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| Investigation: FIELDS | | | | |
| Progress accomplished this period: | | | | January 2015 Reporting Period |
| 1. | Project Management and Product Assurance | | | |
|  | a. | Project Management   * Prepared and submitted cost and staffing estimates for enhanced support of Phase E activity. * Received RFP for Phase D cost to complete proposal. Extended corresponding RFPs to subs. * Continued review of changes to ITAR and EAR restrictions. | | |
|  | b. | Product Assurance | | |
|  |  | Turco / Salwen   * Prepare and submit EIDP materials for the EDI GDU SN9R, formerly the flight spare. | | |
| 2. | Systems Engineering | | | |
|  |  | Rau, Dors, Needell   * No activity | | |
| 3. | Post-Delivery Support (UNH) | | | |
|  |  | Observatory and Commissioning Planning Support (FIELDS)   * Returned GDU SN08 to UNH to be used as flight spare * Continued I&T planning for FIELDS at the OBS level for Cape Ops * Continued reviewing all test data from previous OBS tests * Processed S/C current measurements for magnetic emission analysis | | |
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| 4. | Science and Science Data Processing | | | |
|  |  | SWT and SWG   * Participation in all science planning discussions. * Continue work on the EDI instrument paper   UNH Science Team   * Matt Argall, former UNH graduate student recently awarded his PhD, was appointed to a postdoctoral research scientist position   Science data processing activities (Compiled by Chutter)   * ALL   + Continued working on software to run at SDC * UNH   + Working on sample timing – Burst DCE/DCV/SCM still needs work   + Updated scripting at SDC – more to write for commissioning data   + Promoted code from SDC sandbox to production system   + Continued development of FIELDS real time displays – installed and tested at UCLA   + Worked on EDI E field software   + Worked on combined E product software (with Cluster data) * LPP   + SCM L1BtoL2 has been written and is under test at SDC * UCLA   + Continued bi-weekly mag team telecons to develop calibration data flow, and magnetic conference procedures   + Developing inflight calibration procedures   + Work continues on inflight calibration and procedures * GSFC   + Delivered version 0.2.1 of AFG/DFG processing software to SDC. Includes:     - Fixes to coordinate transformation library.     - L2pre processing software now includes code to transform mag data data to GSE.   + Worked on code to remove overlap between fast and slow survey for the L2pre srvy data product   + Worked on code to filter and downsample fast and slow survey to a common cadence suitable for use in orthogonalization.   + Continued discussions with LANL: reviewed suggested changes to coordinate system document, comparisons of LGM vs other coordinate transformation tools.   + Tested the SDC installation of the LANL software library (it didn’t pass). * IRFU   + Implemented a check for non-nominal bias settings (from HK\_10E).   + Implemented phase in L2/L2pre from defatt files instead of HK\_101. * LASP   + Working on ADP software | | |
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| 5. | Magnetometers | | | |
|  | a. | DFG |  | |
|  |  |  | * Continued science data processing preparation activities | |
|  | b. | AFG |  | |
|  |  |  | Pre-launch Preparations   * Louise Lee converting analysis software to Python. * Restarted bi-weekly Mag team telecons. Main topic of conversation continues to be calibration data flow. Confirmed decision to have a “calpre” file for Level 1B and L2pre data products. The Mag Con will validate the definitive cal file, which will in turn be used as a basis for the next iteration of the calpre file. * Began preparation of the Phase D completion proposal and inputs to the PPBE. * Decision to add commissioning specific CDF data file names - specifically add f128 as a designator for 128 sps survey data (as opposed to brst for regular burst mode data).   Post-launch Preparations   * Continuing to assess effort requirements to develop and maintain calibration system.   Engineering: Post-delivery Activity   * Watching over activities in assessing LM6142. | |
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|  | c. | SCM | * Continued science data processing preparation activities | |
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| 6. | EDI | | | |
|  |  | Commissioning   * Generated and submitted scripts for EDI HV commissioning   Flight Software   * Continued implementation of Gun HV ramping and Gun parking option * Continued implementation and testing of electric field mode   Software Loads   * Generated compression/decompression routines to reduce time needed for uploads on orbit | | |
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| 7. | SDP (KTH, UNH) | | | |

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|  |  | * Support commissioning planning activities. |

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| 8. | ADP | |
|  |  | LASP ADP Post-Delivery Support Activities   * Supported MMS IS I&T planning teleconferences |
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| 9. | Commissioning and Mission Operations (Needell, Dors, Rau, Vaith, Singer) | |
|  |  | * Attended SOC Training session - presented FIELDS portion of training. * Delivered updated and planned final Telemetry Database (CTDB8.0) to SOC * Reviewed and delivered final FIELSD CSTOL scripts. * Participated in MRT3 * Provided inputs for other MRTs as needed (MRT3, MRt11, MRT26 ) * Supported commissioning planning meetings as needed. |
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| 10. Problems encountered and updates this period | | |

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| 11. Issues and Concerns | | |
|  |  | Science Data Processing Issues (Compiled by Chutter)   * GSFC   + Interfaces between each Mag calibration process and between each of the MAG institutions remain a subject of ongoing confusion. |

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| Activities planned for next reporting period | | | |
|  |  | Management | |
|  |  |  | * Complete and submit the requested proposal for the balance of Phase D. * Prepare and submit inputs to the PPBE |
|  |  | Product Assurance, Configuration Management, Parts, Materials, Facilities | |
|  |  |  | Turco/Salwen   * Support project as needed |
|  |  | Systems Engineering & FIELDS I&T | |
|  |  |  | Rau, Dors, Needell   * Support project as needed |
|  |  | Post-Delivery Support (UNH) | |
|  |  |  | Observatory and Commissioning Planning Support (FIELDS)   * Support MRT26 and 20A * Final Inspections of ADP RE on OBS-2 +Z and OBS-3 -Z prior to final stack * Final Inspections of ADP RE on OBS-4 +Z and OBS-1 -Z prior to fairing install * Final FIELDS inspections on all OBS prior to launch * Red tag removal of all covers on EDI GDU prior to launch * Final VIF testing prior to launch * Continue FIELDS preparations for flight and early orbit operations with focus on real time data analysis plans to cover deployments, health and safety and interference * Continue data analysis of S/C current measurements for magnetic emissions * Continue contingency planning * Continue review of commissioning planning material on SOC website * Continue I&T planning for FIELDS at the OBS level at Cape |
|  |  | Science | |
|  |  |  | SWT and SWG   * Support science telecons as needed * Complete and submit the EDI instrument paper   Science data processing plans   * ALL   + Use SPDF tools to verify CDF and skeleton files follow MMS CDF Guide   + Support SODAWG * UNH   + Work on real time data display for SDP deployment   + Incorporate calibration from LASP to make first L2 EPSD product   + Continue working on EDI E Field interfaces   + Work on RunEst software (for E Field and mag spin axis calibration)   + Continue work on scripting to control processing   + Continue L0 to L1 software updates as necessary   + Continue working on combined E and B products   + Work on error and warning management * LPP   + [in progress] Analyze the results of the MRT9 data test and correct the software where needed.   + [in progress] Test further the SCM calibration software with the new SCM L1A CDF files provided by M. Chutter in Mag123 system (see MRT9 data test).   + [in progress] Include CDF version number computation (vX.Y.Z) - SDC provided us with the software/procedure to inquire MMS database in order to know which version of the same data in the latest. This has to be implemented in SCM software.   + L1B data will be delivered in both SCM123 and OMB reference frames as decided on the data processing group meeting, Iowa, March 2014   + Include coordinate transformation from mechanical frame OMB to GSE in L1BtoL2   + [in progress]Test DSP spectra calibration. * UCLA   + Continue developing in-flight calibration procedures   + Continue converting analysis activities   + Continue working on timing corrections   + Generate responses to amended RFAs from the Mag team meeting   + Expand on the calibration data flow as outlined during the MMS SWT and FIELDS meetings * GSFC   + Test the Orthogonalization calibration process (e.g. with Cluster data). Use the results to produce sample inputs to the Mag Conference and the next level of Mag calibration   + Augment L2pre software to handle data overlap, fine timing corrections and/or filtering, temperature correction   + Look into potential problems with sun pulse phase algorithm (pointed out by Thomas Nilsson).   + Implement versioning scheme for the L1B, QL, and L2pre data products: requires inputs from SDC.   + Update Level 2 calibration document to document decisions from the SWT Meeting: timing corrections; plans to modify calibration file: add uncertainties and temperature correction coefficients.   + Continue work with LANL and DSWG to create attitude/ephemeris data product, transformation software and documentation * IRFU   + Implement initial version of offset correction. * LASP   + Continue improving DCE software   + Write the software that gives the calibration factor for a given bandwidth in order that Mark Chutter can calibrate E spectra. |
|  |  | Mag Team (UCLA) | |
|  |  |  | * Submit Phase D proposal and inputs to the PPBE * Continue developing inflight calibration procedures. * Continue data analysis software activities. * Generate responses to the amended RFAs from the Mag team meeting * Verify end-to-end data flow from SDC to Mag team home institutions. * Gather Phase E Statements of Work for Mag team members. |
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|  |  | EDI | |
|  |  |  | Commissioning   * Generate and provide scripts for EDI HV commissioning   Flight Software   * Continue implementation and testing of electric field mode |
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|  |  | SDP (UNH, KTH/IRFU) | |
|  |  |  | * Support commissioning planning activities |

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|  |  | ADP/SDP/DSP (LASP) | |
|  |  |  | ADP   * Support final ADP RE inspections and cover removals at KSC.   Systems and Program Management   * Support project as needed. |
|  |  | Commissioning and Mission Operations (Needell) | |
|  |  |  | * Continue supporting SOC preparations for software freeze. * Support MRT 20a (EDI HV and Eclipse prep) * Continue to participate in Commissioning planning. |
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