

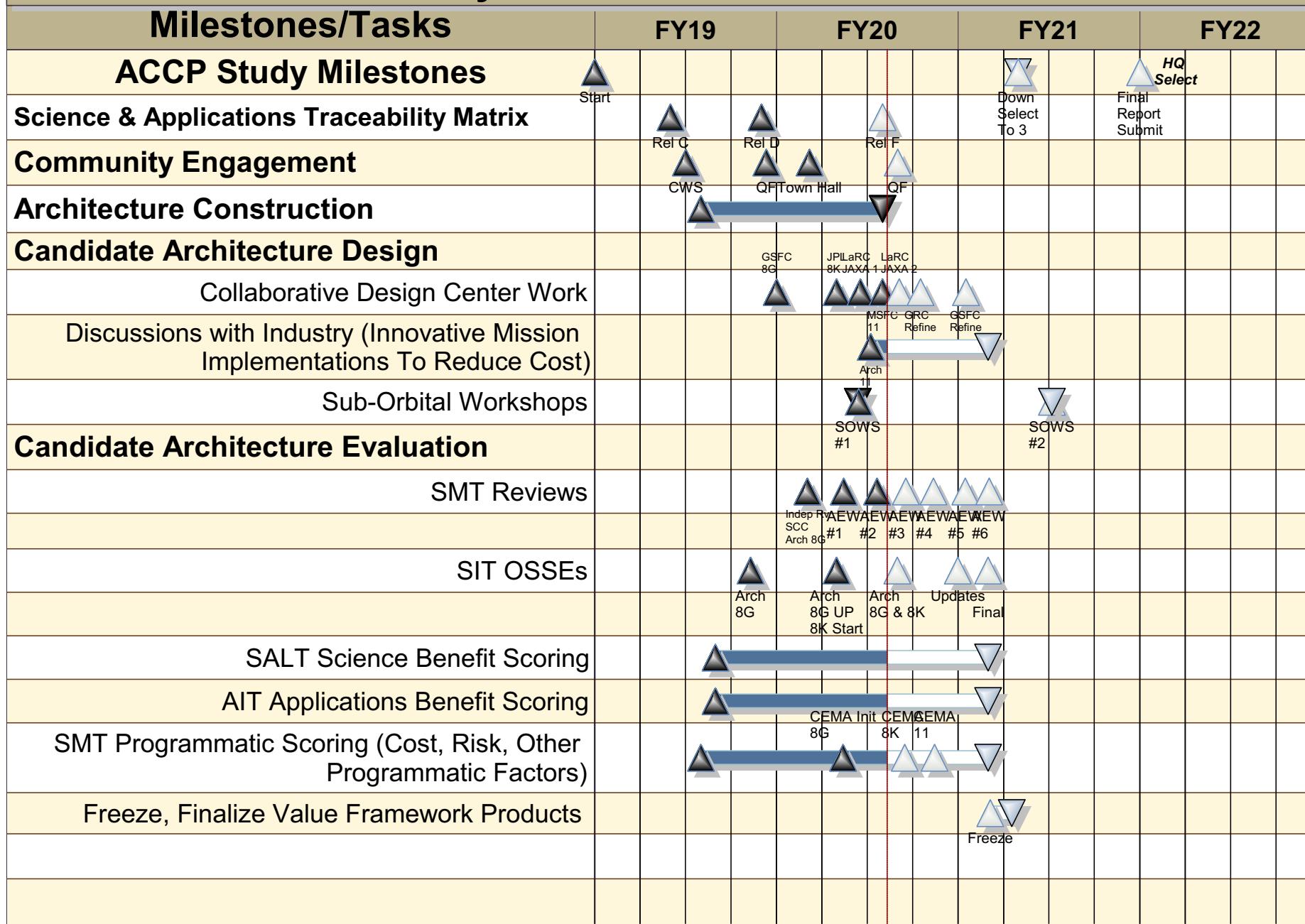
ACCP Designated Observable Multi-Center Architecture Study

ACCP Study Plan & Schedule

June 18, 2020

ACCP Study Status/Progress & Plan FY21

ACCP Architecture Study Schedule



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 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

6/17-6/18 (completed)

TRA Panel Final Report

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				KDP-A
Science Write-Up & Review Architecture #2				MCR
Science Write-Up & Review Architecture #3			RFI Rel	KD
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				KD
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



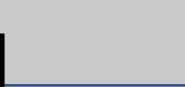
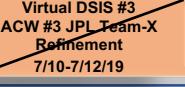
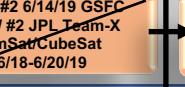
ACCP Study Detailed Schedule

SATM Development

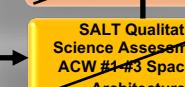
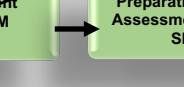
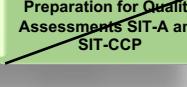
HQ Kick-Off
Oct 2018



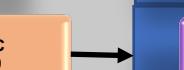
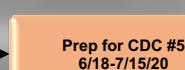
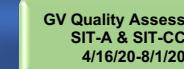
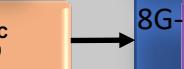
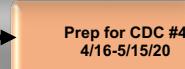
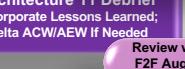
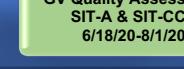
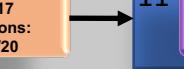
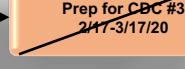
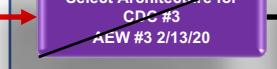
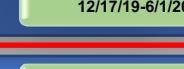
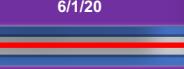
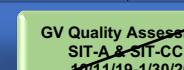
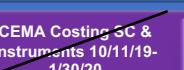
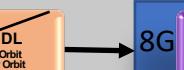
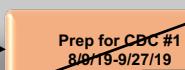
Architecture Construction



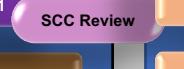
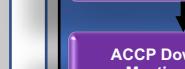
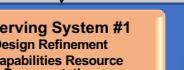
Architecture Evaluation



Space Segment Architecture & Observing System Development (6)



Observing System Down Select & Development (3)



Observing System Down Select Recommendation



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