

Inter-Agency Space Debris Coordination Committee



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

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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 chairpersons 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).

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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, and at the IADC Steering Group Meeting in Guadalajara, September 28, 2016.

1. Purpose

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

2. Rationale

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 the Ukraine (SSAU), and the UK Space Agency (UKSA).

New members may be included upon unanimous decision of the members of IADC.

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

More detailed criteria for 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 or 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 chairperson, deputy chairperson, and members are listed in Annexes IV and V.

Each member of IADC must be represented in the Steering Group and in Working Group 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 chairperson of the Steering Group sessions including any preceding Steering Group meetings.

The chairperson 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 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 will accept new members to the IADC by unanimous decision.

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 chairperson 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 chairperson and a deputy. The chairperson 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 chairperson 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 WG 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 Data Base.
- The members of WG 2 are appointed by each member of the IADC.
- The Working Group proposes a chairperson and a deputy. The chairperson 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 chairperson 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 chairperson and a deputy. The chairperson 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 chairperson 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 WG 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 chairperson and a deputy. The chairperson 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 chairperson 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 chairperson 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.

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 Chairperson. 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: Criteria for Membership in IADC

1. Scope

The purpose of the "Criteria for Membership in IADC" is to expand on Article 4 of the ToR of IADC, and to provide a more detailed and precise description of the criteria for membership in IADC.

Membership in IADC is addressed in Article 4 of the ToR.

2. 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.

IADC members complete necessary coordination (Intra-agency, Inter-agency, etc.) prior to IADC meetings.

3. Criteria for membership

- a. Members are countries or national or international space organisations which are carrying out space activities, through either manufacturing, launching and operating spacecraft or manufacturing and launching rockets.

A member should be actively undertaking space debris research activities and contribute to an increased understanding of space debris issues.

A member may represent one or several countries.

- b. A country is represented in IADC by itself or by one space organization. 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.
- c. International consortia sponsoring major satellite programmes (e.g. INTELSAT, INMARSAT, etc.) 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.

Annex II: Contact Points of IADC Members

Status: April 2, 2015

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Annex III to VIII: suppressed in this public version