

Glossary

Activity: A period of time characterized by a logically contiguous set of spacecraft operations or science observations. There may be multiple activities in a window. More than one instrument can participate in an activity (see **Primary** and **Secondary Instrument/s**).

Contamination Coupon: This is synonymous with materials archive samples. The term Materials Archive Sample is preferred to avoid confusion with with contamination knowledge, monitoring, and witness plates.

Contamination Knowledge Plates: A substrate exposed during spacecraft assembly and test operations for scientific analysis of the nature of contaminants present. (*cf.* Contamination Monitoring Plates and Witness Plates)

Contamination Monitoring Plates: A substrate exposed during spacecraft assembly and test operations for verifying contamination control requirements for particles, non-volatile residue, and amino acids. (*cf.* Contamination Knowledge Plates and Witness Plates)

Error: As in, the error of a measurement. A vague term that probably represents a combination of precision and accuracy. (1)

Instrument Precision: The repeatability of a measurement. The standard deviation of a measurement taken in the same conditions near the same time (i.e. noise). Long term drifts in the instrument do not affect the precision. The precision of the measurement is not affected by spacecraft position and orientation errors. Precision is the degree to which repeated measurements under unchanged conditions give the same result. There are three types of precision: “Radiometric Precision”, “Spectral Precision”, and “Geometric Precision”. (1)

Instrument Accuracy: The difference between the actual value of the quantity being measured and the value reported by the measurement. The absolute error. The degree to which the measured value deviates from the true value. There are three types of accuracy: “Radiometric Accuracy”, “Spectral Accuracy”, and “Geometric Accuracy”. (1)

J-Asteroid Plan or J-Asteroid Observation Plan: Plans developed in J-Asteroid which include the list of ATL targets, slew modes, start times, and the sequences that are called for each ATL target. One J-Asteroid Plan generally corresponds to one **Science Window**.

Observation: A single data point from a science instrument. Examples: Single OVIRS or OTES spectra, OLA shot, image from one of the camera systems.

Primary Instrument: A single instrument that drives the design of the **Activity** (determines the slew pattern, for example). Not necessarily the higher priority instrument.

Relative Accuracy: Accurate as above, but compared with something, such as the level of the average continuum comprising the suite of spectral measurements made over the scene. (Warning: There is considerable controversy on the utility of this term – we advise avoiding it as much as possible.) (1)

Relative Precision: Precision as above, but compared with something, such as a previous channel of a spectrum. (1)

Resolution: Derived from resolve, meaning to separate into constituent or elementary parts. In common usage, resolution refers to a distance between elements that should include a preceding adjective. For

example, spectral resolution is a quantity defining the spacing between channels (e.g., 22 nm, or 10 cm⁻¹) or filters (e.g., 1 μm). Spatial resolution is the smallest area element observed on the target surface by an instrument, such as 40 m (per pixel).

Replay:

This is a request from the MSA/SPOC to fill in data gaps that exist on the FEDS (either SPOC or MSA) with data that has already made it to the ground. This has two primary flavors: a SLE playback from the DSN CDR to the MSA/SPOC FEDS or a DHDS playback from the MSA FEDS to the SPOC FEDS

Retransmit:

This is a request from the MSA/SPOC to the spacecraft to transmit parts of a recorder to the ground station again. This can be done in the same pass, next pass (or opportunity) and 48 hours later.

Science Window or Window: A period of time agreed upon by MSA and SPOC for science activities that SPOC uses for planning. There may be several different windows in a day but each window generally has one corresponding J-Asteroid plan and one corresponding ATF.

Secondary Instrument/s: An instrument that participates in an **Activity** but does not drive the design. Multiple instruments can be secondary instruments in an activity. Not necessarily the lower priority instrument/s.

Sensitivity: A measure of the response of an instrument to a given signal strength. Generally, a relative term. The sensitivity is not directly related to the absolute accuracy. Sensitivity is more related to SNR and precision.

SNR: Signal-to-Noise-Ratio. The signal divided by precision (aka noise). Decreasing the accuracy will not affect the SNR.

Science Observation Change Request: Request generated by the Science Team to modify the Mission Phase Plan.

Target: Point in space or on Bennu used for pointing or slewing the spacecraft.

Uncertainty: Similar to accuracy. A vague term that is an undefined combination of accuracy and precision. (1)

(1) The use of terms quantifying accuracy and precision apply to both instrument-level performance, and to derived higher-level products. The instrument-level values are inputs to the calculations for the higher-level products, and by error propagation generate the accuracy and precision associated with the higher-level products. For example, OLA measures a range with a particular accuracy. OCAMS measures a limb profile with a particular accuracy. Such inputs are incorporated into the shape model. Each input to the shape model has a corresponding accuracy. The overall accuracy of the shape model is a function of the individual inputs.

Relative Accuracy: Accurate as above, but compared with something, such as the level of the average continuum comprising the suite of spectral measurements made over the scene. (Warning: There is considerable controversy on the utility of this term – we advise avoiding it as much as possible.) (1)

Witness Plates: A flight system component which is launched, exposed during flight, and returned to Earth to provide information on the contamination load on the sample. These plates are located on TAGSAM and inside the SRC canister (*cf.* Contamination Knowledge Plates and Contamination Monitoring Plates)