



MESSENGER: Options for Extended Mission Proposal

Presentation to the PSS

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MESSENGER Option 1



Option 1

- The PSD would employ a process similar to the PSD Biannual Senior Review (BSR) used to evaluate Mars Extended Mission in 2008 and 2010.
- PSD had prepared Informal Guidelines on BSR sent to the Project in Nov 2010
- The Project would submit a proposal in early 2011 with the understanding that the proposal would be updated after Mercury Orbit Insertion (March 18, 2011)
- The Messenger Senior Review would be scheduled in summer 2011 so that findings would be communicated to the Project 6 months before the normal completion of operations

Discussion

- Project has fuel capacity for 1 year of extended mission (Delta-V= 128.2 m/s assuming that 88.5 m/s was used for primary)
- Does not distract Project during crucial period around March 2011
- Provides for spacecraft update after orbit insertion
- Gives enough time for preliminary data to be evaluated
- Makes Project funding known during PPBE to plan for FY13



MESSENGER Option 2

Option 2

- PSD extends primary mission by 6 months so it ends Sept 2012
- The PSD would develop a generic process (for all extended missions) similar to the PSD Biannual Senior Review used to evaluate Mars Extended Mission in 2008 and 2010
- PSD prepares a call that would be sent to all Extended Mission candidates in Dec 2011 with a 90 day response time
- The Project would submit a proposal in March 2012 for 6+ months duration
- The funding information is available for PPBE FY14

Discussion

- Does not give the Project the requested 6 months lead time for operational transition but funding information is available for PPBE FY14
- Project's fuel capacity unknown but could be for 6 months of extended observation
- Could affect Project 's major data release to PDS in Sept 2012



Background





MESSENGER Details

- Mission enters orbital phase on March 18, 2011 (UT) after three successful fly-bys and expect s new discoveries at Mercury
- The current fuel budget is sufficient for prime mission (Delta- $V=88.5$ m/s) and allows an extra year of operation ($=128.2$ m/s).
- Project funding for operations is slated to end in March 2012; an extended mission needs a six month lead to be cost effective.
- Current PPBE budgets carry Extended Mission estimates.
- The project has developed a two part plan.
 - Part 1: create an initial baseline populated with mission infrastructure and observations that did not fit in the prime plan
 - Part 2: complete the baseline and include new observations as permitted after a few months of operations
- The year of operations is expected to be at the same level but would include added delivery of data products to the PDS