

NASA Update: Data Informed Decisions for 2040

NDIA IPMD Fall 2023

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Distribution Statement A

National Aeronautics and
Space Administration



THE EAGLE NEBULA (M16) “PILLARS OF CREATION”



Hubble Space Telescope



Launched with 344 single points of failure

James Webb Space Telescope (JWST)

Distribution Statement A

ASTEROID BENNU MATERIAL AND OSIRIS-REX



OSIRIS-REx

OSIRIS-REx
Overview
Images
Videos
Media Resources

Spacecraft and Instruments

Mission Operations

Related Topics

- Asteroids
- Asteroid Bennu
- All Topics A-Z



About OSIRIS-REx

NASA's OSIRIS-REx, the first U.S. mission to collect a sample from an asteroid, will return to Earth on Sept. 24, 2023, with material from asteroid Bennu. When it arrives, the OSIRIS-REx spacecraft will release the sample capsule for a safe landing in the Utah desert. The pristine material from Bennu – rocks and dust collected from the asteroid's surface in 2020 – will offer generations of scientists a window into the time when the Sun and planets were forming about 4.5 billion years ago.



Solar System and Beyond

NASA Completes Last OSIRIS-REx Test Before...



Asteroids

Follow Mission Updates Here

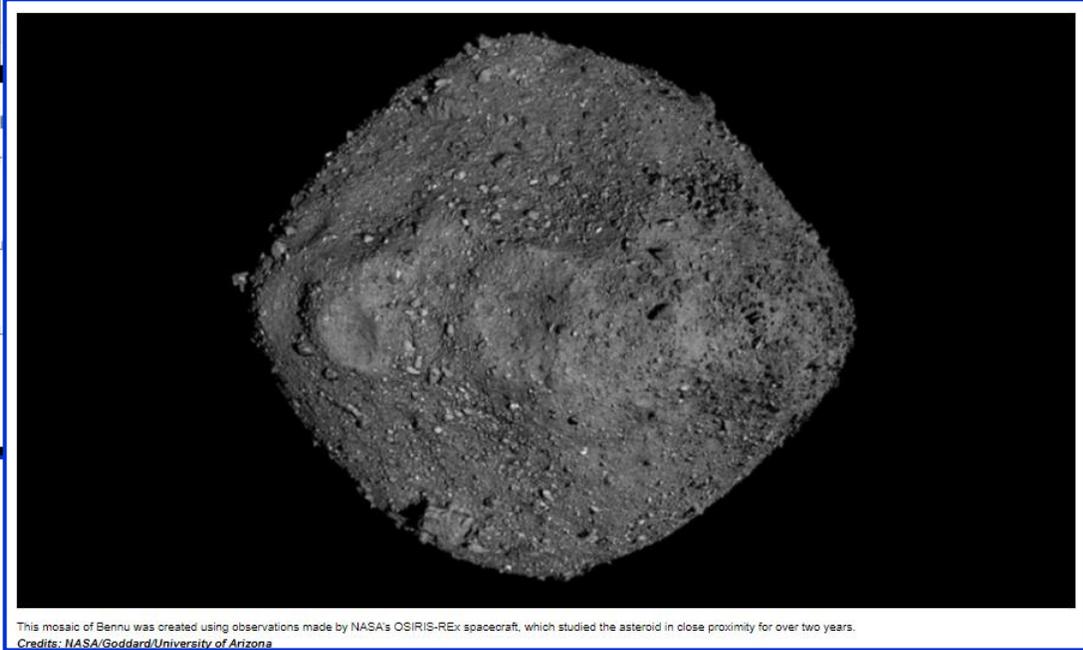
Final Rehearsal Prepares Mission Team for... *4 days ago*

Guest Blog: Preparing for Any Sample Return... *18 days ago*

NASA's OSIRIS-REx Spacecraft Adjusts Course... *a month ago*

SEPTEMBER 2023

SUN	MON	TUE	WED	THU	FRI	SAT
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



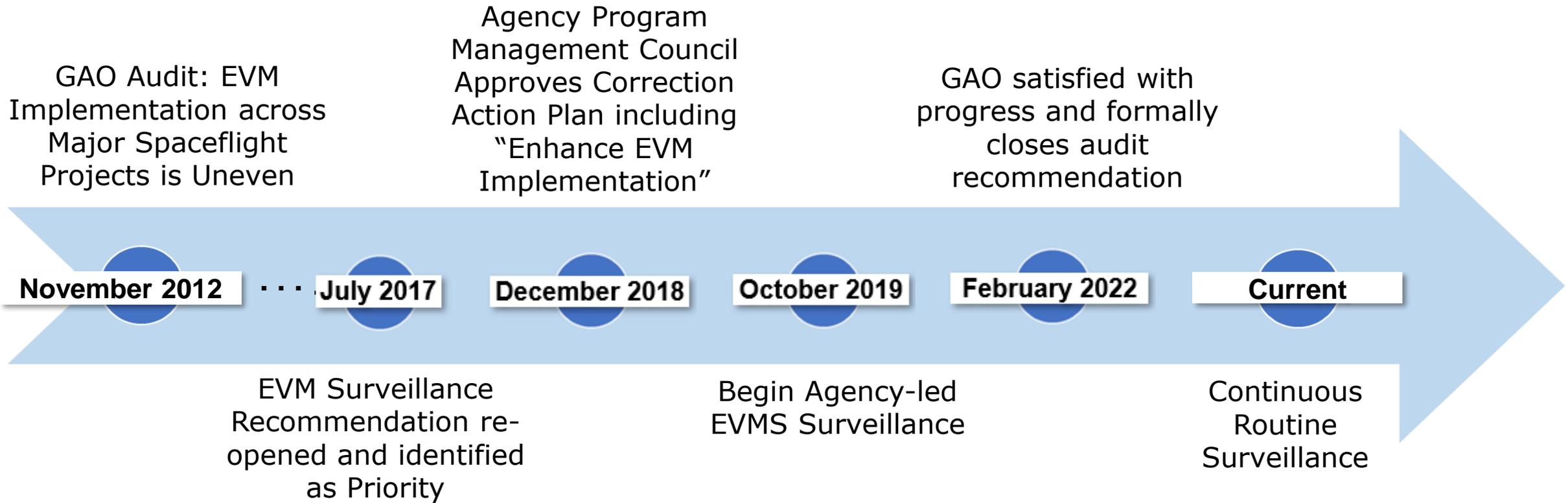
This mosaic of Bennu was created using observations made by NASA's OSIRIS-REx spacecraft, which studied the asteroid in close proximity for over two years.
Credits: NASA/Goddard/University of Arizona



Update on NASA's Stewardship of EVM

-  EVMS Surveillance and DECM Test Metric Practitioner's Forum
-  IPMDAR Roll Out
-  EVM Dashboard

HISTORY OF EVMS SURVEILLANCE AT NASA



SURVEILLANCE GUIDING PRINCIPLES

To avoid duplication of effort, minimize costs, and improve communication, a joint surveillance process is encouraged, where applicable.

- **Principle 1:** Ensure credibility of the EVM data to support informed decision making.
- **Principle 2:** Minimize disruption to the projects.
- **Principle 3:** EVMS surveillance is modeled from DCMA data driven EVMS surveillance processes.
- **Principle 4:** Agency surveillance process will not replace internal EVMS surveillance process or in any way remove the responsibility to implement and maintain the EVMS on project.

- Surveillance schedules will be developed and coordinated in advance.
- Control Account Manager (**CAM**) discussions only conducted by exception when there are recurring data anomalies.
- Joint surveillance between the agency and the in-house project is encouraged and requires internal surveillance practices be in place on the project.
- Leverage internal surveillance processes, especially their plans and reports. Use their plans and reports to guide Agency-level surveillance.
- Surveillance assessments are expected to be completed both virtually and onsite, with site visits schedule once per year for routine surveillance.

EVMS SURVEILLANCE REPORTING



Type	Entitiy	Number of Projects	Number of Reports FY20Q1 - FY23Q3
NASA Suppliers	JHU/Applied Physics Lab (APL)	3	15
	Jet Propulsion Lab (JPL)	3	18
	Southwest Research Institute (SwRI)	3	10
NASA Centers	Goddard Space Flight Center (GSFC)	3	18
	Johnson Space Center (JSC)	1	5
	Kennedy Space Center (KSC)	1	6
	Marshall Space Flight Center (MSFC)	1	4
TOTAL		15	76

NASA DECM TEST METRIC PRACTITIONER FORUM



- **Attendance:** Civil servant and contractors from NASA HQ, Centers and Suppliers who are actively running the test metrics. DCMA graciously attends. August meeting attendance: 32.
- **Frequency/Timing:** Quarterly 1-hour meeting via MS Teams
- **Topics:** Typically, 3 to 5 metrics are covered as well as other topics.

Test Metric ID	Test Definition
06A501a	<i>In the IMS, do all of the tasks/activities & milestones have baseline start and baseline finish dates?</i>
12A301a	<i>Does the time-phasing of LOE WP budgets properly reflect when the work will be accomplished?</i>
27A104b	<i>Are ETCs generated for WPs/PPs/SLPPs?</i>
27A106a	<i>Do EAC's consider performance to date?</i>

Table: DECMs Discussed at Recent Forum

The purpose of the Forum is to exchange knowledge on DECM Test Metrics. Topics include, but are not limited to test metric methods, use of sampling, interpreting results, criteria for a CAR, and lessons learned.

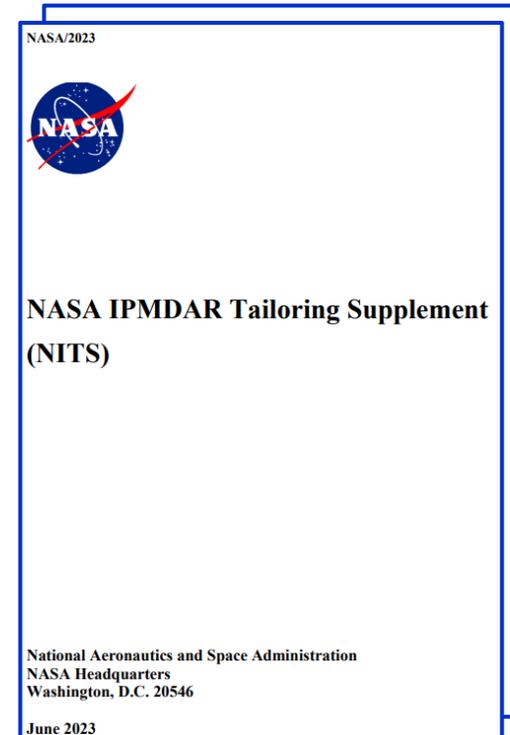
IPMDAR ROLLOUT



- NASA issued the Procurement Information Circular (PIC) 23-02 *- w/IPMDAR requirement July 2023.
- Documented sample DRD (aka CDRL) in the NITS^.
- Recognized the role of PP&C
- Created training that complements and does not duplicate ADA's.

Key Challenges

- "It's going to cost more money to implement" – a misconception
- Do not see value in data set vs IPMR formats – lack of experience using an analysis database (vice Excel)
- Confusion over the CPD and SPD DEI and FFP reference to "nullable" fields – lack of knowledge of how data sets work



* https://www.nasa.gov/sites/default/files/atoms/files/pic_23-02_evm_update_to_ipmdar_requirement.pdf

^ https://www.nasa.gov/sites/default/files/atoms/files/nasa_ipmdar_tailoring_supplement.pdf

IPMDAR PRODUCTS[^]



Cost (1.2.1, 1.6.1, 2.3)	Schedule (1.2.2, 1.6.2, 2.4)			Performance Narrative Report (1.2.3, 1.6.3, 2.5)	
Provides performance/execution data from the contractor's existing management systems.	Comprised of both the Native Schedule File and the Schedule Performance Dataset (SPD). Provides data from the contractor's Integrated Master Schedule (IMS). <i>The "Schedule" also includes a Data Dictionary as part of the Native Schedule File submission (although not specifically called out in IPMDAR Section 1.2.2).</i>			Comprised of both the Executive Summary and the Detailed Analysis Report. Provides narrative analysis of data provided in the Contract Performance Dataset (CPD) and the Schedule.	
CPD - Contract Performance Dataset/ Validator Tool (1.2.1, 1.6.1, 2.3)	Native Schedule File (Fields) (1.6.2.2, 2.4.1, 2.4.2)	Data Dictionary (1.6.2.2, 2.4.2.20)	Schedule Performance Dataset (SPD) / Validator Tool (1.6.2.1, 2.4.1, 2.4.2)	Executive Summary (1.6.3, 2.5.2)	Detailed Analysis Report (1.6.3, 2.5.3)



[^] https://www.nasa.gov/sites/default/files/atoms/files/nasa_ipmdar_tailoring_supplement.pdf

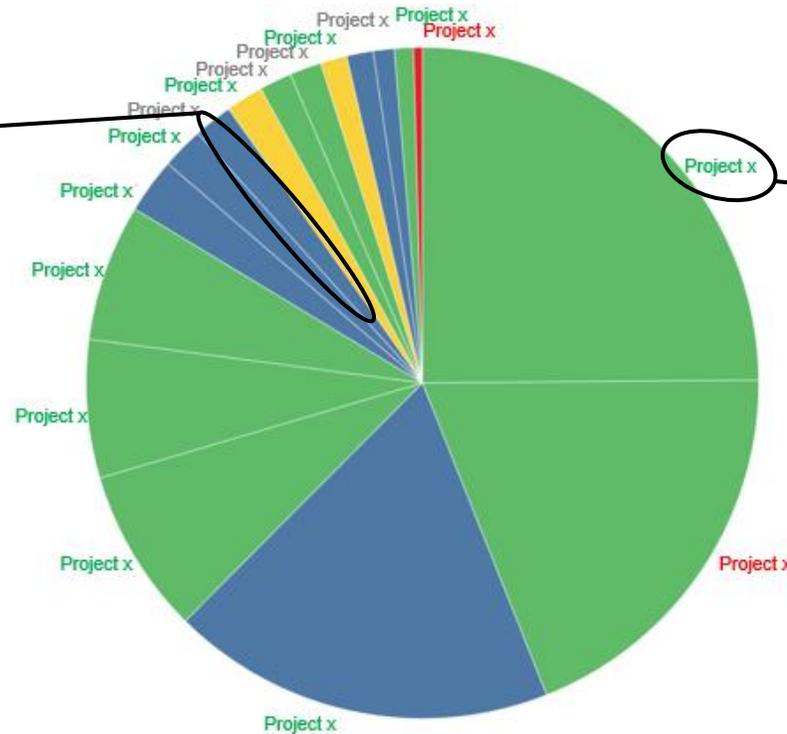
NASA EVM DASHBOARD



In the 2020 NASA response to GAO, the *NASA High Risk Corrective Action Plan**, NASA committed to reporting EVM indicator metrics internally to senior management. That data is used for external reporting as well.

Pie slice body color represents proportion of estimated development budget

- If schedule, R/Y/G color changes based on estimated launch date change
- If cost, R/Y/G color changes based on estimated budget change against budget agreed to with Congress



Pie slice label color represents the EVM indicator

- If schedule, R/Y/G color represents SPI
- If cost, R/Y/G color represents CPI

*https://www.nasa.gov/sites/default/files/atoms/files/nasa_high_risk_corrective_action_plan_2020.pdf



EVM (Earned Value Management)



EVM Overview

EVM is an integrated management control system for assessing, understanding and quantifying what a contractor or field activity is achieving with program dollars.

- Integrates technical, cost, schedule, with risk management
- Allows objective assessment and quantification of current project performance
- Helps predict future performance based on trends.

EVM provides project management with objective, accurate and timely data for effective decision making.

[Click here to read more about EVM](#)



Tutorial



Regulation/Requirements



Handbooks

Looking for EVM Implementation Handbooks? Look no further - we have all your EVM Handbooks in one place.

[Click here for EVM Implementation Handbooks](#)

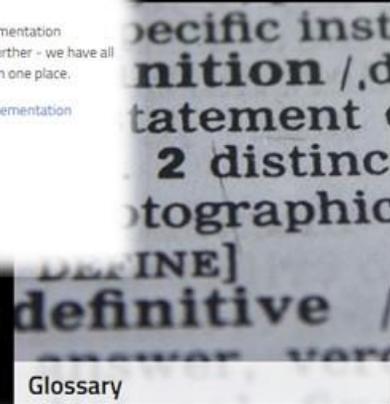
Training

EVM training is available through scheduled classroom courses or online SATERN courses.

[Click here to read more about EVM training](#)



Reports



Glossary



Acronyms



EVM Working Group



EVM Resources



QUESTIONS

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And a robotic spacecraft enabling human missions to the Moon ... a few of the stories to tell you about – This Week at NASA!

Our SpaceX Crew-7 Mission Launches to the Space Station

On Aug. 26, a SpaceX Dragon spacecraft launched to the International Space Station on NASA's SpaceX Crew-7 mission. The

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Our Webb Space Telescope Captures a Cosmic Ring on This Week @NASA - August 25, 2023

3.9K views · 2 hours ago

Our Webb Space Telescope captures a cosmic ring, the beam behind our upcoming Psyche mission, and the unique thing about a star that was ripped apart by a black hole ... a few of the stories to tell you about - This Week at NASA.

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