

October 2019 Monthly Report

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Data Interoperability

As part of my FY2020 ACT2 initiative “Federation of Models and Data” I am continuing work with Nigel Shaw (EuroStep) on visualization of model-to-model data consistency using a draft Application Protocol (AP) to ISO 103030. The AP is “Modeling and Simulation in a Collaborative Systems Engineering Context” or “MoSSEC.”

We are working closely with Martin Steele (KSC), the maintainer of the NASA STD-7009A and associated Handbook. In October, we held weekly tagups to discuss 7009A and how it relates to the MoSSEC framework. We are finding that there is good synergy between the two, with 7009A providing a NASA framework for demonstrating that a specific simulation and analysis is “fit for purpose” in regards to the intent of a specific study. MoSSEC supports this by providing a larger context of the migration of data or reuse of models to support downstream analyses. We are pushing forward to be able to make a small demonstration of the integration of 7000A and MoSSEC in February 2020.

I continued to support PDES working group meetings for Model-Based Systems Engineering (MBSE) PDES and MBSE LOTAR (Long-Term data Archival and Retrieval) Working Groups. I am continuing work on the draft PDES/LOTAR Document 9300-520, which describes the nature of MBSE information. I am continuing to work on this draft and to support bi-weekly telecons for both working groups.

Nipa Phojanamongkolkij and I met with John Evans on 10/16 to discuss how we might be able to support the Model-Base Mission Assurance (MBSA) work that he leads. This was a very fruitful talk, and we agreed on areas we might be able to continue to support. John is continuing to look at ways that we can be integrated into existing initiatives he has underway.

I met with Lisa Rippey on 10/28 to discuss the interoperability work that I am doing, and describe how it fits into an overarching perspective of MBx and MBSE. I am looking forward to supporting her in the tasks she has been assigned supporting the Agency-level MBx/MBSE direction.

Model-Based Systems Engineering

I am part of the team, led by David Goggin, awarded an ACT2 effort to integrate MBSE into LaRC SmallSat rapid development processes, such as what might be envisioned for the Engineering Design Studio. The team met in June to develop and review the project plan and to develop a set of use cases to help frame the envisioned process flow for utilizing the INCOSE CubeSat Reference Model (CSRM), instantiating the reference model and tailoring it for a specific mission application.

I attended the biweekly MIAMI Team Leads meeting. My participation, at the invitation of Karen Weiland, is to provide status on my involvement in the PDES and the data interoperability work that I am engaged in with Nigel Shaw of Eurostep, and to report out on other MBSE methods that may be of interest to the MBSE community in the Agency.

GPX2

Following the strategy rolled-out in the 9/19 ERB presentation, work on GPX2 is dominated by efforts to get assembly and test plans configured to support personnel ramp-up in early 2020. Mark Banchy and I met with Kevin Somervill and Arthur Bradley (D203) to initiate an WYE support task to revise the drawing for the final revision of our Flight Computer Processing Unit (FCPU) board, and I met with LoadPath (boom vendor) to discuss mounting options for our boom.

Much of the effort for the second half of October was spent writing the GPX2 proposal to the CubeSat Launch Initiative (CSLI) call, with proposals due 11/4.

D209

I supported the 10/24 ERB as the D209 representative in place of Jim Price and Nipa Phojanamongkolkij, as they were both unavailable to support the meeting.

Lessons Learned

The GPX2 CLSI proposal was my first full-up proposal effort since joining NASA (I was put on a number of proposals as a contractor in my pre-NASA life). I probably underestimated the level of effort required for the proposal. It came together nicely, but there were some long hours in the office and some weekend work prior to submittal. I would've benefited from starting the effort earlier, and perhaps developing a plan for "bite-sized" writing sessions.