

6th International Space Debris Re-entry Workshop – WS3 Observations-Ground Testing

ESA Space Debris Office

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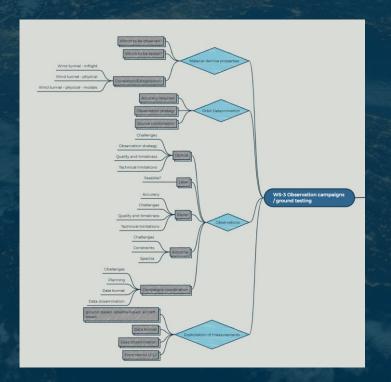
What to expect from WS-3: Observations & Ground Testing



What to test and how to observe:

- Observation techniques and coordination
 - Optical passive telescopes
 - Tracking and imaging radars
 - Airborne campaigns
- Orbit determination from observations measurements
 - Required precision for re-entry predictions
 - Required number of measurements

- Wind-tunnel tests and what can address
 - Material characterisation
 - Small length scale demise characterisation







Questions



Wind-tunnel tests and what can address

Which properties are of interest? Emissivity, Catalicity, ...any other?

What can be observed/measured to characterise material properties?

How trustful the correlation/extrapolati on is? Between wind-tunnel tests, in-flight, and models? Length scale effects?

Orbit determination

Which is the required accuracy?

How the observation strategy from ground-based sensors will impact in the Orbit Determination process?

Is it better to relay (whenever possible) on telemetry data for the OD process, or better to combine with ground-based sensors?

If ground-based sensors are accounted for the OD process, combination of different sources will improve the OD?

Observations

Optical passive sensors: which are their main challenges to provide accurate measurements? Which is the minimum accuracy required? Which are their main technical limitations?

Laser: Is this observation technique feasible/suitable for re-entry observations?

Radar: which are their main challenges to provide accurate measurements? Which is the minimum accuracy required? Which are their main technical limitations?

Airborne: which are their main challenges to provide images and spectral data to further infer fragmentation process characterisation? Which are the main challenges from this type of observation?

Observation campaigns coordination: which are the challenges and coordination constraints if several type of sensors are considered? Which unified format/formats should be adopted?

Measurements exploitation

How to go from raw data to L-1 L-2 data products considering different measurement sources: images, coordinates, spectra, TM, temperature profiles...?

Which are the type of L2 data products that modelling community needs?

WS3: Which data are you interested in?



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