Global Observation Information Network

GOIN

地球観測情報ネットワーク

A bilateral demonstration of information networks in service to the planet.

かけがえのない地球のための日米情報ネットワークデモンストレーション

GOIN Background　地球観測情報ネットワークの背景

In 1993 President Clinton of the United States and Prime Minister Miyazawa of Japan implemented GOIN under the Common Agenda for Cooperation in Global Perspective. GOIN's purpose is to exchange global environmental data via information networks within and between the U.S. and Japan, to identify existing capabilities and weaknesses, to strengthen bilateral cooperation in Earth observation programs, and to serve as a prototype for future global observation network collaboration.

ﾃﾏｵｰｴﾑｯｬｾｰﾊｰ･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯ｡ﾊGOIN: Global Observation Information Network｡ﾋ､ﾏ｡｢1993ﾇｯ､ﾋﾊﾆｹｰ､ﾎ･ｯ･ｰ･ｰ･ﾈ･ｰﾂｰﾅｰﾎﾎ､ﾈﾆｰﾋﾜ､ﾎｵﾜﾂｰｼｰﾁｰ､ﾎｴﾖ､ﾇ｡｢｡ﾖﾃﾏｵｰﾅｪﾅｸﾋｾ､ﾋﾎｳ､ﾃ､ｿｶｨﾎﾏ､ﾎ､ｿ､ｰ､ﾎｶﾖﾄﾌｲﾝﾂｰ｡ﾊ･ｳ･ｰ･ｰ･｢･ｸ･ｧ･ｰ･ﾀ｡ﾋ｡ﾗ､ﾎｰｰ､ﾄ､ﾈ､ｰ､ﾆ｡｢ｹｰｰｭ､ｵ､ｰ､ｿ､ｰ､ﾎ､ﾇ､ｹ｡｣GOIN､ﾎﾌﾜﾅｪ､ﾏ｡｢ﾆｰﾊﾆﾎｾｹｰ､ﾎｾｰﾊｰ･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯ､ｰﾄﾌ､ｸ､ｿﾃﾏｵｰｴﾑｯｬ･ﾇ｡ｼ･ｿ､ﾎｸｰｴｹ｡｢ﾎｾｹｰ､ﾎｴｰﾂｸﾇｽﾎﾏ､ﾈﾌｰﾂｰﾅﾀ､ﾎﾇﾄｰｮ｡｢ﾆｰｹｰｴﾖ､ﾎﾃﾏｵｰｴﾑｯｬ･ﾗ･ｰ･ｰ･ｰ･ｰ､ﾎｶｨﾎﾏｯ･ｿﾊ｡｢ｵﾚ､ﾓｾｭﾍｰ､ﾎﾃﾏｵｰｴﾑｯｬ･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯｶｨﾎﾏ､ﾎ･ﾗ･ｰ･ﾈ･ｿ･､･ﾗ､ｰﾄｰｶ｡､ｹ､ｰ､ｳ､ﾈ､ﾇ､ｹ｡｣

GOIN Chronology　GOIN　年表

1993	July	GOIN Established.
1993	December	U.S. - Japan Networks study initiated.
1994	May	Network capacities determined and demonstration plan initiated.
1995	June	Live simultaneous demonstrations between Washington, DC and Tokyo.
1996	June	GOIN96 Workshop, Tokyo.
1997	June	GOIN97 Workshop, Boulder.

1993	年 7 月	ＧＯＩＮ設立
1993	年12 月	日米間ネットワーク検討の開始
1994	年 5 月	現有ネットワーク能力の決定と デモンストレーション計画の開始
1995	年 6 月	ワシントンＤ．Ｃ．ー東京間の 同時中継デモンストレーション
1996	年 6 月	ＧＯＩＮ９６ワークショップ（東京）
1997	年 6 月	ＧＯＩＮ９７ワークショップ（米国コロラド州ボルダー）

The GOIN initiative is implemented through the Joint Program Working Group (JPWG) organized by the participating agencies and institutions of both countries. JPWG co-chairs are from the Science and Technology Agency (STA) in Japan and the National Oceanic and Atmospheric Administration (NOAA) in the United States. The Joint Technical Working Group (JTWG) was established to address specific technical issues related to GOIN.

GOIN･､･ﾋ･ｰ･｢･ﾆ･｣･ﾖ､ﾏ｡｢ﾆｰﾊﾆﾎｾｹｰ､ﾎｴﾘｰｸｾﾊﾄ｣､ﾇﾁﾈｿ･､ｵ､ｰ､ｿﾆｰﾊﾆｶﾖﾆｱｰﾗｲｰｺｰｶﾈﾉｰｲｰ｡ﾊJPWG)､ｰﾄﾌ､ｰ､ﾆｼｯｻﾜ､ｵ､ｰ､ﾆ､､､ﾞ､ｹ｡｣JPWGｶﾖﾆｱｵﾄﾄｹ､ﾏ｡｢ﾆｰﾋﾜ､ﾎｲﾊｳﾘｵｻｽﾑﾄ｣ｵﾚ､ﾓﾊﾆｹｰｳ､ﾍﾎﾂｰｵ､ﾄ｣｡ﾊNOAA｡ﾋ､ｰ､ｰﾁｪｽﾐ､ｵ､ｰ､ﾆ､､､ﾞ､ｹ｡｣ﾆｰﾊﾆｶﾖﾆｱｵｻｽﾑｺｰｶﾈﾉｰｲｰ｡ﾊJTWG｡ﾋ､ﾏ｡｢GOIN､ﾋｴﾘﾏ｢､ｰ､ｿﾆﾃﾄｰ､ﾎｵｻｽﾑﾅｪﾌｰﾂｰ､ｰﾆ､ｵﾄ､ｹ､ｰ､ｿ､ｰ､ﾋﾀﾞﾎｳ､ｵ､ｰ､ﾆ､､､ﾞ､ｹ｡｣｣

Subgroups

GOIN established three discipline-oriented subgroups: Land, Atmosphere and Oceans, and Solar-Terrestrial Environment, and tasked them with demonstrating new ways the network could be used to further the exchange of data, applications and technologies between the United States and Japan. A fourth group, GOINnet, will be formed to address the technical issues common to all -- establishing current network performance and planning improvements. Many pilot projects were undertaken to meet these goals and only a representative subset are described here.

GOINnet

At the inception of GOIN, the network connectivity among agency-sponsored scientists in the United States and Japan was not approached in a united manner. GOIN has provided a technical forum for research agencies to pursue common solutions to their network problems, thereby promoting global environmental research and observation. It has been proposed that these activities constitute a special subgroup called GOINnet.

The scope of the GOINnet subgroup will be the interconnection of United States and Japan GOIN agency network circuits, equipment, and services. This subgroup is intended to support cooperative agency and institution programs, agency-supported research programs, and collaborations among agency-sponsored scientists in the United States and Japan. The primary purpose of the GOINnet collaboration is to assure that network connectivity meets the requirements among global observation agencies and researchers in both countries.

An example of how this technical forum has improved connectivity between the U.S. and Japan was the installation of a higher capacity (2 Mbps) link between NASA and NASDA to support the 1996 workshop held in Tokyo.

The objectives of GOINnet are to:

- Identify current and projected requirements.
- Provide a forum for network cooperation.
- Promote developing network resources e.g.,vBNS/NGI, Mbone.
- Support network planning for the GOIN pilot project demonstrations.
- Promote cooperation with other global observation activities such as CEOS, APEC, WMO, and GXOS.

サブグループ

GOIN、ヌ、マ。「ハャフーハフ、ホホヲ一ー。「ツーオ、ウ、ヘホ。「ツタヘロ。ンテマオーエトカュ、ホ」ウ、ト、ホ・オ・ヨ・一・ー。シ・ラ、ーダ゜ホゥ、ー、ニ、、、゛、ケ。」、ウ、ー、ー」ウ、ト、ホ・オ・ヨ・一・ー。シ・ラ、ヒ、マ。「ニーハニエヨ、ホ・ヌ。シ・ツ。「・「・ラ・ー・ア。シ・ー・ー・ー。「カヲトフオサスム、ホクーエケ、ーツ・ソハ、ケ、ーソー、ソ、ハハーヒ。、ホ・ヌ・ー・ー・ケ・ネ・ー。シ・ー・ー・ー、ャイン、オ、ー、ニ、、、゛、ケ。」、゛、ソ。「クスコ゜、ホ・ヘ・テ・ネ・ー。シ・ッ・ム・ユ・ゥ。シ・゛・ー・ケオレ、モ、ス、ホイーチア・ラ・ー・ー、ヒカヲトフ、ケ、ーオサスムナェフーツーナタ、ートーオッ、ケ、ーセー、ネ、ー、ニ。「」エネヨフワ、ホ・オ・ヨ・一・ー。シ・ラ。「GOIN・ヘ・テ・ネ、ホタ゜ホゥ、ーク。ニ、、ー、ニ、、、゛、ケ。」ツソ、ッ、ホ・ム・、・ー・テ・ネ・ラ・ー・ク・ァ・ッ・ネ、マ。「、ウ、ー、ー、ホフワノク、ヒクー、ォ、テ、ニコーカネ、ーソハ、ー、ニ、ェ、ー。「、ウ、ウ、ヌ、マ。「ツーノスホー、ホ、゜、ーシィ、ー、゛、ケ。」

GOIN・ヘ・テ・ネ

GOIN、ホネッツュサー、ヒ、マニーハニ、ホウニクヲオーオ。エリ、ホクヲオーシャ、ホ・ヘ・テ・ネ・ー。シ・ッ、マ。「ナー一ーナェ、ハハーヒ。、ヌターネー、オ、ー、ニ、マ、、、゛、サ、ー、ヌ、ー、ソ。」GOIN・ヘ・テ・ネ、ヌ、マ。「ウニクヲオーオ。エリ、ヒ、ェ、ア、ーテマオーエトカュクヲオー、ーエムツャ、ホシツサワ、ヒ、ェ、、、ニセーウイ、ネ、ハ、テ、ニ、、、ー・ヘ・テ・ネ・ー。シ・ッセー、ホフーツーナタ、ヒエリ、ー、ニオサスムナェ、ハニ、オト、ーケヤ、、、゛、ケ。」

GOIN・ヘ・テ・ネ、マニーハニ、ホGOINサイイテオ。エリ、ホ・ヘ・テ・ネ・ー。シ・ッイーター。「オレ、モタ゜ネー。「・オ。シ・モ・ケ、ホチーク゜、ホマ「ー一、ヌ、「、ー。「サイイテオ。エリ、ホ・ラ・ー・一・ー・ー、ネ、ス、ホサルアークヲオー・ラ・ー・一・ー・ーオレ、モ、ス、ー、ー、ヒーネ、ー、ークヲオーシャエヨ、ホカィホマ、ーサルアー、ケ、ー、ウ、ネ、ーフワサリ、ー、ニ、、、゛、ケ。」GOIN・ヘ・テ・ネ、ヒ、ェ、ア、ーカィホマ、ホツー一ー、ホフワナェ、マ。「GOIN・ヘ・テ・ネ、ーニーハニホセケー、ホテマオーエムツャオ。エリ、ネクヲオーシャ、ホヘラオーセー一、ヒケーテラ、オ、サ、ー、ウ、ネ、ヌ、ケ。」

GOIN・ヘ・テ・ネ、ャ、、、オ、ヒニーハニエヨ、ホ・ヘ・テ・ネ・ー。シ・ッタワツウタュ、ークーセー、オ、サ、ニ、ュ、ソ、ォ、ホホー、ネ、ー、ニ。「1996ヌッ、ヒナーオー、ヌウォコナ、オ、ー、ソ・ー。シ・ッ・ー・ー・テ・ラ、ーサルアー、ケ、ー、ソ、ー、ヒタ゜テヨ、オ、ー、ソNASA-NASDAエヨ、ホツーヘニホフ(2Mbps)イーター、ャ、「、イ、ー、ー、゛、ケ。」

GOIN・ヘ・テ・ネ、ホフワナェ、マーハイシ、ホ、ネ、ェ、ー、ヌ、ケ。」

- クスセー、ネーライーテハウャ、ホヘラオーセー一、ホフタウホイス
- ・ヘ・テ・ネ・ー。シ・ッカィホマ、ヒエリ、ケ、ーニ、オト、ホセー、ホタ゜テヨ
- ・ヘ・テ・ネ・ー。シ・ッターネー、ホツ・ソハ。ハホー、ィ、ミvBNS/NGI, Mbone。ヒ
- GOIN・ム・、・ー・テ・ネ・ラ・ー・ク・ァ・ッ・ネ・ヌ・ー・ー・ケ・ネ・ー。シ・ー・ー・ー、ホサルアーヘム・ヘ・テ・ネ・ー。シ・ッ、ホコータョ
- ツセ、ホテマオーエムツャウーニー、ネ、ホカィホマ、ホツ・ソハ。ハCEOS, APEC, WMO, GXOSナー)

Atmosphere & Oceans

Earth's atmosphere and oceans are ever changing in daily, seasonal, and long-term climatic patterns. This dynamic nature is a challenge to our need to understand and predict those patterns. GOIN pilot projects have focused on meeting that challenge through cooperation in three major areas: data collection, data exchange, and data management.

For example, climatic variations in both United States and Japan are closely related to disruptions of the ocean-atmosphere system in the tropical Pacific known as El Nino. The Pacific Marine Environmental Laboratory (PMEL) in the United States and the Japan Marine Science & Technology Center (JAMSTEC) are partners in maintaining observation buoys that monitor the state of the atmosphere and ocean in these important regions. Under GOIN, these two organizations are now sharing buoy observations in real-time over the network. Other pilot projects focus on cooperation in the development and utilization of technologies for managing and exchanging archives of oceanographic data collected by a variety of sensors on board or deployed from research ships. This cooperation is allowing climate scientists in both countries to closely monitor and study the El Nino phenomenon which is directly related to flooding and drought conditions in the Pacific Basin and seriously impacts industries such as fishing and agriculture.

The fragile state of our planet's environment, in light of the escalating pressures of population and economics, has prompted both the United States and Japan to independently undertake centralized programs for the management of Earth observing data. Japan's space agency, NASDA, has initiated the Earth Observation Data and Information System (EOIS). The United States' space agency, NASA, launched a program called the Earth Observing Satellite Data and Information System (EOSDIS). One GOIN pilot project is aimed at making these two systems work together so that researchers can utilize both data collections as a seamless whole. The many steps in such a collaboration began with the exchange of data catalogs and will continue through the construction of a common system for data search and retrieval utilizing network connectivity.

ツーオ、ウ、ヘホ

テマオー、ヒ、ェ、ア、ーツーオ、、ネウ、ヘホ、マ。「ニー。ケ。「オィターヒー。「、ス、ー、ニトケエーナェ、ハオ、クー・ム・ソ。シ・ー、ヌセーサーハムイス、ー、ニ、、、゛、ケ。」、ウ、ホケー。ケ、ネハム、ー、ーシォチウ、マ。「、ス、ー、ー、ホ・ム・ソ。シ・ー、ーへーイー、ーへスツャ、ー、ー、ヲ、ネ、ケ、ーイー。ケ、ヒツミ、ー。「インツー、ーナー、イ、ォ、ア、ニ、、、ー、ネクタ、ィ、゛、ケ。」GOIN・ム・、・ー・テ・ネ。ヲ・ラ・ー・ク・ァ・ッ・ネ、ヌ、マ3、ト、ホツー、ュ、ハハャフー。ァ・ヌ。シ・ソシースク。「・ヌ。シ・ソクーエケオレ、モ・ヌ。シ・ソエノへー、ヌカィホマ、ケ、ー、ウ、ネ、ヒ、ー、ー、ス、ホインツーイーー、ヒシー、ーチネ、ー、ヌ、、、゛、ケ。」

ホー、ィ、ミ。「・「・ー・ー・ォケースーケー、ネニーヒワ、ヒカヲトフ、ー、ソオ、クーハムニー、ネ、ー、ニへュフセ、ハツタハツへホヌョツモテマーー、ホ・ィ・ー・ヒ。シ・ヒ・ークスセン、マ。「ツーオ、、ネウ、ヘホ、ホチーグ゜、ホエリーク、ャハー、ー、ー、ウ、ネ、ヒフゥタワ、ヒエリーク、ャ、「、ー、゛、ケ。」ハニケー、ホツタハツへホウ、ヘホエトカュクヲオースー(PMEL)、ネニーヒワ、ホウ、ヘホイハウリオサスム・サ・ー・ソ。シ(JAMSTEC)、マ。「、ウ、ホへへ、ハスナへラ、ハテマーー、ヒ、ェ、ア、ーツーオ、、ネウ、ヘホ、ホへへサメ、ーセーサーエニサー、ヌ、ュ、ーエムツャ・ヨ・、、ーツツソーナクウォ、ー。「、ス、ホハンシーエノへー、ーケヤ、ヲ・ム。シ・ネ・ハ。シ、ヌ、ケ。」クスコ゜。「、ウ、ー、ー、ホ2、ト、ホオ。エリ、マ。「GOIN、ヒ、ェ、、、ニ。「・へ・テ・ネ・ー。シ・ッ、ーーミへウ、ー、ニ。「・ヨ・、、ヒ、ー、ーエムツャーーイフ、ー・ー・「・ー・ソ・、・ー、ヌカヲへュ、ー、ニ、、、、゛、ケ。」、゛、ソ。「、ス、ホツセ、ホ・ム・、・ー・テ・ネ・ラ・ー・ク・ァ・ッ・ネ、ヌ、マトエココチ・、ヒナーコワ、オ、ー、ソ、「、ー、、、マトエココチ・、ォ、ーーオ、ースミ、オ、ー、ソへへ。ケ、ハエムツャオ。エー、ヒ、ー、テ、ニシーニタ、オ、ーハンツク、オ、ー、ニ、、、ーウ、ヘホエムツャ・ヌ。シ・ソ、ホエノへーオレ、モチーク゜へーへム、ホ、ソ、ー、ホオサスムウォネッ、ーカィホマ、ー、ニソーソハ、ー、ニ、、、゛、ケ。」、ウ、ヲ、ー、ソカィホマ、ヒ、ー、テ、ニ。「エトツタハツへホテマーー、ホケソソー、ーエウ、ミ、ト、ネフゥタワ、ヒエリーク、ャ、「、ー。「オーカネ、ーヌタカネ、ホ、ー、ヲ、ハサコカネ、ヒソシケー、ハアニカチ、ーオレ、ワ、ケ・ィ・ー・ヒ。シ・ヒ・ークスセン、ーニーハニホセケー、ホオ、クー、ホクヲオーシャ、ャフゥタワ、ヒ・ー・ヒ・ソ。シ。「クヲオー、ヌ、ュ、ー、ー、ヲ、ヒ、ハ、ー、゛、ケ。」

、゛、ソウネツー、ケ、ータ、ウヲ、ホソへクー、ネーミコム、ヒ、ー、テ、ニイー。ケ、ホテマオーエトカュ、マネーセー、ヒノヤーツトー、ハセーツヨ、ヒ、「、ー、゛、ケ。」、ウ、ホ、ソ、ー。「ニーハニホセケー、マニネシォ、ヒテマオーエムツャ・ヌ。シ・ソ、ホエノへー・ー・ケ・ニ・ー、ホウォネッ、ヒスクテーナェ、ヒシー、ーチネ、ー、ヌ、ュ、゛、ー、ソ。」ニーヒワ、ホアァテーウォネッサーカネテト。ハNASDA。ヒ、マ。「テマオーエムツャセーハー・ー・ケ・ニ・ー(EOIS)、ヒテーシー、ー、ニ、、、゛、ケ。」ーーハー。「ハニケー、ホケメカーアァテーカノ(NASA)、ヒ、マ。「テマオーエムツャ・ヌ。シ・ソセーハー・ー・ケ・ニ・ー(EOSDIS。ヒ、ネ、、、ヲ・ラ・ー・ー・ー・ー、ャツクコ゜、ー、゛、ケ。」GOIN・ム・、・ー・テ・ネ・ラ・ー・ク・ァ・ッ・ネ、ホーー、ト、ヌ、マ。「ホセケー、ホクヲオーシャ、ャ、ェグ゜、、、ホシースク・ヌ。シ・ソ、ホへーへムイチテへ、ーケー、ー、ー、ウ、ネ、ャ、ヌ、ュ、ー、ー、ヲ、ヒ。「、ウ、ホ」イ、ト、ホ・ー・ケ・ニ・ー、ー・ー・ー・ッ、ケ、ー、ウ、ネ、ーフワナェ、ネ、ー、ニ、、、゛、ケ。」、ウ、ホ、ー、ヲ、ハカィホマ、マ。「・ヌ。シ・ソ。ヲ・ォ・ソ・ー・ー、ホクーエケ、ォ、ーサマ、゛、ー。「・へ・テ・ネ・ー。シ・ッタワツウ、ーへーへム、ー、ソ・ヌ。シ・ソク。コー、ネ・ヌ。シ・ソシーニタ、ーケヤ、ヲ、ソ、ー、ホカヲトフ・ー・ケ・ニ・ー、ホケステロ、リ、ネツウ、、、ニ、、、ュ、゛、ケ。」

Land

The land on which we live is made up of a complex combination of delicate and interdependent ecosystems. GOIN pilot projects are demonstrating the power of networks in assessing the current and future state of those ecosystems through global change indices, vegetation classification, land cover change, and disaster monitoring.

The Japanese Geographical Survey Institute (GSI) monitors land vegetation by daily access to NOAA satellite data made possible through direct reception in Japan and other networks. GSI creates vegetation index maps from those data that monitor the health of our land areas.

The Earth Science and Technology Organization (ESTO) in Japan and the Consortium of International Earth Science Information Network (CIESIN) in the United States are developing a common framework through which global change data from many sources can be exchanged over the network.

ﾎｦｰｰ

ｻｰﾃ｣､ｬﾀｸｳｰ､ｹ､ｰﾎｦｰｰ､ﾏ｡「ﾈｰﾌｯ､ﾇ､ｫ､ﾄﾊ｣ｻｨ､ﾋﾆｰ､ｰﾁﾈ､ｰ､ﾀﾀｸﾂﾖｰﾏ､ﾋ､ｰ､ﾃ､ﾆｹｽﾀｮ､ｵ､ｰ､ﾆ､､､ﾞ､ｹ｡」GOIN･ﾑ･､･ｰ･ﾃ･ﾈ･ﾗ･ｰ･ｸ･ｧ･ｯ･ﾈ､ﾇ､ﾏ｡「ﾃﾏｵｰﾊﾑﾆｰｻﾘﾉｰ｡「ﾉ「ﾀｸﾊｬﾎｰ｡「ﾅﾚﾃﾏﾈｰﾊ､ﾊﾑｲｽ｡「ｺﾒｳｲ･ｰ･ﾋ･ﾉ･ｰ･ｰ･ｰ､ｰﾄﾌ､ｰ､ﾆ｡「ｸｽｺﾟ､ﾈｾｭﾍｰ､ﾎﾀｸﾂﾖｰﾏ､ﾎｾｰﾂﾖ､ｰﾉｾｲﾁ､ｹ､ｰ､ｳ､ﾈ､ﾘ､ﾎ･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯ､ﾎﾍｭﾍﾑﾀｭ､ｰﾉﾍ｡ｹ､ﾋｼｨ､ｰ､ﾆ､､､ﾞ､ｹ｡」

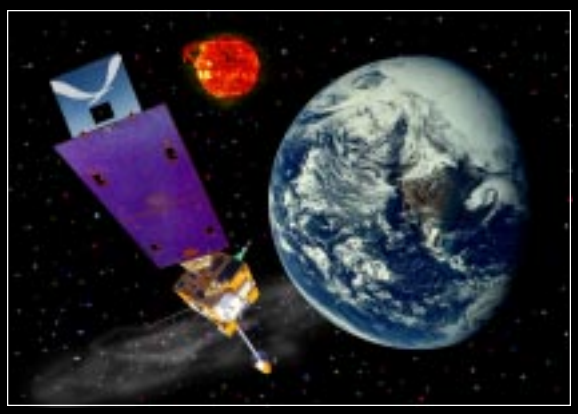
ﾆｰﾋﾜ､ﾎｹｰﾅﾚﾃﾏﾍｰｱ｡｡ﾊGSI｡ﾋ､ﾏ｡「･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯﾅｰ､ｰﾍｰﾍﾑ､ｰ､ﾊ､ｬ､ｰ｡「ﾋｰﾆｰ｡「ﾊﾆｹｰｳ､ﾍﾎｯｰｵ､ﾄ｣｡ﾊNOAA｡ﾋ､ﾎｱﾒﾀｱ･ﾇ｡ｼ･ﾉ､ﾋ･「･ｯ･ｻ･ｹ､ｰ｡「ﾎﾖｰｰ､ﾋ､ｪ､ｱ､ｰﾉ「ﾀｸ･ｰ･ﾋ･ﾉ｡ｼ､ｰｹﾔ､ﾃ､ﾆ､､､ﾞ､ｹ｡」ｹｰﾅﾚﾃﾏﾍｰｱ｡､ﾏ､ｳ､ｰ､ｰ､ﾎ･ﾇ｡ｼ･ﾉ､ｰﾍﾑ､､､ﾆｲｰ｡ｹ､ﾎｽｻ､ｰﾎﾖｰｰ､ﾋ､ｪ､ｱ､ｰﾉ「ﾀｸｻﾘﾉｸﾃﾏｿﾞ､ｰｺｰﾀｮ､ｰ､ﾆ､､､ﾞ､ｹ｡」

ﾆｰﾋﾜ､ﾎﾃﾏｵｰｲﾊｳﾘｵｻｽﾑｿｰｿﾊｵ｡ｹｽ｡ﾊESTO｡ﾋ､ﾈﾊﾆｹｰ､ﾋ､「､ｰｹｰｺﾝ ﾃﾏ ｵｰ ｲﾊ ｳﾘｾｰ ﾊｰ ･ﾍ ･ﾃ ･ﾈ ･ｰ ｡ｼ･ｯ｡ﾊCIESIN｡ﾋ､ﾏﾆｰﾊﾆﾎｾｹｰ､ﾎﾍﾍ｡ｹ､ﾊｵ｡ｴﾘ､ﾋｯｸｺﾟ､ｹ､ｰﾃﾏｵｰﾊﾑﾆｰ､ﾋｰｸ､ｰ､ｰ･ﾇ｡ｼ･ﾉ､ｰ｡「･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯ､ｰﾄﾌ､ｰ､ﾆｸｰｴｹ､ｹ､ｰ､ﾉ､ｰ､ﾎｶﾖﾄﾌ･ｭ･ｰ｡ｼ･ｰ･ｰ｡ｼ･ｯ､ｰｳｫﾈｯ､ｰ､ﾆ､､､ﾞ､ｹ｡」

Space Environment

The solar-terrestrial environment encompasses the dynamic portion of “outer-space” that extends from the Sun to the Earth. This environment has “weather” that is driven primarily by the Sun’s explosive nature. Understanding this “space weather” is important to the many human endeavors impacted by it, i.e., communications, power systems, space exploration, and Earth remote sensing applications. Cooperation on a global scale is necessary to mitigate the impacts of space weather. GOIN pilot projects are focusing on monitoring, analysing, forecasting, and modeling of space weather.

For example, the Magnetospheric Specification Model, developed at Rice University, can fully describe the state of the particles and fields in Earth’s magnetosphere but must use observations collected in the U.S. and Japan as well as parameters from models at Nagoya University, Kyoto University, and the National Center for Atmospheric Research. Collaborations such as this can help illuminate the cause of an expensive satellite failure and further our understanding of space weather. Networks make such complex exchanges possible.



ｱｧﾃｰｴﾄｶｭ

ﾂﾀﾍﾛﾃﾏｵｰｴﾄｶｭ､ﾏﾂﾀﾍﾛ｡ﾝﾃﾏｵｰｴﾖ､ﾋｹｭ､ｬ､ｰｱｧﾃｰｶｰｴﾖ､ﾎﾆｰ｡ｹｹｰ｡ｹﾊﾑｲｽ､ｹ､ｰﾉｰﾊｬ､ｰｸﾖｵｰﾂﾐｾﾝ､ﾈ､ｰ､ﾆ､､､ﾞ､ｹ｡」､ｳ､ﾎｴﾄｶｭ､ﾋ､ﾏｼｰ､ﾋﾂﾀﾍﾛ､ﾎﾇｰﾈｯ､ﾋ､ｰ､ｰｱﾆｶﾁ､ｰｼｰ､ｱ､ｰ｡ﾖﾅｰｵ､｡ﾗ､ｬﾂｸｺﾟ､ｰ､ﾞ､ｹ｡」､ｳ､ﾎ｡ﾖｱｧﾃｰﾅｰｵ､｡ﾗ､ｰﾍｰｲｰ､ｹ､ｰ､ｳ､ﾈ､ﾏ｡「､ｽ､ｰ､ﾋ､ｰ､ｰｱﾆｶﾁ､ｰｼｰ､ｱ､ｰﾂﾉ､ｯ､ﾎﾉﾍﾎｰｳｰﾆｰ､ﾈ､ﾃ､ﾆｽﾅﾍﾗ､ﾊ､ｳ､ﾈ､ﾇ､ｹ｡」ﾂｰﾉｽﾅｪ､ﾊﾎｰ､ﾈ､ｰ､ﾆ｡「ﾄﾌｿｮ｡「ﾈｯﾅﾅｽｰ｡「ｱｧﾃｰﾃｵｺｺ｡「ﾃﾏｵｰ､ﾎ･ｰ･ｰ｡ｼ･ﾈ･ｻ･ｰ･ｰ･ｰ･ｰ､ｰｵｰ､ｲ､ｰ､ｳ､ﾈ､ｬ､ﾇ､ｭ､ﾞ､ｹ｡」､ｳ､ﾎｱｧﾃｰﾅｰｵ､､ﾎﾉｼｹｰ､ﾊｱﾆｶﾁ､ｰｰﾚｸｺ､ｹ､ｰ､ﾉ､ｰ､ﾋﾃﾏｵｰｵｬﾌﾏ､ﾎｶｲﾎﾏ､ｬﾉｬﾍﾗ､ﾇ､ｹ｡」GOIN･ﾑ･､･ｰ･ﾃ･ﾈ･ﾗ･ｰ･ｸ･ｧ･ｯ･ﾈ､ﾇ､ﾏ｡「ｱｧﾃｰﾅｰｵ､､ﾎｴﾑﾂｬｵﾚ､ﾓｲｰﾀﾏ｡「ﾍｽﾊｰ｡「･ｰ･ﾇ･ｰｲｽ､ﾋｾﾇﾅﾀ､ｰﾅｰ､ﾆ､ﾆ､､､ﾞ､ｹ｡」

ﾎｰ､ｨ､ﾐ｡「Riceﾂｰｳﾘ､ﾇｳｫﾈｯ､ｵ､ｰ､ｿｼｧｵ､ｰｰ･ｰ･ﾇ･ｰ､ﾏ｡「ﾃﾏｵｰ､ﾎｼｧｵ､ｰｰ､ﾎﾎｳｻﾒ､ｰｼｧｾｰ､ﾎｾｰﾂﾖ､ｰｽｽﾊｬ､ﾋﾉｽｸｽ､ｹ､ｰ､ｳ､ﾈ､ｬ､ﾇ､ｭ､ﾞ､ｹ｡」､ｰ､ｵ､ｰ｡「､ｳ､ﾎ･ｰ･ﾇ･ｰ､ﾏﾆｰﾊﾆ､ﾇｼｰｽｸ､ｵ､ｰ､ｿｴﾑﾂｬ･ﾇ｡ｼ･ｿ､ﾈﾌｾｸﾅｲｰﾂｰｳﾘｵﾚ､ﾓｵｰﾅﾔﾂｰｳﾘ｡「ﾊﾆｹｰ､ﾎｹｰﾎｳﾂｰｵ､ｸﾖｵｰ･ｻ･ｰ･ｿ｡ｼ(NCAR)､ﾇｳｫﾈｯ､ｵ､ｰ､ｿﾂｾ､ﾎ･ｰ･ﾇ･ｰ､ｫ､ｰﾆﾀ､ｰ､ｰ､ｰ･ﾑ･ｰ･ｰ｡ｼ･ｿ､ｰﾉｬﾍﾗ､ﾈ､ｰ､ﾞ､ｹ｡」､ｳ､ﾖ､ｰ､ｿｶｲﾎﾏ､ﾏ｡「ｹｰｲﾁ､ﾊｱﾒﾀｱ､ﾎｸﾎｾｰｸｶｰ､ﾎｵｰﾌﾀ､ｰｱｧﾃｰﾅｰｵ､､ﾎﾍｰｲｰ､ﾋﾌｰﾎｳ､ﾁ､ﾞ､ｹ｡」･ﾍ･ﾃ･ﾈ･ｰ｡ｼ･ｯ､ﾏ､ｽ､ﾎ､ｰ､ﾖ､ﾊﾊ｣ｻｨ､ﾊｾｰﾊｰｸｰｴｹ､ｰｲﾄﾇｽ､ﾋ､ｰ､ﾞ､ｹ｡」

Participating Agencies 参加機関

国務省
Department of State

商務省
Department of Commerce

- NOAA - National Oceanic and Atmospheric Administration
  - NWS - National Weather Service
  - NESDIS - National Environmental Satellite, Data, and - Information Service
    - NGDC - National Geophysical Data Center
    - NODC - National Oceanographic Data Center
  - OAR - Office of Oceanic and Atmospheric Research
    - ERL - The Environmental Research Laboratories
    - PMEL - Pacific Marine Environmental Laboratory
    - SEC - Space Environment Center

内務省
Department of the Interior

- USGS - United States Geological Survey
  - NGIC - National Geomagnetic Information Center
  - EDC - Earth Resources Obs. Systems Data Center

米国航空宇宙局
NASA - National Aeronautics and Space Administration

- MTPE - Mission to Planet Earth
- NSSDC - National Space Science Data Center
- ARC - Ames Research Center
  - NISN - NASA Integrated Services Network
- GSFC - Goddard Space Flight Center
  - ESDIS - Earth Sciences Data and Info. System Proj.
    - EOSDIS - Earth Observation Sys. Data and Info. Sys.

協力機関
Cooperating Entities

- University of Alaska
- University of Colorado
  - LASP - Laboratory for Atmospheric and Space Physics
- Rice University
  - Space Sciences Center
- UCAR - University Corporation for Atmospheric Research
  - NCAR - National Center for Atmospheric Research
    - HAO - High Altitude Observatory
    - SCD - Scientific Computing Division
- WHOI - Woods Hole Oceanographic Institution
- CIESIN - Consortium for International Earth Sciences - Information Network

科学技術庁
Science and Technology Agency (STA)

環境庁
Environment Agency (EA)

外務省
Ministry of Foreign Affairs (MOFA)

文部省
Ministry of Education, Science, Sports and Culture (MESSC)

農林水産省
Ministry of Agriculture, Forestry and Fisheries (MAFF)

通産省
Ministry of International Trade and Industry (MITI)

運輸省
Ministry of Transport (MOT)

郵政省
Ministry of Posts and Telecommunications (MPT)

建設省
Ministry of Construction (MOC)

協力機関
Cooperating Entities

- 宇宙開発事業団
  NASDA - National Space Development Agency of Japan
- 海洋科学技術センター
  JAMSTEC - Japan Marine Science & Technology Center
- （財）資源・環境観測解析センター
  ERSDAC - Earth Remote Sensing Data Analysis Center

For information:

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In Japan

Ocean and Earth Division
Research and Dev. Bureau
Science and Tech. Agency
Phone: 81-3-3581-5271
(Ext 488)

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ｳ、ﾍﾎﾃﾏｵｰ ｲﾝ
ﾅﾅ ﾏﾃ :03-3581-5271
(ﾆｰ ﾀｰ 488)

In the USA

NOAA/NESDIS
International and
Interagency Affairs
Phone: 301-713-2024
Lawrence.Enomoto@noaa.gov

ﾊﾆｹｰﾆｰ

NOAA/NESDIS
International and
Interagency Affairs
ﾅﾅﾏﾃ:1-301-713-2024
Lawrence.Enomoto@noaa.gov

DCW