

**Memorandum of Understanding
Between
University Corporation for Atmospheric Research
And
National Central University
On Cooperative Research on GPS Science and Application**

This Memorandum of Understanding (MOU), effective as of the date of last signature ("Effective Date"), is entered into by and between the University Corporation for Atmospheric Research (UCAR), having a mailing address of P.O. Box 3000, Boulder, Colorado 80307 and the National Central University (NCU), having a mailing address of 300 Jhong-Da Rd., Taiwan 32001, Taiwan. UCAR and NCU may be alternately referred to herein as party, individually, or parties, collectively.

Article 1 - Purpose/Objective:

This MOU between NCU and UCAR provides a framework for scientific and technical cooperation in Global Position System (GPS) science and atmospheric sciences. Emphasis will be on the collaborative efforts of both parties to enhance, through joint development efforts, GPS science and application of common interests. This MOU will also provide a mechanism to allow for the exchange of scientific and technical knowledge among the parties, which are necessary for the joint development of the mission-oriented GPS Radio Occultation (RO) data processing systems, mainly for COSMIC-2 in USA and FORMOSAT-7 in Taiwan, and are complementary for other similar satellite programs. The technical representative of UCAR for the execution of this MOU is the COSMIC Program Office (Constellation Observing System for Meteorology, Ionosphere and Climate) under UCAR, hereafter referred as COSMIC/UCAR. The technical representative of NCU for the execution of this MOU is the Global Position System Science and Application Center, hereafter referred as GPSARC/NCU.

Article 2 - Cooperative Activities:

- Subject to the availability of funds, personnel and the mutual agreement of both parties, cooperative activities will be for specific projects between NCU and UCAR, and may be undertaken in the following general areas:
 - A. Development of a new GPS data processing system for COSMIC-2/FORMOSAT-7 including: ground-based GPS processing, space-based processing, processing capability of the GNSS (GPS, Galileo and GLONASS) measurements from the Tri-G receiver, and development of science application software that runs within the TriG Science Processor.
 - B. Verification and evaluation of GPS RO retrieval algorithms applied to the neutral atmosphere and the upper ionosphere, with emphasis on accuracy of temperature and water vapor retrieval in the troposphere.

- C. Development and improvement of GPS observation operators and their implementation into data assimilation systems for atmospheric and ionospheric data analysis and simulation.
- D. Applications of GPS RO and ground-based data to weather forecasting, global environmental analysis and simulation, climate change and variability, ionospheric study and geodetic research.
- E. Exchange of non-proprietary technical and scientific information.
- F. Exchange of short- and long-term visits.
- G. Joint advisory of academic research and publication of co-works.
- H. Convening of joint seminars, technical workshops and scientific meetings.
- I. Other cooperative activities as mutually agreed upon by both parties.

Article 3 - Term of MOU/Extensions:

The Term of this MOU shall be for a period of five (5) years from the Effective Date, unless earlier terminated under the termination provisions of Article 7. If the parties mutually agree that it would be to the benefit of the parties to extend the Term of this MOU, the parties shall execute an amendment, which extends the Term under the same terms and conditions as recited herein. No amendment or modification of this MOU shall be valid unless made in writing and signed by duly authorized representatives of NCU and UCAR. NCU and UCAR further acknowledge that facsimile signatures are fully binding and constitute a legal method of executing this MOU.

Article 4 - Laws/Regulations:

This MOU and the respective performance of the parties hereunder, shall be subject to all applicable laws and regulations of the United States of America and Taiwan.

Article 5 - Responsibility of Each Party:

Subject to the availability of funds and personnel, the activities as outlined in Article 2 shall be supported by both parties and each party shall be responsible for providing facilities and other mutually agreed upon support.

Article 6 - Other Agreements:

In the event any additional understandings such as, but not limited to, those related to the licensing of technology for research or commercialization purposes, or the need to enter into a separate agreement for the transfer of funds, the parties shall in good faith enter into negotiations to reduce to a mutually agreeable writing the obligations and terms associated with such understandings.

Article 7 – Termination:

Either NCU or UCAR may terminate this MOU, at any time during the term stated herein without cause provided the terminating party gives the terminated party thirty (30) days written notice.

Article 8 - Export:

NCU acknowledges that UCAR may not export any export controlled information or technology ("Controlled Technology") to NCU without fully complying with all applicable export control laws and regulations of the United States of America ("U.S. Export Requirements"). NCU agrees not to disclose to UCAR any information nor provide UCAR with any item(s) that are either export-controlled under the International Traffic in Arms Regulations, or appear on the Commerce Control List (except as EAR99) of the Export Administration Regulations. Neither party shall export, directly or indirectly, any such information or items to any country which the U.S. Government at the time of export requires an export license or other Government approval without first obtaining such license or approval.

Article 9 – Notices

All written notices between NCU and UCAR with reference to this MOU shall be sent to the respective address of the party, or to such other individuals as the parties may designate in writing from time to time, as follows:

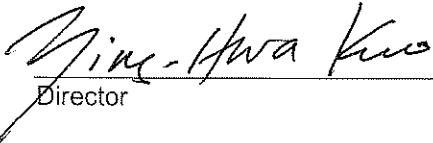
| COSMIC/UCAR TECHNICAL CONTACT | GPSARC/NCU TECHNICAL CONTACT |
|---|--|
| William Kuo | Name: Ching-Yuang Huang |
| Director of UCAR Community Programs | Title: Director of GPSARC |
| COSMIC/UCAR 3090 Center Green Drive Boulder, CO 80301 | GPSARC/NCU No. 300, Zhongda Rd., Zhongli District, Taoyuan City 32001, Taiwan (R.O.C.) |
| Phone: 1-303-497- | Phone: 886-3-422-7151 ext. 65565 |
| Email: kuo@ucar.edu | Email: hcy@atm.ncu.edu.tw |

| UCAR ADMINISTRATIVE CONTACT | NCU ADMINISTRATIVE CONTACT |
|---|---|
| Amy Smith | Sarah Peng |
| Senior Contract Administrator | GPSARC Administrative Assistant |
| UCAR 3090 Center Green Drive Boulder, CO 80301 | NCU No. 300, Zhongda Rd., Zhongli District, Taoyuan City 32001, Taiwan (R.O.C.) |
| Phone: 1-303-497-8872 | Phone: 886-3-442-7151 ext. 65565 |
| Email: asmith@ucar.edu | Email: simp50127@ncu.edu.tw |

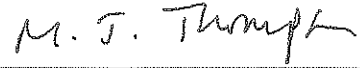
In WITNESS WHEREOF, the parties hereto have agreed to understandings recited in this MOU as evidenced below by the signatures of each party's duly authorized representative.

COSMIC Program Office
University Corporation for Atmospheric Research

University Corporation for Atmospheric Research

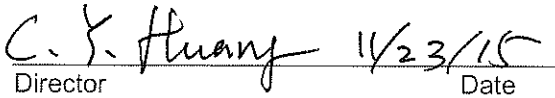
 11/23/15

Director Date

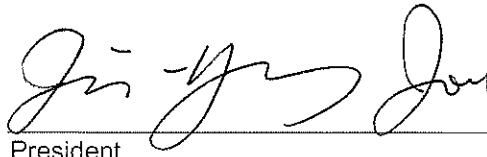
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President Date

GPS Science and Application Research Center
National Central University

National Central University

 11/23/15

Director Date

 11/23/2015

President Date