

**ACCP** Aerosols, Clouds, Convection, and Precipitation Study

# ACCP Designated Observable Multi-Center Architecture Study

## ACCP Study Plan & Schedule

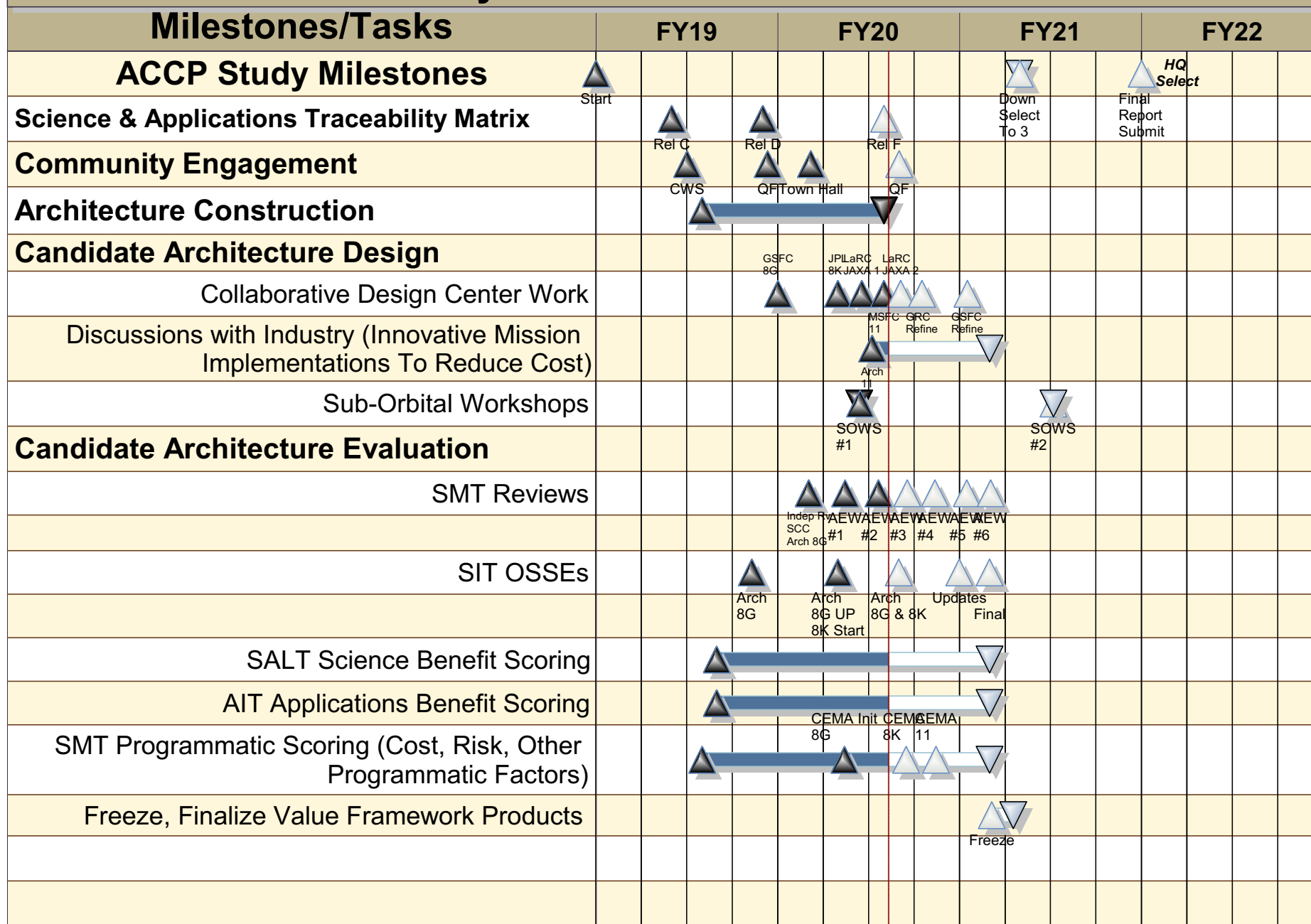
June 18, 2020





# 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

	<u>Estimated Completion</u>
Updated Lidar Costing (3 Lidar Types)	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

	<u>Estimated Completion</u>
Design Spacecraft with Radar 17/Radio07	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		
<b>Architecture Design Refinement</b>												
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												
<b>FY22 Activities</b>												
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

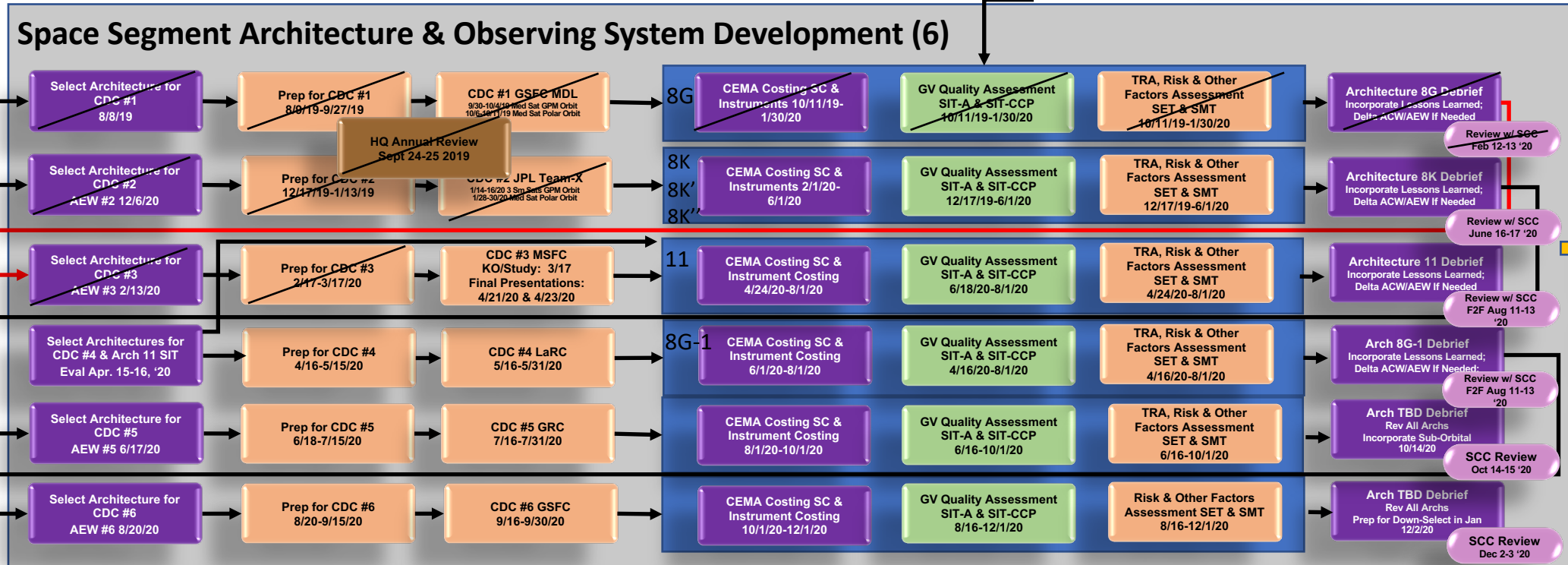
ACCP  
Study  
Detailed  
Schedule

HQ Kick-Off  
Oct 2018

SATM Development

Architecture Construction

Architecture Evaluation



Observing System Down Select Recommendation

Observing System  
Down Select &  
Development (3)



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SALT

SIT/AIT

SET

SMT/Team

SCC

Community/Industry Engagement