

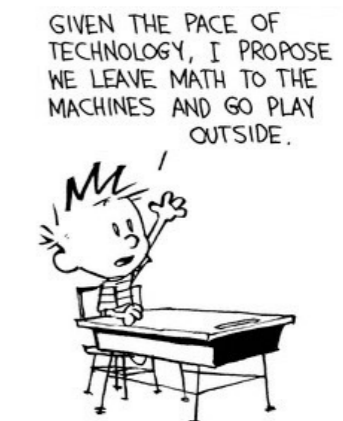
# ROC General Status



**solar orbiter**



- News
  - Instrument scientist nomination
  - Arrival/departure
- Planning
- Software status
  - ROC pipelines and interfaces
  - RPW Calibration Software (RCS) and products
  - Operations tools and interfaces
- Documentation status
  - ROC requirements
  - RPW DPDD



- Instrument scientist nomination (cf. Milan's Slides)
- Antonio Vecchio (operation support) has been at 50% since Nov. 2017
- Diane Berard (operation engineer) has joined the ROC team since Dec. 2017
- Aichatou Aboubacar Amadou (Operation tool developer) will leave the ROC team on Oct. 2018. New engineer will be hired to carry on the development.

# ROC planning milestones

- Planning related to the operation activity will be presented tomorrow this morning
- ROC Software System releases schedule (based on 02/2020 launch scenario):
  - **RSS3 "CP E2E test", planned on mid-December 2018**
  - **RSS4 "ready-for-flight", planned on Oct. 2019.** (Pre-release expected on May 2019 prior to the validation campaign)
  - **RSS5 "Fully operational", planned on Aug. 2020**
- ROC validation campaign, planned on June 2019 (TBC)
- ROC acceptance on Sept. 2019 (TBC)

# RCS-related activity milestones

- RCS releases schedule (still based on 02/2020 launch scenario):
  - **RSS3-related RCS, planned on mid-December 2018.** (Preliminary production of all L1R/L2S/L2 CDF. Draft UM, Issue SRS.)
  - **RSS4-related RCS planned on April 2019.** (RSS3-RCS+RCS ICD compliance+Test data+UM issue 1)
  - **RSS5-related RCS planned on Aug. 2020.** (After validation during commissioning phase). TBC
- RCS teams are expected to participate to the ROC validation campaign and ROC acceptance process (validation plan in preparation for Sept. 2018)
- Tasks related to the L3 data processing still need to be added to the planning. ROC will come with an implementation plan (TBW)

# ROC pipelines software

- ROC pipelines Python core ("POPPy") has been upgraded to implement shared functionalities and improve pipeline deploying, maintenance and testing
- New version of the ROC-SGSE and RPW Low Latency Pipeline (RLLP) are expected to be released within few weeks. Especially:
  - New RLLP, including TNR Low Latency data computation and testcards, will be delivered to SOC on July 2018
  - ROC-SGSE instance for MEB EM1 GSE at LESIA will be deployed
- First working version of the RODP pipeline for mission data production is not expected before 2019. However, the ROC will try to provide very first RPW L1/HK CDF-like files before the end of 2018 to RCS teams.

# ROC pipelines products

- ROC-SGSE "official" V3 L1/HK CDF still need to be produced by ROC! It includes:
  - TT2000 Epoch correctly computed in CDF
  - CDF meta-data minor issues fixed\*
  - TDS L1 bit ordering issue fixed\*\*
  - Delivered with delta-calibration FFT and SCM-FS cal at Stevenage
- RPW-related testlog data at S/C level (e.g., EMC campaign) will be also archived at LESIA and processed as ROC-SGSE CDF files.

\*<https://jira-lesia.obspm.fr/browse/ROCDATPRO-23>

\*\*<https://jira-lesia.obspm.fr/browse/ROCDATPRO-38>

# ROC pipelines products

- Main features to be implemented til the end of year (i.e., RSS3):
  - LFR BP1/BP2 computation in L1 CDF
  - Providing engineering values in HK CDF
  - Bias specific datasets computation (L1 sweep and on-board currents)
  - Starting implementation of quicklook production (need first to define more precisely in ROC requirements, TBC)
  - Producing preliminary RODP L1/HK CDF-like datasets
  - Starting implementation of mission ancillary data processing

*\*<https://jira-lesia.obspm.fr/browse/ROCDATPRO-23>*

*\*\*<https://jira-lesia.obspm.fr/browse/ROCDATPRO-38>*



# ROC pipelines interfaces

- Client to request telemetry from the MOC Data Distribution System (DDS) will be developed by the SPICE team at Institut d'Astrophysique Spatial (IAS) at Orsay, France. (MOC DDS availability on Feb. 2019, tests on April 2019).
- RPW data archiving at ESAC:
  - Generic File Transfer System (GFTS) node between ROC and SOC is up-and-running. Will be used to delivered RPW data to archive.
  - Solar Orbiter Archive Plan Issue 2 released (SOL-SGS-PL-0009\*)
  - Archived RPW data products shall be described in the RPW Data Products Description Document (DPDD)

\* <https://issues.cosmos.esa.int/solarorbiterwiki/download/attachments/5801215/SOL-SGS-PL-0009-2.0.pdf>

# ROC pipelines interfaces

- ROC pipelines - RCS execution calling interface (RCS ICD)
  - Implementing new RCS ICD 1.2 specification on the ROC-SGSE and RODP pipelines (via CAWA module) is still in progress. Will be ready to start RCS integration test on 2019.
  - New RCS interface compliance test tool should be available again on the "roc-dev" server on Fall 2019 with up-to-date user manual.
  - Implementing RCS integration into the ROC pipelines is expected to start on 2019.
  - New version of the CDF skeleton conversion tool (MASER4PY) will be deployed on roc-dev server in the next few weeks (teams will be notified)
- Input doc. (still) to be written:
  - Bias Operation ICD
  - RPW L3 data processing ICD
  - RPW DPDD

# RCS status overview

- SCM RCS status
- LFR RCS status

# SCM: About SCMCAL

- SCMCAL software uses RCT provided by the analyzer teams as well as SCM RCT
- Input data are only L1R CDF files (no L1 or L2R anymore)
- SCM temperatures are read from the ROC-SGSE\_HK\_RPW-LFR CDF file
- SCM temperature and processed input dataset permit to select the right SCM transfert function matrix to use
- CALIBRATION\_TABLE, CALIBRATION\_VERSION, CAL\_ENTITY\_NAME, CAL\_ENTITY\_AFFILIATION, CAL\_EQUIPMENT global attributes are created dynamically by reporting the information of L1R CDF and by adding the SCM information
- Same for the CALIBRATION\_TABLE\_INDEX
- Only the ROC-SGSE\_L2S\_RPW-LFR-SURV-SWF-B dataset has been validated

- Be able of changing the analyzer RCT CDF files in the middle of L1R file.
- Production of L2 datasets
- Full validation of software
- Perform the fine analysis and formatting of the RCT, temperature extrapolation
- Calibration mode processing

# SCM: feedback

- Software really needs now all the necessary information (e.g., calibration info) and it is only available in the full filled L1R
- Full software validation can only be done with "real" L1R data (not empty or noise data file).
- Be careful about the data versioning! (L1R-TDS in V03 and L1R-LFR in V04).
- Current RCT content is not fully homogeneous, but ok to use them as it.
- RCT example files are available here: [https://rpw.lesia.obspm.fr/roc/data/private/users/roc\\_sgse/data/incoming/SCM/RCT/SOLO\\_CAL\\_RCT-SCM\\_SCM-FS-MEB-PFM\\_Airbus\\_V20180301120000.cdf](https://rpw.lesia.obspm.fr/roc/data/private/users/roc_sgse/data/incoming/SCM/RCT/SOLO_CAL_RCT-SCM_SCM-FS-MEB-PFM_Airbus_V20180301120000.cdf)

- See [Présentation\\_LPP\\_consortium.pptx](#)

# RCS status overview

- RCS software has been uploaded by the teams in the ROC "RCS" Git repositories. It will be the single interface now to deliver new version software to ROC.
- First versions of the L1R and RPW Calibration Table (RCT) CDF skeletons have been uploaded on the "rcs" branch of the ROC "DataPool" Git repository.
- Few preliminary ROC-SGSE L1R, L2S and RCT CDF files have been dropped on the ROC data file server\*.
- For almost all teams, the software documentation has been delivered to the ROC as expected (i.e., specification V1 and user manual draft)
- No big issue with the draft - RCS ICD 1.2, REGU 2.1 and RPW Data Products 1.2 - published by the ROC. But discrepancies on the manner to apply RCT format convention - Be careful also about the skeleton/data versioning!

\* [https://rpw.lesia.obspm.fr/roc/data/private/users/roc\\_sgse/data/incoming/](https://rpw.lesia.obspm.fr/roc/data/private/users/roc_sgse/data/incoming/)



# Current ROC data server content

	RCT	L1R	L2S
<b>TDS</b>	<a href="#">ROC-SGSE_CAL_RCT-TDS-SURV-SWF-B_V20180313.cdf</a>	<a href="#">ROC-SGSE L1R RPW-TDS-LFM-CWF-B_73525cd_CNE_V03.CDF</a> <a href="#">ROC-SGSE L1R RPW-TDS-LFM-RSWF-B_73525cd_CNE_V03.CDF</a> <a href="#">ROC-SGSE L1R RPW-TDS-SBM1-RSWF-B_c605237_CNE_V03.CDF</a> <a href="#">ROC-SGSE L1R RPW-TDS-SBM2-TSWF-B_0fde570_CNE_V03.CDF</a> <a href="#">ROC-SGSE L1R RPW-TDS-SURV-RSWF-B_0dbe5ba_CNE_V03.CDF</a> <a href="#">ROC-SGSE L1R RPW-TDS-SURV-TSWF-B_d2be0a7_CNE_V03.CDF</a>	
<b>LFR</b>	<a href="#">ROC-SGSE_CAL_RCT-LFR-BIAS_V01.cdf</a> <a href="#">ROC-SGSE_CAL_RCT-LFR-SCM_V01.cdf</a> <a href="#">ROC-SGSE_CAL_RCT-LFR-VHF_V01.cdf</a>		
<b>THR</b>			
<b>Bias</b>	<a href="#">ROC-SGSE_CAL_RCT-BIAS_V201803211625.cdf</a>		<a href="#">Mysterious_signal_7_2016-09-02_Run1_eeabc1e_CNES</a>
<b>SCM</b>	<a href="#">SOLO_CAL_RCT-SCM_SCM-FS-MEB-PFM_Airbus_V20180301120000.cdf</a>		<a href="#">BLANK_CALIBRATION_SCM_L2S/</a> <a href="#">CALIBRATION_SCM-EM-L2S/</a> <a href="#">CALIBRATION_SCM-PFM-L2S/</a>

\* [https://rpw.lesia.obspm.fr/roc/data/private/users/roc\\_sgse/data/incoming/](https://rpw.lesia.obspm.fr/roc/data/private/users/roc_sgse/data/incoming/)

# RCS : What's next?

- The main objective for the RSS3-RCS release is being able of producing preliminary L1R/L2S/L2 CDF files with version of RCT
- The activity at ROC about RPW data processing should increase progressively after Sept. 2018
- First semester of 2019 will be dedicated to implement and test the execution of RCS by the ROC pipelines
- We should work on building representative data samples for each ROC-SGSE/RODP dataset. Which data to choose for each dataset? Are they available on the ROC-SGSE data archive?
- In parallel, we should start to describe L1, L2, but also RCT and L1R data in the RPW DPDD and the way to produce it (in RCS user manuals)
- RCS execution at LESIA and output data will be fully validated prior to launch, during the ROC validation campaign. The validation process and success criteria will have to be described in the next ROC Validation Plan.

# RPW Operations tools

- First version of the RPW Flight Operations Requests editor (FAUST) has been developed and used for the generation of 0th E2E test Instrument Operations Request (IOR) XML files.
- Finalizing IOR file generation/validation is in progress
- To be implemented til the end of 2018 (i.e., RSS3):
  - Memory Direct Operation Request (MDOR) and Payload Direct Operation Request XML file production
  - C-SGSE XML script exporting
  - Graphical user interface (GUI) in progress
- The RPW flight procedure editor (FIGARO) development has been stopped since Nov. 2017, due to inconsistencies in the MOC ICD documentation. The dev. should restart within few months.

# RPW Operations tools

- The RPW operation planning tool (OPERA) development should start within few months. (For now we use the SoopKitchen tool of SOC)
- A first prototype of the RPW TM/TC Viewer (TV) is available. Need to refine the requirements for commissioning and exploitation phases.
- The development of the SBM Interactive Selection Software Interface (SISSI) is planned for the spring 2019.

# Operations tools and interfaces

- Interfaces with MOC/SOC
  - Generic File Transfer System (GFTS) node with SOC is up-and-running (used for 0th E2E test to submit IOR XML)
  - Generic File Transfer System (GFTS) node with MOC needs still need to be implemented. Wait for news from MOC.
  - Solar Orbiter Data Dissemination System (DDS) is planned to be available not before Feb. 2010. Tests with teams planned on April 2019.

# Operations tools and interfaces

CREATE IOR IMPORT IOR EXPORT IOR MTP
start date Starting DateTime stop date Ending DateTime
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MTP IOR List

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<input type="checkbox"/>	7	2018-03-23T16...	2018-03-11T16...	ior12	1			REJECTED	EDIT	MDOR		
<input type="checkbox"/>	8	2018-03-09T16...	2018-03-16T16...	ior15	1			CREATED	EDIT	MDOR		
<input type="checkbox"/>	43	2018-03-13T16...	2018-03-20T16...	ior11	1			SUBMITTED	EDIT	IOR		
<input type="checkbox"/>	44	2018-03-13T16...	2018-03-20T16...	ior10	1			SUBMITTED	EDIT	IOR		
<input type="checkbox"/>	45	2018-03-13T16...	2018-03-20T16...	ior9	1			SUBMITTED	EDIT	MDOR		
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IDB Version

Name	Status	Group
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AIWF002A	created	
AIWF010A	created	
AIWF011A	created	
AIWF030A	created	
AIWF031A	created	
AIWF032A	created	
AIWF032B	created	
AIWF032C	created	

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SUBMIT

# Documentation status

- ROC requirements
- RPW Data Products Description Document (DPDD)

- Main document to describe RPW data at ESAC archive centre
- To be describe more particularly:
  - RPW science data calibration processes (on-ground and in-flight)
  - RPW science data validation process
  - RPW L1, L2 science data products
  - RPW L3 science data products (including quicklook)
- RCS teams can edit the draft document on-line\*
- In parallel, specific discussions will be planned to refine content (e.g., bitmask, quality\_flag, orbit data, ...)

\* <https://confluence-lesia.obspm.fr/display/ROC/Solar+Orbiter+RPW+Data+Product+Description+Document>