

SPACE

**Agreement Between the
UNITED STATES OF AMERICA
and GERMANY**

Signed at Washington and Frankfurt
August 27 and September 8, 2021

Entered into force September 8, 2021



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.”

**AGREEMENT
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OF THE UNITED STATES OF AMERICA
AND
THE FEDERAL AGENCY FOR CARTOGRAPHY AND GEODESY
OF THE FEDERAL REPUBLIC OF GERMANY
FOR SCIENTIFIC AND TECHNOLOGICAL COOPERATION
IN THE FIELD OF SPACE GEODESY**

The National Aeronautics and Space Administration (hereinafter referred to as "NASA") and the Federal Agency for Cartography and Geodesy (hereinafter referred to as "BKG" or together with NASA as the "Parties"):

Confirm their mutual interest in Space Geodesy activities and applications that contribute to the enhancement of the Global Geodetic Observing System (GGOS) and its constituent International Association of Geodesy (IAG) services;

Recognize that geodetic networks are vital to understanding global change phenomena, supporting local geodetic control, and supplying ground support to space missions;

Wish to enhance the existing international geodetic network; and

Recognize a mutual interest in scientific and technological cooperation in the field of Space Geodesy, including using techniques and systems such as Satellite Laser Ranging (SLR), Very Long Baseline Interferometry (VLBI), Global Navigation Satellite Systems (GNSS), Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS), and gravimetry, as mutually agreed.

As such, the Parties propose an agreement, hereinafter referred to as the "Agreement," based on the following terms and conditions:

1. PURPOSE OF COOPERATION

The purpose of this Agreement is to cooperate to allocate resources to address contemporary issues in the field of Space Geodesy in an efficient and mutually beneficial manner as well as to support future discoveries in the field of Space Geodesy. Specifically, the Parties aim to apply Space Geodesy to important scientific problems in Earth observation by enhancing the GGOS and its constituent IAG services. Joint global observations will provide critical information on solid Earth deformation and Earth orientation, yielding products such as the International Terrestrial Reference Frame (ITRF), Earth Orientation Parameters (EOPs), and the International Celestial Reference Frame (ICRF).

The Parties shall use reasonable efforts to collaborate to develop Space Geodetic techniques, share data from local and global geodetic observing networks, improve their respective analytic capabilities, and improve their respective research on crustal motion, the Terrestrial Reference Frame (TRF), the Celestial Reference Frame (CRF), Earth orientation and the interactions of the

Earth systems, as well as natural hazards prediction/reduction. The cooperation under this Agreement will strengthen the global geodetic infrastructure, improve research and development, and facilitate exchange and discussion of challenging geodetic issues.

Finally, the Parties shall use reasonable efforts to align this Agreement's provisions with the goals of the GGOS, which seeks to promote and enhance global geodetic information, expertise, and infrastructure; promote the realization of stable global reference systems through coordination with international geodetic services; promote standardization; and communicate the benefits of such systems to all levels of society.

2. AUTHORITY

NASA enters into this Agreement in accordance with the National Aeronautics and Space Act (51 U.S.C. §§ 20102(d)(7) and 20115).

BKG enters into this Agreement in accordance with the "Bundesgeoreferenzdatengesetz" Mai 10, 2012 (BGeoRG §§ 3(3) and 3(6)).

3. DEFINITIONS

The term "Related Entity" for the purpose of this Agreement means:

- (a) A contractor, subcontractor, user, or customer of a Party at any tier;
- (b) A contractor or subcontractor, including suppliers of any kind, of a user or customer of a Party at any tier;
- (c) A grantee or any other cooperating entity or investigator of a Party at any tier;
- (d) A contractor or subcontractor of a grantee or any other cooperating entity or investigator of a Party at any tier; or
- (e) Another State, or agency or institution of another State, where such State, agency, or institution is an entity described above or is otherwise involved in the activities undertaken pursuant to this Agreement.

The term "Contributing Entity" for the purpose of this Agreement means:

- (a) A contractor or a subcontractor of a Party at any tier engaged in activities related to the performance of this Agreement.

4. RESPONSIBILITIES

1. NASA shall use reasonable efforts to carry out the following responsibilities:

- (a) Provide, upon request, publicly available SLR, VLBI, GNSS (including Global Positioning System (GPS)), and altimetric data in a mutually agreed upon format;
- (b) Coordinate data acquisition, data distribution, and data archiving of the VLBI, SLR, and GNSS network stations;
- (c) Process and analyze VLBI, SLR, and GNSS data acquired by BKG as part of joint experiment activities;

- (d) Provide processed geodetic data, including station coordinates, baseline components, Earth orientation parameters, GNSS satellite orbits and clocks, and positions of radio sources;
- (e) Provide VLBI, SLR, and GNSS technical information and associated software, such as Calc/Solve and the Geodetic Parameter and Estimation Program (GEODYN);
- (f) Provide agreed upon hardware components as may be required for a Space Geodetic fundamental station in accordance with the goals of the GGOS;
- (g) Provide, upon request, system specifications as currently used or contemplated in NASA Space Geodetic systems, such as the VLBI Global Observatory System (VGOS) and Next Generation SLR, and NASA-developed software used in the operation of a Space Geodetic station, such as the VLBI Field System;
- (h) Exchange publicly available geodetic imaging data including Interferometric SAR and imaging lidar/laser altimetry for the measurement of land surface changes;
- (i) Exchange scientific and technical personnel in support of the activities listed in this Agreement;
- (j) Arrange for scientific meetings and publications to present and discuss results from the activities listed in this Agreement;
- (k) Provide BKG, upon request, with progress reports on research activities carried out under this Agreement; and
- (l) Provide publicly available data and support to the International Association of Geodesy member services.

2. BKG shall use reasonable efforts to carry out the following responsibilities:

- (a) Provide NASA with BKG SLR, VLBI, GNSS and other ancillary data in a mutually agreed upon format;
- (b) Maintain full compatibility of BKG VLBI, SLR, GNSS, DORIS and tide gauge stations with NASA and international standards, and maintain operating coordination with the International Association of Geodesy (IAG) Services of the Global Geodetic Observing System [International GNSS Service (IGS), International Laser Ranging Service (ILRS), International VLBI Service for Geodesy and Astrometry (IVS), International DORIS Service (IDS), and Permanent Service for Mean Sea Level (PSMSL)], including up-to-date site logs for each SLR, VLBI, and GNSS station;
- (c) Provide support such as scientific and technical assistance for the development and implementation of new geodetic measurement strategies such as VGOS, and real-time GNSS, VLBI, and SLR observations;
- (d) Provide maintenance and communications for NASA-loaned equipment;
- (e) Use any NASA-provided property only for the purpose described in this Agreement, receive permission from NASA prior to altering, loaning, or relocating any NASA-owned property, and maintain suitable records for property management, as mutually agreed by the Parties;
- (f) Survey the Space Geodesy stations and provide accurate offset vectors between co-located SLR, VLBI, GNSS and DORIS instruments and tide gauges;
- (g) Develop capability for analysis of SLR, VLBI, GNSS, and DORIS data as individual techniques and in combination;
- (h) Exchange publicly available BKG geodetic imaging data such as InSAR and imaging lidar/laser altimetry for the measurement of land surface changes;

- (i) Exchange scientific and technical personnel in support of the activities listed in this Agreement;
- (j) Arrange for scientific meetings and publications to present and discuss results from the activities listed in this Agreement;
- (k) Provide NASA, upon request, with progress reports on research activities carried out under this Agreement; and
- (l) Provide publicly available data and support to the International Association of Geodesy services.

5. RIGHTS IN RESULTING DATA

The scientific data generated by the activities conducted under this Agreement shall be made available free of charge for public access as soon as such data becomes available, and in accordance with Section 12 of this Agreement.

6. FINANCIAL ARRANGEMENTS

- 1. Each Party shall bear the costs of discharging its respective obligations under the Agreement, including travel and subsistence of personnel and transportation of all goods for which it is responsible.
- 2. The ability of each Party to carry out its obligations is subject to the availability of appropriated funds and its Party's respective funding procedures. Should either Party encounter budgetary problems that may affect the activities to be carried out under this Agreement, the Party encountering the problems shall notify and consult with the other Party as soon as possible.

7. PRIORITY OF USE

The Parties agree that the furnishing Party's usage of its own goods, services, and facilities shall have priority over the usage planned in this Agreement. Should a conflict arise, the furnishing Party, in its sole discretion, shall determine whether to exercise its priority. Should a schedule conflict arise with other users, the furnishing Party, in its sole discretion, shall determine priority as between the users.

8. POINTS OF CONTACT

- 1. The NASA Points of Contact for this Agreement are:

Management Point of Contact:

Dr. Benjamin Phillips

Lead for NASA's Earth Surface and Interior Focus Area

NASA Headquarters, 3Y62

300 E St SW

Washington, D.C.

20546

USA

Telephone: +1-202-358-5693
E-mail: benjamin.r.phillips@nasa.gov

Technical Point of Contact:

Stephen Merkowitz
Space Geodesy Project Manager
NASA Goddard Space Flight Center
Code 61A
Greenbelt, MD
20771
USA
Telephone: +1-301-286-9412
E-mail: stephen.m.merkowitz@nasa.gov

2. The BKG Points of Contact for this Agreement are:

Management Point of Contact:

Dr. Johannes Bouman
Head of the Department of Geodesy
Federal Agency for Cartography and Geodesy
Richard-Strauss-Allee 11
60598 Frankfurt am Main
Germany
Telephone: +49-69-6333-206
Facsimile: +49-69-6333-425
E-mail: johannes.bouman@bkg.bund.de

Technical Points of Contact:

Dr. Daniela Thaller
Head of Section G1 "General Issues, Combination of Space Techniques"
Federal Agency for Cartography and Geodesy
Richard-Strauss-Allee 11
60598 Frankfurt am Main
Germany
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Prof. Dr. Torben Schüller
Head of Geodetic Observatory Wettzell (Section G5)
Federal Agency for Cartography and Geodesy
Sackenrieder Strasse 25
93444 Bad Koetzting/Wettzell
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Telephone: +49-9941 603-106

Facsimile: +49-9941 603-222
E-mail: torben.schueler@bkg.bund.de; schueler@fs.wetzell.de

Any change in a Party's respective contact information shall be communicated in writing to the other Party.

9. LIABILITY AND RISK OF LOSS

1. For the purposes of this Section "Damage" means:
 - (a) Bodily injury to, or impairment of health of, death of, any person;
 - (b) Damage to, loss of, or loss of use of any property;
 - (c) Loss of revenue or profits; or
 - (d) Other direct, indirect, or consequential damage.
2. Each Party hereby waives any claim against the other Party, employees of the other Party, the other Party's Related Entities or employees of the other Party's Related Entities for Damage arising from or related to activities conducted under this Agreement.
3. Each Party further agrees to extend this cross-waiver to its Related Entities by requiring them, by contract or otherwise, to waive all claims against the other Party, Related Entities of the other Party, and employees of the other Party or of its Related Entities for Damage arising from or related to activities conducted under this Agreement. Additionally, each Party shall require that their Related Entities extend this cross-waiver to their Related Entities by requiring them, by contract or otherwise, to waive all claims against the other Party, Related Entities of the other Party, and employees of the other Party or of its Related Entities for Damage arising from or related to activities conducted under this Agreement.
4. Notwithstanding the other provisions of this Section, this cross-waiver of liability shall not be applicable to:
 - (a) Claims between a Party and its own Related Entity or between its own Related Entities;
 - (b) 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;
 - (c) Intellectual property claims;
 - (d) Claims for Damage caused by willful misconduct;
 - (e) Claims for Damage resulting from a failure of a Party to extend the cross-waiver of liability to its Related Entities pursuant to paragraph 2 above; or
 - (f) Claims by a Party arising out of or relating to the other Party's failure to perform its obligations under this Agreement.
5. In the event of third-party claims, the Parties shall consult promptly on any potential liability, on any appointment of such liability and on the defense of such claim.
6. Nothing in this Section shall be construed to create the basis for a claim or suit where none would exist.

10. TRANSFER OF GOODS AND TECHNICAL DATA

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 provisions of this Section, notwithstanding any other provisions of this Agreement.

1. All activities under this Agreement shall be carried out in accordance with the Parties' national laws and regulations, including those laws and regulations pertaining to export control.
2. The transfer of technical data for the purposes of discharging the Parties' responsibilities with regard to interface, integration, and safety will normally be made without restriction, except as required by paragraph 1 of this Section.
3. All transfers of goods and proprietary or export-controlled technical data are subject to the following provisions.
 - (a) In the event a Party or its Related Entity finds it necessary to transfer such goods or data, for which protection is to be maintained, such goods shall be specifically identified and such data shall be marked.
 - (b) The identification for such goods and the marking on such data shall indicate that the goods and data will be used by the receiving Party and its Related Entities only for the purposes of fulfilling the receiving Party's or Related Entities' responsibilities under this Agreement, and that such goods and data shall not be disclosed or retransferred to any other entity without the prior written permission of the furnishing Party.
 - (c) The receiving Party and its Related Entities shall abide by the terms of the notice and protect any such goods and data from unauthorized use and disclosure.
 - (d) The Parties to this Agreement shall cause their Related Entities to be bound by the provisions of this Section through contractual mechanisms or equivalent measures.
4. All goods and marked proprietary or export-controlled technical data exchanged in the performance of this Agreement shall be used by the receiving Party or Related Entity exclusively for the purposes of the Agreement. Upon completion of the activities under this Agreement, the receiving Party or Related Entity shall return or otherwise dispose of all goods and marked proprietary or export-controlled technical data provided under this Agreement, as directed by the furnishing Party or its Related Entity.

11. INTELLECTUAL PROPERTY RIGHTS

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 Contributing 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 Contributing Entities, including any patents (or similar forms of protection in any country) corresponding to such invention or any copyright corresponding to such work, shall be owned by such Party or Contributing Entity. Allocation of rights to, or interest in, such invention or work between such Party

and its Contributing Entities shall be determined by applicable laws, rules, regulations, and contractual obligations.

3. It is not anticipated that there shall 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 endeavor to 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 jointly authored work 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 any actions to be taken to register copyrights and maintain copyright protection (in any country).
5. Subject to the provisions of Section 10 (Transfer of Goods and Technical Data) and Release of Results and Section 12 (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 authorize 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.

12. 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 results available to the general scientific community, as appropriate and agreed between the Parties, in a timely manner.
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 Section without the other Party's prior written permission:
 - (a) Data furnished by the other Party in accordance with Section 10 (Transfer of Goods and Technical Data) which is identified as export-controlled 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.

13. EXCHANGE OF PERSONNEL AND ACCESS TO FACILITIES

1. To facilitate implementation of the activities conducted under this Agreement, the Parties may support the exchange of a limited number of personnel from each party, at an appropriate time and under conditions mutually agreed between the parties.

2. Access by the Parties to each other's facilities or property, or to each other's Information Technology (IT) systems or applications, is contingent upon compliance with each other's respective security and safety policies and guidelines including, but not limited to: standards on badging, credentials, and facility and IT system application/access.

14. CUSTOMS CLEARANCE AND MOVEMENT OF GOODS

1. 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. In the event that any customs duties or taxes of any kind are nonetheless levied on such goods, such customs duties or taxes will be borne by the Party of the country levying such customs duties or taxes, subject to the provisions of Section 6.
2. Each of the Parties shall also facilitate the movement of goods into and out of its territory as necessary to comply with this Agreement.

15. OWNERSHIP OF GOODS AND DATA

Unless otherwise agreed in writing, each Party shall retain ownership of all goods and data it provides to the other Party under the terms of this Agreement, without prejudice to any individual rights of ownership of the Parties' respective Related Entities. To the extent feasible and recognizing that goods integrated into the other Party's equipment cannot be returned, each Party agrees to return the other Party's goods and data in its possession at the conclusion of activities under this Agreement.

16. CONSULTATION AND DISPUTE RESOLUTION

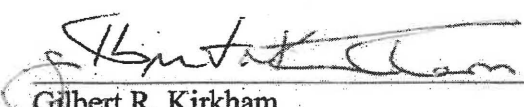
The Parties agree to consult promptly with each other on all issues involving interpretation, implementation, or performance of the Agreement. Such issues will first be referred to the points of contact named above for the Parties.

17. FINAL PROVISIONS

1. This Agreement shall enter into force upon the date of last signature by the Parties.
2. This Agreement shall remain in force for 10 years.
3. The Parties may amend this Agreement in writing.
4. Either Party may terminate this Agreement at any time by giving the other Party at least 6 months' written notice of its intent to terminate. In the event of termination, the terminating Party shall endeavor to minimize any negative impact of such termination on the other Party.
5. A Party's continuing obligations under Section 9 (Liability and Risk of Loss), Section 10 (Transfer of Goods and Technical Data), Section 11 (Intellectual Property Rights), and Section 12 (Release of Results and Public Information), shall continue to apply notwithstanding the termination or expiration of this Agreement, unless otherwise agreed by the Parties.


DONE in duplicate, in the English language.

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


Gilbert R. Kirkham
Director, Science Division
Office of International and Interagency
Relations

Place: Washington DC
Date: 27 August 2021

FOR THE FEDERAL AGENCY FOR
CARTOGRAPHY AND GEODESY FOR
THE FEDERAL REPUBLIC OF
GERMANY:


Prof. Dr. Paul Becker
President, Federal Agency for Cartography
and Geodesy

Place: Frankfurt am Main
Date: 8 September 2021