

PROGRAM OF COOPERATION
between
The GERMAN AEROSPACE CENTER e.V.
and
The BRAZILIAN SPACE AGENCY
to
IMPLEMENT THE
ACRIDICON - CHUVA PROJECT: AMAZON CAMPAIGN

The Brazilian Space Agency (AEB) and the German Aerospace Center (DLR), hereinafter referred to as the "Parties" of this Program of Cooperation (PoC),

RECALLING the Framework Agreement between the Federal Republic of Brazil and the Federal Republic of Germany on scientific research and technological development, signed in 1996;

RECALLING the Agreement between the Brazilian Space Agency (AEB) and the German Aerospace Center (DLR) on Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes, signed on February 14, 2002;

RECOGNISING the importance of scientific and technological advancement in meeting the global challenges of Climate Change;

RECOGNISING the potential for collaboration between Brazil and Germany to enhance the understanding of the relationships between climate, atmospheric chemistry/physics and ecosystems;

CONFIRMING their mutual interest in developing scientific and academic cooperation in their areas of expertise;

NOTING that the Brazilian Funding Agency in São Paulo (FAPESP - Fundação de Amparo a Pesquisa do Estado de São Paulo) has already approved funds to support the ground data collection of the ACRIDICON-CHUVA Project;

NOTING also that the German Space Agency (DLR) has secured funds from a consortium of German funding agencies to conduct an atmospheric experiment (ACRIDICOM) that will enhance the climate and air quality modelling capabilities of both Brazil and Germany;

AWARE that the same consortium mentioned above has a research aircraft (High Altitude and Long Range Research Aircraft - HALO) that has all the necessary instrumentation to collect atmospheric data to support the ACRIDICOM-CHUVA Project;

CONSIDERING that the National Institute for Space Research (INPE) under the Brazilian Ministry of Science, Technology and Innovation is a research Institute whose main goals are fostering scientific research and technological applications in the fields of space and atmospheric science, space engineering and space applications;

RECOGNIZING that INPE and DLR share complementary interests in the advancement of atmospheric sciences through observational research and the development of weather satellites algorithms and weather and climate models that enhance the understanding of the global climate system;

ACKNOWLEDGING also that INPE and DLR, as leading atmospheric science institutions, are both interested in the development of precipitation estimation and satellite validation and modelling of aerosols, atmospheric chemistry and their roles in air quality and climate; and finally

NOTING that ACRIDICON-CHUVA Project will interact in a collaborative way with the ongoing Intensive Airborne Research in Amazonia (IARA) campaign to exchange relevant ancillary data,

have agreed on the following:

ARTICLE 1 - THE PARTIES AND IMPLEMENTING INSTITUTIONS

1.1. The Parties to this PoC are:

(a) The German Aerospace Center (“DLR”), the national aeronautics and space center of the Federal Republic of Germany with headquarters at Linder Hoehe, 51147, Cologne, Germany; and

(b) The Agência Espacial Brasileira (“AEB”), an agency from the Brazilian Ministry of Science, Technology and Innovation, with headquarters at SPO – Setor Policial, Área 5, Quadra 3, Bloco A CEP 70610 200, Brasília, DF, Brazil.

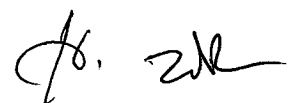
1.2. The National Institute for Space Research – INPE, a research institute from the Brazilian Ministry of Science, Technology and Innovation, is nominated by AEB as responsible for the implementation of this PoC from the Brazilian side.

1.3. DLR is acting for its DLR-Institute of Atmospheric Research as well as its DLR Research Flight Department, both responsible for the implementation of this PoC from the German side.

1.4. If deemed necessary to ensure a more efficient implementation of this PoC, non-Party participants, hereinafter referred to as “Third Parties” may be invited to join the ACRIDICON-CHUVA Project with the written consent of AEB, INPE and DLR. Third Parties participants will commit to abide by the terms and conditions of this PoC through a Letter of Commitment (LoC) to be shared among INPE and DLR. Hereinafter, DLR, INPE and Third Parties, if applicable, will be jointly referred to as Participants and individually as Participant.

ARTICLE 2 - SCOPE AND PURPOSE

2.1. The objective of this PoC is to define the terms and responsibilities of the signatories to this PoC in carrying out a joint atmospheric research campaign, herein referred to as ACRIDICON-CHUVA, to investigate the cloud processes and the cloud-aerosol interactions over Brazil using aerial and ground data from selected areas in Amazonia. The experiment aims to better understand and to quantify the aerosol-cloud-precipitation interactions and



their thermodynamic, dynamic and radiative effects in convective cloud systems by *in-situ* aircraft observations combined with indirect measurements (aircraft, satellite, X Band dual Pol radar, and ground based) and numerical simulations. ACRIDICON relates to the collection of airborne data using the HALO aircraft whereas CHUVA relates to the collection of ground data and information.

2.2. This PoC sets out the arrangements between DLR and INPE concerning the data collection using the HALO research aircraft and the ground data collected by CHUVA.

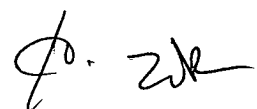
ARTICLE 3 - DEFINITIONS AND INTERPRETATIONS

PoC	means this agreement in its entirety and any future written amendments, modifications and supplements agreed by the signatories to this document.
Data	means meteorological, atmospheric, environmental measurements or any other scientific or observational information collected in the course of the Project.
Experiment	means the aerial campaign with the HALO aircraft, with scientific participation of Third Parties, as deemed necessary and agreed by AEB, INPE and DLR.
HALO aircraft	The High Altitude and Long Range Research Aircraft from DLR.
Input Materials	means those materials, and/or graphs, graphics, drawings, documents, forecast information and knowledge, which INPE and DLR produce for the planning and implementation of the ACRIDICON-CHUVA Project.
Intellectual Property Rights	Intellectual property rights as defined in Article 2 of the Annex to the Agreement between AEB and DLR in Cooperation in Exploration and Use of Outer Space for Peaceful Purposes, signed on February 14, 2002.
LoC	Letter of Commitment regulating the participation of Third Parties.

ARTICLE 4 - RESPONSIBILITIES OF THE PARTIES

4.1. AEB and INPE will be jointly responsible for:

- (a) requesting the necessary permissions and making the formal communications to the appropriate Brazilian authorities, as required for the implementation of the Experiment;



- (b) seeking authorization with Brazilian relevant authorities for the data to be used by Third Parties, if and as deemed appropriate;
- (c) ensuring that all legal requirements for the formal conclusion of the Experiment are fulfilled; and
- (d) formally, i.e. in written form informing DLR about the relevant Brazilian Legislation concerning international participation in airborne campaigns.

4.2. DLR and INPE will be jointly responsible for:

- (a) defining the aerial data measurements necessary to meet the scientific objectives of the ACRIDICON-CHUVA Project;
- (b) planning the research flights;
- (c) making the practical arrangements for the Experiment, in accordance with the Brazilian legislation, and ensuring that the purpose of the research flight is limited to the scope of this PoC as defined in Article 2.1 and includes no other activities;
- (d) collecting the data following (a), (b) and (c) above;
- (e) maintaining a long-term archive of the data collected, for which identical copies are to be held by INPE and DLR;
- (f) making the data available to researchers involved in the ACRIDICON-CHUVA Project or subsequent research activities, as deemed appropriate and mutually agreed by INPE and DLR and in strict accordance with the Brazilian legislation regarding the acquisition, by international participants, of scientific materials and data (Decree 98.830 of January, 15th 1990);
- (g) coordinating the analysis of the data and publication of results; and
- (h) ensuring that Third Parties participants will commit to abide by the terms and conditions of this PoC, through a Letter of Commitment to be shared among the INPE and DLR. Those responsible for Third Parties participation in the Project must obtain the Letter of Commitment from the respective Third Parties.

4.3. INPE will be responsible for:

- (a) providing operation weather and aerosol forecast information prior and during the Experiment for use in flight planning; and
- (b) facilitating communication with the relevant airport authorities concerning the HALO flights (schedule, flight plan, etc) to ensure a safe airborne campaign.

4.4. DLR will be responsible for:

- (a) the financial costs associated with the operation of its HALO aircraft during the Experiment;
- (b) the operation of the scientific instrumentation and data collection systems on the HALO aircraft; and
- (c) ensuring that Third Parties from the German side are aware of the Brazilian legislation for airborne campaigns, in particular in relation to the data collection and distribution, as provided by AEB and INPE according with paragraph 4.1 (d).



4.4.1. In order to fulfil its responsibilities, DLR may invite Third Parties to join the Experiment and share DLR's responsibilities as described in (a) and (b) above, observing the contents of paragraphs 1.4 and 4.2 (h).

ARTICLE 5 – FINANCIAL OBLIGATIONS

5.1. INPE and DLR will each bear their own expenses arising from and relating to its involvement in ACRIDICON-CHUVA Project including, but not limited to travel and accommodation costs during the planning and execution of the Project, as well as any other cost that may arise from data analysis and publications;

5.1.1 The financial resources to support the Brazilian participation in the ACRIDICON-CHUVA Project, in particular to conduct its CHUVA component, are secured by FAPESP;

5.1.2. The financial resources to conduct the Experiment lie with DLR and/or any Third Parties that may be invited by DLR to join the Project, as indicated in paragraph 4.4.1;

5.3. There will be no transfer of funds or other financial obligation between the Parties and the Implementing Parties under this PoC; and

5.4. In case INPE or DLR cannot bear the cost of its participation, it will provide written notice to the other Parties which will then jointly decide how to proceed further.

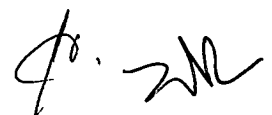
ARTICLE 6 – DATA AND INTELLECTUAL PROPERTY RIGHTS

6.1. This PoC does not affect the ownership of the Participants' Intellectual Property Rights, which will remain the property of that Participant or its licensors. No license to use Intellectual Property Rights of a Party is granted or is implied by this PoC except the rights expressly granted in this PoC;

6.2. For the purposes of collaboration under this PoC only, INPE and DLR obtain from each other a royalty-free, non-exclusive and non-transferable right to use the results achieved under this PoC;

6.3. All results achieved by a Participant in the course of the collaboration under this PoC, including inventions or knowledge, whether patentable or not, know-how or protected or unprotected software, shall belong to that Participant. Patent applications will be filed by and in the name of the inventing Participant at its own costs and expenses. The Participants shall keep each other informed of such patent applications;

6.4. In case of Intellectual Property Rights resulting from inventions, patentable or not, for which the origin cannot be clearly credited to one or more Participants shall be in co-ownership between these notwithstanding any contrary agreement. The concerned Participants will enter into negotiations on a case by case basis in order to reach an agreement. If the concerned Participants cannot reach a common agreement after such negotiations with regard to such Intellectual Property Rights, they will share equally the benefits, fees, costs and expenses resulting from application and maintenance of the Intellectual Property Rights, unless they decide otherwise by common agreement; and



6.5. Each Participant agrees to provide to each other, free of charge, Input Materials within the scope of this PoC only, as defined in Article 2.1. In the case of a Third Party, its prior permission should be obtained for the free access and use of its Input Materials.

ARTICLE 7 – CONFIDENTIALITY

7.1. Each Participant agree that while this PoC is in force, and at any time thereafter, Confidential Information will be kept secret and confidential and will not be disclosed to others, unless deemed necessary for the purposes of this PoC, or if requested by force of law and/or regulatory authorities. In the latter case, the concerning Participant will inform the others, in writing, that the Confidential Information is required to be disclosed.

7.2. The obligation of confidentiality set forth herein shall not apply to information which: (i) is published or becomes published or otherwise is or becomes generally available to the public through no breach of this PoC by the receiving Participant; or (ii) the receiving Participant can show that it was in its possession prior to receipt of the information from the disclosing Participant; or (iii) is independently developed by the receiving Participant as demonstrated by competent documentary evidence, or (iv) becomes available to the receiving Participant from an independent source without breach of agreement or violation of law.

7.3. Each Participant agrees that none of the Data or Input Materials for the ACRIDICON-CHUVA Project is considered to be Confidential Information unless otherwise specified by any law or regulatory authority. In this case, the concerning Participant will inform the others, in writing, which Data or Input Materials should be regarded as Confidential Information.

ARTICLE 8 - CROSS WAIVER OF LIABILITY

8.1. For the purposes of this PoC, AEB and all Participants agree to a cross-waiver of liability. AEB and each Participant hereby waives any claim against the others, employees of the others, the others' related entities (including, but not limited to, contractors, subcontractors, grantees, or investigators), and employees of the others' related entities, for any personal injury to the waiving parties' employees or the employees of its related entities, or for damage to, or loss of, the waiving parties property or the property of its related entities, arising from or related to activities conducted under this PoC, whether such injury, damage, or loss arises through negligence or otherwise, except in the case of gross negligence or wilful misconduct. This cross-waiver will apply only if the person, entity, or property causing the damage is involved in activities under this PoC and the person, entity, or property damaged is damaged by virtue of its involvement in such activities under this PoC.

8.2. AEB and each Participant (except Third Parties) further agrees to extend this cross-waiver to its related entities by requiring them, by contract or other formal agreement, to waive all claims against the others, related entities of the others, employees of the others, and employees of their related entities, for injury, damage, or loss arising from or related to activities conducted under this PoC.

A handwritten signature in black ink, consisting of a stylized initial 'P' followed by a series of loops and a final flourish.

8.3. Third Parties participants will also be embraced by this cross-waiver through signature of the Letter of Commitment as referred to in paragraph 1.4 of this PoC.

8.4. Nothing in this cross-waiver of liability will be construed to create the basis for a claim or suit where none would otherwise exist.

ARTICLE 9 – DISPUTE PROCEDURE

9.1. AEB and all Participants will endeavour in good faith to resolve any disputes in the first instance through the designated representatives for each Party, as referred to in Article 10.

9.2. In the event that the dispute cannot be resolved under paragraph 9.1, the matter will be referred to a senior management level and thereafter to the chief executive of each Party.

9.3. Any disputes referring to the involvement of and to the actions performed by a Third Party that may be required to take part in the implementation of this PoC shall be resolved in the first instance by the Party responsible for bringing in the Third Party directly with the Third Party and only then settled with the other Party.

ARTICLE 10 – DESIGNATED REPRESENTATIVES

10.1. Designated representatives, one from INPE and one from DLR, are responsible for ensuring the effective implementation of the activities planned for the ACRIDICON-CHUVA Project, as detailed in Article 4.

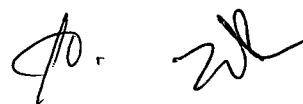
10.1.1. The designated representatives nominated from DLR and INPE are:

For DLR:

Dr. Hans Schlager
DLR-Institut für Physik der Atmosphäre
Oberpfaffenhofen
82234 Wessling
Phone: +49 8153282510
Fax: +49 8153 281841
E-mail: hans.schlager@dlr.de

For INPE:

Dr. Luiz Augusto Toledo Machado
National Institute for Space Research (INPE)
Center for Weather Forecast and Climate Studies (CPTEC)
Rodovia Pres. Dutra, km 40
12630-000 Cachoeira Paulista/SP - Brasil
Phone: +55 1231869399
Fax: +55 1231869291
E-mail: luiz.machado@cptec.inpe.br



- 10.2. INPE and/or DLR may change their representatives at any time by giving each other prior written notice. The designated representatives are not entitled to legally represent their respective Parties.

ARTICLE 11 – DATA SHARING AND PUBLICATIONS

- 11.1. All data generated by the ACRIDICON–CHUVA Project will be made available to all jointly agreed research participants and will be analysed cooperatively. Rules of data sharing and distribution will be detailed in a data protocol to be formally agreed upon by INPE and DLR.
- 11.2. Results jointly generated will be published by the corresponding generating Participants. These generating Participants will agree beforehand on the content of such publications and will provide each other with drafts of the proposed publication. These drafts can only be objected for serious reasons. If no objection is received four weeks after the receipt of the draft by any Participant, consent is assumed.
- 11.3. Each Participant has the right to publish information generated by itself, respecting the provisions set forth in Article 7. The publishing Participant will inform the others of this publication.
- 11.4. No Participant has the right to publish information or data generated by the other Participants without their prior written consent.
- 11.5. Each Participant shall refrain from publishing scientific/technical details concerning inventions whenever this could be detrimental to any efforts to obtain Intellectual Property Rights.

Handwritten signatures in black ink, consisting of two distinct marks, one above and to the left of the other.

ARTICLE 12 – EXPORT CONTROLS

The signatories to this PoC agree to abide by all relevant export control regulations when exchanging technical equipment and technical information. Prior to exchanging export controlled equipment or technical information, the disclosing signatory shall notify the receiving signatory sufficiently in advance to give the receiving signatory enough time to establish a Technology Control Plan or to reject receipt of the controlled items.

ARTICLE 13 – MISCELLANEOUS

- 13.1 This PoC is not intended to constitute, create, give effect to, or otherwise recognize a joint venture, partnership, or formal business entity of any kind.
- 13.2 The rights and obligations of the signatories to this PoC are limited to those expressly set forth herein.
- 13.3 Should any provisions of this PoC become invalid, this shall not affect the remaining provisions of the PoC. The invalid provision shall be replaced by another which comes closest to the intentions of the signatories when entering into this PoC.

ARTICLE 14 – COMMENCEMENT, AMENDMENTS AND TERMINATION

14.1. Effective Date and Duration

This PoC will come into effect upon signature (“Effective Date”) by AEB, DLR and INPE and will remain in force for three (3) years unless terminated earlier under the provisions of paragraph 14.4.

14.2. Amendments

This PoC may be extended or amended at any time by mutual agreement of the signatories to this PoC, communicated in writing and signed by all.

14.3. Notice


Any notice exchanged by the signatories in connection with this PoC will be in writing and will only be considered delivered upon written acknowledgement of receipt by the addressee signatories.


14.4. Termination


- (a) Any signatory may withdraw from this PoC at any time by giving 28 calendar days prior written notice to the others.
- b) Upon termination of this PoC, the following will be continuing responsibilities:
- Article 6 Data and Intellectual Property Rights
 - Article 8 Cross Waiver of Liability
 - Article 9 Dispute Procedure




The foregoing represents the understanding reached between the signatories on the matter referred to therein.

Signed by Prof. Dr. MARKUS RAPP) i.V. 
For and on behalf of)
German Aerospace Center) Authorised signatory
Date 23.07.14)

Signed by Dr. HANS SCHLAGER) i. A. 
For and on behalf of)
German Aerospace Center) Authorised signatory
Date 23.07.14)

Signed by) 
For and on behalf of)
Agência Espacial Brasileira) Authorised signatory
Date)

Signed by) 
For and on behalf of)
Instituto Nacional de Pesquisas Espaciais) Authorised signatory
Date)