Top Temperature and High (CTTH) v2.0	Vertical extension of clouds, cloud top temperature for both opaque and semitransparent clouds according to fit to NWP temp/humidity profile	AVHRR on METOP and NOAA	NWP (mandatory either forecast, analysis or ERA-40 climatology)	HDF-5	configurable	configurable	pixel resolution	Opaque clouds: bias < 1000m std < 2000m Semi-transparent clouds: bias < 2000m std < 2000m
PPS/PGE04 Precipitating Clouds (PC) v2.0	Statistically based method to estimate precipitation likelihood in three intensity classes	AVHRR/ AMSU/ MHS on METOP and NOAA	NWP (mandatory either forecast, analysis or ERA-40 climatology)	HDF-5	configurable	configurable	pixel resolution	norain: 70%POD; light rain as rain:50%POD; moderate and heavy rain as rain: 60%POD

NWC SAF SW Delivery Process

The NoWCasting SAF is devoted to the distribution of the SAFNWC/MSG and SAFNWC/PPS software packages to targeted external users. Therefore, the products will be produced by each SAFNWC User on a local basis, running the software packages delivered and supported by the NoWCasting SAF.

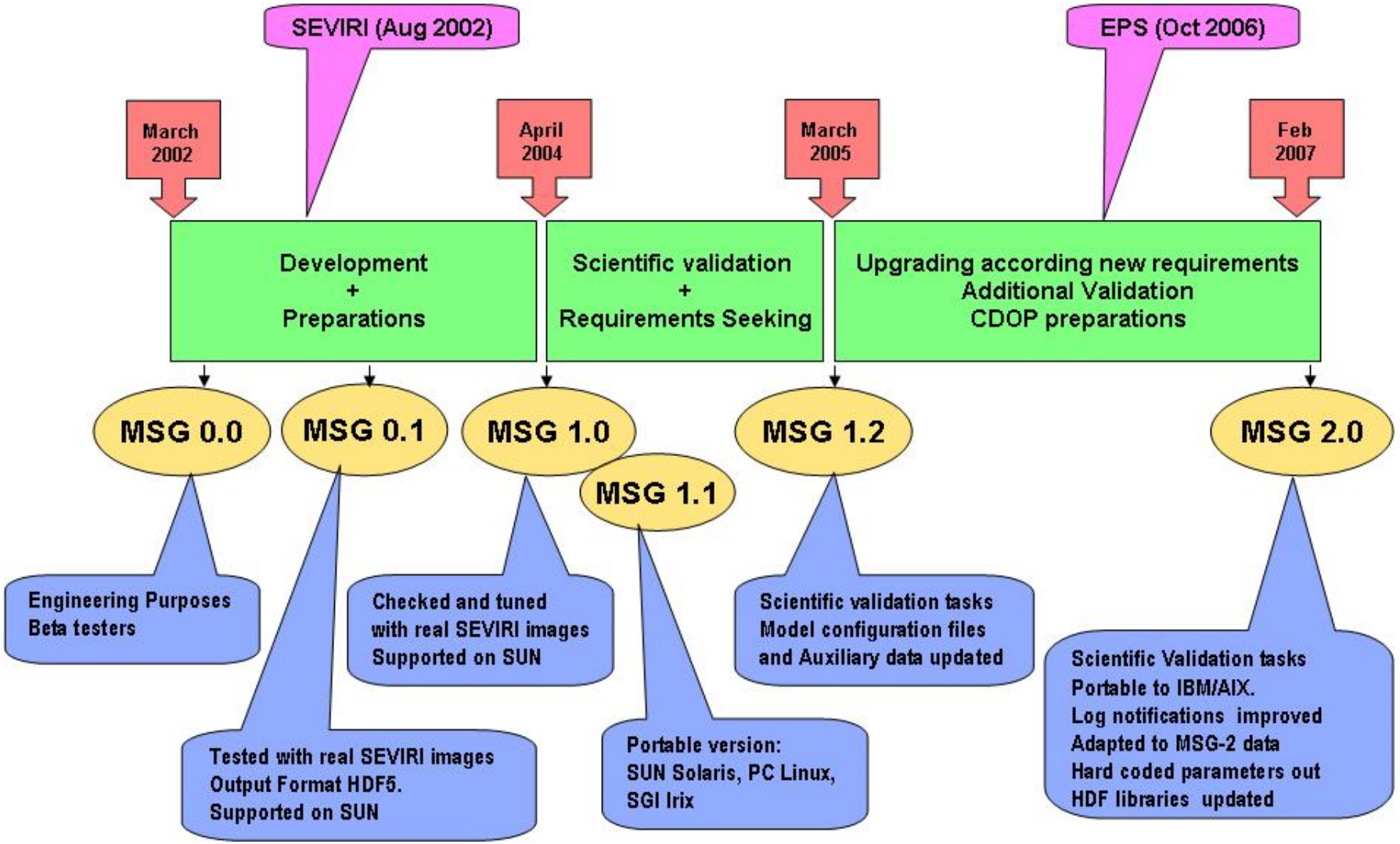
➢ The SW delivery, upgraded versions, SW patches and related documentation shall be delivered:

- By means of a devoted functionality of the Help Desk or, alternatively at user choice,
- By the INM FTP dedicated server.

➢ Delivery shall include the whole Software package consisting of the scientific software modules (Product Generation Elements, PGEs) and the associated libraries.

➢ The Upgraded Software packages shall be distributed to the SAF NWC Users' Group on a timely manner. Information on updates distribution shall be provided via e-mail.

NWC SAF MSG Deliveries during IOP



NWC SAF SW Delivery to users
http://nwcsaf.inm.es

SAFNWC/MSG v2.0

Author	Date	Title & size	Coordinator	Download
LE	20/03/2007	SAFNWC / MSG v2.0 application (558 MB)	INM	
LE	20/03/2007	SAFNWC / MSG v2.0 test examples (824 MB)	INM	
LE	20/03/2007	SAFNWC / MSG v2.0 documentation (68 MB)	INM	
LE	02/04/2007	SAFNWC/MSG v2.0 configuration for MSG-2 (21 KB)	INM	
LE	02/04/2007	PGE01 and PGE03 MSG-2 configuration files Installation Instructions (9 KB)	INM	
LE	07/06/2007	Patch for PGE05 (27 KB)	INM	

The current package and MSG-2 patch can also be downloaded from our FTP server following the next instructions:

ftp ftp.inm.es
User: sug
Password: s4fnwc

in the directory:

safnwc/MSG/safnwc_v2.0

- Currently we support 55 NWC SAF users.
- Credentials to access to the Help Desk are assigned to each user after the License Agreement signed.
- When a delivery is ready, users are informed by mail.

NWC SAF User Support: Help Desk http://nwcsaf.inm.es

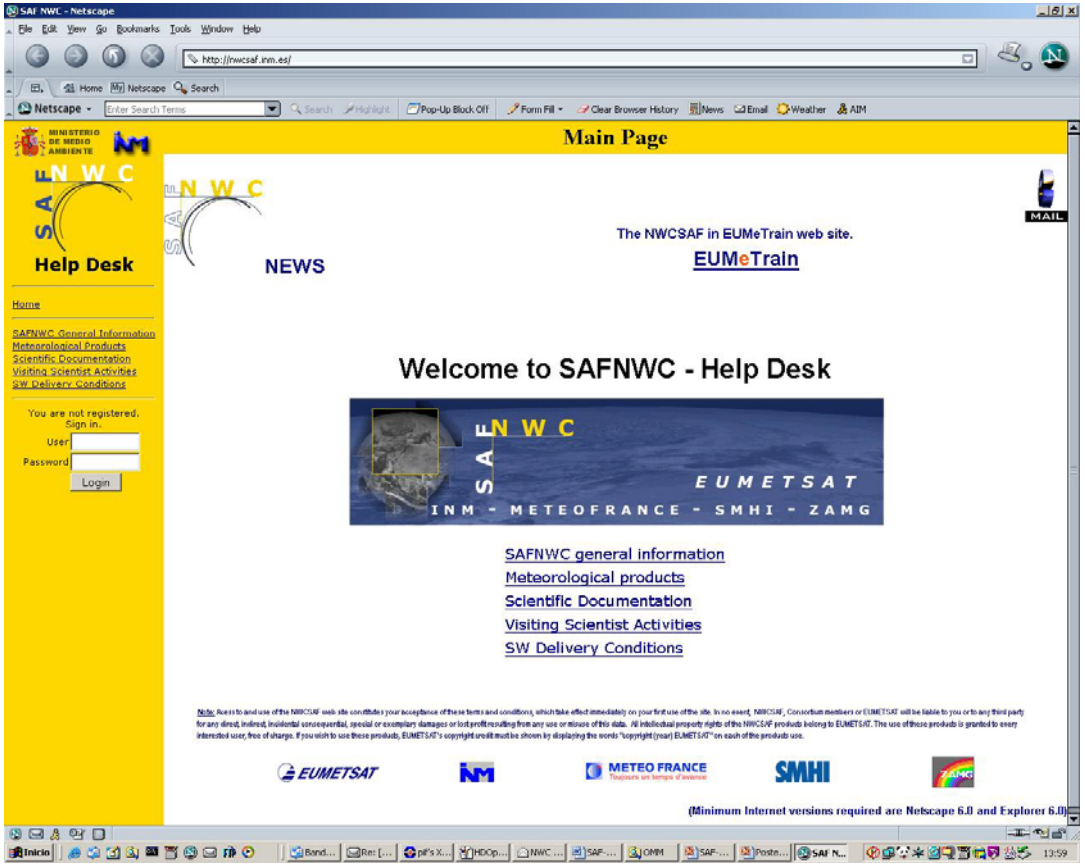
- The Help Desk restricted area of the NWC SAF web site cats as the single entry point for the users' interface.

- The SAFNWC Users' Group will gain access by means of a password.

The Help Desk intends:

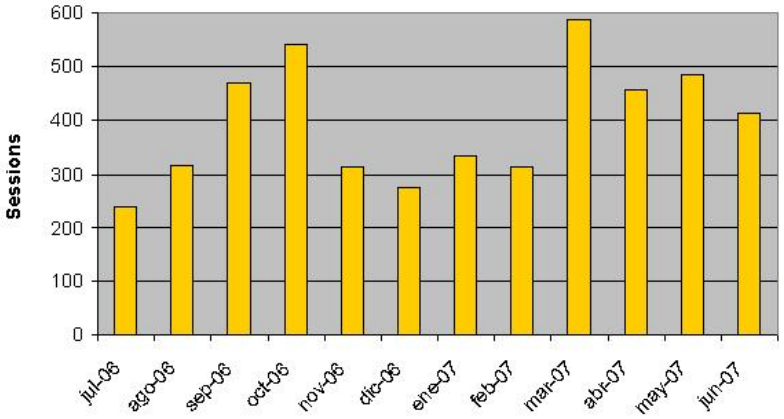
- to provide information and services to SAFNWC User Community (SAFNWC Users' Group)

- to support the feedback from users to improve the SAFNWC services.

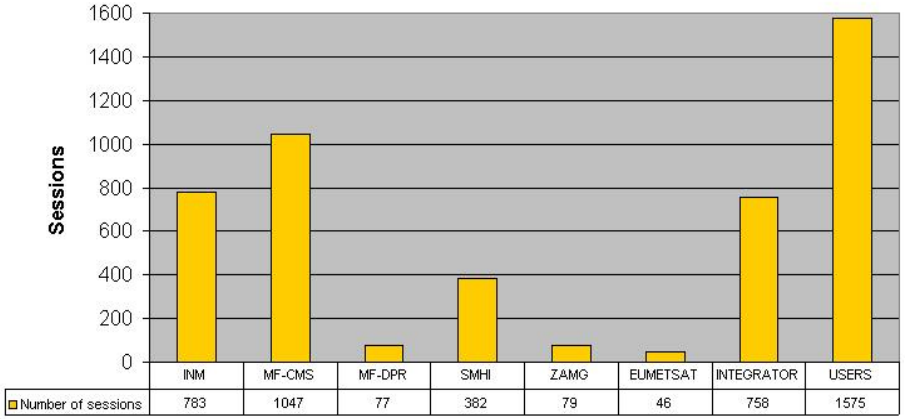


NWC SAF User Support
Help Desk Access Statistics 2007/H1

Total number of sessions per month on the SAFNWC website (July 2006-June 2007)



Total number of sessions per group on the SAFNWC website (July 2006-June 2007)



Authorised users and Consortium access to the Restricted Area which provide the following services:

- NWC SAF News
- Mail Box- Frequent Asked Questions
- SW Packages & Patches- Log of changes
- Software Problem Reports – Software Modification Reports
- Documentation
- Reference System Outputs

NWC SAF SW User Support
http://nwcsaf.inm.es

Mail Box

Find a mail

sender	date			subject	body

pack.	item	type	ref. to:	status	
					Find

Also used as FAQ tool

Mail-Box

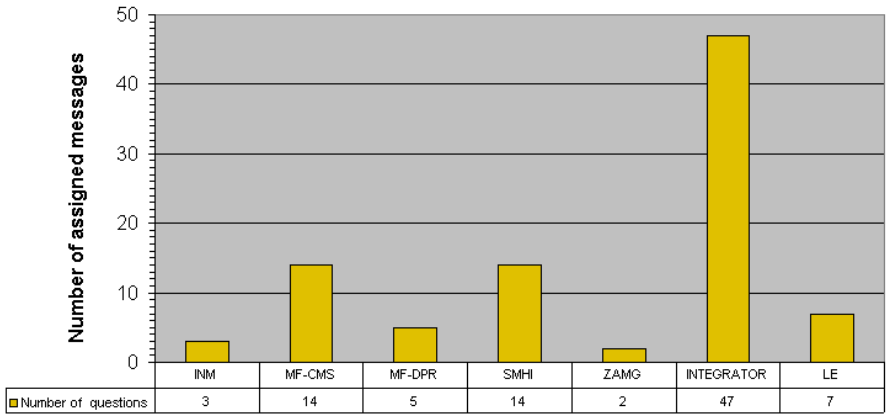
sender	date	subject	pack	item	type	ref. to:	status
btioa	09/11/2007 13:33	Problems installing SAFNWCv2.0 on Linux Fedora Core 6	MSG	SYSTEM	QUESTION	SW	Answered
pstms	06/11/2007 11:09	PPS IMAGES ARE SOMETIMES PRODUCED PARTIAL	PPS	SYSTEM	QUESTION	SW	Answered
mfcms	18/10/2007 11:29	ECMWF surface temperature for SAFNWC/MSG cloud mask	MSG	PGE01	REPORT	SW	N/A
btenav	01/10/2007 15:25	QUESTONS ABOUT SAF PRODUCTS	MSG	SYSTEM	QUESTION	SW	Answered
mfcms	01/10/2007 13:51	Paper presented at Amsterdam Eumetsat conference	MSG	PGE01	REPORT	DOC	N/A
btim	14/09/2007 11:39	Identification of "smoke"	MSG	SYSTEM	QUESTION	DOC	Answered
btdwd	31/08/2007 08:03	change of SEVIRI radiance definition	MSG	SYSTEM	QUESTION	SW	Answered
psms	24/08/2007 17:00	satellite input other than HRIT segments?	MSG	SYSTEM	QUESTION	AOB	Answered
pstms	16/08/2007 10:40	ASII PRODUCT	MSG	PGE10	QUESTION	DOC	Answered
pstms	15/08/2007 11:16	BUFR VISUALIZATION	MSG	SYSTEM	QUESTION	DOC	Answered
btubdg	14/08/2007 14:34	Region Configuration File	MSG	SYSTEM	QUESTION	SW	Answered
pstms	01/08/2007 15:48	Producing Products From Legacy Data	MSG	SYSTEM	QUESTION	SW	Answered
btim	26/07/2007 15:55	Attribute of cloudmask (HDF5) with funny characters	PPS	PGE01	QUESTION	DOC	Answered
btlhms	12/07/2007 07:57	SAFNWC install problems	MSG	SYSTEM	QUESTION	SW	Answered
btmcbv	03/07/2007 13:30	NWP data not found by MSG SW	MSG	SYSTEM	QUESTION	DOC	Answered
btim	02/07/2007 11:32	Problems with CmaskPrepare	PPS	SYSTEM	QUESTION	DOC	Answered
btlhms	28/06/2007 07:47	SAF Install problem	MSG	SYSTEM	QUESTION	DOC	Answered
btlhms	18/06/2007 13:32	safnwc install problem	MSG	TM	QUESTION	SW	Answered
btmcbv	12/06/2007 12:06	questions on testresults using example data - INM	MSG	SYSTEM	QUESTION	SW	Answered
btmcbv	12/06/2007 12:06	questions on testresults using example data - ZAMG	MSG	SYSTEM	QUESTION	SW	Answered
btmcbv	12/06/2007 12:06	questions on testresults using example data - INTEGRATOR	MSG	SYSTEM	QUESTION	SW	Answered
mfcms	11/06/2007 10:01	SAFNWC/MSG cloud type in rapid scan mode	MSG	PGE02	REPORT	AOB	Answered
btim	01/06/2007 16:46	Size of output images in satellite projection	PPS	SYSTEM	QUESTION	DOC	Answered
btim	30/05/2007 16:29	NWP data not remapped	PPS	SYSTEM	QUESTION	SW	Answered
btim	30/05/2007 13:07	Task manager for full AVHRR scenes	PPS	SYSTEM	QUESTION	DOC	Answered
btdwd	29/05/2007 15:05	NWCSAF sw with RSS data	MSG	SYSTEM	QUESTION	SW	Answered
btmcbv	25/05/2007 10:28	memory error when remapping NWP data	MSG	SYSTEM	QUESTION	SW	Answered
btim	18/05/2007 17:49	GtopoTiles missing	PPS	NWCLIB	QUESTION	DOC	Answered
pstms	18/05/2007 09:16	MSG v2.0 CTTH Products Are Not Being Produced	MSG	PGE03	QUESTION	SW	Answered
pstms	15/05/2007 15:37	MSG v2.0 Compilation Errors	MSG	SYSTEM	QUESTION	DOC	Answered
psdmi	15/05/2007 12:52	error rttovs kerr: 2	MSG	PGE03	QUESTION	SW	Answered
btsmhi	09/05/2007 10:03	sat_conf_file: version 1.2p versus 2.0	MSG	SYSTEM	QUESTION	SW	Answered

NWC SAF SW User Support

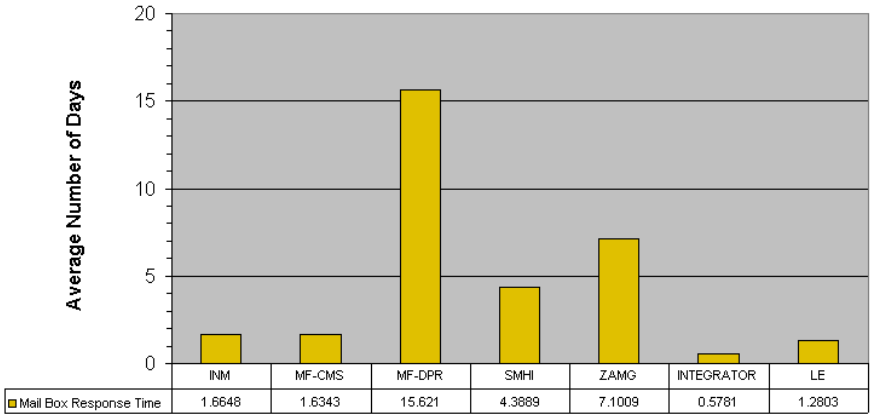
Mail Box Response Time

2007/H1

Total number of assigned Mail Box messages by partner (July 2006-June 2007)



Mail Box response time in days by partner (July 2006-June 2007)



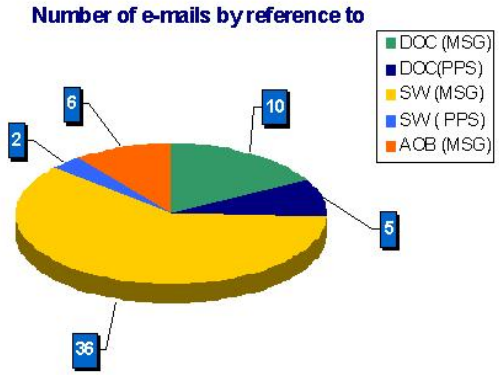
The requirements are:

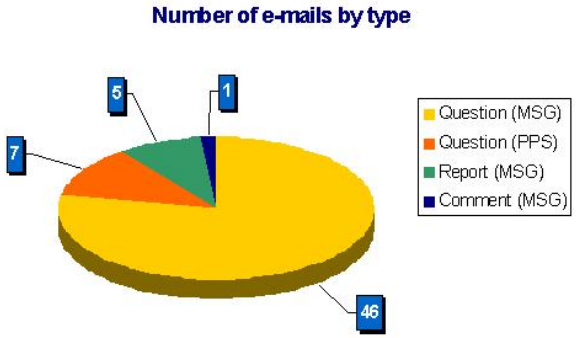
- 1 working day response time to notify to the user the acknowledgement of receipt by the Leading Entity, via e-mail.
- 1 week maximum response time to provide information to solve the problem reported by users.

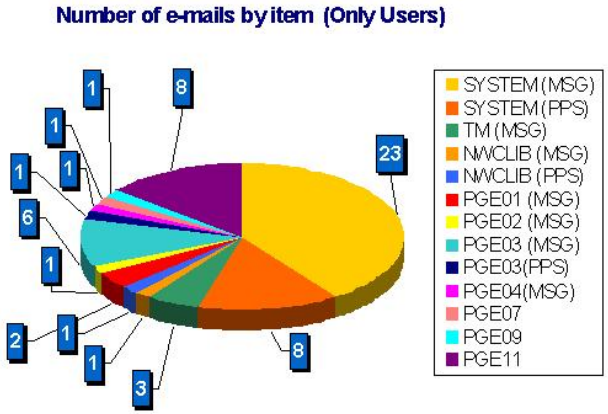
NWC SAF SW User Support

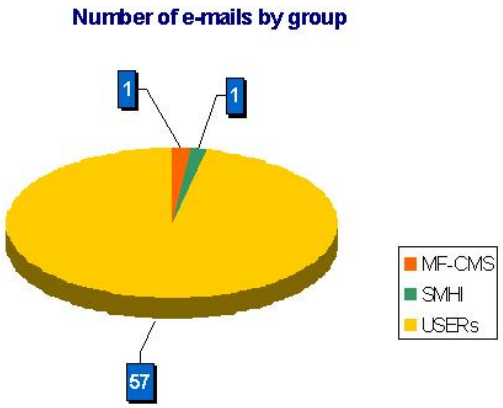
Mail Box Statistics

2007/H1









NWC SAF SW User Support
http://nwcsaf.inm.es

SPR & SMR

Find a SPR/SMR

SPR#	SMR#	originator	version	pack.	item	status	
							Find

SPRs (319 found)

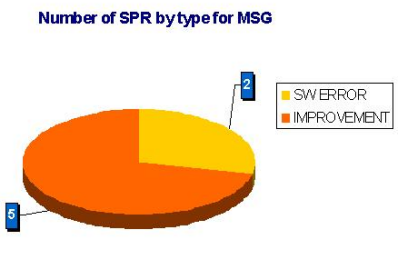
id	title	ver.	p/f	item	orig.	date	SMR id	status
320	Aux_data/disk with several projections in line	2.0	R/I	MSG.PGE01	mfcms	07/11/2007	294	Answered:MF-CMS
319	Regular release of PGE12	1.3	R/I	MSG.PGE12	zamg	23/10/2007	293	Answered:ZAMG
318	Regular release of PGE10	2.0	R/I	MSG.PGE10	zamg	23/10/2007	292	Answered:ZAMG
317	Removal of PGE07 fourth output plus bias correctio	V1.3	R/I	MSG.PGE07	inm	05/10/2007	296	Answered:INM
316	PGE06 current algorithm replaced by PGE07 4th outp	v2.0	C/I	MSG.PGE06	inm	05/10/2007	297	Answered:INM
315	PGE08 bias correction	1.3	R/I	MSG.PGE08	inm	05/10/2007	298	Answered:INM
314	HRIT filename changes with RSS	2.0	R/O	MSG.NWCLIB	integrator	26/09/2007	295	Answered:INTEGRATOR
313	Bug using isnan() function	2.0	R/I	MSG.PGE09	integrator	26/09/2007	289	Answered:INTEGRATOR
312	Change of units in REPEATING_CYCLE parameter	v2.0	R/O	MSG.PGE09	inm	25/09/2007	287	Answered:INM
311	PGE04 adaptation to Rapid Scan	v2.0	R/I	MSG.PGE04	smhi	20/09/2007	286	Answered:SMHI
310	Topography adaptation to Rapid Scan (INM PGEs)	2.0	R/I	MSG.SYSTEM	integrator	19/09/2007	285	Answered:INTEGRATOR
309	PGE05 adaptation to Rapid Scan	2.0	R/I	MSG.PGE05	inm	19/09/2007	284	Answered:INM
308	PGE01-02-03 adaptations to sat_conf_file changes	2.0	R/O	MSG.PGE01	mfcms	17/09/2007	283	Answered:MF-CMS
307	symbolic link for RTTOV coef. file	2.0	R/E	MSG.PGE03	mfcms	17/09/2007	282	Answered:MF-CMS
306	PGE05 adaptation for spectral/effective radiance	2.0	R/I	MSG.PGE05	inm	31/08/2007	281	Answered:INM
305	Flag for holes after parallax correction	2.0	R/I	MSG.PGE05	inm	30/08/2007	291	Answered:INM
304	Flag for CRR=0 pixels due to the filtering process	2.0	R/I	MSG.PGE05	inm	30/08/2007	290	Answered:INM
303	Attr of cmask (HDF5) - funny characters	2.0	R/E	PPS.ACPG PGE01	smhi	22/08/2007	No SMR	Assigned:SMHI
302	NWCLIB adaptation for spectral/effective radiance	2.0	R/I	MSG.SYSTEM	integrator	16/08/2007	288	Answered:INTEGRATOR
301	System adaptation to Rapid Scan (engineering impac	2.0	R/I	MSG.SYSTEM	integrator	13/08/2007	280	Answered:INTEGRATOR
300	Cloud Top Calculation in PGE09	v2.0	R/I	MSG.PGE09	inm	07/08/2007	279	Answered:INM
299	Bug in safnwc_bufr2hdf conversion tool	2.0	R/E	MSG.SYSTEM	integrator	31/07/2007	276	Answered:INTEGRATOR
298	PGE09 Segmentation fault running archived data	2.0	U/E	MSG.PGE09	integrator	31/07/2007	277	Answered:INTEGRATOR
297	Error09017 should not be raised after Warning09028	v2.0	R/O	MSG.PGE09	inm	04/07/2007	278	Answered:INM
296	Incorrect error handling, PGE04	2.0	R/I	MSG.PGE04	smhi	14/06/2007	273	Answered:SMHI
295	Error RGB-stretching - pps_imagelib.py	2.0	R/E	PPS.ACPG OTHER	smhi	21/05/2007	271	Answered:SMHI
294	missing initialization in mfcms_nwp_env.c	2.0	U/E	MSG.PGE01	mfcms	04/05/2007	270	Answered:MF-CMS
293	PGE01-03 errors around midnight	2.0	R/I	MSG.PGE01	btdwd	16/04/2007	No SMR	Rejected.
292	PGE05 processing very slow for MSG-N	2.0	R/I	MSG.PGE05	integrator	27/03/2007	269	Answered:INTEGRATOR
291	Unexpected crash on 03.03.2007 at 2200z	1.2	U/E	MSG.PGE11	integrator	27/03/2007	No SMR	Assigned:MF-DPR
290	Error messages missing from Task Manager on SUN	2.0beta	R/E	PPS.TM	smhi	19/02/2007	No SMR	Assigned:SMHI
289	Log functionality in TM	2.0beta	R/I	PPS.TM	smhi	19/02/2007	No SMR	Assigned:SMHI
288	incorrect reflectance for ch3b on simulated metop	2.0beta	R/E	PPS.ACPG PGE04	smhi	08/02/2007	275	Answered:SMHI

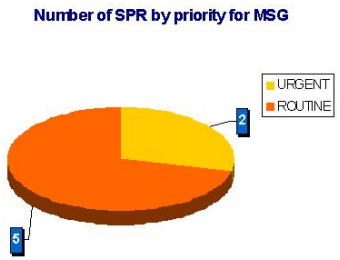
NWC SAF SW User Support

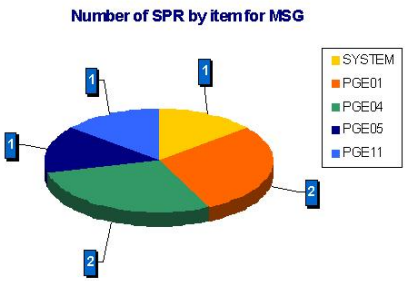
SPR Statistics

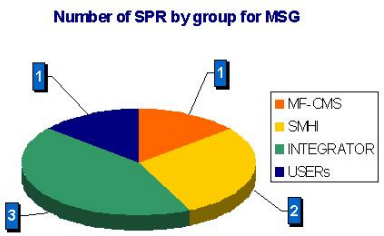
2007/H1

MSG

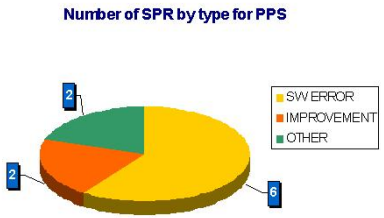


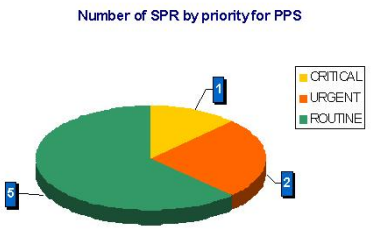


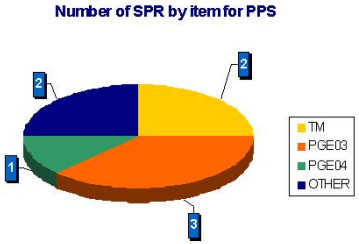


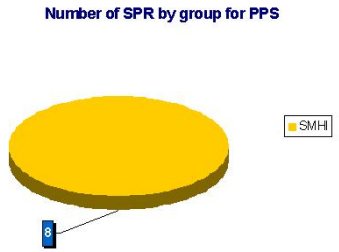


PPS









NWC SAF User Support

SAFNWC MSG & PPS SW use

2007/H1

MSG USER	SW Use	O-> Operations R-> Research D-> Distributed (GREEN not runnig yet)											
	PGE01	PGE02	PGE03	PGE04	PGE05	PGE06	PGE07	PGE08	PGE09	PGE10	PGE11	PGE12
HMS (Hungary)	O R	O R	O R	R	R				O	O	R	O
KNMI (The Netherlands)	OR	OR	OR	R	R	R	R	R	R	OR	OR	OR
DWD (Germany)	O	O R	O D	O	O R	O	O	O			O	
CM-SAF, DWD (Germany)	O	O	O									
Météo-France (France)	O	O	O							R	O	
SMHI (Sweden)	O	O D	O D	O								
ZAMG (Austria)	D	O D	O R D	R D	O R D	D	D	D		O R D	O	R D
BGIO (Germany)	O	OD	OD	O	O	O	O	O	O	O	O	
IM (Portugal)	O	O	O R	R	O R	R	R	R			R	
UGM (Italy)	O	O	O	O	O	O	O	O				
RMIB (Belgium)	O R	O R	O R	O R	O R	R	R	R	R	R	R	R
DMHZ (Croatia)	O	O	O	O	O	O	O	O	O	O	O	O
Met Eireann (Ireland)	O	O	O	O	O	O	O	O	O	O	O	O
INM (Spain)	O	O	O	O	O	O R	O R	O R	O	R	O	R
NIMHB (Bulgaria)	R	O	R	O	O R	R	R	O R	O R	O	O	O R
Köln University (Germany)					R					R	R	
ISAC-CNR (Italy)	R	R	R	R	R	R	R	R	R	R	R	R
CCNY (USA)										R		
ULPGC (Spain)	R											
Imperial College (UK)	R	R	R									
MeteoConsult (The Netherlands)	R	R	R	R	R	R	R	R	R	R	R	R

In order to know the use and benefits of the NWC SAF SW, a questionnaire is sent to the users in a regular basis

PPS USER	SW Use	O-> Operations R-> Research D-> Distributed			(GREEN not runnig yet)
	PGE01	PGE02	PGE03	PGE04
DWD (Germany)	O	O	O	O
CM-SAF, DWD (Germany)	O	O	O	
SMHI (Sweden)	O	O D	O D	O D
BGIO (Germany)	O	O	O	O
IM (Portugal)	R			
RMIB (Belgium)	R	R	R	R
INM (Spain)	O	O	O	O
ULPGC (Spain)	R			

NWC SAF User Support

SAFNWC MSG & PPS SW use benefits

2007/H1

MSG USER	SW Benefits			0-> Not used operationally 1-> No impact in operations 2-> No relevant impact			3-> Relevant impact 4-> Fully used & tasks improved					
	PGE01	PGE02	PGE03	PGE04	PGE05	PGE06	PGE07	PGE08	PGE09	PGE10	PGE11	PGE12
KNMI (The Netherlands)	0	3	2								4	
DWD (Germany)	4	4	3	2	4	2	2	2			3	
Météo-France (France)	4	4	4							1	4	
SMHI (Sweden)	0	4	3	0								
ZAMG (Austria)	2	4	4	3	4	0	0	0		4	1	1
BGIO (Germany)	2	4	4	3	2	2	2	2	2	3	3	
Met Eireann (Ireland)	0	3	3	3	2	2	2	2	0	0	0	2
INM (Spain)	3	4	2	2	3	3	4	4	4	1	3	1

PPS USER	SW Benefits		0-> Not used operationally 1-> No impact in operations 2-> No relevant impact	3 -> Relevant impact 4 -> Fully used & tasks improved
	PGE01	PGE02	PGE03	PGE04
DWD (Germany)	4	4	1	1
SMHI (Sweden)	0	4	3	
BGIO (Germany)	0	4	2	2

NWC SAF SW Maintenance

The NWC SAF shall maintain both SAFNWC/MSG and SAFNWC/PPS Software Package, including:

- Corrective Maintenance: defects removal, bugs fixing.
- Adaptive Maintenance: Operating System upgrades, changes in the project baseline, portability to other platforms, changes on satellites and satellite interfaces.
- Perfective Maintenance: scientific validation.
- Evolutive Maintenance: new user requirements.

MSG Supported Platforms

	Sun/Solaris	SGI/IRIX	Intel/Linux	IBM/AIX
O.S	Solaris 8 or later	IRIX 6.5	Fedora Core 6 RedHat Enterprise 3 RedHat 7.3	AIX 5.1
Memory	1024 MB	256 MB	256 MB	512 MB
DiskSpace(1)	8 GB	8 GB	8 GB	8 GB
Compilers	Sun WorkShop 6 or Forte Developer	GNU v3.0.4/MIPSpro Compilers: Version 7.4	gcc 4.1.1 Intel ifort v8.1	VisualAge C for AIX Compiler / XL Fortran for AIXVersion 5.0
CPU	UltraSPARC-III (450MHz)	MIPS R5000 (300 MHz)	Pentium 4 (2.4GHz)	PowerPC_604e (375Mhz)
Shell	Unix KornShell (ksh)	Unix KornShell (ksh)	Unix KornShell (ksh)	Unix KornShell (ksh)
(1) A higher capacity is recommended for operational use				

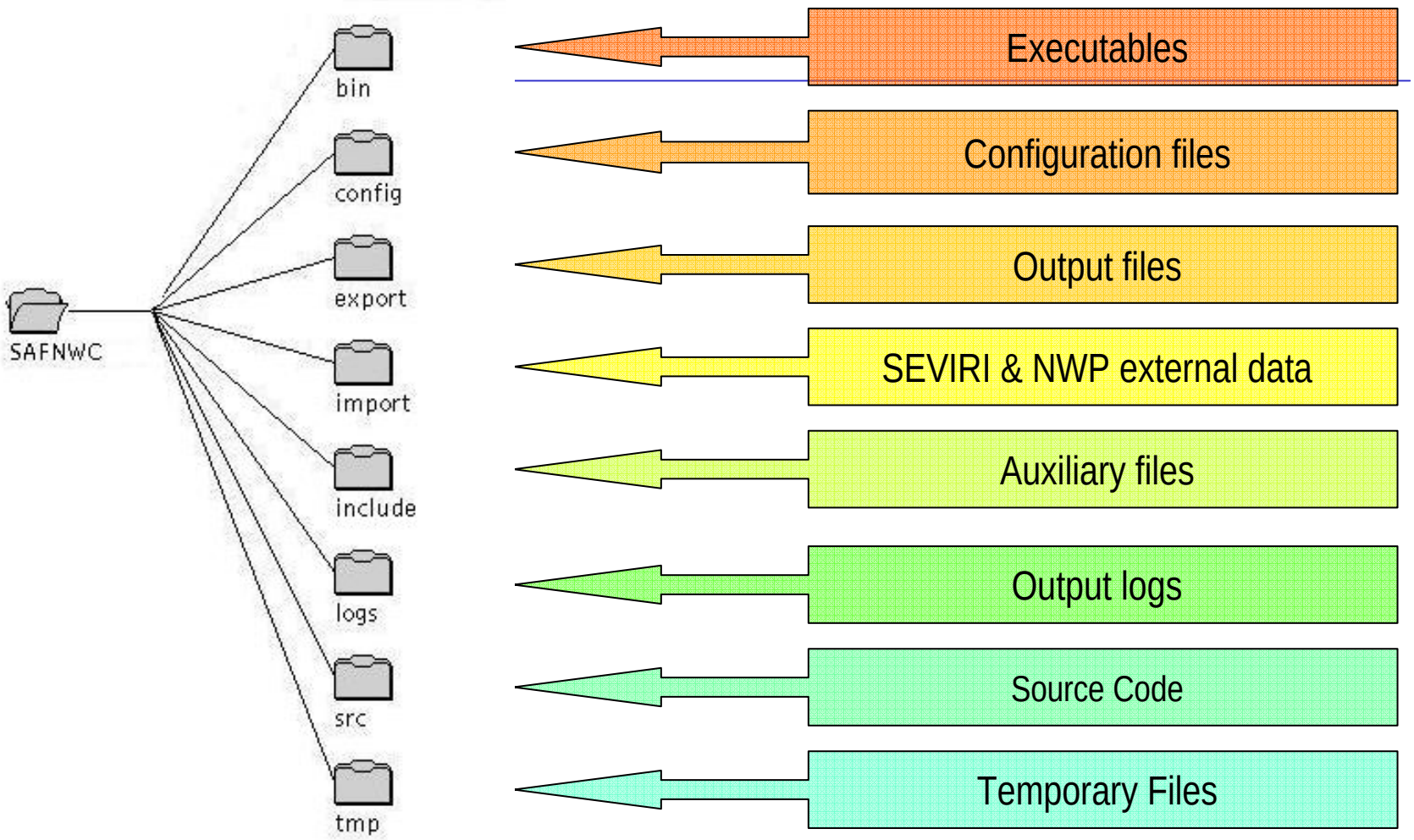
NWC SAF MSG

User Platforms

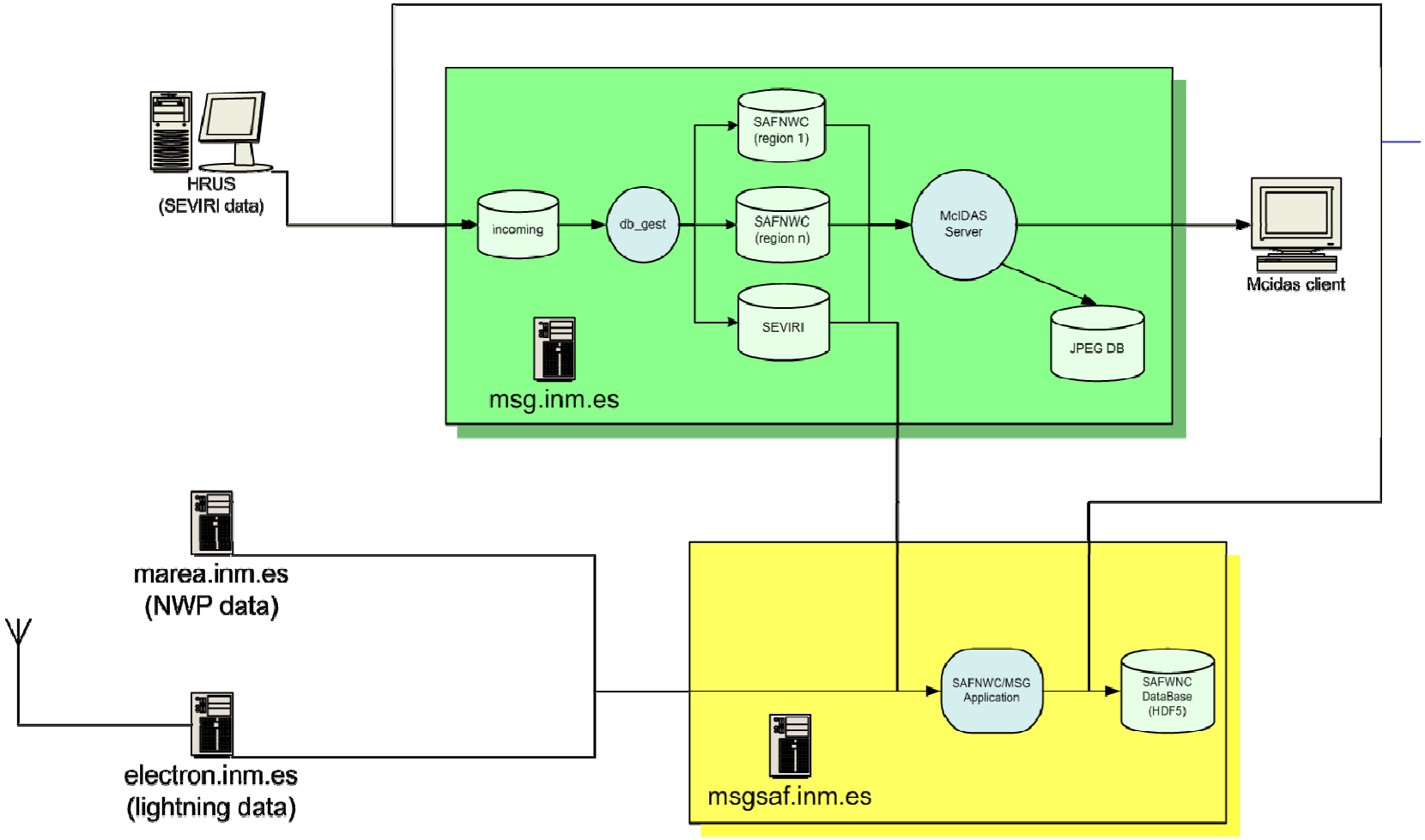
23 Linux
11 SUN
2 SGI

MSG USER	SW Status				SAFNWC/MSG
	DO-> Downloaded IN-> Installed RU-> Running			RU-> Running in the past	
	v1.0	v1.1	v1.2	v2.0	Platform
TMS (Turkey)	RU			RU	SUN Blade 100 SUN Solaris 9
FMI (Finland)			IN		LINUX Red Hat
HMS (Hungary)	RU	RU	RU		SUN Blade 2000 &
HMS (Hungary)			IN		Silicon Graphics Origin 2000
ANM (Romania)	IN	RU	RU		SunOS 5.9 Generic_118558-11 sun4u sparc SUNW, Ultra-Enterprise
KNMI (The Netherlands)	RU	RU	RU	RU	sun4u sparc SUNW,Sun-Fire-V440
DWD (Germany)	RU	RU	RU	RU	SUSE Linux 9.2
CM-SAF, DWD (Germany)	RU	RU	RU		SUSE Linux 9.0 & IBM AIX 5.3
Météo Swiss (Switzerland)			IN		SGI Origin 3200 C
Météo-France (France)	RU	RU	RU	RU	SunOS 5.9 Generic_112233-11 sun4u sparc SUNW,SunFire-880
SMHI (Sweden)	IN	IN	RU		LINUX, Red Hat 3.7
ZAMG (Austria)	IN	RU	RU	RU	SUN Solaris
BGIO (Germany)	RU	RU	RU	RU	SUN Solaris
DMI (Denmark)	DO	RU		RU	SUN Solaris 8 SPARC processor
IM (Portugal)	RU	RU	RU		LINUX RedHat 7.3
UGM (Italy)	IN	RU	RU		SUN Blade 2000 2 CPU: Ultra SPARC III Cu 900 MHz - 2 GB RAM
RMIB (Belgium)		IN	RU	RU	PC Linux and HP Unix
HNMS (Greece)	RU				LINUX Red Hat 7.3
DMHZ (Croatia)				DO	LINUX (on HP)
METNO (Norway)			IN	RU	Debian Woody
ARSO (Slovenia)	IN	IN			LINUX
Met Eireann (Ireland)		RU	RU		Red Hat Enterprise Ed
SHMU (Slovak Republic)	DO	RU			
Met Office (United Kingdom)	DO				-
IMGW (Poland)	RU	RU	RU		SUN Blade 2000 SUN Solaris 8
INM (Spain)	RU	RU	RU	RU	SunOS 5.8 Generic_108528-20 sun4u sparc SUNW, Sun-Fire480R, 900 MHz -4 GB
CMR (Croatia)					
CIMA (Italy)					LINUX
ARPA (Italy)		RU			LINUX
ARPAL (Italy)					LINUX
NUI (Ireland)			RU		Dell Power edge 1850, Red Hat Enterprise
NIMHB (Bulgaria)			IN	IN	Red Hat Enterprise Ed
LMD (France)			RU		LINUX, Red Hat
Köln University (Germany)			RU		LINUX
ISAC-CNR (Italy)					
CSIR (South Africa)					
CCNY (USA)			RU		Xeon 64-bit machine, RedHat Enterprise Linux WS V3
PC Regione Marche (Italy)					
RHMS (Serbia)			IN		SuSE Linux 8.0
Bern University (Switzerland)			RU	RU	LINUX, Red Hat
LHMS (Lithuania)				IN	no information available
ULPGC (Spain)					
Imperial College (UK)			DO		
CHMI (Czech Republic)					
Armed Forces (Austria)					
ENAV S.p.A. (Italy)					
SAWS (South Africa)					
IAP (Switzerland)			IN		Linux (kubuntu 6.06 dapper or debian etch)
EUMETSAT (Germany)					
DMN (Morocco)					
INM Izaña (Spain)					
MeteoConsult (The Netherlands)				RU	Intel(R) Pentium(R) 4 CPU 3.00GHz;1GB RAM, Red Hat Enterprise 4, gcc v4.1.1, Inter ifort v9.1
TU Dresden (Germany)					
Austro Control (Austria)					
Uni. Bonn (Germany)					

NWC SAF MSG SW Package Structure



NWC SAF MSG Reference System schema



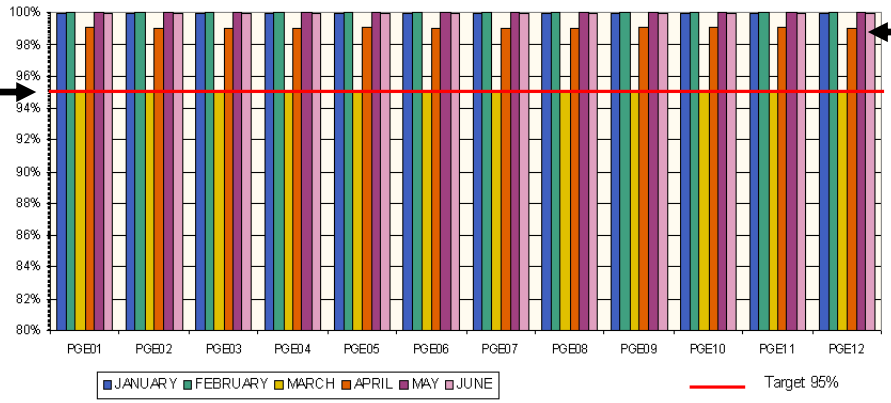
NWC SAF SW Package running at INM premises is called the Reference System

NWC SAF MSG Reference System statistics

2007/H1

Reference System Availability

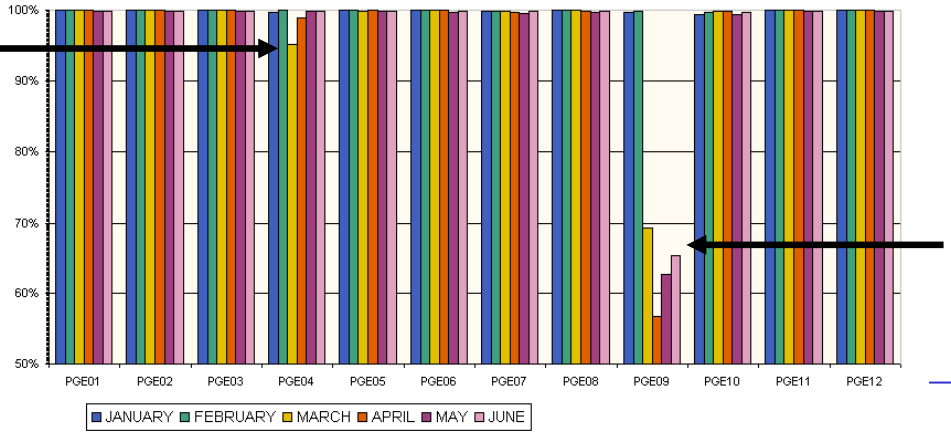
SAFNWC/MSG v2.0 SW installed 12 March. Full operations resumed 14 March with 145 slots missing (within the limit of the 95% target).



Reference System interrupted 18 April between 09:00 UTC and 13:00 UTC due to maintenance works at the INM Data Processing Centre. (15 slots missing)

Outputs Availability

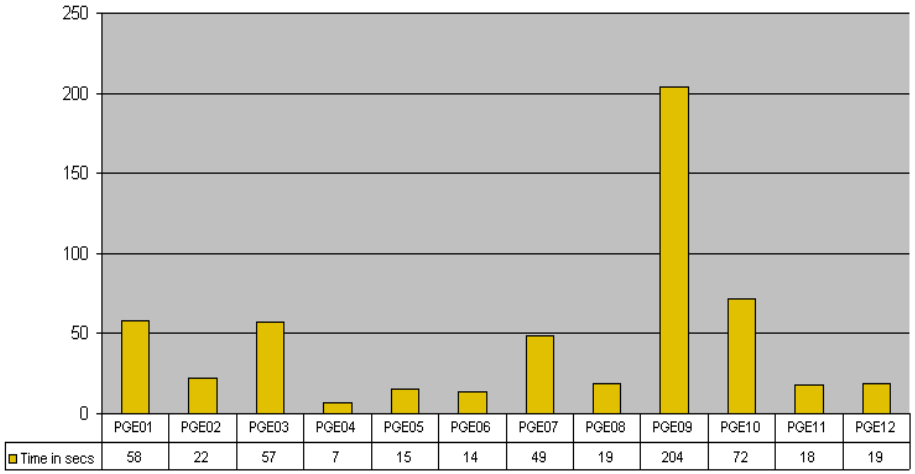
PGE04's lower performance in March and April is due to missing or delayed NWP mandatory data.



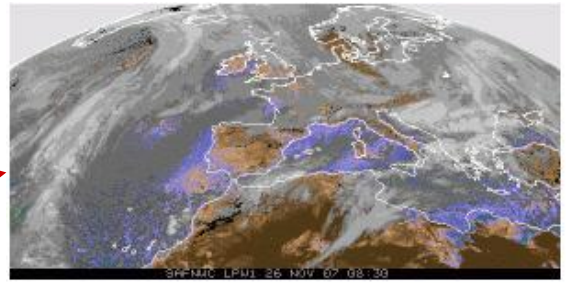
PGE09 failures correspond to night slots. When illuminated area is below a minimum value an error is wrongly raised even though PGE09 finishes correctly. A SPR has been raised for next SAFNWC/MSG version.

NWC SAF MSG Mean Execution Time

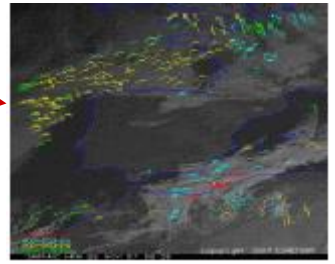
2007/H1



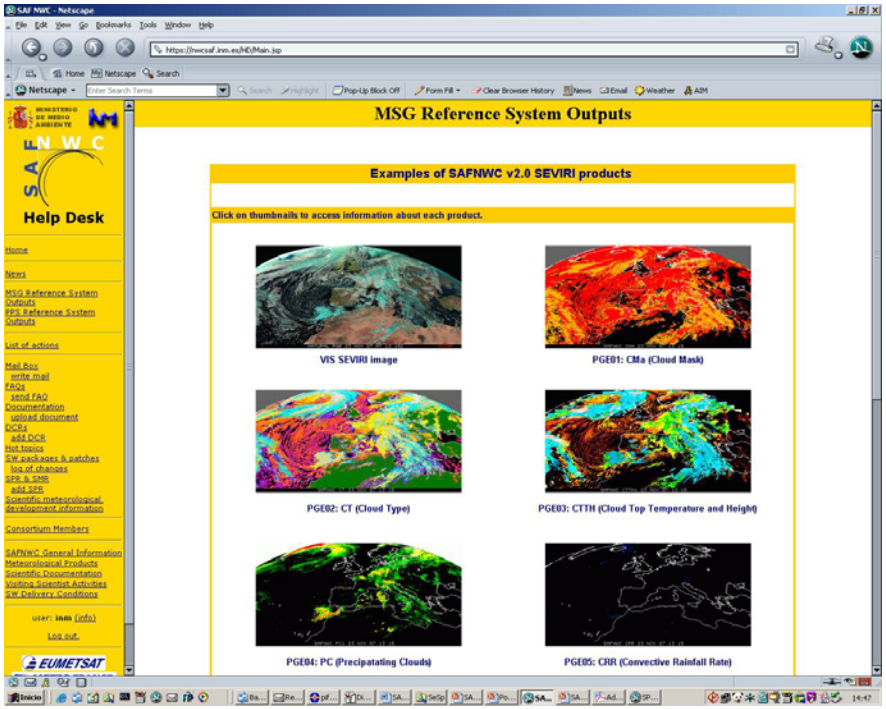
Average time: 9.17 min.
Clear Air Parameters: 72 sec

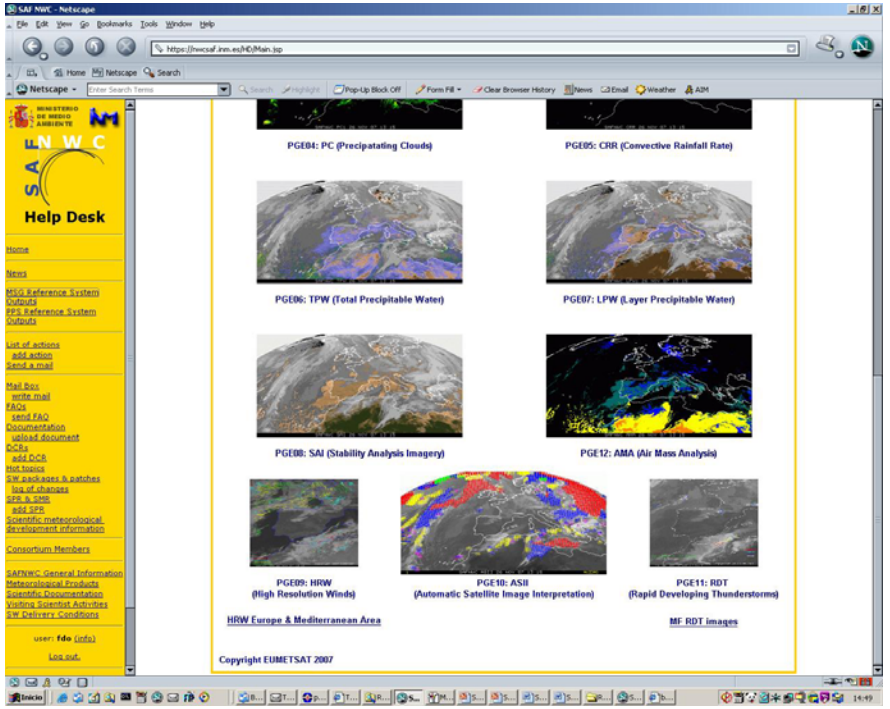


- Most PGEs running in two regions, MSG-N (2700x1100) and local (Spain 512x512)
- PGE09 and PGE11 only in Spain region
- PGE10 only in MSG-N region
- It is mandatory to run all the PGEs in less than 15 minutes
- Next version 2008 adapted to Rapid Scan will require PGEs running in less than 5 minutes



NWC SAF Reference System Outputs





In order to provide to the users a reference for their own product outputs, the NWC SAF displays the SAFNWC Reference System Outputs in a dedicated Help Desk page.

CONCLUSIONS

- The NoWCasting SAF distributes the SAFNWC/MSG and SAFNWC/PPS software packages to targeted external users.
- These two SW packages contain 12 MSG PGEs and 4 PPS PGEs respectively developed and maintained by the NoWCasting SAF.
- The products are generated by each SAFNWC user on a local basis.
- The NoWCasting SAF maintains both SAFNWC/MSG and SAFNWC/PPS software package.
- For the MSG part, 12 PGEs have to run in less than 15 minutes covering the regions selected by the user (9.7 minutes at the Reference System)
- Higher constraints for future Rapid Scanning operation (less than 5 minutes)
- The user interface is made through a Help Desk tool.
- Users are provided with credentials for Help Desk access.
- The response time to the user requests is a week maximum.
- A MSG Reference System running at INM (Spain) generates and display the PGE outputs for comparisons.
- The PPS Reference System runs at SMHI (Sweden).
- Feedback from users in regular questionnaires is mostly positive.