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AGREEMENT

BETWEEN

~~THE~~ NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AND

THE EUROPEAN SPACE AGENCY

CONCERNING

NETWORK AND OPERATIONS CROSS-SUPPORT

TABLE OF CONTENTS

PREAMBLE

ARTICLE 1 - PURPOSE

ARTICLE 2 - SCOPE OF COOPERATION

ARTICLE 3 - DEFINITIONS

ARTICLE 4 - IMPLEMENTATION

ARTICLE 5 - TRANSFER OF GOODS AND DATA

ARTICLE 6 - INTELLECTUAL PROPERTY

ARTICLE 7 - RELEASE OF RESULTS AND PUBLIC INFORMATION

ARTICLE 8 - FINANCIAL ARRANGEMENTS

ARTICLE 9 - CUSTOMS, TAXES AND VISAS

ARTICLE 10 - OWNERSHIP

ARTICLE 11 - DISCLAIMER OF WARRANTY

ARTICLE 12 - LIABILITY

ARTICLE 13 - AMENDMENTS

ARTICLE 14 - CONSULTATION AND SETTLEMENT OF DISPUTES

ARTICLE 15 - ENTRY INTO FORCE AND TERMINATION

The United States National Aeronautics and Space Administration (hereinafter referred to as "NASA"),

and

The European Space Agency, an international intergovernmental organisation established by the Convention which was opened for signature in Paris on 30 May 1975 and entered into force on 30 October 1980 (hereinafter referred to as "ESA"),

hereinafter jointly referred to as "the Parties",

PREAMBLE

CONSIDERING the long-standing cooperation between ESA and NASA in the area of telemetry data acquisition, tracking, and command support, as well as mutual space navigation support, carried out through specific Memoranda of Understanding concluded for several missions,

NOTING also that the Parties have provided ground station network and space navigation support to each other's missions, via adopted arrangements such as:

- (a) the NASA-ESA Letter of Agreement for Reciprocal Tracking Support dated 20 May and 11 July 1991,
- (b) the exchange of letters, dated 18 and 20 June 2003, which addressed preliminary activities to support NASA missions using the ESA deep space tracking assets, and ESA missions using NASA Deep Space Network stations, as amended by letters dated 15 and 17 June 2005 for the purpose of enabling ESA support to Deep Impact and NASA support to Venus Express, and

CONSIDERING the value in having the mission risk-reducing technical capability for "bi-directional" interoperability between their respective tracking assets and mutual space navigation support, as well as mission operations and ground data systems compatibility,

HAVE AGREED as follows:

ARTICLE 1 - PURPOSE

The purpose of this Agreement is to establish the legal framework and the conditions for a mutually beneficial long-term cooperation between the Parties for giving reciprocal support in the areas of network and operations, as described in Article 2 below.

The scope of cooperation under this Agreement comprises cross-support on Telemetry data acquisition, Tracking, and Command (hereinafter referred to as "TT&C"), space navigation, and mission operations and ground data systems, as described below and to be further detailed in the Implementing Arrangements referred to in Article 4 (Implementation).

1. TT&C cross-support encompasses the "bi-directional" interoperability between the Parties ground station network tracking assets, to track NASA spacecraft at ESA tracking sites and to track ESA spacecraft at NASA tracking sites. Bi-directional interoperability features mission risk-reducing benefits by:
 - (a) providing mission critical support in the event of non-availability of the prime tracking station due to reasons such as local weather interference or earthquake;
 - (b) backing up a local ground station during a mission critical event;
 - (c) filling in what would otherwise be "missing coverage"; and
 - (d) alleviating tracking network over-capacity and over-demand.

2. Space navigation encompasses the support to determination and control of the spacecraft trajectory in order to reach a mission target. It also includes the support to the monitoring of the spacecraft Attitude and Orbit Control System (AOCS) and the generation of AOCS support parameters for uplink, as well as Very Long Baseline Interferometry (VLBI) navigation.

3. Mission Operations and Ground data systems cross-support encompasses all aspects of the monitoring and control of a space mission throughout the definition, implementation and in-flight lifetime. It includes planning, execution, analysis and reporting of spacecraft, payload and ground segment activities. It also includes pertinent aspects of mission control systems, simulators and ground station back-end data systems, the use of modern software, engineering techniques and new information technology to harmonise design solutions.

ARTICLE 3 - DEFINITIONS

For the purpose of this Agreement:

- (a) The term "Related Entity" means:
 - (i) a contractor, subcontractor or sponsored entity of a Party at any tier;
 - (ii) a user or customer of a Party at any tier;

- (iii) a contractor or subcontractor of a user or customer or sponsored entity of a Party at any tier; or
- (iv) a scientific investigator.

The terms "contractor" and "subcontractor" include suppliers of any kind.

For the purpose of Article 12 (Liability), 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 (iv) above or is otherwise involved in the activities undertaken pursuant to this Agreement.

- (b) 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; or
 - (iv) other direct, indirect, or consequential damage.
- (c) 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 and is encompassed in the term "spacecraft".
- (d) The term "payload" means all property to be flown or used on or in a launch vehicle.
- (e) The term "Protected Space Operations" means all activities pursuant to this Agreement, including launch vehicle activities and payload activities on Earth, in outer space, or in transit between Earth and outer space. "Protected Space Operations" begin at the entry into force of this Agreement and end when all activities done in implementation of this Agreement are completed. 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 that are conducted on return from space to develop further a payload's product or process for use other than for the activities within the scope of this Agreement.

1. The Parties shall each designate a liaison officer which shall act as a point of contact for the execution of this Agreement.
2. The Parties shall keep each other informed of their relevant activities and their respective support capabilities for the purpose of this Agreement.
3. For each mission in which one Party (hereinafter referred to as the "Requesting Party") requests the other Party (hereinafter referred to as the "Supporting Party") support for network and operations, and if a reciprocal support can be identified and agreed, an Implementing Arrangement shall be established and concluded between the ESA Director General and the NASA Administrator, or any other persons designated by them. This Implementing Arrangement may cover the following activities:
 - (a) the provision of TT&C cross-support;
 - (b) the participation in technical and scientific exchange on space navigation and/or space navigation support; and
 - (c) the participation in technical exchange of experience concerning mission operations and ground data systems;

and may be concluded for future missions or for missions already in execution prior to the date of entry into force of this Agreement. This Agreement does not exclude that provision of network and operations cross-support be foreseen in mission specific agreements.

4. Each Implementing Arrangement, and associated documentation, may also include such items as management, procedural and interface requirements, a list of required documentation, programme implementation schedule, technical reviews and applicable standards. In particular, bi-directional interoperability will be implemented through a set of standards and protocols applicable to each network, such as the Space Link Extension (SLE) services for TT&C cross-support.
5. If no reciprocal support can be identified, the Parties shall agree on a reimbursement of the costs incurred by the Party providing the support in accordance with Article 8 (Financial Arrangements).

ESA meetings and reviews as appropriate for the purpose of this Agreement. Such meetings and reviews shall be conducted in a manner compatible with the Parties procedures and in compliance with the required implementation schedules.

ARTICLE 5 – TRANSFER OF GOODS AND DATA

1. The Parties are obligated to transfer only those goods and technical data (including software) necessary to fulfill their respective responsibilities under this Agreement, in accordance with the following provisions:
 - (a) All activities of the Parties shall be carried out in accordance with applicable laws, rules and regulations, including those pertaining to export control and the control of classified information.
 - (b) The transfer of goods and technical data for the purpose of discharging the Parties' responsibilities with regard to interface, integration, and safety shall be made without restriction, except as provided in paragraph (a) above.
 - (c) All transfers of goods and proprietary or export-controlled technical data are subject to the following provisions. In the event a Party or its Related Entity finds it necessary to transfer goods or to transfer proprietary or export-controlled technical data, for which protection is to be maintained, such goods shall be specifically identified and such proprietary or export-controlled technical data shall be marked. The identification for goods and the marking on proprietary or export-controlled technical data will indicate that the goods and proprietary or export-controlled technical data shall be used by the receiving Party or Related Entities only for the purposes of fulfilling the receiving Party's or Related Entity's responsibilities under this Agreement, and that the identified goods and marked proprietary technical data or marked export-controlled technical data shall not be disclosed or retransferred to any other entity without the prior written permission of the furnishing Party or its Related Entity. The receiving Party or Related Entity shall abide by the terms of the notice and protect any such identified goods and marked proprietary technical data or marked export-controlled technical data from unauthorized use and disclosure. The Parties to this Agreement will cause their Related Entities to be bound by the provisions of this Article related to use, disclosure, and retransfer of identified goods and marked technical data through contractual mechanisms or equivalent measures.

...shall be used by the receiving Party or Related Entity exclusively for the purposes of the Agreement. Upon completion of the activities under the Agreement, the receiving Party or Related Entity shall return or, at the request of the furnishing Party or its Related Entity, otherwise dispose of all goods and marked proprietary or export-controlled technical data provided under this Agreement, as directed by the furnishing Party or Related Entity.

ARTICLE 6 - INTELLECTUAL PROPERTY

1. Nothing in this Agreement shall be construed as granting, either expressly or by implication, to the other Party any rights to, or interest in, any inventions or works of a Party or its Related Entities made prior to the entry into force of, or outside the scope of, this Agreement, including any patents (or similar forms of protection in any country) corresponding to such inventions or any copyrights corresponding to such works.
2. Any rights to, or interest in, any invention or work made in the performance of this Agreement solely by one Party or any of its Related Entities, including any patents (or similar forms of protection in any country) corresponding to such invention or any copyright corresponding to such works, shall be owned by such Party or Related Entity. Allocation of rights to, or interest in, such invention or work between such Party and its Related Entities shall be determined by applicable laws, rules, regulations and contractual obligations.
3. It is not anticipated that there will be any joint inventions made in the performance of this Agreement. Nevertheless, in the event that an invention is jointly made by the Parties in the performance of this Agreement, the Parties shall, in good faith, consult and agree within 30 calendar days as to:
 - (a) the allocation of rights to, or interest in, such joint invention, including any patents (or similar forms of protection in any country) corresponding to such joint invention;
 - (b) the responsibilities, costs, and actions to be taken to establish and maintain patents (or similar forms of protection in any country) for each such joint invention; and
 - (c) the terms and conditions of any license or other rights to be exchanged between the Parties or granted by one Party to the other Party.

4. For any work jointly authored by the Parties, should the Parties decide to register the copyright in such work, they shall in good faith, consult and agree as to the responsibilities, costs and actions to be taken to register copyrights and maintain copyright protection (in any country).
5. Subject to the provisions of Article 5 (Transfer of Goods and Technical Data) and Article 7 (Release of Results and Public Information), each Party shall have an irrevocable royalty free right to reproduce, prepare derivative works, distribute, and present publicly, and authorise others to do so on its behalf, any copyrighted work resulting from activities undertaken in the performance of this Agreement for its own purposes, regardless of whether the work was created solely by, or on behalf of, the other Party or jointly with the other Party.

ARTICLE 7 – RELEASE OF RESULTS AND PUBLIC INFORMATION

1. The Parties retain the right to release public information regarding their own activities under this Agreement. The Parties shall coordinate with each other in advance concerning releasing to the public information that relates to the other Party's responsibilities or performance under this Agreement.
2. The Parties shall make the final results obtained from the concerned missions available to the general scientific community through publication in appropriate journals or by presentations at scientific conferences as soon as possible and in a manner consistent with good scientific practices.
3. The Parties acknowledge that the following data or information does not constitute public information and that such data or information shall not be included in any publication or presentation by a Party under this Article without the other Party's prior written permission:
 - (a) data furnished by the other Party in accordance with Article 5 (Transfer of Goods and Technical Data) of this Agreement which is export-controlled, classified or proprietary; or
 - (b) information about an invention of the other Party before an application for a patent (or similar form of protection in any country) corresponding to such invention has been filed covering the same, or a decision not to file has been made.

1. Except as provided under Article 8.2 below, each Party shall bear the costs of discharging its respective responsibilities under this Agreement and the Implementing Arrangements concluded for each identified reciprocal support, including travel and subsistence of its own personnel and transportation of goods and associated documentation for which it is responsible.
2. If for an identified support request of the Requesting Party no reciprocal support can be identified and considered equivalent by the Supporting Party, the costs sustained by the latter shall be reimbursed by the Requesting Party in accordance with the rules and procedures of the Supporting Party.

ARTICLE 9 – CUSTOMS, TAXES AND VISAS

1. In accordance with applicable laws, rules and regulations, each Party shall facilitate free customs clearance and waiver of all applicable customs duties and taxes for goods necessary for the implementation of this Agreement and Implementing Arrangements referred to above. In the event that any customs duties or taxes of any kind are nonetheless levied on such goods, such customs duties or taxes shall be borne by the Party related to the authority levying such customs duties or taxes. The Parties' obligation to ensure duty-free entry and exit of goods is fully reciprocal.
2. Each Party shall facilitate the provision of the appropriate entry and residence documentation to employees of the other Party or employees of the other's Related Entities.

ARTICLE 10 – OWNERSHIP

Except if otherwise provided in the Implementing Arrangements to be concluded in accordance with Article 4 (Implementation), each Party shall retain ownership of all the goods, hardware and software, including associated data and any Ground Support Equipment (GSE), it provides to the other Party under the terms of this Agreement or Implementing Arrangements referred to above, without prejudice to any individual rights of ownership of the Parties' respective Related Entities.

Neither Party warrants its tracking facilities' availability or suitability for any particular use, nor the accuracy of the data provided.

Neither Party shall be liable to the other for any damage the Requesting Party may incur as a consequence of the use of the data or support provided by the Supporting Party.

ARTICLE 12 - LIABILITY

1. The Parties agree that a comprehensive cross-waiver of liability between the Parties and their Related Entities shall further participation in space exploration, use, and investment. The cross-waiver of liability shall be broadly construed to achieve this objective. The terms of the waiver are set out below.
- 2.(a) Each Party agrees to a cross-waiver of liability pursuant to which each Party waives all claims against the other Party, a Related Entity of the other Party, the other Party's Related Entities, employees of the other Party, and employees of the other Party's related Entities, 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, except in the case of wilful misconduct.
- (b) Each Party shall extend the cross-waiver of liability to its own Related Entities by requiring them, by contract or otherwise, to agree to waive all claims against the other Party, the other Party's Related Entities, and employees of the other Party or its Related Entities, based on damage arising out of Protected Space Operations.
- (c) For avoidance of doubt, this cross-waiver of liability includes a cross-waiver for any liability arising from the Convention on International Liability for Damage Caused by Space Objects, which entered into force on 1 September 1972 (hereinafter referred to as the "Liability Convention"), 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.

1. Except as provided under Article 8.2 below, each Party shall bear the costs of discharging its respective responsibilities under this Agreement and the Implementing Arrangements concluded for each identified reciprocal support, including travel and subsistence of its own personnel and transportation of goods and associated documentation for which it is responsible.
2. If for an identified support request of the Requesting Party no reciprocal support can be identified and considered equivalent by the Supporting Party, the costs sustained by the latter shall be reimbursed by the Requesting Party in accordance with the rules and procedures of the Supporting Party.

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Neither Party warrants its tracking facilities' availability or suitability for any particular use, nor the accuracy of the data provided.

Neither Party shall be liable to the other for any damage the Requesting Party may incur as a consequence of the use of the data or support provided by the Supporting Party.

ARTICLE 12 - LIABILITY

1. The Parties agree that a comprehensive cross-waiver of liability between the Parties and their Related Entities shall further participation in space exploration, use, and investment. The cross-waiver of liability shall be broadly construed to achieve this objective. The terms of the waiver are set out below.
- 2.(a) Each Party agrees to a cross-waiver of liability pursuant to which each Party waives all claims against the other Party, a Related Entity of the other Party, the other Party's Related Entities, employees of the other Party, and employees of the other Party's related Entities, 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, except in the case of wilful misconduct.
 - (b) Each Party shall extend the cross-waiver of liability to its own Related Entities by requiring them, by contract or otherwise, to agree to waive all claims against the other Party, the other Party's Related Entities, and employees of the other Party or its Related Entities, based on damage arising out of Protected Space Operations.
 - (c) For avoidance of doubt, this cross-waiver of liability includes a cross-waiver for any liability arising from the Convention on International Liability for Damage Caused by Space Objects, which entered into force on 1 September 1972 (hereinafter referred to as the "Liability Convention"), 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 section, this cross-waiver of liability shall not be applicable to:

- (i) claims between a Party and its own Related Entity or among its own Related Entities;
- (ii) claims made by a natural person, his/her estate, survivors, or subrogees (except when a subrogee is a Party to this Agreement or is otherwise bound by the terms of this cross-waiver) for bodily injury, other impairment of health or death of such natural person; or
- (iii) intellectual property claims.

(e) This cross-waiver of liability shall not apply to performance of the Parties' obligations under this Agreement.

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

(g) In the event of third-party claims which may arise out of, inter alia, the Liability Convention, the Parties shall consult promptly on any potential liability, on any apportionment of such liability and on the defence of claim.

ARTICLE 13 - AMENDMENTS

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

ARTICLE 14 - CONSULTATION AND SETTLEMENT OF DISPUTES

The Parties shall consult with each other promptly when events occur or matters arise, which may occasion a question of interpretation or implementation of the terms of this Agreement or of the Implementing Arrangements referred to above. Any dispute in the interpretation or implementation of the terms of this Agreement or of the Implementing Arrangements referred to above shall be first referred to the ESA Director of Operations and Infrastructure and the NASA Associate Administrator for Space Operations. Any dispute which cannot be resolved at this level shall be referred to the Director General of ESA and the Administrator of NASA or their designees. Failing agreement at that level, the Parties may agree to submit the dispute to an agreed form of dispute resolution.

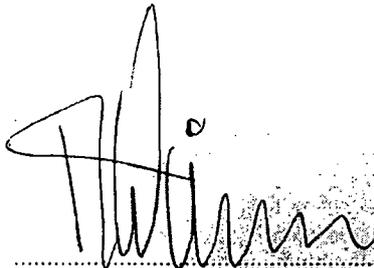
ARTICLE 15 - ENTRY INTO FORCE AND TERMINATION

1. This Agreement will enter into force upon signature by the Parties. It will remain in force for 10 years, unless extended by written agreement of the Parties, or terminated in accordance with Article 15.3.
2. Upon this Agreement's entry into force, the exchange of letters, dated 18 and 20 June 2003, which addressed preliminary activities to support NASA and ESA missions using our respective tracking facilities, as amended and extended by letters dated 15 and 17 June 2005, and letters dated 15 December 2006 and 19 December 2006, will be terminated. Upon this Agreement's entry into force, Implementing Arrangements concluded pursuant to the exchanges of letters will be implemented pursuant to this Agreement.
3. Either Party may terminate this Agreement at any time by giving the other Party at least 12 months written notice of its intent to terminate. Termination of this Agreement shall not affect a Party's continuing obligations under Article 5 (Transfer of Goods and Data), Article 6 (Intellectual Property), Article 7 (Release of Results and Public Information), Article 8 (Financial Arrangements), Article 9 (Customs, Taxes and Visas), Article 10 (Ownership), Article 11 (Disclaimer of Warranty) and Article 12 (Liability). In the event of termination, the Parties shall endeavour to minimise any negative impact of such termination on the other Party.

IN WITNESS WHEREOF the Parties have caused their duly authorised representatives to sign two originals of this Agreement, in the English language.

Done at *Washington, DC*, this *21*..... day of *March*..... *2007*

For the European Space Agency



Pieter Gael Winters
Director of Operations and Infrastructure

For the National Aeronautics and
Space Administration of the
United States of America,



William H. Gerstenmaier
Associate Administrator for Space
Operations

*I certify this to be a
true copy of the signed
original.*



Timothy Conway

