

ACCP Aerosols, Clouds, Convection, and Precipitation Study

ACCP Designated Observable Multi-Center Architecture Study

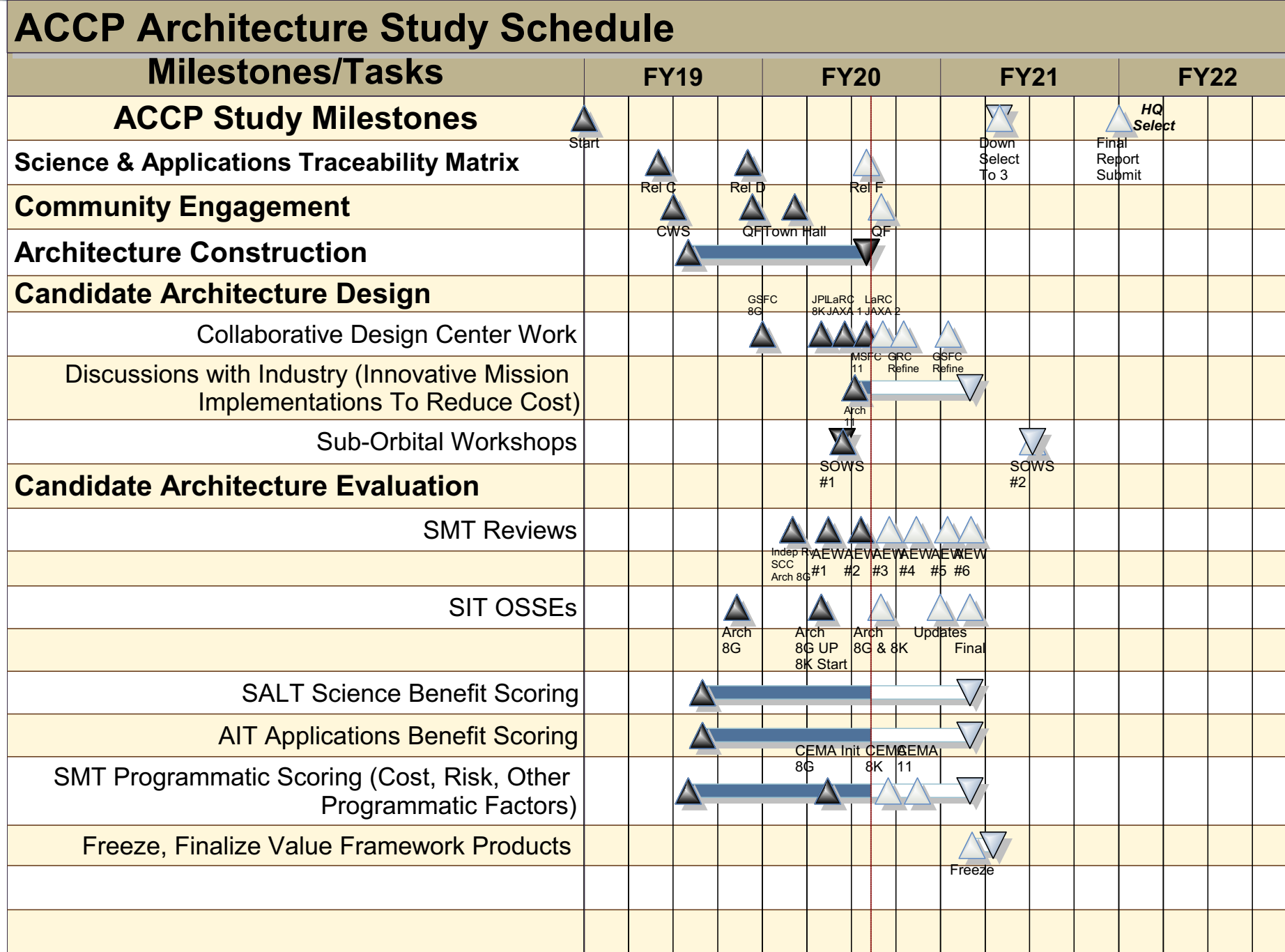
ACCP Study Plan & Schedule

June 18, 2020

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ACCP Study Status/Progress & Plan FY21



Architecture Construction is Completed! Architecture Designs Completed for

- Medium Spacecraft** in Oct. 2019 at GSFC (Architecture 8G)
- ESPA Grande Spacecraft** in Jan. 2020 at JPL (Architecture 8K)
- JAXA Large Spacecraft** in Mar. 2020 at LaRC (Architecture 8G-1)
- ESPA Spacecraft** in April 2020 at MSFC (Architecture 11s)
- JAXA Medium Spacecraft** in May 2020 at LaRC

Architecture Evaluation & Challenges

- OSSEs are challenging but making good progress
- Initial Architectures are challenging to get in **Cost Box** (doing Independent Costing with CEMA)
- **Instrument Technical Readiness Assessment challenging; TRA panels completed preliminary assessments for Radars, Lidars, Radiometers, Polarimeters**
- Starting to work with **Industry on Innovative** options to reduce Launch, SC, Gnd cost but delayed due to Covid

Team Has Done Excellent Job Staying On Schedule Amidst Covid (Remote CDCs/Workshops are hard but have worked well)



ACCP Major Work Areas In Progress In June/July

- Lidar Special Study with French Contribution of UV Receiving Channel for a 3+2 HSRL & ACCP Trade Study All Lidar Options
 - Formal Trade Study started early March 2020
 - SIT Simulations 3 Lidars with Polar07 (2WL Back-Scatter, 2+1 HSRL, 3+2 HSRL)
 - SMT Costing: 3 Lidars including Spacecraft Accommodation
 - SET/SMT Risk Analysis 3 Lidars
 - SET Technology Readiness Assessment 3 Lidars
- ACCP JAXA Special Studies looking at including Radar 17 (Ku Band Doppler Radar)
 - ✓ SMT--Case I Adding Radar 17 and Radar 12 in place of Radar 13 on Architecture 8G SSG Spacecraft
 - JAXA Technology Readiness Assessment
 - ✓ May 19-June 4 CDC #4 @ LaRC--Case II—Dedicated Spacecraft Bus for Radar 17
- CDC #5 @ GRC in July (Ground System Architectures)
- SATM Development (ongoing)
 - Release F finalization
 - Discussion of how to capture Science Benefit of Sampling (diurnal and delta t)
 - Discussion of horizontal resolution for Lidar
 - Discussion of vertical time resolution for Radar
 - Discussion of Radiation measurements

Lidar Trade Study Milestones

Updated Lidar Costing (3 Lidar Types)

Estimated Completion

Estimates Provided 6/8

Updates in Work (due mid' July)

Technology Readiness Assessment (TRA) Presentations

To TRA Panel

TRA Panel Final Report

6/17-6/18 (completed)

due mid' July

SIT-A/SALT Updated Science Benefit Scores

Initial Results 6/16 (completed)

Updates for August 11-13
Review



JAXA Special Study Milestones

Design Spacecraft with Radar 17/Radio07

Estimated Completion

Completed CDC #4 @ LaRC in June 4)

Updated Costs For Architectures with Radar 17

Preliminary Estimates 6/16

Updates in Work (due mid' July)

JAXA provide Technology Readiness Assessment for Radar 17 and plan to achieve TRL-6 by Mission PDR

due mid' July

SIT-CCP/SALT Updated Science Benefit Scores

due for August 11-13 Review



Key Decision Meeting August 11-13

August 11-13 Architecture Evaluation Review

- *Results of Science Benefit for JAXA Ku Doppler Radar*
- *Results of Science Benefit for Diurnal*
- *Results of Science Benefit for Delta t Measurements*
- *Update on all Architectures*
- *Status of Sub-Orbital Element of Observing System*
 - *Plans for March 2021 Sub-Orbital Workshop*
- *Plans for Modeling Working Group Meetings & Plans for Modeling Workshop(s)*
- *Decision on what to study in last CDC at GSFC in October 2020*
- *Plan leading up to January 2021 Decision on Final 3 Space Segment Architectures*

ACCP Study Plan FY21

ACCP Architecture Study Schedule												
Milestones/Tasks	FY19			FY20			FY21			FY22		
Architecture Design Refinement												
Science Write-Up & Review Architecture #1												
Science Write-Up & Review Architecture #2												
Science Write-Up & Review Architecture #3												
Instrument & Spacecraft RFI Releases												
Architecture #1 Design & Cost Refinement												
Architecture #2 Design & Cost Refinement												
Architecture #3 Design & Cost Refinement												
Technical, Management & Cost Review												
Final Production Report												
Multi-Center Executive Review												
FY22 Activities												
HQ Down Select Process & HQ Acq Strategy												
Pre-Phase A Study Contract Awards												
Preparation for MCR												
KDP-A (Start Phase A)												

Following Down Select To Final 3 Architectures in January 2021...

Will re-issue more specific RFIs for Instruments and Spacecraft to increase Technical and Cost Confidence

Will refine designs and costs and do Technical, Management, and Cost (TMC) Reviews with Independent Technical and Cost Teams (CEMA, RAO, Aerospace)

Will develop Instrument and Spacecraft Capabilities for Future AO/RFPs

Will include Center and HQ representatives in Reviews and Recommend 1 of 3 Architectures for Final Selection

Plan Multi-Center Executive Review(s) prior to submitting Final Report to HQ end FY21



Key Milestones/Upcoming Events—2020

June 16-18	Architecture Evaluation Review
June 22	ACCP Community Forum
June 27 (12-2)	SIT-CCP Lidar TIM
July 2 (12-2)	SIT-CCP Lidar TIM
July	Ground System Architecture Development
August 11-13	Architecture Evaluation Review Part 1 (Architecture Freeze)
Sept 1-3 (TBV)	Architecture Evaluation Review Part 2 (SIT-A Lidar/Polarimeter Scoring per Objective)
Sept 22 or 23	HQ Annual Review
Sept 28	Next ACCP Quarterly Forum
Oct 14-15	Architecture Evaluation Review (SIT-CCP Radar/Radiometer Scoring & Sampling Scoring per Objective)
Dec 2-3	Architecture Evaluation Review (Narratives on ACCP Science Flow To Objective Scoring)
Jan 27-28	ACCP Down Select Meeting

Key Milestones/Upcoming Events—2020

March 2021

Science/TMC Review Architecture #1

May 2021

Science/TMC Review Architecture #2

July 2021

Science/TMC Review Architecture #3

August 2021

Team Down-Select To 1 Architecture Recommendation

September 2021

Center/Executive Reviews

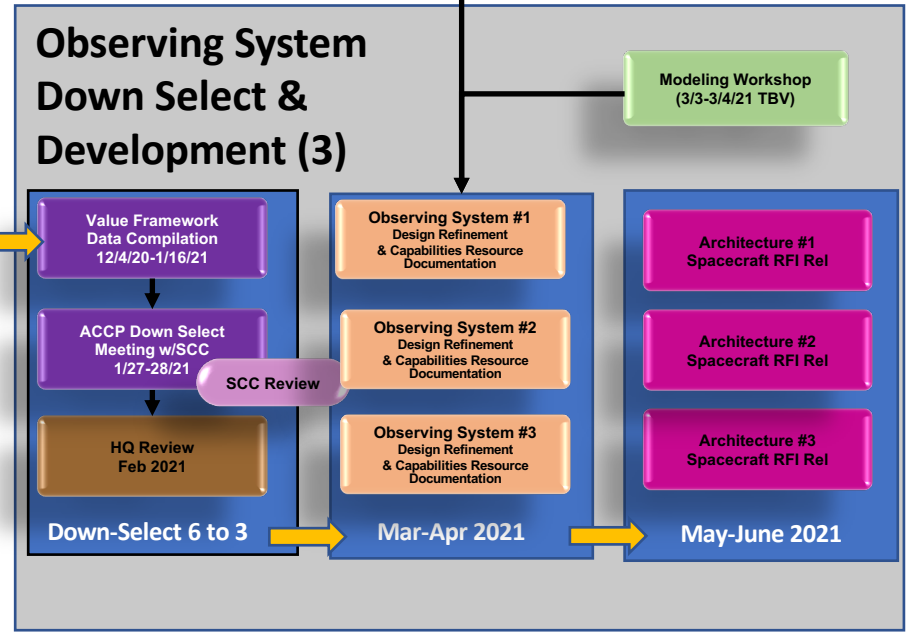
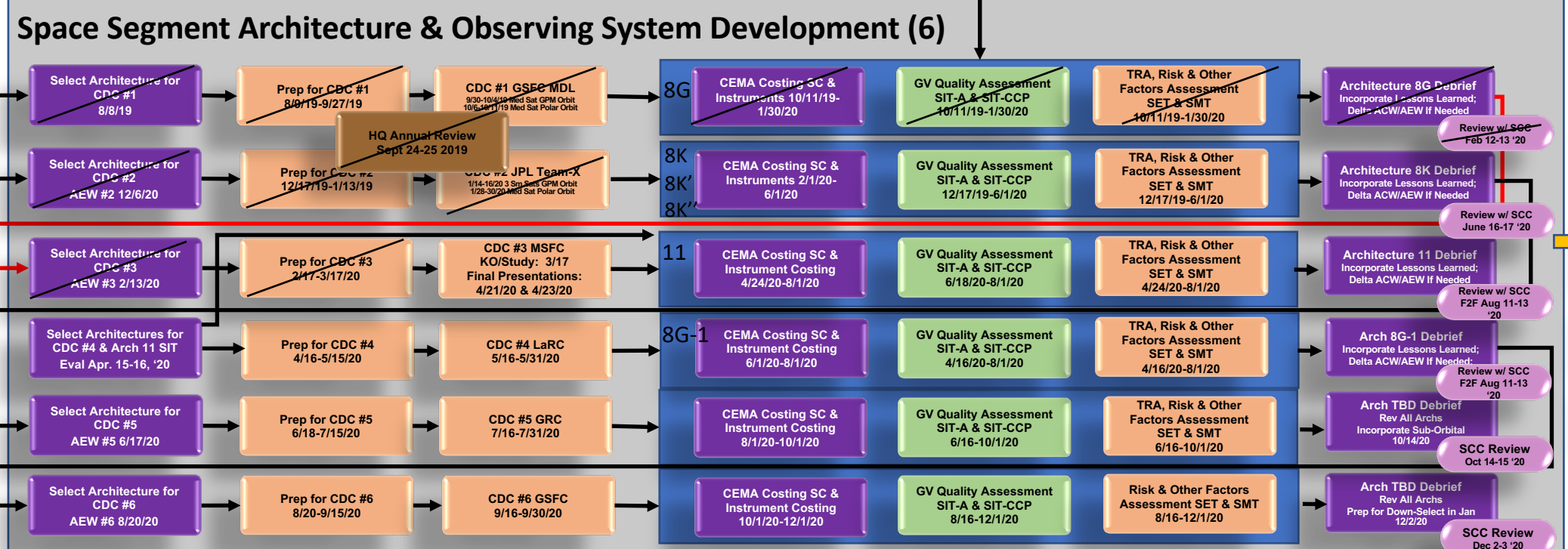
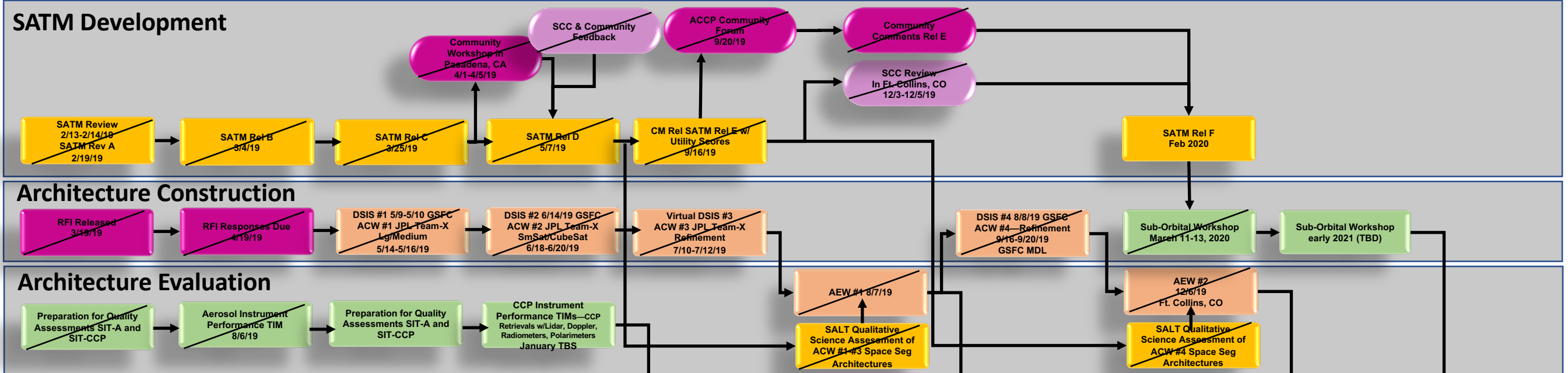
October 1, 2021

Final Report Submission



ACCP Study Detailed Schedule

HQ Kick Off Oct 2018



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Legend:

- SALT
- SIT/AIT
- SET
- SMT/Team
- SCC
- Community/Industry Engagement