

Inter-Agency Space Debris Coordination Committee



TERMS OF REFERENCE FOR THE INTER-AGENCY SPACE DEBRIS COORDINATION COMMITTEE (IADC)

IADC-93-01 (rev.12)

Status: April 19, 2024

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Change Record

October 25, 1993	First ToR established by the four founding members - NASA, RKA, Japan, and ESA in Kaliningrad, the Russian Federation.
March 8, 1995	New member CNSA
July 10, 1996	New members BNSC, CNES, ISRO
Sept. 12, 1996	Change in WG membership, Annex V
March 21, 1997	DARA new member. Steering Group meeting Changes in Annex II, IV, V
October 7, 1997	DARA is integrated into DLR (Deutsches Zentrum für Luft- und Raumfahrt e.V.) and ceases to exist
November 6, 1998	ASI new member. Revision to WG3 ToR. Changes in Annex II, IV and V
October 11, 1999	ToR for Steering Group and Annex VI added. RKA changed to Russian Aviation and Space Agency (Rosaviakosmos).
June 16, 2000	National Space Agency of Ukraine (NSAU) new member. Changes in Annex II, IV and V.
April 12, 2002	Updates to Annex II, IV and V only (no re-signing as no substantial change).
March 13, 2003	New section on “Release of IADC Data, Findings, and Reports” is added as Section 7, and the earlier Section 7 renamed as Section 8. Updates to Annex II, IV, V and VI.
October 5, 2004	NASDA, NAL, ISAS merged into JAXA on Oct. 1, 2003. Accordingly, its membership originally registered as Japan is changed to JAXA. Introduction of the Secretariat. A sentence is added in the Terms of Reference of the Steering Group. Annex VII “Role of the Secretariat” and Annex VIII “IADC Web Site” are added. ROSAVIAKOSMOS replaced by ROSCOSMOS for Russian Federal Space Agency.
October 4, 2006	Updated cover sheet (CNSA, DLR and ROSCOSMOS representatives), modification of the WG1 and WG2 Terms of Reference for in-situ detection activities, update of points of contact in Annex II, update of Chairs and Deputies in annex IV, update of membership in annex V, update of annex VI (definition of entry time, altitude and location, possibility to provide osculating elements).

October 14, 2009	Updated cover sheet (BNSC, CNES, DLR, ESA, JAXA representatives), update of points of contact in annex II, editorial modification in annex IV, update of members in annex V, and definition of the role of the Reentry Data Base Administrator in Annex VI.
September 29, 2010	CSA joined IADC
April 11, 2011	Updated cover sheet (JAXA representative, UK Space Agency, Canadian Space Agency), update of points of contact in annex II, editorial modification in annex IV, update of members in annex V, update of annex VI, merging of SG and WG ToR's into "organizational structure".
July 11, 2011	Updated cover sheet (IADC logo update after renaming of NSAU to SSAU), update of Annex VI (flowchart on IADC Risk Object Re-entry Notification).
October 1, 2014	KARI joined IADC.
April 2, 2015	Updated cover sheet (added KARI to the logo, added KARI representatives to the list, updated names for CNES, CSA, ESA, ISRO, JAXA, NASA, and SSAU representatives).
September 28, 2016	Updated cover sheet, Section 4 (organization name for ROSCOSMOS), Annex II (JAXA POC), Annex IV (WG Chairs and Deputies), Annex V (CNES, CSA, JAXA, and ROSCOSMOS members), and Annex VIII (IADC web site administration). State Space Corporation "Roscosmos" replaced Russian Federal Space Agency (ROSCOSMOS).
October 3, 2018	Updated cover sheet, Annex I, and Annex V. Minor editorial modifications.
April 19, 2024	Updated cover sheet, Updated Chapter 4 "Membership" and Annex I to introduce IADC Associate Member status; Updated Chapter 6 "Meetings" with invitation option; updated Annex VII (Role of the Secretariat) to include a tacit approval; Editorial modifications.

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Terms of Reference of the Inter-Agency Space Debris Coordination Committee

This document constitutes the Terms of Reference (ToR) for the Inter Agency Space Debris Coordination Committee (IADC) and establishes the basic principles related to its function.

The Terms of Reference of the Inter-Agency Space Debris Coordination Committee have been agreed at the 10th IADC meeting at TSNIIMASH, Kaliningrad, October 25-26, 1993, and have been updated at the 12th IADC meeting at NASA Johnson Space Centre, Houston, March 8-10, 1995, at the 13th IADC meeting at ESOC, Darmstadt, February 27 - March 1, 1996, at the 14th IADC meeting at ESOC, Darmstadt, March 20-21, 1997, at the 15th IADC meeting at NASA Johnson Space Centre, Houston, December 9-12, 1997, at the IADC Steering Group meeting at Nagoya, Japan, July 15, 1998, at the 16th IADC meeting in Toulouse, November 3-6, 1998, at the 17th IADC meeting at ESOC, Darmstadt, October 11-13, 1999, at the 18th IADC meeting at Colorado Springs, USA, June 13-16, 2000, at the 20th IADC meeting at Guildford University, Surrey, April 9-12, 2002, at the 21st IADC Meeting at Bangalore, India, March 10-13, 2003, at the IADC Steering Group Meeting at Vancouver, October 5, 2004, at the IADC Steering Group meeting at Valencia, October 4, 2006, at the IADC Steering Group meeting in Daejeon, October 14, 2009, at the 29th IADC meeting in Berlin, April 11, 2011, at the 33rd IADC meeting in Houston, April 2, 2015, at the IADC Steering Group Meeting in Guadalajara, September 28, 2016, at the 36th IADC meeting in Tsukuba, June 5-8, 2018, and at the 42nd IADC meeting in Bangalore, April 16-19, 2024.

1 Purpose

The primary purpose of the IADC is to exchange information on space debris research activities between members, to facilitate opportunities for cooperation in space debris research, to review the progress of ongoing cooperative activities and to identify debris mitigation options.

2 Rational

The members share a number of common interests in space debris research which may be developed into a variety of cooperative research activities. Such ventures are likely to increase in frequency and scope in the future. It is highly desirable to exchange information on current research activities so as to identify future cooperative activities. Therefore, the IADC is established to identify, plan, and assist in the implementation of joint cooperative activities that are of mutual interest and benefit.

3 Scope

The IADC will

- a. review all ongoing cooperative space debris research activities between member organizations;
- b. recommend new opportunities for cooperation;
- c. serve as the primary means for exchanging information and plans concerning orbital debris research activities;
- d. identify and evaluate options for debris mitigation.

Any specific cooperative activities endorsed by the IADC will be implemented through arrangements negotiated between member organisations.

Members should exchange data resulting from national orbital debris programs as appropriate. Data and information exchanged through the IADC will normally be exchanged without restrictions as to use or disclosure. In the event that technical data is exchanged which is considered to be proprietary, and for which protection is desired, the data shall be marked with a notice indicating the use and disclosure restrictions, and the recipient agrees to abide by the terms of such notices.

4 Membership

Members of the IADC are the Italian Space Agency (ASI), the Centre National d'Etudes Spatiales (CNES), China National Space Administration (CNSA), Canadian Space Agency (CSA), Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), the European Space Agency (ESA), the Indian Space Research Organisation (ISRO), Japan Aerospace Exploration Agency (JAXA), the Korea Aerospace Research Institute (KARI), the National Aeronautics and Space Administration (NASA), the State Space Corporation "Roscosmos", the State Space Agency of Ukraine (SSAU), and the UK Space Agency (UKSA).

At present there are no IADC Associate Members.

The Steering Group will decide upon the Status of the IADC Members by unanimous decision. At each Annual Meeting of the IADC, the Members of the IADC will consider the status of the Associate Members by consensus.

Member delegations may include representation from other organizations or government agencies in their delegation.

More details on the IADC membership are defined in Annex I.

5 Organizational structure

The IADC will comprise

- a Steering Group: A list of Steering Group points-of-contact is included in Annex II.
- four specialised Working Groups:
 - Working Group 1: Measurements
 - Working Group 2: Environment and Data Base
 - Working Group 3: Protection
 - Working Group 4: Mitigation.

The terms of reference and scope of work of the Steering Group and of the four Working Groups are defined hereafter.

Each Working Group should be composed of 2-3 experts from each member. The present Working Group Chair, Deputy Chair, and Working Group members are listed in Annexes IV and V.

Each member of IADC must be represented in person in the Steering Group and in Working Groups 2 and 4. Representation in the other Working Groups is desirable but not mandatory.

Steering Group

Terms of Reference

The IADC Steering Group is comprised of the IADC member delegations. To facilitate the work of the Steering Group, each delegation should comprise no more than three persons.

- Each IADC member shall be represented in the Steering Group and attend each meeting.
- The Steering Group guides the activities of the IADC.
- The host of an IADC meeting is also Chair of the Steering Group sessions including any preceding Steering Group meetings.
- The Chair is assisted by a Secretariat whose main role is to maintain the action items list, the documentation list and the reference set of the IADC documents (see Annex VII).
- The Steering Group establishes its own agenda.
- The Steering Group may assign itself Action Items.
- The Steering Group takes decisions by consensus.
- The Steering Group will meet also between IADC meetings to receive progress reports from the Working Groups, to discuss the agenda and preparations for the next IADC meeting, and to address new issues, as necessary.
- The Steering Group is responsible for revising the IADC Terms of Reference.

Scope

The scope of the Steering Group is the general guidance and management of IADC. This includes:

- The organization of the overall IADC activities.
- The global coordination of the Working Groups.
- The definition of new areas of activity.
- The representation of IADC in other organizations.

Within the above scope the responsibilities of the Steering Group are to

- set the dates and locations for all IADC meetings and Steering Group meetings.
- appoint the Chair and Deputy in each Working Group.
- monitor the activities of the Working Groups.
- decide action items and assign them to Working Groups.
- determine when an action item is closed.
- coordinate with and respond to requests from other organizations on issues related to space debris.
- promote the education of the aerospace community and the general public on space debris matters.

Required inputs

- regular status reports by the Working Groups.



Expected outputs

- minutes of each Steering Group meeting and each IADC meeting.
- a short summary following each actual high risk object re-entry and IADC risk object re-entry test campaign.

Working Group 1 Measurements

Terms of Reference

The IADC Steering Group has established Working Group 1 on Measurements.

- The members of WG 1 are appointed by each member of the IADC.
- The Working Group proposes a Chair and a Deputy. The Chair organizes and guides the activities of the Working Group.
- The Working Group establishes its own agenda.
- The Working Group receives action items from the Steering Group. The Working Group may also submit action item proposals to the Steering Group.
- The Working Group reports through its Chair to the IADC Steering Group.
- Meetings of the Working Group can be attended by others when invited by a member of the IADC.

Scope

The scope of Working Group 1 are all measurement techniques, both functioning and currently under development, to gain information on man-made and natural objects in near-Earth space. This includes ground-based and space-based measurements and related techniques, e.g. radar, optical and infrared.

Within the above scope the objectives of the WG are to

- review space debris research efforts in the area of measurement techniques
- identify, evaluate and recommend new opportunities for cooperation
- serve as means for exchanging information and plans concerning research activities in the area of measurements of orbital debris.

Required inputs

- Reports on research activities in member organizations with regard to measurements.

Expected outputs

- Identification, definition and review of cooperative research activities.

Working Group 2

Environment and Database

Terms of Reference

The IADC Steering Group has established Working Group 2 on Environment and Database.

- The members of WG 2 are appointed by each member of the IADC.
- The Working Group proposes a Chair and a Deputy. The Chair organizes and guides the activities of the Working Group.
- The Working Group establishes its own agenda.
- The Working Group receives action items from the Steering Group. The Working Group may also submit action item proposals to the Steering Group.
- The Working Group reports through its Chair to the IADC Steering Group.
- Meetings of the Working Group can be attended by others when invited by a member of the IADC.

Scope

The scope of Working Group 2 is the characterization and modelling of meteoroid and debris around the Earth and storage and access of the data by electronic means. This includes

- meteoroid and debris models describing the spatial distribution and other characteristics, e.g. flux, size, albedo.
- short- and long-term evolution
- related mathematical methods
- collision prediction and risk assessment
- uncontrolled reentry
- establishment of joint data base for debris and meteoroids
- development of models which characterize explosions or collisions in space
- detectors and collectors for small size particulates onboard space vehicles
- analysis of spacecraft surfaces exposed to the space environment.

Within the above scope the objectives of the WG are to

- review research efforts in environment modelling and related data base
- identify, evaluate and recommend new opportunities for cooperation
- serve as means for exchanging information and plans concerning research activities in the area of environment modelling and related data base.

Required inputs

- Reports on research activities in member organizations with regard to environment modelling and related data bases.

Expected outputs

- Identification, definition and review of cooperative research activities.
- Concepts for extended and comprehensive data bases.

Working Group 3 Protection

Terms of Reference

The IADC Steering Group has established Working Group 3 on Protection.

- The members of WG 3 are appointed by each member of the IADC.
- The Working Group proposes a Chair and a Deputy. The Chair organizes and guides the activities of the Working Group.
- The Working Group establishes its own agenda.
- The Working Group receives action items from the Steering Group. The Working Group may also submit action item proposals to the Steering Group.
- The Working Group reports through its Chair to the IADC Steering Group.
- Meetings of the Working Group can be attended by others when invited by a member of the IADC.

Scope

The scope of the activities of Working Group 3 comprises design and technology of shielding against meteoroids and space debris and the associated test methods which include test facility and procedure, hypervelocity impact data, simulation software (hydrocode, damage probability analysis code), design and test commonality, etc.

Within the above scope the objectives of the WG are to:

Exchange information in the following areas

- actual on-orbit impacts and shielding design performance;
- optimization of shield design, its performance and test methods, including the use of computer codes;
- space vehicle fragmentation events including dynamics of structure at impact with space debris and secondary debris;
- current and future research activities and other related materials in the area of protection.

Provide products in the following areas

- Test facilities and procedures
 - establish a common data base of world-wide test facilities;
 - establish for test facility (by type) common criteria for test procedures, test equipment and test evaluation;
 - coordinate test procedures for impact testing on pressurized structures.
- Hypervelocity impact test data
 - establish a data base of impact test results including pressurized structures and composite materials;
 - establish common criteria for HVI damage characterization and data measurement;



- establish a standardized set of damage estimation equations.
- Simulation software
 - evaluate the equivalence of impact simulation codes (hydrocodes);
 - evaluate the equivalence of different meteoroid/debris damage probability analysis codes;
 - coordinate test procedures for computer code validation.
- Design and test commonality
 - assess the feasibility of common shield design and test procedures.

Identify, evaluate and recommend new opportunities for cooperation.

Required inputs

The Working Group requires the following inputs:

- Design and performance data on current shield concepts.
- Description and capabilities of test methods.
- Description and capabilities of computer codes.
- Information on planned activities in the area of shield design, shield testing and establishing and upgrading of test facilities.

Expected outputs

The expected outputs are as follows:

- Data on hypervelocity test facility capabilities.
- General data bases on impact testing results.
- Details of specific protection designs and their performance for existing and future spacecraft.

Proposed shield design and test activities for improvement of crew safety and satellite/station system integrity.

Working Group 4 Mitigation

Terms of Reference

The IADC Steering Group has established Working Group 4 on Mitigation.

- The members of WG 4 are appointed by each member of the IADC.
- The Working Group proposes a Chair and a Deputy. The Chair organizes and guides the activities of the Working Group.
- The Working Group establishes its own agenda.
- The Working Group receives action items from the Steering Group. The Working Group may also submit action item proposals to the Steering Group.
- The Working Group reports through its Chair to the IADC Steering Group.
- Meetings of the Working Group can be attended by others when invited by a member of the IADC.

Scope

The scope of Working Group 4 is the study of all measures to reduce or avoid the creation of space debris or reduce the hazards created by space debris. This includes:

- identification of space debris sources
- design and operation of space systems to avoid or reduce the creation of space debris
- removal of man-made objects
- measures to prevent the creation of space debris
- measures to reduce the collision hazard
- guidelines for debris mitigation.

Within the above scope the objectives of the WG are to

- review space debris research efforts in the area of mitigation
- identify, evaluate and recommend new opportunities for cooperation
- serve as means for exchanging information and plans concerning research activities in the area of mitigation.

Required inputs

- Debris mitigation measures of member organizations.

Expected outputs

- Evaluation of debris mitigation measures.
- Handbook/guidelines for debris mitigation.

6 Meetings

Location of meetings of the IADC will rotate among the members of the IADC, as appropriate. The frequency and schedule of IADC meetings will be established by the Steering Group. Meetings will be held with an interval of about 1 year, preferably coinciding with other international meetings.

The host of each meeting will act as the Chair of the meeting, and any preceding Steering Group meetings. The host will be responsible for coordinating the dates, location, and agenda of the meetings and drafting and distributing the minutes of these meetings.

General meeting arrangements and associated meeting expenses will be borne by the host agency. Each member will be responsible for the travel and subsistence of its representatives attending the IADC.

International consortia sponsoring major satellite programmes or relevant specialized agencies of the UN (e.g. International Telecommunication Union) may be invited to participate in IADC meetings when specific issues of interest are discussed.

7 Release of IADC Data, Findings, and Reports

The activities of the IADC are primarily designed to promote and to improve orbital debris research by members of IADC. Data, findings, and reports of the Steering Group and the Working Groups, particularly those associated with official IADC Action Items, are created for the benefit of the members of IADC. Data, findings, and reports of special interest may be released to the public only with the approval of the Steering Group under the supervision of the Chair. Such releases may be accomplished via the IADC web site, papers prepared for scientific journals or conferences, or other means.

8 Terms and Conditions

These Terms of Reference may be modified or terminated by mutual agreement of the parties. These Terms of Reference and all activities under these Terms of Reference may be terminated unilaterally by any member with three months prior written notice. All debris cooperative activities, for which separate agreements have been concluded, may continue after termination of these Terms of Reference, pursuant to the terms and conditions of those agreements.

These Terms of Reference document the mutual interest on the part of the members of IADC to exchange information on orbital debris. The Terms of Reference do not establish any obligation or legal requirement to do so, nor do they establish any obligation to conduct any particular cooperative activity.

Annex I: Details on IADC Membership

A. Scope

The purpose of this Annex is to expand on Article 4 of the ToR of IADC, and to provide a more detailed and precise description of the eligibility criteria for membership of the IADC, responsibilities of members and associated members and the approach to joining the committee. The current membership of the IADC is addressed in Article 4 of the ToR.

Note: In Terms of Reference (ToR) and the following annex, the use of “member” in isolation refers to an “IADC Member” as defined in this Annex, Section C. Where appropriate or as needed explicit reference is also be made to “IADC Associate Member” to ensure clarity on the scope of rules and processes.

B. Preamble

In the interest of efficiency, the number of members of the IADC should be of a manageable size and, therefore, limited to appropriate nations and organizations consistent with the aims and objectives agreed in the ToR of the IADC. Where appropriate, greater concentration in regional grouping should be aimed for.

There are two type of IADC Membership which will be detailed below:

- IADC Member
- IADC Associate Member.

C. IADC Member

Eligibility Criteria to become an IADC Member

To be eligible to become an IADC Member, the following must be satisfied:

- a. IADC Members are space agencies, authorized governmental or inter-governmental entities which are carrying out space activities, through either manufacturing, launching and operating spacecraft or manufacturing and launching rockets. An IADC Member may represent one or several entities.
It should be noted that a country is represented in IADC by one space agency, authorized governmental or inter-governmental entity. The delegation of any IADC member may, however, be comprised of delegates from other space organizations or other selected agencies of that country or of other countries.
- b. IADC Members should be actively undertaking space debris research activities in order for them to contribute to an increased understanding of space debris issues and participate actively in working group Action Items and Internal Tasks.

Responsibilities of an IADC Member

It is expected that all IADC Members shall:

- a. Attend IADC meetings in compliance with Article 5 of the IADC Terms of Reference.
- b. Be represented in person in the Steering Group and in Working Groups 2 and 4. Representation in the other Working Groups is desirable but not mandatory
- c. Contribute to Action Items and Internal Tasks of the Working Groups dependent on their capacity and capability
- d. Contribute to the re-entry campaigns as defined in Annex VI dependent on their capacity and capability

D. IADC Associate Member

Eligibility criteria to become an IADC Associate Member

To be eligible to become an IADC Associate Member, the following must be satisfied:

- a. IADC Associate Members are space agencies, authorized governmental or inter-governmental entities which are carrying out space activities, through manufacturing, launching or operating spacecraft. An Associate Member may represent one or several entities.
- b. IADC Associate Members should be developing expertise in the area of space debris research, demonstrated by technical presentations on orbital debris at conferences and publications in peer-reviewed journals, however are not yet able to fully contribute to the activities performed by the IADC.

Privileges and Responsibilities of an IADC Associate Member

The IADC Associate Member has the following privileges:

- a. Access to non-public IADC documents including the latest information on the initiation and completion of new Action Items and Internal Tasks.
- b. Be invited to observe the Annual IADC Steering Group meeting which occurs at the margins of the International Astronautical Congress (IAC).

An IADC Associate Member shall:

- a. Commit to implement the IADC Space Debris Mitigation Guidelines for space activities under their control.
- b. Continue to show (during attended SG meeting) progress towards implementation of the IADC Space Debris Mitigation Guideline and their roadmap for future space debris research.

E. Membership decisions

The Steering Group will decide upon the Status of the IADC Members by unanimous decision. At each Annual Meeting of the IADC, the Members of the IADC will consider the status of the Associate Members by consensus.

F. Application for Membership

Entities that are seeking to apply for Membership Status are known as IADC Applicants.

The IADC Applicants should send a formal request to the secretariat of the IADC. The formal request to the IADC should include: Name of the entity seeking to apply, high-level organisational details on the respective entity, responsibilities of the entity in relation to space activities, evidence for the fulfillment of the eligibility criteria of Section C or D.

The IADC Chair will respond to the IADC Applicant providing a decision of the Committee including: confirmation of Membership Status that is most suitable, next steps in the application process or seek further clarifications via an email or virtual meeting.

Following a decision of the IADC SG, the IADC Applicant may be invited by the Chair to join the next IADC Annual Meeting. In this case, the Applicant shall attend the Steering Group sessions and, upon the approval/confirmation of the Steering Group, may attend other Working Group sessions as appropriate. However, upon request by an IADC Member, to ensure confidentiality about sensitive matters from IADC Members, the IADC Applicant may be excluded from certain meetings or meeting items.

Attendance of an IADC Applicant at the IADC annual meeting is an opportunity for the committee to meet the entity and understand its ability to contribute to IADC activities.

An application to become part of the IADC does not guarantee the award of a Membership Status (Associate Member or Member).

Within two years the existing IADC Members will decide on the Membership Status (Associate Member or Member) of the IADC Applicant or on the rejection of the application.

The award of IADC Associate Member status does not guarantee to become an IADC Member.

G. Termination of membership

If an IADC Member fails to attend three consecutive annual meetings, the Chair of the IADC with approval of the Steering Group will communicate in writing requesting the intention of the member to continue as part of the IADC. Three months after the communication, the IADC Steering Group reserves the right to terminate membership. The process will be based upon unanimous decision, in absence of the member in cause.

An IADC Member, IADC Associate Member or IADC Applicant may notify the Chair of the Steering Group of its decision to terminate their IADC membership or application as applicable at any time.

Annex II: Contact Points of IADC Members

Status: April 19, 2024

ASI	<p>Marco Castronuovo ASI Via Politecnico, snc 00133 Roma, ITALY</p> <p>Tel: +39 068 567 395 marco.castronuovo@asi.it</p>
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CNSA	<p>Yan Jun Director General National Astronomical Observatories of Chinese Academy of Sciences (NAOC) 20A Datun Road, Chaoyang District Beijing 100012, CHINA</p> <p>Tel: +86 10 64881686 yanjun@nao.cas.cn</p>
CSA	<p>Michel Doyon Manager, Flight Operations John H. Chapman Space Center 6767 route de l'Aéroport Saint-Hubert QC J3Y 8Y9, CANADA</p> <p>Tel: +1 514-347-5543 Michel.doyon@canada.ca</p>
DLR	<p>Manuel Metz DLR Space Administration Königswinterer Str. 522-524 D - 53227 Bonn, GERMANY</p> <p>Tel: +49 228 447-511 manuel.metz@dlr.de</p>



ESA	<p>Holger Krag ESA/ESOC Robert Bosch Str. 5 64293 Darmstadt, GERMANY</p> <p>Tel: +49 6151 90 2280 holger.krag@esa.int</p>
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JAXA	<p>Toru Yoshihara Japan Aerospace Exploration Agency (JAXA) 2-1-1 Sengen, Tsukuba-shi, Ibaraki 305-8505, JAPAN</p> <p>Tel: +81-(0)70-3117-7494 yamanaka.koji@jaxa.jp</p>
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