2017 Decadal Survey & ERB EV-C

• ESD cancelled RBI due to cost and schedule overruns.
• ESD is aware that RBI was part of the Decadal Survey Program of Record.
  • And also that DS recommended completing the program of record (PoR).
• DS also recommended developing a new line of small (Earth Venture Class) **low cost, cost capped** missions.
  • DS recognized importance of continuity measurements, but also did not want continuity measurements to eat the ESD’s lunch.
• In response to the DS recommendation, ESD is creating a new line of Earth Venture missions, “Earth Venture Continuity.”
• In response to the Decadal Survey recommendation to complete the PoR, ESD has chosen the first EV-C mission to be radiation budget.
• I have been given the responsibility to write the solicitation.
ESD Top Level Approach to EVC

• ESD will use EVC to **demonstrate** a technique/approach for making long-term measurements with the appropriate characteristics (a “continuity demonstration.”)
• Criteria for selecting an EVC project:
  • Capability of the instrument/characteristics of the data
  • Cost of future copies
  • Accommodatability
  • Producability
  • Ease of technology infusion (optional)
• Payload Classification will be Class C or D
• EVC will NOT address continuity beyond the demonstration
• Minimum demonstration period is 1 year beyond on-orbit commissioning
• Additional on-orbit acquisition will not be under the cost cap
• The ESD objective will be to fly 3 EVC missions in the decade
• DS envisioned EVC to be similar to the EVM strand, including full mission implementation costs whether for instruments, spacecraft, and launch vehicles OR hosted payloads with hosting services included.

• ESD will exercise flexibility to implement any of the following arrangements for EVC:
  • Full mission implementation – like CYGNSS
  • PI arranged instrument hosting – like GeoCarb
  • NASA provided hosting for a MOO – like TEMPO or MAIA
• ESD may solicit ALL of these implementations in a single AO, as follows:
  • $150M for full mission or PI arranged hosting
  • $110M-$120M for MOO; with $30M-$40M for accommodations
  • Radiation Budget – MAY be hosted on JPSS-3 – other options may be proposed under this concept.
**EVC-1 AO Assumptions**

- Cost capped at $150M
  - If estimated cost to complete exceeds cap, termination is initiated
- Solicitation targeted for radiation budget science capability
- One-step solicitation process (solicitation, proposal, evaluation, selection)
  - Evaluation consists of 1. Science panel, and 2. Technical, Management, Cost panel conducted by SOMA (Science Office for Mission Assessments)
- All RBI hardware will be offered in AO as government furnished equipment (GFE)
- EVC-1 will be a Class C payload
- EVC-1 will have a mission duration requirement appropriate for radiation budget continuity
  - This is specific to EVC-1 and not precedent setting, as the primary objective of EVC is to demonstrate a technique/approach for making long-term measurements rather than providing a mechanism for actually acquiring the measurements over the long term
- Solicitation to be released by December 2018
- Draft solicitation to be released for community comments
### EVC-1 Notional Budget

<table>
<thead>
<tr>
<th>Category</th>
<th>Estimated Cost (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation</td>
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<tr>
<td>Reserves (25%)</td>
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<tr>
<td>Instrument</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
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- For comparison, RBI Instrument contract cost was ~105M, original budget was ~180 Million.
- EV-C instrument not likely to be able to replicate capability of CERES instruments.
- Radiation Budget Working Group instituted to define instrument/measurement characteristics to continue ERB science **consistent with available funding**.
  - If you can only have guns or butter, which do you want? What is the priority?
  - WG is composed of CS due to Federal Advisory Committee Act (FACA) rules.
- Working group report due out in July. Draft version will be published for public comment.