



## Tasks to implement the BC computation

### On – board implementation

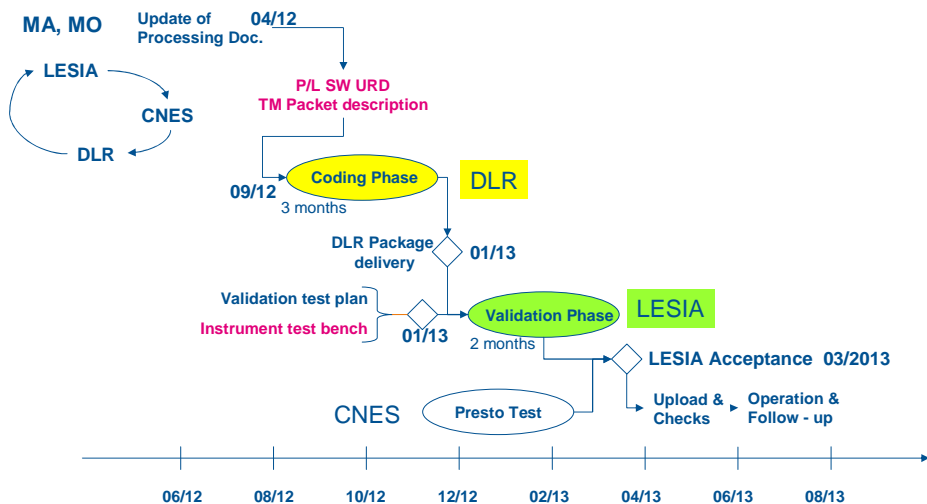
- LV modification
- TMPROC modification
- Pipeline modification (presentation by SC)
- TM budgets

### An alternative solution ?

### Decision



## Instrument SW Modification : main activities & schedule





## Instrument SW Modification : list of activities

Activity	Entity in charge	Achieved by	Workload TBC	Needed support	Schedule TBC
Technical Management of the activity	LESIA (SC)				May 2012 – Sept. 2013
Scientific process doc.	LESIA -IAS (MA, MO)	MA, MO			Done , April 2012
P/L SW URD + packet description	LESIA	?	2 man x month	DCT/SB (BP)	3 months May – Aug. 2012
<b>P/L SW encoding and package delivery</b>	<b>DLR, no formal answer yet</b>				2 months Oct - Dec 2012
Test validation plan	LESIA (SC)	?	1 man x month		2 months Oct - Dec 2012
Instrument test bench activity *	LESIA (DT)	?	1 man x month		3 months Sept. – Dec. 2012
<b>P/L SW Validation</b>	LESIA (SC)	?	2 man x month		2 months Jan. – Mar. 2013
Satellite Activity *	CNES DCT/OP	SB, RC, CD		DCT/PO (LK)	2 months Jan. – Mar. 2013
P/L SW Upload	CNES DCT OP & ME	RC, CD	1 man x week		April. or July. 2013
Follow up activity *	LESIA (DT)	?			3 months after SW upload

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## Instrument test bench activity

The validation tests of the Flight SW are performed on an instrument test bench

2 instrument benches developed by LESIA, one located at LESIA, the other (BIS) at CMC at CNES

Some adaptations of the SGSE (Tamino, ...) will be needed to take into account the new telemetry packet

2 options depending on which bench the validation activity is performed : LESIA bench or BIS at CNES :

- LESIA bench option
  - ◆ Used to validate the last software modification (2009)
  - ◆ The bench has not been running for a while
- BIS option
  - ◆ Is preferred by LESIA but
  - ◆ A larger reconfiguration activity of the bench with HW exchange between LESIA and CMC is needed (BS2, Sim. Camera, ...)
  - ◆ The bench reconfiguration activity is not covered by CNES
  - ◆ Human Ressources at CMC will become problematic (support to validation tests)
  - ◆ Impacts the use of BIS during the operations

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## Satellite activity

### Satellite activity

- Assessment of the data exchange between Instrument and Proteus DHU
- Presto activity
  - ◆ Update of the requirements for the instrument simulation part in Presto
  - ◆ Modification of Presto (SPacebel)
- BDS update (TBC) with BDM export
- Satellite simulation test at Control Centre



## System & FU activities

### System activity

- TM volume assessment and downloading strategy

### Mission Data Base (BDM) update and diffusion

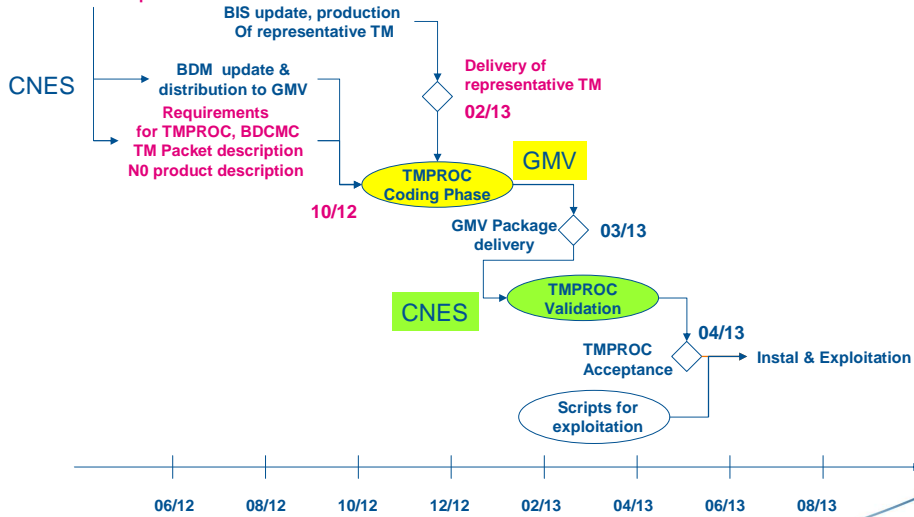
### Follow-up activity of the FL SW

- A regular monitor of the technical TM is required once new SW is in operation
- System for TM analyzing tool to be updated
- Daily PLTM delivery at LESIA to be resumed



## CMC SW modifications : main activities & schedule

P/L SW – URD 09/12 +  
TM Packet description



## CMC SW modification : activities

Activity	Achieved by	Estimate of Workload	Needed support	Schedule TBC
Technical Management of the whole activity	CNES DCT/ME (BB)	2 man x month		> 1 year May – Aug. 2013
Requirements for TMPROC, BDCMC, N0 description	BB, SA, LP, MD	1 man x month	LESIA (SC)	1 month Sept – Oct. 2012
BDM Update and diffusion	CD	1 man x week	DCT/PO (LK)	2 months Oct. – Dec. 2012
Val configuration	PYB, MCO	1 man x week		Feb 2013
BIS SGSE, Tamino update for new TM packet description	LESIA (?)	1 man x week	MCO (xy ?)	1 month Jan. 2013
Production of representative PLTM with BIS for TMPROC test	CD	1 man x week	SA, LP	1 month Jan. – Feb. 2013
<b>TMPROC encoding &amp; test</b>	GMV ? <b>no answer yet</b>	?		5 months Oct – March. 2013
<b>TMPROC validation, acceptance and instal in operation config.</b>	PYB, MCO (xy ?)	1.5 man x month	DCT/ ME (BB, SA, LP)	< 1 month April 2013
Script for the control of data : updates, validation & instal	MG with TMA contract, MCO (xy ?)	2 man x week	DCT/ ME (BB, SA, LP)	2 months Jan. – March 2013
Scripts for distribution & archiving : updates, validation & instal	SA with RESOPS contract, MCO (xy ?)	2 man x week	DCT/ ME (BB, LP)	2 months Jan. – March-2013





## PLTM current Budget

		en Mbits/24h	
	1 ATM_STARMASK 35x35 pixels / 32s	91,24	
<b>PLTM2</b>	<b>Total pour 5 étoiles</b>	<b>456,19</b>	
	ATM_ECARTO	17,97	1,8%
	ATM_OFFSET	13,82	1,4%
	ATM_BKGROUND 5 fenetres BKGD	36,50	3,6%
	ATM_STARWIND 5 Starwind	36,50	3,6%
<b>PLTM1</b>	<b>Total Sismo</b>	<b>104,80</b>	<b>10,3%</b>
	ETM_CHROM 1500 fenetres	42,68	4,2%
	ETM_MONOCHROM 1928 fenetres	28,08	2,8%
	ETM_SAMPLEC 2000 fenetres	456,30	45,0%
	ETM_SAMPLEM 500 fenetres	108,00	10,7%
	ETM_IMAGETTE 40 fenetres	273,02	27,0%
<b>PLTM1</b>	<b>Total Exo 5968 fenetres</b>	<b>908,09</b>	<b>89,7%</b>
<b>PLTM1</b>	<b>Total Exo + Sismo</b>	<b>1012,89</b>	



## Estimation of TM Volume to download the BC of 1500 stars 32s

<b>1 window, 32 meas.</b>		
Header	6 bytes	
date	10 bytes	
Aux data	2 bytes	
X, Y	32 x 8 bytes	
Pad word	46 bytes	
<b>1 packet</b>	<b>320 bytes</b>	
<b>1500 x 84 packets / 24h</b>	<b>3,23E+02</b>	<b>Mbits/24h</b>

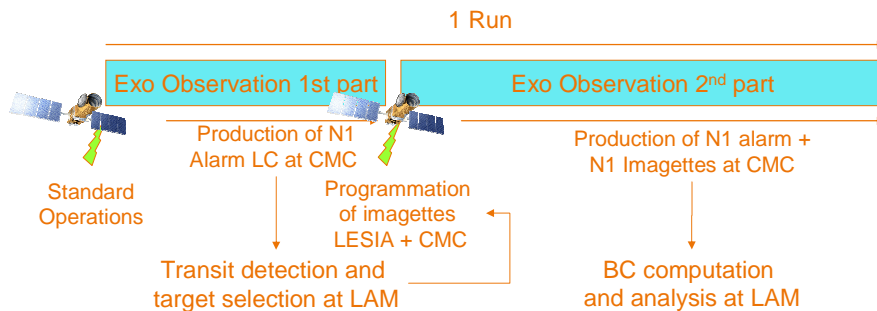


## An alternative solution using Exo imagerettes

A run is divided in 2 parts

- First part is used to detect transits and select targets to apply BC analysis
- Second part is used to download imagerettes applied on the selected targets

The BCs are computed on ground with the imagerettes data



## An alternative solution : the impacts

No flight SW modification

No impact on the continuity of observation with Astro channel

A short interruption of the Exo observation to update the window programming on-board (2 hours max)

A change in the scientific exploitation of Exo imagerettes

The delay on the analysis of N1 alarm data more constrained ?

Remark : 10 day delay before the N1 alarm data are available

Switch from LC windows to imagerettes during a run => Management of the data and programming to assess

The BC computation can be optimized and refined wrt to an on-board computation

Can be achieved for the next run



## Decision

A statement from the CoRoT Scientific Council (April, 18) is expected

The options for implementation to be presented at the REVEX and REDEM

Decision by CNES, the Labs, German and Spanish partners to take ASAP