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**United States of America  
and  
Kiribati**

**Memorandum of Understanding between the U.S. Geological Survey of the Department of the Interior of the United States of America and the Ministry of Communications, Transport, and Tourism Development of the Republic of Kiribati concerning scientific and technical cooperation in the earth sciences on global seismic data acquisition (with annexes). Suva, 23 February 2006**

**Entry into force:** *23 February 2006 by signature, in accordance with article X*

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**États-Unis d'Amérique  
et  
Kiribati**

**Mémoire d'accord entre l'Institut d'études géologiques des États-Unis du Département de l'intérieur des États-Unis d'Amérique et le Ministère des communications, des transports et du développement du tourisme de la République de Kiribati concernant la coopération scientifique et technique dans les sciences terrestres sur l'acquisition des données sismiques mondiale (avec annexes). Suva, 23 février 2006**

**Entrée en vigueur :** *23 février 2006 par signature, conformément à l'article X*

**Texte authentique :** *anglais*

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[ ENGLISH TEXT – TEXTE ANGLAIS ]

MEMORANDUM OF UNDERSTANDING  
BETWEEN  
THE U.S. GEOLOGICAL SURVEY  
OF THE  
DEPARTMENT OF THE INTERIOR  
OF THE  
UNITED STATES OF AMERICA  
AND THE  
MINISTRY OF COMMUNICATIONS, TRANSPORT,  
AND TOURISM DEVELOPMENT  
OF THE  
REPUBLIC OF KIRIBATI  
CONCERNING  
SCIENTIFIC AND TECHNICAL COOPERATION  
IN THE EARTH SCIENCES ON  
GLOBAL SEISMIC DATA ACQUISITION

ARTICLE I. PURPOSE

1. The U.S. Geological Survey of the Department of the Interior of the United States of America (hereinafter “USGS”) and the Ministry of Communications, Transport, and Tourism Development of the Republic of Kiribati (hereinafter “MCTTD”) hereby agree to pursue scientific and technical cooperation in the earth sciences in accordance with this Memorandum of Understanding (hereinafter “Memorandum”).

2. Forms of cooperation under this Memorandum may consist of exchanges of technical information, visits, participation in training courses, conferences and symposia, and the exchange of professional geoscientists in areas of earth-science investigations, including hazards, resources and the environment.

3. Specifically, the USGS and the MCTTD (hereinafter “Party” or “Parties”) hereby agree to cooperate in the installation and operation of seismological equipment, communications infrastructure, and the exchange of seismological data and related scientific results.

ARTICLE II. BACKGROUND

1. To better understand and mitigate the effects of earthquakes and tsunamis, both Parties recognize the usefulness of the exchange of seismological data in the accurate reporting of earthquake occurrences, in the assessments of earthquake hazards, in general seismological research, and in other applications.

2. The USGS is participating in the development of a new Global Seismograph Network (GSN) that makes use of modern seismological equipment and establishes procedures for the international exchange of seismological data. This effort is carried out in the United States in cooperation with the Incorporated Research Institutions for Seismology (IRIS) supported by the United States National Science Foundation (hereinafter "NSF"), and with the cooperation of seismological facilities and institutions worldwide. Data from USGS and IRIS networks are shared in real time with the National Oceanic and Atmospheric Administration (NOAA) Pacific Tsunami Warning Center (PTWC) through cooperative agreements in data communications and shared infrastructure. The GSN activities of IRIS and the USGS are also coordinated with the International Federation of Digital Seismograph Networks (FDSN).

### ARTICLE III. SCOPE AND OBJECTIVES

1. The general scope of this Memorandum is cooperation between the Parties in the exchange of seismological data, information, and scientific results. Initially, this Memorandum covers three seismograph stations, but other stations may be added in the future, if mutually agreed.

2. Specific Objectives of this Cooperation:

A. The installation, operation, and maintenance of GSN equipment at suitable sites on Kiritimati, Tarawa (Betio), and Kanton islands;

B. The establishment and implementation of real-time data exchange procedures between these sites and the USGS GSN Data Collection Center, through the PTWC; and

C. The installation, operation, and maintenance of very small aperture terminals (VSAT) for communication of seismic data, with parallel voice and Internet capability, on Tarawa, Kanton, and Kiritimati.

### ARTICLE IV. IMPLEMENTATION, RESPONSIBILITIES, AND OTHER CONSIDERATIONS

1. The implementing body on behalf of the USGS shall be the Albuquerque Seismological Laboratory (hereinafter "ASL"). The implementing body on behalf of Kiribati will be the Meteorology Division of MCTTD (hereinafter "Met. Div.").

2. Responsibilities of the USGS/ASL:

A. To provide to the Met. Div., equipment for three modern, digital seismograph stations designated as IRIS Type II and the same as that installed or being installed at more than 100 GSN sites worldwide;

B. To provide all equipment for satellite communications links between the two seismic stations on Kanton and Tarawa, and the PTWC in Honolulu, Hawaii, including RJ8 and RJ11 interfaces and one telephone at each site; and to provide all equipment for a satellite communications link (seismic data only) between the seismic station on Kiritimati and the PTWC;

C. To provide all new or repaired parts necessary to keep the stations and their communications systems in operating condition. Because this maintenance requires exchanging new or repaired modules for old ones, title to all components will remain with the NSF until termination of this project. All items imported for the project will be removed from Kiribati when no longer needed, unless some agency of the Government of Kiribati specifically requests that they be donated to some responsible group;

D. To install the IRIS Type II equipment, with participation of representatives of the Met. Div., at sites on Kiritimati, Tarawa, and Kanton islands, mutually agreed to by both Parties;

E. To provide on-site training in the operation and maintenance of the equipment for up to three persons designated by the Met. Div. at each site;

F. To provide all operating supplies for the equipment, including: digital recording media, recording paper, mailing cartons and labels, and operational forms; and to pay for electricity consumed at the prevailing electric utility rates;

G. To send qualified USGS personnel or representatives to the sites for routine maintenance and calibration visits, in collaboration with competent representatives of the Met. Div.;

H. To provide access to the data from the sites for use by local seismologists;

I. To provide to the Met. Div. access to data from GSN and other sites worldwide through routine procedures established by the FDSN; and

J. To provide opportunities for building capacity within the Kiribati Government through exchanges of technical information, visits, participation in training courses, conferences and symposia, and the exchange of professional geoscientists in areas of earth-science investigations, including hazards, resources and the environment.

3. Responsibilities of the MCTTD/Met. Div.:

A. To obtain any necessary permits for the USGS to prepare instrumentation vaults or boreholes for the seismic sensors at the sites;

B. To help the USGS find contractors to do the required work at the sites;

C. To help the USGS obtain any other permits as may be required, e.g. licenses for satellite communications and telemetry of data between the seismic stations and the PTWC;

D. To help the USGS find facilities for the suitable installation and operation of the GSN recording equipment at the sites, mutually agreed to by the Parties, including electrical power and an operating environment that is dry and has means of temperature control;

E. To secure the customs- and duty-free importation of station equipment and supplies, within the laws of Kiribati;

F. To provide qualified personnel for the operation and maintenance of the equipment;

G. To routinely send through established procedures original, unmodified digital recording media containing data from the provided equipment;

H. To assist the USGS to obtain any permits or licenses required by the Republic of Kiribati for the operation of local telemetry and satellite communications of data and telephone calls between the seismic stations and the PTWC;

I. To provide any additional telephone equipment for its own use;

J. To purchase telephone and Internet services for its own use, including installation and monthly local and long distance service, as it may desire.

4. Other Considerations:

A. The Met. Div. and local researchers are free to use data recorded by the seismic equipment for their own purposes; the USGS will assist in this usage to the extent possible. Information produced at these sites will be fully and freely available in real time without restrictions.

B. The USGS National Earthquake Information Center shall endeavor to establish communication with the Met. Div. and to exchange data on large earthquakes worldwide soon after they occur.

5. Force Majeure: If any Party to this Memorandum or if any of the implementing bodies is rendered unable, because of force majeure, to perform its responsibilities under Article IV of this