

**No. 12999**

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**UNITED STATES OF AMERICA  
and  
BRAZIL**

**Exchange of notes constituting an agreement relating to remote sensing for earth resources (with memorandum of understanding of 27 March 1973). Washington, 6 April 1973**

*Authentic texts of the notes: English and Portuguese.*

*Authentic text of the memorandum of understanding: English.*

*Registered by the United States of America on 23 January 1974.*

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**ÉTATS-UNIS D'AMÉRIQUE  
et  
BRÉSIL**

**Échange de notes constituant un accord relatif à la télédétection des ressources terrestres (avec mémorandum d'accord en date du 27 mars 1973). Washington, 6 avril 1973**

*Textes authentiques des notes : anglais et portugais.*

*Texte authentique du mémorandum d'accord : anglais.*

*Enregistré par les États-Unis d'Amérique le 23 janvier 1974.*

# EXCHANGE OF NOTES CONSTITUTING AN AGREEMENT<sup>1</sup> BETWEEN THE UNITED STATES OF AMERICA AND BRAZIL RELATING TO REMOTE SENSING FOR EARTH RESOURCES

## I

*The Secretary of State to the Brazilian Ambassador*

DEPARTMENT OF STATE  
WASHINGTON

April 6, 1973

Excellency:

I have the honor to refer to the Agreement between the Government of the United States of America and the Government of Brazil concerning cooperative research in remote sensing for earth surveys effected by an exchange of notes between our two Governments of January 18 and September 10, 1968,<sup>2</sup> and extended by an exchange of notes of November 25, 1970 and February 3, 1971<sup>3</sup> and another exchange of notes of December 29, 1972.<sup>4</sup>

I also have the honor to refer to the Memorandum of Understanding concerning cooperative research in remote sensing between the National Aeronautics and Space Administration (NASA) of the United States of America and the Instituto de Pesquisas Espaciais (INPE) of Brazil, dated March 27, 1973.

This Memorandum, which is set forth in the annex to this note, provides *inter alia* that its provisions shall be subject to confirmation by the respective Governments of the two agencies by an exchange of notes, and that the Memorandum shall enter into force on the date of the exchange.

Recognizing (1) that the experimental NASA Earth Resources Technology Satellites in the United States Earth Resources Survey Program offer unique devices for accomplishing the objectives of the Agreement of January 18 and September 10, 1968, and (2) that Brazil is willing to establish facilities to acquire and process data received directly from the Earth Resources Technology Satellites, I now have the honor to inform you that the Government of the United States of America confirms the provisions of the Memorandum of Understanding referred to above.

If the Government of Brazil would also confirm the provisions of the Memorandum, I have the honor to propose that this note and Your Excellency's reply to that effect shall constitute an agreement between our two Governments regarding this matter, which shall enter into force on the date of Your Excellency's reply, shall remain in force until April 1, 1976 unless extended further as may be mutually agreed, and shall supersede the Agreement of January 18 and September 10, 1968, as extended.

<sup>1</sup> Came into force on 6 April 1973, the date of the note in reply, in accordance with the provisions of the said notes.

<sup>2</sup> United Nations, *Treaty Series*, vol. 702, p. 163.

<sup>3</sup> *Ibid.*, vol. 781, p. 337.

<sup>4</sup> See p. 191 of this volume.

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

For the Secretary of State:

HERMAN POLLACK

His Excellency João Augusto de Araújo Castro  
Brazilian Ambassador

## MEMORANDUM OF UNDERSTANDING

BETWEEN THE BRAZILIAN INSTITUTO DE PESQUISAS ESPACIAIS AND THE UNITED STATES NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

1. The Instituto de Pesquisas Espaciais (INPE) of Brazil and the National Aeronautics and Space Administration (NASA) of the United States of America desire to extend their experimental project for cooperative research in remote sensing for earth surveys. The purpose of the extended project is to make use of the experimental satellites in the Earth Resources Survey Program to accomplish the objectives of the project (see paragraph 2). Therefore, this Memorandum will supersede the Memorandum of Understanding between NASA and the Comissão Nacional de Atividades Espaciais (now INPE), dated January 13, 1968.

2. The objectives of this extended cooperative project include advancing the applications of spacecraft and aircraft remote sensing technology to the monitoring of environmental conditions at or near the surface of the earth (air, water, land, and vegetation), the detection and delineation of areas of stress in crops and forests, and the mapping of geological, hydrological, vegetation and soil characteristics. The objectives also include the reception of data, directly from such experimental Earth Resources Satellites as ERTS-1, at a ground station located in Central Brazil at Cuiaba and the processing of such data at a facility located in São Paulo state, Brazil. It is understood as well that data acquired and returned to earth by the U.S. Earth Resources Experiment Package (EREP), which is to be included in the manned Skylab mission in 1973, will be available to INPE, both on a cooperative basis applicable to NASA-approved Brazilian Principal Investigators and otherwise through the EROS Data Center in Sioux Falls, South Dakota.

3. It is intended that this cooperation will be divided into four phases, with each phase to begin upon the mutual agreement of the NASA and INPE Project Managers (see paragraph 12). A prerequisite to the initiation of phase A will be agreement between the Project Managers on the technical and operational interfaces required to carry out the project and on a schedule for accomplishing phases A through D.

During all phases, responsibility for spacecraft control, health and status will remain with NASA.

### *Phase A. INPE ERTS (INPERTS) DATA ACQUISITION STATION—RECEIVE AND RECORD CHECKOUT PHASE*

a. This phase will begin when the INPE data acquisition station becomes available for acquiring the ERTS spacecraft transmitted signal and for receiving and recording narrow and wideband downlink data. The purpose of this phase is to demonstrate the capability of the INPERTS facility to acquire and record ERTS data.

b. During this phase, NASA will assign a mutually agreed number of passes for direct acquisition by INPE of the ERTS spacecraft transmitted signal. NASA will command the satellite. INPE will ship the experimental data tapes to the NASA ERTS Operations Control Center/NASA Data Processing Facility (OCC/NDPF) at the Goddard Space Flight Center

(GSFC) for processing (on a time available basis) for initial evaluation. The resulting data will be used to calibrate INPE station performance.

c. During this phase, NASA will continue to provide ERTS data to the NASA-agreed Brazilian ERTS Principal Investigators through INPE.

d. Should the ERTS onboard tape recorders fail during this phase, the provisions of paragraph 4 would apply.

*Phase B. PERIOD BETWEEN INPERTS DATA ACQUISITION STATION CHECKOUT AND DATA PROCESSING STATION OPERATION*

a. Following checkout of the INPERTS data acquisition facility, NASA will continue to provide ERTS data to NASA-agreed Brazilian Principal Investigators. During passes scheduled to acquire these data, NASA additionally will provide realtime data transmission from the spacecraft, as mutually agreed.

b. If it is considered mutually desirable, the responsibility for recording data to support NASA-agreed Brazilian Principal Investigators will be transferred from NASA ERTS onboard tape recorders to the INPE facility prior to phase D (the operational phase). In this event, INPE will ship the data tapes supporting NASA-agreed investigations to the NASA OCC/NDPF for processing. The resultant data products will be forwarded through INPE to the Brazilian Principal Investigators.

c. Data acquired by the INPERTS facility in excess of that required to support NASA-agreed Brazilian investigations will be stored by INPE for processing by the INPERTS Data Processing Facility at a later date.

d. Should the ERTS onboard tape recorders fail during this phase, the provision of paragraph 4 would apply.

*Phase C. INPERTS DATA PROCESSING FACILITY — INITIAL CHECKOUT*

a. This phase will begin when the INPE data processing facility becomes available for systems tests. The purpose of this phase is to demonstrate an INPE capability for processing ERTS data.

b. The NASA-agreed Brazilian Principal Investigators will be handled as in phase B.

c. In addition, INPE will process selected INPE-acquired data to evaluate the performance of the INPERTS Data Processing Facility.

d. Should the ERTS onboard tape recorders fail during this phase the provision of paragraph 4 would apply.

*Phase D. INPERTS DATA ACQUISITION AND PROCESSING—OPERATIONAL PHASE*

a. This phase will begin when the INPE Project Manager notifies NASA that INPE is ready to assume operational responsibility for acquiring and processing Brazilian ERTS data.

b. This phase will continue for the duration of the agreement.

c. Should the ERTS onboard tape recorders fail during this phase, the provision of paragraph 4 would apply.

*4. Alternative Modes of Operation*

a. In the event of an ERTS onboard tape recorder failure during Phases A-C and provided there is sufficient NDPF capacity, NASA would process data acquired by the INPE facility for NASA-approved Brazilian Investigators and for other NASA-agreed ERTS Investigators whose test sites are within range of the INPE data acquisition station. NASA would furnish tapes to INPE as required to support the non-Brazilian Investigators. The above tapes, which would have to be in a format compatible with the NDPF system, would be shipped by INPE to NASA for processing.

b. During Phase D, the same procedures would apply, except that INPE would consider processing these data, whether or not the tape recorders have failed, if it is mutually agreed between NASA and INPE that this would be desirable for programmatic reasons.

c. If the ERTS Provisions for Participation expire for the NASA-agreed Brazilian Principal Investigators prior to phase D, NASA will consider processing selected Brazilian test site data, on a time-available basis.

5. In the event of a spacecraft emergency condition, INPE would provide, to the best of its ability, support requested by NASA.

6. INPE will arrange for meeting the full capital and operating costs of the Brazilian data acquisition station and data processing facility, including the costs of the necessary communications links with the NASA OCC/NDPF and for any augmentation of the Brazilian facilities.

7. There will be no exchange of funds between INPE and NASA.

8. NASA will provide to INPE, as necessary, antenna pointing elements for acquisition of the ERTS spacecraft transmitted signal and updated definitive orbital information for use in processing the data. The format of these data will be consistent with the existing ERTS system.

9. INPE and NASA will freely share and exchange upon request, all data and technical information mutually agreed to be necessary for the conduct of the joint program of data acquisition and processing.

10. INPE will make available to NASA, on a cost-free basis and in the NASA-preferred format (negative imagery format with identifying annotation) copies of the ERTS data it acquires and processes. NASA will make available to INPE, on the same basis, copies of ERTS data it acquires and processes, as may be mutually agreed to further the cooperative experimental project. INPE and NASA similarly will make available copies of selected duplicate compatible tapes.

11. It is understood that INPE and the other Brazilian agencies participating in the program will pursue an ERTS open data policy comparable to that of NASA and the other U.S. agencies participating in the program\* such that catalogs of all data processed, as well as the data themselves, are made publicly available as soon as practicable to the domestic and international community.

12. Continuing the practice established in the January 13, 1968 Memorandum of Understanding, INPE and NASA will each designate a Project Manager to be responsible for coordinating the agreed functions and responsibilities of each research team with the other. The Project Managers will be co-chairmen of a Joint Working Group (JWG) which will be the principal instrument for assuring the execution of the project and for keeping both sides continuously informed of project status. The Joint Working Group may establish scientific and technical subcommittees and other subcommittees as required to carry out the program.

13. The Brazilian Principal Investigators who have been accepted into the ERTS program will report on the results of their data analyses as stipulated and agreed in the relevant Provisions for Participation and supporting documentation. INPE and NASA will make the results of this expanded cooperative effort available to each other through the Joint Working Group and to the public through distribution centers and publication in appropriate journals.

14. NASA and INPE agree to exchange ground truth and aircraft data, and any reports on Brazilian and U.S. test areas, as mutually agree. Coordination and/or exchange of airborne test flights within designated test areas in the U.S. and Brazil may be arranged as mutually agreed.

15. Training and exchange of technical personnel will take place as mutually agreed.

16. It is understood that this project is experimental in character and subject to change in accordance with changing technical requirements and opportunities. Therefore, the details of this project for cooperative research in remote sensing for earth surveys may be modified by the mutual agreement of INPE and NASA.

17. INPE and NASA will use their best efforts to arrange for free customs clearance for equipment required in the program.

\* Reference: NASA Policy Document 8000.1, May 10, 1972.

18. INPE and NASA may release general information to the public regarding the conduct of their own portions of the project as desired and, insofar as the participation of the other agency is concerned, after suitable coordination.

19. INPE and NASA will assure that the project is appropriately recorded in still and motion picture photography and that the photography is made available to the other agency, upon request, for public information purposes.

20. It is understood that the ability of INPE and NASA to carry out the responsibilities of this agreement is subject to the availability of appropriated funds.

21. This Memorandum is conditioned upon an exchange of notes between the two Governments confirming its provisions. It shall enter into force the date of the exchange of notes.

FERNANDO DE MENDONÇA

For the Instituto de Pesquisas  
Espaciais

27 March 1973

JAMES C. FLETCHER

For the National Aeronautics  
and Space Administration

March 27, 1973

## II

[PORTUGUESE TEXT — TEXTE PORTUGAIS]

BRAZILIAN EMBASSY  
WASHINGTON

Em 6 de abril de 1973

Nº 124/592.21(22)

Senhor Secretário de Estado,

Tenho a honra de acusar o recebimento da nota de Vossa Excelência, de 6 de abril de 1973, do seguinte teor:

«Excelência, Tenho a honra de referir-me ao Acôrdo entre o Govêrno dos Estados Unidos da América e o Govêrno do Brasil a respeito de cooperação no campo das investigações sôbre sensoramento remoto para pesquisas da terra, concluído por troca de notas entre nossos dois Governos de 18 de janeiro e 10 de setembro de 1968, prorrogado por troca de notas de 25 de novembro de 1970, 3 de fevereiro de 1971 e 29 de dezembro de 1972.

2. Outrossim, tenho a honra de referir-me ao Memorando de Entendimento a respeito de cooperação no campo das investigações sôbre sensoramento remoto entre a Administração Nacional de Aeronáutica e Espaço dos Estados Unidos (NASA) e o Instituto Nacional de Pesquisas Espaciais do Brasil (INPE), assinado em 27 de março de 1973.

3. O Memorando acima referido, que constitui anexo à presente nota, estabelece, entre outras coisas, que seus dispositivos serão objeto de aprovação por parte dos Governos das Agências mencionadas por meio de uma troca de notas, e que o Memorando entrará em vigor na data dessa troca de notas.

4. Reconhecendo que: 1) os Satélites Tecnológicos para Recursos da Terra, da NASA, dentro do Programa de Pesquisa dos Recursos da Terra, dispõe de instrumentos apropriados para a realização dos objetivos previstos no Acôrdo de 18 de janeiro e 10 de setembro de 1968 e que: 2) o Brasil se dispõe a construir instalações para receber e processar dados transmitidos

diretamente dos Satélites Tecnológicos para Recursos da Terra, tenho a honra de informar a Vossa Excelência que o Governo dos Estados Unidos da América aprova os dispositivos do Memorando de Entendimento acima referido.

5. Se o Governo do Brasil igualmente aprovar os dispositivos do Memorando, tenho a honra de propor que esta nota, e a nota de resposta de Vossa Excelência naquele sentido constituirão Acôrdo entre nossos dois Governos sôbre a matéria, o qual entrará em vigor na data da resposta de Vossa Excelência e permanecerá em vigor até 1º de abril de 1976, a menos que as duas partes venham a acordar sua prorrogação, ficando revogado o Acôrdo de 18 de janeiro e 10 de setembro de 1968, tal como prorrogado. »

Em resposta, tenho a honra de informar Vossa Excelência de que o Governo brasileiro igualmente aprova os dispositivos do Memorando de Entendimento entre a National Aeronautics and Space Administration (NASA) e o Instituto Nacional de Pesquisas Espaciais (INPE), assinado em 27 de março de 1973, e concorda com que a Nota de Vossa Excelência, de 6 de abril de 1973, e a presente nota constituam Acôrdo entre nossos dois Governos sôbre a matéria, o qual entrará em vigor nesta data e permanecerá em vigor até 1º de abril de 1976, a menos que as duas partes venham a acordar sua prorrogação, ficando revogados os dispositivos do Acôrdo de 18 de janeiro e 10 de setembro de 1968, tal como prorrogado.

Aproveito a oportunidade para renovar a Vossa Excelência os protestos da minha alta estima e consideração.

[Signed — Signé]

JOÃO AUGUSTO DE ARAÚJO CASTRO

Embaixador

A Sua Excelência o Senhor William P. Rogers  
Secretário de Estado dos Estados Unidos da América

[TRANSLATION<sup>1</sup> — TRADUCTION<sup>2</sup>]

*The Brazilian Ambassador to the Secretary of State*

BRAZILIAN EMBASSY  
WASHINGTON

April 6, 1973

No. 124/592.21(22)

Mr. Secretary:

I have the honor to acknowledge receipt of Your Excellency's note of April 6, 1973, which reads as follows:

[See note I]

In reply I have the honor to inform Your Excellency that the Brazilian Government also approves the provisions of the Memorandum of Understanding

<sup>1</sup> Translation supplied by the Government of the United States of America.

<sup>2</sup> Traduction fournie par le Gouvernement des Etats-Unis d'Amérique.

between the National Aeronautics and Space Administration (NASA) and the Instituto Nacional de Pesquisas Espaciais (INPE), signed on March 27, 1973, and agrees that Your Excellency's note of April 6, 1973, and this note shall constitute an agreement between our two Governments on the subject, which shall enter into force on this date and shall remain in force until April 1, 1976, unless extended further as may be mutually agreed, and shall supersede the Agreement of January 18 and September 10, 1968, as extended.

I avail myself of this opportunity to renew to Your Excellency the assurances of my high esteem and consideration.

[Signed]

JOÃO AUGUSTO DE ARAÚJO CASTRO  
Ambassador

His Excellency William P. Rogers  
Secretary of State of the United States of America

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