Day # 2 April 26, 2016

General Concept of Ops

- ASC will have full range ops crew for both sites – they have been training up staff to fill launch operations roles and they should have two field teams to ready to deploy; one at each launch site. NASA will assist ASC with personnel as needed and plans to have an OSS, motor crew, and CM at both sites
- ASC is in the process of updating their Range User Handbook for both sites; will contain valuable information for participants who may want to join
- Every rocket mission will be guaranteed a 2 week window
- We will hold spot in the launcher assignment/window for adding a mission (JAXA 2 possibly)?
- Need the second integration hall at ASC as there could potentially be up to 4 rockets integrating at one time
- Backup plan of using NASA's MML may be the best option as we need a launcher capable of launching a Black Brant X (Visions 2 vehicles)
- Cost will be a major driver and may end up in a mission slip or reformulation so we all need to be mindful of requirements that drive cost
- Should we consider any plans for a third launcher at either or both sites?? Smaller launcher like an MRL may not be as difficult as a large launcher.
- May need to use some storage space at NATO base for motors to accommodate all the motors at the same time; needs to be included in export control plan
- Payload integration hall at Svalbard is much larger and is likely OK for proposed missions
- Operations and control at Svalbard will be same as ASC
- New wind tower being installed at Svalbard
- ASC has two GPS sonde stations with 2 frequencies each; two balloons can be in the air at the same time at each site
- ASC will be able to staff both launch sites with WW and RSO functions

- Action to define motor handling cart requirements for both sites; this may be challenging due to number of motors at each site; need to be able to restage as rapidly as possible
- ASC may be able to build more motor carts or WFF can bring extras
- May need to consider motor generator at Svalbard
- Will need to be two windows for the GCI Cusp; windows will straddle Christmas Holiday; Christmas break will be planned into mission
- Dec 26/27 planned return date to catch the opening of the second window; Need to be on site Dec 29 to make the second window opening
- At ASC (if CAPER is selected) we may want to build up TRICE 2 and CAPER at the same time and be ready in the event TRICE launches early we can re-stage and launch CAPER; science teams are largely the same folks
- At Svalbard, we may want to buildup VISIONS and ICI-5 at the same time in case VISIONS goes early we could stage ICI-5 and possibly count some days in December.
- Some inefficiencies need to be built in to allow for large potential savings; Integration period may need to be extended by a week to allow simultaneous integration and test
- ASC prefers to have the MM and the CM in the control center which will be in town at NyA. Payload team will be in the blockhouse near the launcher.

Telemetry

- ASC has 7 complete TM systems
- Wallops has multiple systems but we will be limited on large antennas
- KSAT needs to be included early in discussions; Svalbard and Tromso ground stations will definitely need to be utilized for the GCI
- Will be asking for two large antennas at each site as each mission has two rockets in the air at the same time
- Due to number of missions, equipment required at each site, and personnel.....we may not be able to provide but one antenna per rocket that can close the link for the entire flight AT LIFTOFF;

- KSAT at Svalbard and/or Tromso will provide the second antenna that can close the link for the entire flight but these system will not acquire until horizon break (~15 seconds into flight).
- We will endeavor to utilize ASC and NASA small 10' class systems at each site to ensure we lift off with Two (2) TM trackers on each rocket to mitigate the risk of acquisition
- Need an action to see if we can be in the air from both sites at the same time; Not likely we will execute this option but we should be prepared to address it as we plan the GCI
- ASC will take the lead in coordinating with KSAT for TM support for the GCI
- WFF will need wallops folks at each site to help with decom and recording
- If WFF TCATS is used, we will need to figure out how to accomplish readout functions as there is currently no capability in that van
- Current "thinking" on TM assets at each site include:
- Andoya
- ASC 20 ft
- ASC 7.3M
- ASC 10ft
- NASA TCATS #1 - 6M (availability?)
- NASA TCATS #2 - 6M (availability?)
- SvalSat SG2 and ?
- Ny Alesund
- SuperVan
- Power Van
- NASA 7M
- NASA 20 ft
- ASC 10 ft
- ASC 10 Ft
- Tromso TG2 and ?

Site visit

- Site visit is needed by folks who have not been to Svalbard before; summer of 2016 is too soon as GCI has not matured enough to make it worth the time/cost
- Site visit next year following SR and Balloon conference is probably the best time

Environmental Considerations

- Everything has be picked up returned to the mainland
- Kjell will be the main POC for environmental and will coordinate with Kings Bay
- WFF will need to do a Record of Environmental Consideration just to make sure NASA is being compliant with any/all environmental considerations for Svalbard
- ASC takes care of 1st stage booster removal

Emergency Response & Safety

- There is a hospital in Longyearbyen
- Kings Bay has helicopter on duty 24/7; if needed they will evacuate to Longyearbyen and if necessary to transfer to Tromso an air ambulance will be dispatched
- There is only a first aid station on NyA
- Fire fighting capability is on site at NyA
- Will need to work with Wallops Safety to figure out processing issues with foreign vehicles in the same building; This is just sharing work space not an actual work issue.
- Need a dedicated SAFETY officer from Wallops at both sites
- Set up a meeting with Wallops Safety (Dook) to discuss Safety issues and plans for GCI
- Kings Bay has fire fighting capability
- NASA will request a single RSO or Flight Safety Analysts to work with ASC on all flight safety plans and issues

Cost

- Kjell will start to generate two ROM's for both a ASC and Svalrak
- Cost Structure should be similar to last few missions but with cost spread out over several missions.
- Consumables will need to be paid by each mission
- The team will look at the cost and missions and work together to distribute across the projects that participate
- Scott generate a list of technical info on TM issues and provide to Kjell
- Who pays for the launcher foundation at Svalbard needs to be discussed; quite expensive to pour concrete in Svalbard
- As we get closer to actual dates, prices for flight tickets, per diem, etc will be provided by Kjell for estimating purposes
- John and Kjell work together to formulate an idea on how to share cost effectively; example: if we launch TRICE, VISIONS, (CAPER ?) in Dec.....we need to come back in January to support JAXA, Univ. Oslo, DLR launch.
- We will try to do this without MOU, MOA to keep it simple; overarching high level agreement is being updated and expected by the end of the summer. This should serve as our agreement with the Joint Implementation Plan (JIP) serving as our specific requirements document
- No VAT is applicable in Svalbard

ITAR/EXPORT Control

- TAA exists between Orbital and ASC but has expired.
- Needs to be one TAA from Orbital to ASC for all missions at both ASC and SvalSat
- TAA may need to be established between ROC and ASC for this mission?
- ASC also has export control agreements they need to execute
- Need a specific meeting on ITAR/Export Control

Campaign Management

- Kjell will be the lead ASC side and John will be lead from NASA side
- Kjell will be the GCI Project Manager with John serving as GCI Deputy Project Manager; this will give teams on either side of the Atlantic a POC within their time zone
- Dr. Joran Moen will serve as the GCI Lead Scientist with Dr. Douglas Rowland serving as the Deputy GCI Scientists
- Minutes of meeting sent out by John in ~~week~~.....month!!!

Communications

- Need two independent count networks; one at each site
- Need at least one channel for common communications
- Tentatively plan to attend CEDAR in Santa Fe this year as Joran and Kolbjorn will be there. John and Libby will attend from NASA. Other PI's will already be there and we will further brief the GCI concept.
- ESA SR and Balloon conference in Sweden (next June) will be the next opportunity to meet face to face for additional GCI meetings.
- Kolbjorn and/or Joran will work on developing a GC website to help with communications

Attendees Day #2 April 26, 2018:

- Scott Bissett
- Kjell Boen
- Kolbjorn Blix Dahle
- Phil Eberspeaker
- John Hickman
- Craig Kletzing
- Joran Moen
- Rob Pfaff
- Doug Rowland
- Jay Scott
- Doug Voss

- Libby West