

## 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.
- Deadline for release of solicitation – December, 2018. Draft to be released in September.

## 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

# Types of Missions Solicited Under EVC

- 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

Category	Estimated Cost (Millions)
Accommodation	30
Reserves (25%)	24
Project Management, Systems Engineering, Safety and Mission Assurance, Science, Operations	24
Instrument	72
<b>Total</b>	<b>150</b>

- 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