SPACE COOPERATION

Agreement Between the
UNITED STATES OF AMERICA
and JAPAN

Effected by Exchange of Notes at
Washington April 25, 2003

with

Memorandum of Understanding

and

Agreement extending the Agreement

Effected by Exchange of Notes at
Washington April 22, 2011

NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89—497, approved July 8, 1966 (80 Stat. 271; 1 U.S.C. 113)—

". . .the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof."

JAPAN

Space Cooperation

Agreement effected by exchange of notes at
Washington April 25, 2003;
Entered into force April 25, 2003.
With memorandum of understanding.
And agreement extending the agreement.
Effected by exchange of notes at Washington
April 22, 2011;
Entered into force April 22, 2011.

DEPARTMENT OF STATE

WASHINGTON

April 25, 2003

Excellency:

I have the honor to refer to the recent discussions between representatives of the Government of the United States of America and of the Government of Japan concerning the terms and conditions whereby cooperation on the Mu Space Engineering Spacecraft-C (MUSES-C) Program (hereinafter referred to as "the Program") will be undertaken between the two Governments.

In consideration of the continuing mutually beneficial relationship between the two Governments in the field of peaceful exploration and use of outer space; taking into account the Agreement between the Government of the United States of America and the Government of Japan on Cooperation in Research and Development in Science and Technology, signed at Toronto, on June 20, 1988, as extended and amended; and reaffirming that the provisions of the Agreement between the Government of the United States of America and the Government of Japan Concerning Cross-Waiver of Liability for Cooperation in the Exploration and Use of

His Excellency,

Ryozo Kato,

Ambassador of Japan.

DIPLOMATIC NOTE

Space for Peaceful Purposes, signed at Washington, on April 24, 1995, and the Exchange of Notes of the same date between the two Governments concerning subrogated claims shall apply to the Program, I have the further honor to propose on behalf of the Government of the United States of America the following arrangements:

1. Cooperation on the Program will be executed for the Government of the United States of America by the National Aeronautics and Space Administration (hereinafter referred to as "NASA") and for the Government of Japan by the Institute of Space and Astronautical Science (hereinafter referred to as "ISAS").

2. With a view to setting forth detailed terms and conditions for cooperation on the Program, NASA and ISAS will conclude implementing arrangements (Memorandum of Understanding, hereinafter referred to as "the MOU"), providing, inter alia, that NASA and ISAS will jointly undertake ground observation of a target asteroid, tracking of the MUSES-C to be provided by ISAS, and a detailed analysis of samples to be collected from the asteroid by the MUSES-C.

3. The provisions of the present arrangements and the MOU shall be implemented in accordance with the laws and regulations in force in each country. Activities under the present arrangements and the MOU shall be subject to the availability of appropriated funds.

4. NASA and ISAS shall consult with each other regarding any matter that may arise from or in connection with the cooperation on the Program. If the matter cannot be resolved through such consultations, consultations between the Government of the United States of America and the Government of Japan shall be held through diplomatic channels with a view to finding a mutually acceptable solution.

5. The present arrangements shall remain in force for a period of eight years, unless terminated by either Government upon six months' written notice through diplomatic channels of its intention to terminate them. The present arrangements may be extended or amended by mutual written agreement of the two Governments.

I have the further honor to propose that, if the foregoing arrangements are acceptable to the Government of Japan, this Note and Your Excellency's Note in reply shall constitute an agreement between the two Governments, which will enter into force on the date of Your Excellency's reply.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

Mary Beth West

IMPLEMENTING ARRANGEMENT

(MEMORANDUM OF UNDERSTANDING)

BETWEEN THE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

OF THE

UNITED STATES OF AMERICA

AND THE

INSTITUTE OF SPACE AND ASTRONAUTICAL SCIENCE

OF JAPAN

CONCERNING ACTIVITIES RELATED TO THE

MU SPACE ENGINEERING SPACECRAFT-C (MUSES-C)

PROGRAM

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PREAMBLE

The National Aeronautics and Space Administration (NASA) of the United States of America and the Institute of Space and Astronautical Science (ISAS) of Japan, hereinafter, jointly referred to as "the Parties;"

Desiring to extend their cooperation developed in exploration and use of outer space for peaceful purposes;

Recalling the Agreement Between the Government of the United States of America and the Government of Japan Concerning Cross-Waiver of Liability for Cooperation in the Exploration and Use of Space for Peaceful Purposes of April 24, 1995 (the "Cross-Waiver Agreement"), the Exchange of Notes of the same date between the Government of the United States of America and the Government of Japan concerning subrogated claims and the Agreed Minutes concerning the Cross-Waiver Agreement of December 8, 2000;

Considering that cooperation on the MUSES-C Program will enhance the scientific value of the mission and provide mutual benefits; and

Pursuant to paragraph 2 on page 2 of the agreement effected by the Exchange of Notes between the Government of the United States of America and the Government of Japan dated April 25, 2003, concerning cooperative activities related to MUSES-C, hereinafter referred to as the "Exchange of Notes," agree to the provisions of this Implementing Arrangement (Memorandum of Understanding), hereinafter referred to as the "MOU," as follows:

ARTICLE 1 - PURPOSE

This MOU establishes the terms and conditions under which the Parties shall cooperate on MUSES-C, a near-Earth asteroid mission. It applies to: mission development; launch; in-flight and asteroid encounter mission operations; sample return and recovery; and sample and other data analysis. The Parties shall cooperate according to the Exchange of Notes and this MOU.

ARTICLE 2 - MISSION DESCRIPTION

MUSES-C is an ISAS technology demonstration mission with scientific purposes designed to rendezvous with a near-Earth asteroid and to return samples of that asteroid to Earth. The ISAS-built spacecraft will have imaging, spectrographic, and sampling instruments. It will demonstrate solar-electric propulsion, autonomous rendezvous, sample collection, and use of a sample return capsule.

The integrated spacecraft will be launched on an ISAS M-V launch vehicle from Kagoshima Space Center, Japan. The launch is planned for 2003, and rendezvous with a near-Earth asteroid is planned for 2005. The asteroid encounter will have a duration of several months. Upon arrival at the asteroid, the ISAS spacecraft will map the asteroid in the visible, infrared, and X-ray spectrums, perform gravity modeling via the laser altimeter, and attempt to collect samples of the asteroid. Spacecraft resources will support mission operations and data acquisition, with support provided by ISAS and NASA ground facilities. ISAS will provide overall mission operation. NASA resources will provide backup spacecraft tracking, telemetry, command, and navigation support through the NASA Deep Space Network (DSN), and NASA scientists will participate in selected spacecraft science experiments. Both Parties' scientists will participate in analysis of returned samples.

The spacecraft will leave the asteroid and, in 2007, attempt to return the samples to Earth for further study. The samples will be stored in containers inside a sealed sample return capsule. The sample return capsule will detach from the spacecraft, enter the Earth's atmosphere, and use a parachute for a soft landing on the ground in Australia. Through separate arrangements, ISAS will cooperate with the Australian Government regarding re-entry of the sample return capsule within the territorial jurisdiction of Australia and with the Australian Academy of Science regarding sample analysis. These samples will be the first asteroid samples ever returned to Earth by an interplanetary spacecraft.

ARTICLE 3 - ISAS RESPONSIBILITIES

To carry out its responsibilities under this MOU, ISAS shall use reasonable efforts to:

1. Provide the MUSES-C spacecraft, equipped with imaging, spectrographic, sampling instruments, and the sample return capsule.

2. Provide the M-V launch.

3. Provide overall spacecraft mission operations, to include tracking and data acquisition.

4. Prepare a mission design and spacecraft operations plan that enables a scientifically and technologically valuable mission.

5. Support advisory reviewers for the NASA Announcement(s) of Opportunity (AO) process that selects five U.S. scientists for the three ISAS-provided MUSES-C spacecraft instruments (two U.S. scientists for the orbiter camera, two U.S. scientists for the orbiter infrared spectrometer, and one U.S. scientist for the light detection and ranging (LIDAR)), and that selects two U.S. scientists for post-flight sample analysis.

6. Ensure that the ISAS flight data acquisition hardware and ground segment are compatible with NASA's DSN.

7. Provide NASA with access to the asteroid samples obtained by the mission, subject to the provisions of Article 7.

8. Provide sufficient information to facilitate NASA compliance with U.S. environmental laws, policies, and procedures related to post sample return activities at U.S. facilities.

9. Support three Japanese scientists to participate and collaborate in pre-sample return analysis activities at U.S. facilities, and support two Japanese scientists to participate and collaborate in post sample return analysis activities at U.S. facilities, subject to the provisions of Article 7.

10. Issue an international AO for further analysis of a portion of the sample, following the initial key analysis in Japan, subject to the provisions of Article 7.2.

11. Provide office space, computer access to public information, and access to necessary facilities, pursuant to each Parties' respective rules and regulations for safety and security, for the two U.S. scientists participating and collaborating with the Japanese scientists in sample analysis activities while the U.S scientists are in Japan and are serving as members of the MUSES-C Joint Science Team (JST). These U.S. scientists shall also participate in the sample site selection with ISAS during mission operations, subject to the provisions of Article 7.

12. Provide opportunities for two U.S. scientists to participate in research on the visible camera carried by the ISAS robotic lander.

13. Designate, pursuant to Article 6, an ISAS liaison to cooperate with the NASA-designated Planetary Protection Officer on planetary protection policy development, implementation, and monitoring.

ARTICLE 4 - NASA RESPONSIBILITIES

To carry out its responsibilities under this MOU, NASA shall use reasonable efforts to:

1. Provide test time at a NASA Ames Research Center facility for ISAS sample return capsule heat shield testing and a technical review of the ISAS sample return capsule system for performance and space storage.

2. Provide backup DSN tracking, telemetry, and command support activities.

3. Provide radiometric navigation support for mutually agreed upon portions of the mission, including launch, orbit transfer, and Earth return trajectory, up to but not including Earth atmosphere re-entry.

4. Support five U.S. scientists, selected through a NASA AO, to collaborate and participate in science investigations for the three ISAS-provided instruments carried by the ISAS spacecraft (two U.S. scientists for the orbiter camera, two U.S. scientists for the orbiter infrared spectrometer, and one U.S. scientist for the LIDAR), and to serve as members of the MUSES-C JST.

5. Support two U.S. scientists to participate and collaborate with the Japanese scientists in sample analysis activities in Japan and to serve as members of the MUSES-C JST. These U.S. scientists shall also participate in the sample site selection with ISAS during mission operations, subject to the provisions of Article 7.

6. Provide reviewers to international AO issued from ISAS for the further analysis of the sample, following the initial key analysis in Japan, subject to the provisions of Article 7.

7. Provide office space, computer access to public information, and access to necessary facilities, pursuant to each Parties' respective rules and regulations for safety and security, for the three ISAS supported Japanese scientists participating and collaborating in pre-sample return analysis activities at NASA facilities, and for the two Japanese scientists participating and collaborating in post sample return analysis activities at NASA facilities, subject to the provisions of Article 7.

8. Designate, pursuant to Article 6, a Planetary Protection Officer to cooperate with an ISAS-designated liaison on planetary protection policy development, implementation, and monitoring.

9. Provide ground-based observation support.

ARTICLE 5 - PROGRAM AND SCIENCE MANAGEMENT

1. The ISAS MUSES-C Project Manager shall be responsible for overall management and implementation of the MUSES-C Program. Pursuant to its contract with NASA, the California Institute of Technology/Jet Propulsion Laboratory (JPL) has established a Project Office headed by a Project Manager. Under the direction of the NASA MUSES-C Program Executive, and with concurrence from the NASA MUSES-C Program Scientist, both of whom are at NASA Headquarters, the JPL Project Manager shall be responsible for the overall management and implementation of the NASA portion of the MUSES-C collaboration. Under the direction of the NASA MUSES-C Program Scientist, a designated JPL Project Scientist shall be responsible to ensure that the science data acquired by the mission is analyzed, interpreted, and made available to the science community through the NASA Planetary Data System (PDS).

2. The ISAS MUSES-C Project Manager and the JPL Project Manager shall develop and execute an implementation plan for the collaboration. The implementation plan shall include specifications, requirements, plans, schedules, and all other information required to efficiently coordinate the responsibility of each Party during the collaboration on MUSES-C. The implementation plan shall be able to be amended by agreement of both project managers.

3. A MUSES-C JST established by ISAS and NASA following selection of appropriate scientists shall make decisions regarding the ISAS/NASA science collaboration, science data policy implementation and the spacecraft operation on MUSES-C hearing input from all JST members. The members of the JST shall be team leaders (one for each instrument and one for each sample analysis set) and team members selected by the JST Executive Committee described in Article 5.4 for participation in the MUSES-C orbiter and instruments. The JST also shall include a team leader and a team member from the ISAS X-ray Spectroscopy instrument onboard the orbiter (and, through a separate arrangement with ISAS, sample analysis team members from the Australian Academy of Science). ISAS will chair the JST with the co-chair provided by NASA. The implementation plan shall contain detailed information of the ISAS-NASA MUSES-C scientific collaboration and structure and operation of the JST.

4. The JST Executive Committee shall consist of the ISAS MUSES-C Project Manager and Project Scientist and the NASA Headquarters Program Executive and Program Scientist. The Executive Committee of the JST shall be able to give appropriate guidance to the JST on important technical and programmatic issues.

ARTICLE 6 - ENVIRONMENTAL AND PLANETARY PROTECTION

The collaboration implemented by this MOU will result in the return to Earth of the first samples collected from an asteroid by an interplanetary spacecraft. It is understood that the designated landing site shall be in Australia. When, following the landing in Australia, asteroid samples are brought into the United States for scientific analysis, the Parties agree to conform to the 2002 Committee on Space Research (COSPAR)-promulgated planetary protection guidelines as the baseline requirement for the MUSES-C mission. In addition, the Parties shall follow regulations and policies with respect to sample return requirements and assessment of the potential for back contamination. An ISAS point of contact shall serve as liaison to work with the NASA Planetary Protection Officer in the policy development, implementation, and monitoring areas.

ARTICLE 7 - ASTEROID SAMPLE ANALYSIS AND SUBSETS

Fifteen percent of the total sample mass shall be used for the initial key analysis performed by scientists selected by NASA, ISAS, and, through a separate arrangement, between ISAS and the Australian Academy of Science, in ISAS facilities following the return of the sample capsule to Japan. Forty-five percent of the total sample mass shall be archived for future analysis by ISAS. An additional 15 percent of the total sample mass shall be open to analysis for worldwide researchers competitively selected through an international AO issued by ISAS. To this aim, ISAS will establish an international evaluation committee consisting of members representing major planetary science organizations including NASA. An additional 15 percent of the total sample mass shall go to ISAS. The remaining ten percent of the total sample mass shall be permanently transferred to NASA. All five segments of the sample shall be as representative of each site sampled as possible.

1. Participation of the Parties' scientists in collaborative analysis shall be in accordance with the following:

    a. Three Japanese scientists shall participate as an integral part of pre-sample return activities scheduled in the United States for a period of 1 year.

    b. Two U.S. scientists shall participate for a period of 1 year as an integral part of the Japanese sample team to participate with sample site selection activities and to participate in the characterization of the total returned sample immediately following its return to Japan. One of these U.S.

scientists shall be a NASA scientist and one of these U.S. scientists shall be selected through a NASA AO with a goal of providing special skills and fields complementary with those of ISAS scientists.

c. Two Japanese scientists shall participate in analysis of the NASA sample subset in U.S. facilities for duration of one year.

2. As soon as possible but no later than 18 months after the return of the sample to Earth, the ISAS-established, above-mentioned, international evaluation committee shall select proposals to the international AO for the scientific analysis of the 15 percent of the sample segment reserved for international researchers. The archived 45 percent shall also be the subject of an international AO to be released in the future.

3. The Parties shall jointly separate 10 percent of the total returned sample from the rest of the specimen to create a subset of the total sample to comprise NASA's 10 percent of the total sample mass, as stated in the first paragraph of this Article. One year after the return of the sample to Earth, both legal and physical custody of this sample subset shall be transferred to NASA, and the sample subset will be brought to the United States.

ARTICLE 8 - SCIENTIFIC DATA VALIDATION AND RIGHTS

Results of the scientific investigations shall be made available to the scientific community in general through publication in appropriate journals or other established channels, as mutually agreed. Within 6 months of receipt of the sample, ISAS shall archive and make all Level-1 scientific data available to the JST. With the support of ISAS JST members, NASA JST members shall be responsible for placing all available scientific data in the NASA PDS. In the event that the results of the joint scientific investigations are copyrighted, the Parties shall have a royalty-free right under the copyright to reproduce, distribute, and use such copyrighted work for their own purposes.

Selected information jointly determined by the ISAS MUSES-C and NASA MUSES-C projects concerning science results may be released during press conferences and press releases organized by the ISAS MUSES-C and NASA MUSES-C projects in coordination with their respective public information offices.

ARTICLE 9 - EXCHANGE OF TECHNICAL DATA AND GOODS

The Parties are obligated to transfer only those technical data (including software) and goods necessary to fulfill their respective responsibilities under this MOU, in accordance with the following provisions:

1. The transfer of technical data (excluding software) for the purpose of discharging the Parties' responsibilities with regard to interface, integration, and safety shall normally be made without restriction except as required by national laws and regulations relating to export control or the control of classified data. If design, manufacturing, and processing data and associated software, which is proprietary but not export controlled, is necessary for interface, integration, or safety purposes, the transfer shall be made and the data and associated software shall be appropriately marked.

2. All transfers of proprietary technical data and export-controlled goods and technical data are subject to the following provisions. In the event a Party finds it necessary to transfer goods which are subject to export control or technical data which are proprietary or subject to export controls, and for which protection is to be maintained, such goods shall be specifically identified as such. For the purposes of fulfilling the receiving Party's program responsibilities under this MOU, all technical data shall be marked with a notice to indicate that they shall be used and disclosed by the receiving Party and its related entities (e.g., contractors and subcontractors). The identified goods and marked technical data shall not be disclosed or re-transferred to any other entity without the prior written permission of the furnishing Party. The receiving Party agrees to abide by the terms of the notice, and to protect any such identified goods and marked technical data from unauthorized use and disclosure. The receiving Party shall also obtain these same obligations from its related entities prior to transfer.

3. All goods, marked proprietary data, and marked or unmarked technical data subject to export control, which are transferred under this MOU, shall be used by the receiving Party exclusively for the purposes of the programs implemented by this MOU.

4. Nothing in this Article requires the Parties to transfer goods or technical data contrary to national laws and regulations relating to export control or control of classified data.

ARTICLE 10 - PERSONNEL EXCHANGES

Each Party shall, as appropriate, assist with the provision of entry and residence documentation for the other Party's personnel who enter, exit, or temporarily reside within its territory for the purpose of carrying out the activities covered by this MOU.

ARTICLE 11 - INVENTIONS AND PATENT RIGHTS

Nothing in this MOU shall be construed as granting or implying any rights to, or interest in, patents or inventions of the Parties, institutions acting on their behalf, or their contractors or subcontractors for activities conducted under this MOU.

ARTICLE 12 - FINANCIAL ARRANGEMENTS

1. The Parties shall be responsible for funding their respective activities under this MOU, including travel and subsistence of their own personnel and transportation of all equipment for which it is responsible. Obligations under this MOU shall be subject to the availability of appropriated funds.

2. All activities under this MOU shall be conducted in a manner consistent with the respective national laws and regulations of each Party.

ARTICLE 13 - ALLOCATION OF RISKS

1. The Agreement Between the Government of the United States of America and the Government of Japan Concerning Cross-Waiver of Liability for Cooperation in the Exploration and Use of Space for Peaceful Purposes of April 24, 1995 (hereinafter referred to as "Cross-Waiver Agreement"), the Exchange of Notes of the same date between the Governments of Japan and the United States of America concerning subrogated claims and the Agreed Minutes concerning the Cross-Waiver Agreement, shall apply to activities under this MOU.

2. The relevant text of Article 3 of the U.S.-Japan Cross-Waiver Agreement as applied to the Parties to this MOU provides as follows:

   (1) For the purposes of this Article:

      (a) A "Party" includes the Government of the United States of America, the Government of Japan, and their agencies. It also includes those institutions established under the laws and regulations of the United States of America or of Japan for the implementation of the space development programs of the respective countries and other entities, which may be designated in the Annex, with respect to each specific joint activity for which they are designated.

      (b) The term "related entity" means:

         (i) a contractor or subcontractor of a Party at any tier;
         (ii) a user or customer of a Party at any tier; or
         (iii) a contractor or subcontractor of a user or customer of a Party at any tier.

      The term "related entity" may also include another State or an agency or institution of another State, where such State, agency or institution is an entity as described in (i) through (iii) above or is otherwise involved in a joint activity listed in the Annex.

The terms "contractors" and "subcontractors" include suppliers of any kind.

(c) The term "damage" means:

(i) bodily injury to, or other impairment of health of, or death of, any person;
(ii) damage to, loss of, or loss of use of any property;
(iii) loss of revenue or profits;
(iv) or other direct, indirect, or consequential damage.

(d) The term "launch vehicle" means an object or any part thereof intended for launch, launched from Earth, or returning to Earth which carries payloads or persons, or both.

(e) The term "payload" means all property to be flown or used on or in a launch vehicle.

(f) The term "Protected Space Operations" means all activities pursuant to the joint activities listed in the Annex, including launch vehicle activities and payload activities on Earth, in outer space, or in transit between Earth and outer space. It includes, but is not limited to:

(i) research, design, development, test, manufacture, assembly, integration, operation, or use of launch or transfer vehicles, payloads, or instruments, as well as related support equipment and facilities and services;
(ii) all activities related to ground support, test, training, simulation, or guidance and control equipment and related facilities or services.

The term "Protected Space Operations" excludes activities on Earth which are conducted on return from space to develop further a payload's product, or process for use other than for the joint activity in question.

(2) (a) Each Party agrees to a cross-waiver of liability pursuant to which each Party waives all claims against any of the entities or persons listed in sub-paragraphs (i) through (iii) below based on damage arising out of Protected Space Operations. This cross-waiver shall apply only if the person, entity, or property causing the damage is involved in Protected Space Operations and the person, entity, or property damaged is damaged by virtue of its involvement in Protected Space Operations. The cross-waiver shall apply to any claims for damage, whatever the legal basis for such claims, including but not limited to delict and tort (including negligence of every degree and kind) and contract, against:

(i) the other Party;
(ii) a related entity of the other Party;
(iii) the employees of any of the entities identified in sub-paragraphs

(i) and (ii) above.

(b) In addition, each Party shall extend the cross-waiver of liability as set forth in sub-paragraph (2) (a) above to its own related entities by requiring them, by contract or otherwise, to agree to waive all claims against the entities or persons identified in sub-paragraphs (2) (a) (i) through (2) (a) (iii) above.

(c) This cross-waiver of liability shall be applicable to liability arising from the Convention on International Liability for Damage Caused by Space Objects, done at the cities of Washington, London and Moscow, on March 29, 1972, where the person, entity, or property causing the damage is involved in Protected Space Operations and the person, entity, or property damaged is damaged by virtue of its involvement in Protected Space Operations.

(d) Notwithstanding the other provisions of this Article, this cross-waiver of liability shall not be applicable to:

(i) claims between a Party and its own related entity or between its own related entities;
(ii) claims made by a natural person, his/her estate, survivors, or subrogees for bodily injury, other impairment of health or death of such natural person;
(iii) claims for damage caused by willful misconduct;
(iv) intellectual property claims;
(v) claims for damage resulting from a failure of the Parties to extend the cross-waiver of liability as set forth in sub-paragraph (2) (b) or from a failure of the Parties to ensure that their related entities extend the cross-waiver of liability as set forth in sub-paragraph (2) (b); or
(vi) contract claims between the Parties based on the express contractual provisions.

(e) Nothing in this Article shall be construed to create the basis for a claim or suit where none would otherwise exist.

3. ISAS confirms that the Japan-based Society for Promotion of Space Science shall buy insurance coverage to hold harmless NASA and its related entities against liability arising from subrogated claims against such entities made by the Government of Japan, as a subrogee based on damage arising out of Protected Space Operations.

4. NASA waives all claims of the Government of the United States of America, including subrogated claims, against the Government of Japan, ISAS, and ISAS's related entities based on damage arising out of Protected Space Operations.

ARTICLE 14 - MISHAP INVESTIGATION

In the case of a mishap or mission failure, the Parties shall provide assistance to each other in the conduct of any investigation. In the case of activities which might result in the death of, or serious injury to persons, or substantial loss of, or damage to property as a result of activities under this MOU, the Parties shall agree to establish a process for investigating each such mishap as part of their program/project implementation agreements.

ARTICLE 15 - REGISTRATION OF SPACE OBJECTS

ISAS shall seek to ensure that the Government of Japan registers the MUSES-C spacecraft as a space object in accordance with the Convention on the Registration of Objects Launched into Outer Space of January 14, 1975 (the Registration Convention). Registration pursuant to this Article shall not affect the rights or obligations of either Party or its Government under the 1972 Convention on International Liability for Damage Caused by Space Objects.

ARTICLE 16 - CUSTOMS CLEARANCE AND TAXES

Each Party shall seek to arrange free customs clearance and waiver of applicable duties and taxes for equipment and related goods necessary for the execution of this MOU. In the event that any customs duties, fees and/or taxes of any kind are levied by the Governments of the Parties on the equipment and related goods for the execution of this MOU, after seeking the necessary free customs clearance and waiver of applicable duties and taxes, such customs duties, fees and/or taxes shall be borne by the Party of the country levying the duty, fees and/or taxes. Such arrangements shall be reciprocal in accordance with the respective laws and regulations of the Parties' governments.

ARTICLE 17 - PUBLIC INFORMATION

Release of public information regarding this cooperative activity may be made by the appropriate Party for its own portion of the activity as desired and, insofar as participation of the other is involved, after suitable consultation.

ARTICLE 18 - AMENDMENTS

This MOU may be amended by written agreement of the Parties.

ARTICLE 19 - ENTRY INTO FORCE, DURATION, AND TERMINATION

1. This MOU shall enter into force upon signature by the Parties and shall remain in force for 8 years, unless extended by mutual written agreement and provided that the Exchange of Notes remains in force.

2. Either Party may terminate this MOU at any time upon giving at least 12 months written notice to the other Party of its intent to terminate. Termination of this MOU shall not affect a Party's continuing obligations under the following Articles of this MOU: Article 8 -- Scientific Data Validation and Rights; Article 9 -- Exchange of Technical Data and Goods; Article 11 -- Inventions and Patent Rights; Article 13 -- Allocation of Risks; Article 16 -- Customs Clearance and Taxes, unless otherwise agreed by the Parties. In the event of termination, the Parties shall endeavor to reach agreement on terms and conditions to minimize negative impacts of such termination on the other Party.

FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION OF THE UNITED STATES OF AMERICA:

DATE: April 30, 2003

PLACE: Washington, DC

FOR THE INSTITUTE OF SPACE AND ASTRONAUTICAL SCIENCE OF JAPAN:

DATE: May 8, 2003

PLACE: Kagoshima

EMBASSY OF JAPAN
WASHINGTON, D.C.
April 25, 2003

Excellency:

I have the honor to acknowledge the receipt of Your Excellency's Note of today's date, which reads as follows:

"I have the honor to refer to the recent discussions between representatives of the Government of the United States of America and of the Government of Japan concerning the terms and conditions whereby cooperation on the Mu Space Engineering Spacecraft-C (MUSES-C) Program (hereinafter referred to as "the Program") will be undertaken between the two Governments.

In consideration of the continuing mutually beneficial relationship between the two Governments in the field of peaceful exploration and use of outer space; taking into account the Agreement between the Government of the United States of America and the Government of Japan on Cooperation in Research and Development in Science and Technology, signed at Toronto, on June 20, 1988, as extended and amended; and reaffirming that the provisions of the Agreement between the Government of the United States of America and the Government of Japan Concerning Cross-Waiver of Liability for Cooperation in the Exploration and Use of Space for Peaceful Purposes, signed at Washington, on April 24, 1995, and the Exchange of Notes of the same date between the two Governments concerning subrogated claims shall apply to the Program, I have the further honor to propose on behalf of the Government of the United States of America the following arrangements:

1. Cooperation on the Program will be executed for the Government of the United States of America by the National Aeronautics and Space Administration (hereinafter referred to as "NASA") and for the Government of Japan by the Institute of Space and Astronautical Science (hereinafter referred to as "ISAS").

2. With a view to setting forth detailed terms and conditions for cooperation on the Program, NASA and ISAS will conclude implementing arrangements (Memorandum of Understanding, hereinafter referred to as "the MOU"), providing, inter alia, that NASA and ISAS will jointly undertake ground observation of a target asteroid, tracking of the MUSES-C to be provided by ISAS, and a detailed analysis of samples to be collected from the asteroid by the MUSES-C.

3. The provisions of the present arrangements and the MOU shall be implemented in accordance with the laws and regulations in force in each country. Activities under the present arrangements and the MOU shall be subject to the availability of appropriated funds.

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5. The present arrangements shall remain in force for a

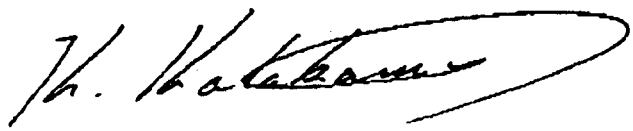
period of eight years, unless terminated by either Government upon six months' written notice through diplomatic channels of its intention to terminate them. The present arrangements may be extended or amended by mutual written agreement of the two Governments.

I have the further honor to propose that, if the foregoing arrangements are acceptable to the Government of Japan, this Note and Your Excellency's Note in reply shall constitute an agreement between the two Governments, which will enter into force on the date of Your Excellency's reply."

I have the further honor to confirm on behalf of the Government of Japan that the foregoing arrangements are acceptable to the Government of Japan and to agree that Your Excellency's Note and this Note in reply shall constitute an agreement between the two Governments, which will enter into force on the date of this reply.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Ambassador Extraordinary
and Plenipotentiary of Japan



His Excellency
Colin L. Powell
The Secretary of State

EMBASSY OF JAPAN
WASHINGTON, D. C.

Washington, April 22, 2011

Excellency,

I have the honor to refer to the agreement between the Government of Japan and the Government of the United States of America concerning the cooperation between the Institute of Space and Astronautical Science of Japan (hereinafter referred to as "ISAS") and the National Aeronautics and Space Administration of the United States of America (NASA) on the Mu Space Engineering Spacecraft-C Program (hereinafter referred to as "the Program"), which was effected by the Exchange of Notes dated April 25, 2003 (hereinafter referred to as the "Agreement").

In consideration of the continuing mutually beneficial relationship between the two Governments in the field of peaceful exploration and use of outer space; taking into account the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology, signed at Toronto on June 20, 1988, as extended and amended; and reaffirming that the provisions of the Agreement between the Government of Japan and the Government of the United States of America Concerning Cross-Waiver of Liability for Cooperation in the Exploration and Use of Space for Peaceful Purposes, signed at Washington on April 24, 1995, and the Exchange of Notes of the same date between the two Governments concerning subrogated claims shall apply to the Program, I have further the honor to propose, on behalf of

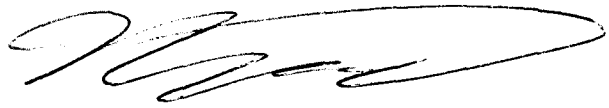
the Government of Japan, that the Agreement shall be extended for a period of ten years from April 25, 2011.

I have further the honor to confirm that all the rights and obligations of ISAS under the Agreement were succeeded to by the Japan Aerospace Exploration Agency (JAXA).

I have further the honor to propose that, if the foregoing is acceptable to the Government of the United States of America, this Note and Your Excellency's Note in reply shall constitute an agreement between the two Governments, which shall enter into force on the date of Your Excellency's reply.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Ambassador Extraordinary
and Plenipotentiary of Japan



Her Excellency
Hillary Rodham Clinton
The Secretary of State

April, 22, 2011

Excellency,

I have the honor to acknowledge the receipt of your note of today's date, which reads as follows:

"I have the honor to refer to the agreement between the Government of Japan and the Government of the United States of America concerning the cooperation between the Institute of Space and Astronautical Science of Japan (hereinafter referred to as "ISAS") and the National Aeronautics and Space Administration of the United States of America ("NASA") on the Mu Space Engineering Spacecraft-C Program (hereinafter referred to as "the Program"), which was effected by the Exchange of Notes dated April 25, 2003 (hereinafter referred to as the "Agreement").

"In consideration of the continuing mutually beneficial relationship between the two Governments in the field of peaceful exploration and use of outer space; taking into account the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology, signed at Toronto on June 20, 1988, as extended and amended; and reaffirming that the provisions of the Agreement between the Government of Japan and the Government of the United States of America Concerning Cross-Waiver of Liability for Cooperation in the Exploration and Use of Space for Peaceful Purposes, signed at Washington on April 24, 1995, and the Exchange of

His Excellency
Ichiro Fujisaki,
Ambassador of Japan.

Notes of the same date between the two Governments concerning subrogated claims shall apply to the Program, I have further the honor to propose, on behalf of the Government of Japan, that the Agreement shall be extended for a period of ten years from April 25, 2011.

"I have further the honor to confirm that all the rights and obligations of ISAS under the Agreement were succeeded to by the Japan Aerospace Exploration Agency ("JAXA").

"I have further the honor to propose that, if the foregoing is acceptable to the Government of the United States of America, this Note and Your Excellency's Note in reply shall constitute an agreement between the two Governments, which shall enter into force on the date of Your Excellency's reply."

I have further the honor to confirm on behalf of the Government of the United States of America that the foregoing is acceptable to the Government of the United States of America and to agree that your note and this note in reply shall constitute an agreement between the two Governments, which shall enter into force on the date of this reply.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State: