

## MRD 546- Design Reference Asteroid Scorecard

### Data Product Overview

One sentence executive description of product

The Design Reference Asteroid Scorecard (DRAS) provides a comparison between our understanding of properties of Bennu prior to encounter and our understanding at the conclusion of encounter.

#### Overview

Data type (image, spectrum, data table, map format etc.)

data table

What does it measure at what scale

The DRAS is a synthesis of the final science results from all data taken during the Bennu encounter.

What observations are required to provide the input data needed to make the data product?

The DRAS is a synthesis of the final science results from all data taken during the Bennu encounter.

When in the DRM are the observations that make the data product scheduled to be taken?

all phases including analysis that will occur after the end of the encounter phases

How long does it take to produce the data product?

Iterations of the DRAS will be produced as new science results are produced and vetted by the OSIRIS-REx science team. The final DRAS product will be produced at the conclusion of the project when all science products are (or should) complete.

Is this product used of sample site selection, science value, or long-term science?

long-term science

#### Data Product Structure and Organization

What is the structure of the data product (e.g. FITS file with 4 extensions)

table

How is the product organized (e.g. one data set per mission phase, one file per Earth Day, etc. )

The DRAS will be contained within an Excel spreadsheet (or equivalent). Ultimately the product will be published in a peer review journal.

#### Data Format Descriptions

Header information (metadata) included with data product. For example:

The DRAS will contain a list of DRA properties, DRA property values, source of DRA property values, updated DRA properties values from the Encounter, source of updated encounter DRA values, difference between pre- and post-encounter values and explanations for these differences.

Detailed Description of data format. For example:

Table

Data Type

ASCII

Field name, Field Description, Field Length, Field Format

DRA parameter number - Design Reference Asteroid internal number

DRA parameter name - Design Reference Asteroid parameter name

Type of parameter - numeric, date, value, description, model, coordinate, boolean, function

Science Product(s) Owner(s) - What data product are relevant to the parameter and which science working groups own those products

Pre-Encounter value - value of the parameter based on pre-OSIRIS-REx encounter knowledge

Encounter value - value of the parameter based on OSIRIS-REx encounter knowledge

Comments on Results - comments on the differences of our pre-encounter and post-encounter knowledge, what our pre-encounter encounter knowledge got right, got wrong and why

#### Data Product Generation

How and by whom is the product generated?

What are the input products needed to produce the product?

summary/final results from all science data products

Are there format expectations for the input products?

No.

What algorithms and/or calibration data is used to generate products?

Are there format expectations for the inputs?

n/a

Has a specific Science Team Member been assigned to produce this product?

Carl Hergenrother

Will multiple versions of the product be generated?

Yes

How will they differ?

On what cadence will they be delivered?

Similar to the DRA, the DRAS will be updated as new encounter science results are accepted by the science team and project. The cadence of version production will be flexible and is dependent on the production of science results.

Data Product Validation

How will the product be vetted to ensure contents and format are correct?

Inputs to the DRAS will be vetted by the DRA CCB. The final version of the DRAS will be reviewed by the PI office.

Data Flow

Update Data flow diagrams with more detailed based on current processing configuration.

Updates to the DRA will be flowed to the DRAS. Explanations for pre- and post-encounter differences will be determined during consultation with the relevant science team members.

Describe the sources, destinations, and transfer procedures for data products.

State the size of an individual data product and the total size of all the data products generated over the course of each mission phase. Size estimate by Baseline?

State the time span covered by a product, if applicable, and the rate at which products are generated and delivered.

Standards used to generate data product  
Time (e.g. times are all converted to UTC)

n/a

Coordinate System

n/a

Data Storage Conventions (i.e. byte order, compression, machine dependence)

Product to be retrieved via WebQuery based on data product type (name)