8th Annual Lunar Cubes Workshop

Date	Time	Activity	Description	Description	Helps
Friday, April 26	8:00	Overview			
	8:10	Brief Intros	All	name, Institution, what you bring, what you want to take away (2 min)	
	9:00	Lightning Talks (1 slide)	Clark:	network lunar surface packages	
			Mullin	Lunet mission services	
			Khan:	additive layer manufacturing	
			Yendler:	300W cubesat radiators	
			friesema:	cubesat simulator	
			Levi:	design lunar polar ice prospecting mission	
			Mukherjee:	low-cost, compact microwave sensors and antennas	
	9:55	Break			
	10:10		Where do we go from here?	Introduction to challenge (Clark) . Then break into 3-4 small groups, record all participants names, assign (1) discussion leader and (2) recorder to write responses on flip charts.	
	10:20	Design Challenge 1: Can we meet end user Requirements with 'Standardized' low cost Packaging Approaches	Taking on Challenge	Potentially, we will have lots of opportunities to get to the lunar surface via commercial landers, which will mean embracing standardized interfaces and the 'generic wrapper' concept. What kind of surface network and why? What is the goal (baseline and threshold)? What service is being delivered (e.g., monitoring, communication, transportation)? Temporal and Spatial parameters (e.g., where, when, how, frequency)? Draw the concept. Chart up approximate Power,	What opportunities will NASA commercial partners be providing in the way of opportunities?
	10:55		Potential Solutions	What resources (refer to your requirements chart) will you need to make this possible and who will provide them? What assumptions are you making about available infrastructure as a function of time? What commercial 'standardized interface' resources can you take advantage of?	What resources will be provided and when (astrobotic, spacex, masten, moonex....)?
	11:30		Group Discussion	Discuss, compile recorded notes, propose follow up activity	
	12:05	Lunch			
	1:30		Where do we go from here:	Introduction to challenge (Clark) . Then break into 3-4 small groups, record all participants names, assign (1)discussion leader and (2) recorder to write responses on flip charts.	
Date					
Friday, April 26	1:40	Design Challenge 2: What constitutes effective teaming, developing, scheduling and costing approaches for Cubesat Projects?	Taking on Challenge	The utiliization of low cost capped science mision approaches for flight projects is desirable because it will potentially create more opportunities, but how do we make it work? What isn't working and why? Make a list of your 'top ten' challenges, and give flight project examples for each. ALways remember this: your goal is to meet END USER payload REQUIREMENTS.	Variations on Lessons Learned
	2:15		Potential Solutions	Draw on your group's experience to consider th following as well as other things in finding solutions to make your end user happy: What kinds of partnerships work? What is the right mix of junior and senior people, maker and aerospace envineering culture, systems and discipline engineering approaches, generalists and specialists, level of work commitment and turn over? What processes and reviews are critical? How should quality assurance be handled (consider parts qualification, version control, interface compatability)? How should the requirements flow down process be handled? GIve examples for each	
	2:50		Group Discussion	Discuss, compile recorded notes, propose follow up activity	
	3:25	Break			
	3:40		Where do we go from here?	Introduction to challenge (Clark) . Then break into 3-4 small groups, record all participants names, assign (1)discussion leader and (2) recorder to write responses on flip charts.	
	3:50	Design Challenge 3: Shared Resourcdes and toolkits for cubesat missions	Taking on Challenge	Some cubesat levels of effort, scheduling, and costs are scalable, and other are not. Focused projects can place great demands on cubesat hardware and software. Identify what is scalable and what is not in this paradigm, and give examples of where 'scalability' has failed so far, creating an opportunity to develop and share such resources.	Cubesat Project Reports
	4:25		Potential Solutions	Consider and chart the development of sharable resources (software, drivers, operating systems) or toolkits (data production pipeline to archive processes) that already exist, and propose new ones. What is needed in the way of tools that support design? Sharable simulators for most wellknown subsystems? Online resources? Data pipelines? Operations? List these adn their pros and cons.	Cubesat Tools
	5:00		Group Discussion	Discuss, compile recorded notes, propose follow up activity	
	5:35	EOM	Dinner?		