



Status of BIAS, RCS / BICAS

Solar Orbiter / RPW

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ROC/BIAS Team

- Yuri Khotyaintsev (IRF)
 - **Lead Co-I (overall responsibility) from 2019-03-28**
 - Lead archiving scientist
- Erik Johansson (IRF) – Lead software engineer
- Thomas Karlsson (KTH) – KTH coordination

SUPPORT / SCIENCE:

- Daniel Graham (IRF)
- Anders Eriksson (IRF)
- Emiliya Yordanova (IRF)
- Andris Vaivads (IRF, at KTH from 2019-04-25)

HARDWARE ENGINEERS:

- Lennart Åhlén (BIAS design, testing) – Retired in ~April 2017
- Sven-Erik Jansson – Retires 2019-04
- Walter Puccio



BICAS current status

- Documents
 - RCS User Manual (RUM): iss/rev 01/01 – **updated** (2019-01-17)
 - Software Requirements Specification (SRS): iss/rev 01/00 submitted (2018-01-29)
- BIAS Calibration Tables (RCT)
 - Design: (no change)
 - 1 BIAS RCT/pipeline
 - Transfer functions described by analytical expression with coefficients (2x8 per TF) stored in RCT.
 - Temperature dependence handled by having all coefficients be time-dependent
 - zVars have on time-dimension; two Epoch-like zVars for different time resolutions
 - Skeletons: ROC-SGSE & RODP submitted
 - ROC-SGSE_CAL_RCT-BIAS
 - SOLO_CAL_RCT-BIAS - **new**
 - RCTs: ROC-SGSE & RODP submitted
 - ROC-SGSE_CAL_RCT-BIAS_V201803211625.cdf
 - SOLO_CAL_RCT-BIAS_V201901141146.cdf - **new**



BIAS-Defined Datasets/Skeletons (excl. RCT)

- L2S/L2
 - ROC-SGSE: Submitted (no change)
 - ROC-SGSE_L2S_RPW-LFR-SBM1-CWF-E
 - ROC-SGSE_L2S_RPW-LFR-SBM2-CWF-E
 - ROC-SGSE_L2S_RPW-LFR-SURV-CWF-E
 - ROC-SGSE_L2S_RPW-LFR-SURV-SWF-E
 - ROC-SGSE_L2S_RPW-TDS-LFM-RSWF-E
 - ROC-SGSE_L2S_RPW-TDS-LFM-CWF-E
 - RODP: Submitted - **New**
 - SOLO_L2_RPW-LFR-SBM1-CWF-E
 - SOLO_L2_RPW-LFR-SBM2-CWF-E
 - SOLO_L2_RPW-LFR-SURV-CWF-E
 - SOLO_L2_RPW-LFR-SURV-SWF-E
 - SOLO_L2_RPW-TDS-LFM-RSWF-E
 - SOLO_L2_RPW-TDS-LFM-CWF-E
- L3 (no L4): No implementation (no change)
 - E x B drift
 - True satellite potential
 - 3D electric field ($E \bullet B = 0$)



BICAS input & output

- **BICAS input datasets:**
 - Can read: All LFR (V04)
 - ROC-SGSE_L1R_RPW-LFR-SBM1-CWF
 - ROC-SGSE_L1R_RPW-LFR-SBM2-CWF
 - ROC-SGSE_L1R_RPW-LFR-SURV-CWF
 - ROC-SGSE_L1R_RPW-LFR-SURV-SWF
 - ROC-SGSE_HK_RPW-BIA
 - Processing incomplete: TDS
 - ROC-SGSE_L2R_RPW-TDS-LFM-RSWF
 - ROC-SGSE_L2R_RPW-TDS-LFM-CWF
 - Not updated/tested for SOLO_L1R_*
 - Will also eventually need to read more datasets (RODP pipeline). Awaiting design decisions.
 - SOLO_L1_RPW-BIA-SWEEP (Sweeps) ???
 - Bias currents
 - Calibration tables (RCTs)
 - Usage not implemented yet
 - BICAS requires (and has received) RCTs from: TDS, LFR, BIAS
 - **BICAS output datasets:**
 - Can output*: LFR (V03)
 - ROC-SGSE_L2S_RPW-LFR-SBM1-CWF-E
 - ROC-SGSE_L2S_RPW-LFR-SBM2-CWF-E
 - ROC-SGSE_L2S_RPW-LFR-SURV-CWF-E
 - ROC-SGSE_L2S_RPW-LFR-SURV-SWF-E
 - Processing incomplete: TDS
 - ROC-SGSE_L2S_RPW-TDS-LFM-RSWF-E
 - ROC-SGSE_L2S_RPW-TDS-LFM-CWF-E
 - Will eventually also need to design more datasets. Awaiting design decisions.
 - Sweeps ???
- * Still simplistic calibration



BICAS

- Minor updates since RPW #21
- ~Recent version of BICAS committed to ROC (2018-12-10)
- ~ICD compliant (if ignoring CDF contents), but not latest ICD
- Does read, process, and produce subset of datasets:
 - Simplistic calibration: multiplication (no transfer functions, no offsets)
 - No sweeps and bias currents (awaiting design decisions with ROC; only RODP pipeline anyway)