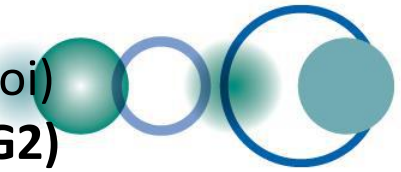




GROUP ON
EARTH OBSERVATIONS

10th GEOSS Asia Pacific Symposium (Sep 2017, Hanoi)
Asia Pacific Biodiversity Observation Network (WG2)



Session 4: Building / connecting databases

GEO Data Sharing and GCI, ILTER-DEIMS and GEOSS

Hiroyuki Muraoka

Gifu University, Japan

Japan Long-Term Ecological Research
network (JaLTER)

International LTER East Asia-Pacific
regional network (ILTER-EAP)

GEO Programme Board (Japan member)

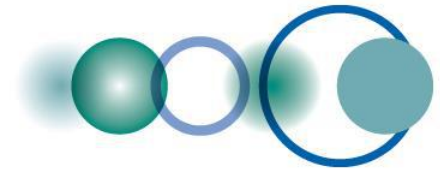
Contributor to:

AOGEOSS TG 2 (APBON), TG 3 (GEO-C)

In-situ obs. resources Foundational Task

Acknowledgement:

Thanks to Ms. Wenbo Chu (GEO Secretariat)
for providing slides of DSPs, DMPs, GCI, etc.

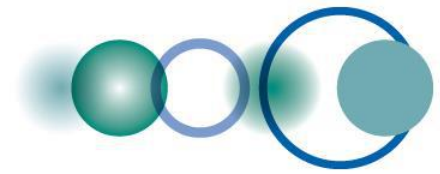


From “**Tokyo Statement**” (Jan 2017, Tokyo):

“APBON will promote data sharing to increase access to biodiversity related information and the effective monitoring systems of biodiversity and ecosystems. Gaps in available information will be addressed by improving collaboration among researchers in observation sites, designing incentives for data publications and deriving solutions to relevant science questions. APBON sees the need to improve communication and collaboration among biodiversity and ecosystem observation networks, to identify more national, thematic and regional networks and to reach out to other parts of Asia and the Pacific...”

Objectives of this APBON WG:

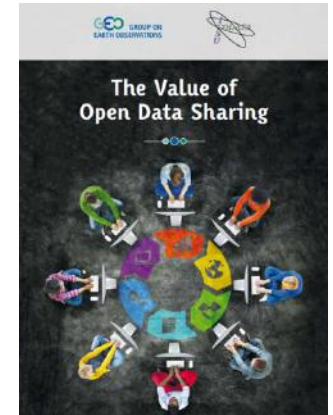
- (1) share the current status of thematic and geographical coverage of biodiversity, phenology and ecosystem research sites (plots),
- (2) plan mechanisms for data and knowledge delivery to Earth Observation community by inter-operable data system such as GEOSS portal and DIAS, and**
- (3) build the ‘Super-site’ concept for integrated biodiversity and ecosystem observations by *in-situ* and satellite systems



Challenges

- **Access to climate data**

Broad, open data policies are needed for global monitoring and transparency



- **Interoperability**

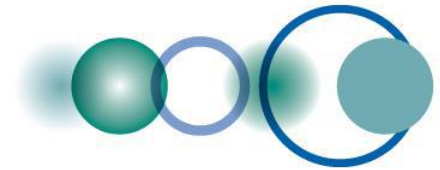
Data discoverability and access through federated systems



- **Downstream services**

Applications and information are needed to make data useful for decision-makers





Data Sharing: the backbone of GEO

- Fundamental enabler to address global societal challenges
- One of GEO's significant achievements
- Prerequisite for building a stronger GEOSS
- Requires further advocacy of data sharing implementation and the articulation of evidence



"The success of GEOSS will depend on a commitment by all GEO partners to work together to ensure timely, global and open access to data and products" (Cape Town Ministerial Summit, 2007).



Biodiversity and
Ecosystem Sustainability



Disaster Resilience



Energy and Mineral
Resources Management



Food Security and
Sustainable Agriculture



Infrastructure and
Transport Management



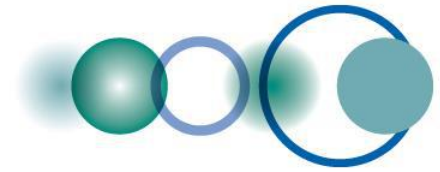
Public Health
Surveillance



Sustainable
Urban Development



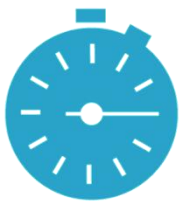
Water Resources
Management

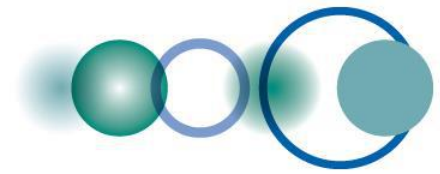


GEOS Data Sharing Principles (DSPs)



- Data, metadata and products will be shared as **Open Data by default**, by making them available as part of the GEOS Data Collection of Open Resources for Everyone (Data-CORE) **without charge or restrictions on reuse**, subject to the conditions of registration and attribution when the data are reused;
- Where international instruments, national policies or legislation preclude the sharing of data as Open Data, data should be made available with **minimal restrictions** on use and at no more than the cost of reproduction and distribution; and
- All shared data, products and metadata will be made available with **minimum time delay**.





GEOSS Data Management Principles (DMPs)

The value of Earth observations are maximized through data life-cycle management based on ten Principles supporting five themes:

DISCOVERABILITY

- DMP-1: Data and metadata discoverable

ACCESSIBILITY

- DMP-2: Data accessible via online services

USABILITY

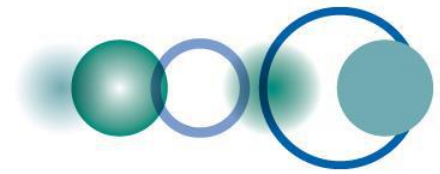
- DMP-3: Encoding
- DMP-4: Documentation
- DMP-5: Traceability
- DMP-6: Quality

PRESERVATION

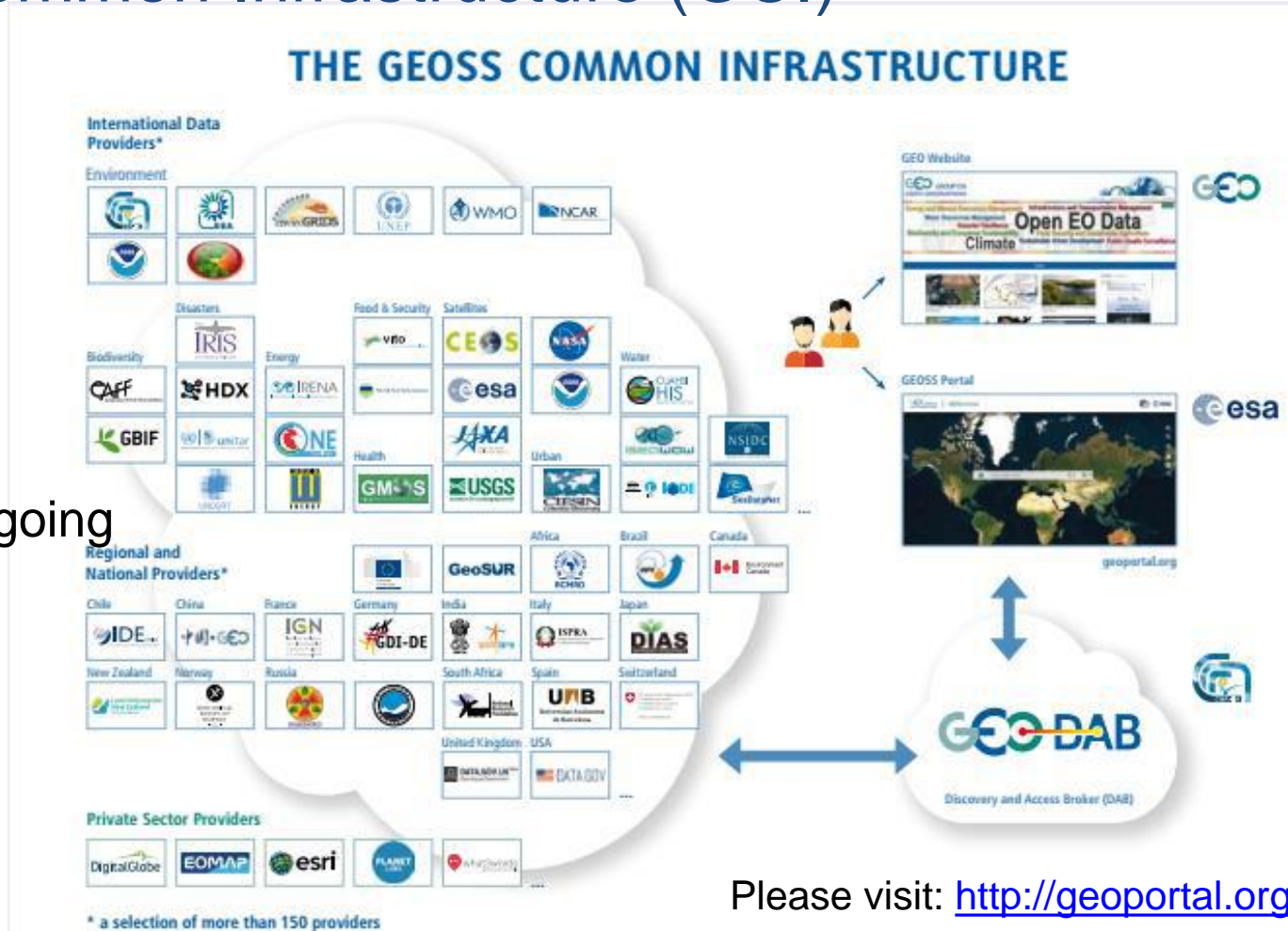
- DMP-7: Preservation
- DMP-8: Verification

CURATION

- DMP 9: Review and reprocessing
- DMP 10: Persistent and resolvable identifiers



400m+ open EO data resources from 160+ data providers in the GEOSS Common Infrastructure (GCI)



ILTER-DEIMS is going
to be connected

Please visit: <http://geoportal.org>



The GEOSS Portal is your main entry point to unlock Earth Observation data from archives all over the world.

Here You can choose Your area of interest

 Enter search words ...  |  

Enter the search phrase here





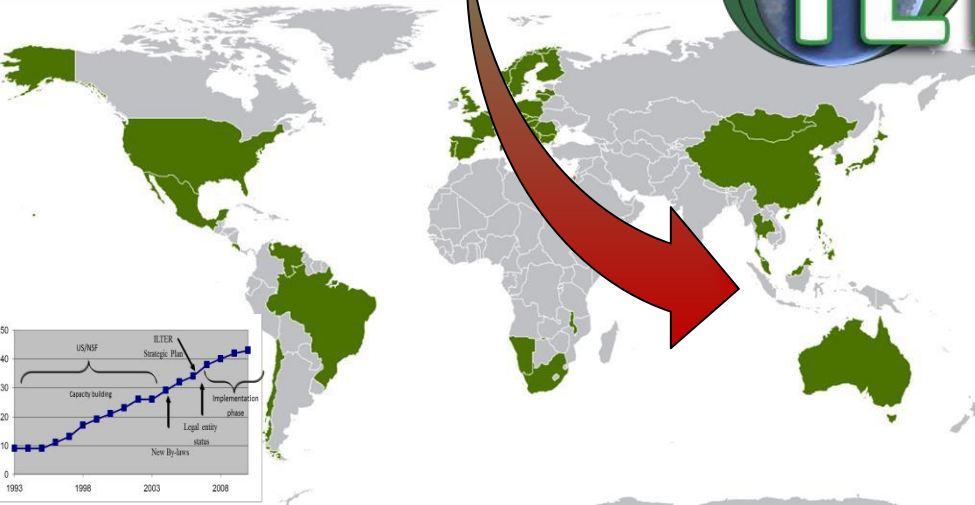
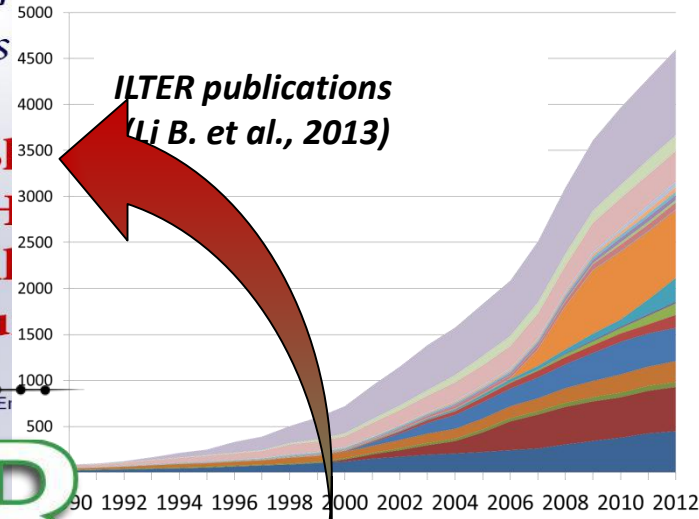
INTEGRATING & COORDINATING KEY ELEMENTS OF ECOLOGICAL RESEARCH



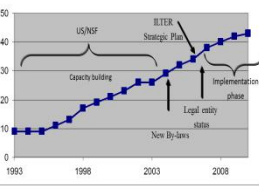
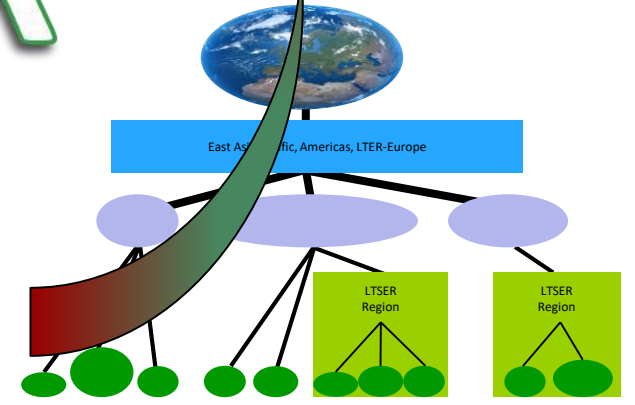
Consequence of altered nitrogen cycles in the coupled human and ecological system under changing climate: The need for long-term and s

Hideaki S
William H
J. Mitchell
Tang, Lau

AMBIO
A Journal of the Human En
DOI 10.1080/16013750.2010.508010



- Global LTER
- Regional Groups
- National Networks
- Level of PLATFORMS
- Level of SITES





ILTER site network & data

DEIMS: Dynamic Ecological Information Management System



- Home
- Discovery ▾
- Maps ▾
- Documentation ▾
- Network ▾
- Help & Training ▾
- Login

Quick Search

Welcome to DEIMS

Search

DEIMS, the (Drupal Ecological Information Management System), is the unique place where you can find

Login & Contribute

<https://data.lter-europe.net/deims/>

Latest Updates

- Landscape Lab in the Mondsee catchment...
2016-10-07 20:56
- Research monitoring station "...
2016-10-07 16:30
- Marine research station "Zmiinyi...
2016-10-07 16:22
- Volodymyr Medinets
2016-10-07 15:41
- Kalkalpen National Park - Running...
2016-10-07 15:15

Do you need any help?

Is something not working or do you have any change requests?

List of ILTER Required fields for Site Documentation

[Read our tutorials](#)

[Provide feedback](#)


[ILTER Required Fields](#)

Available Resources



Sites

Find out about the international



Datasets

Find out about the available dataset

Tweets by @eLTER_EU



eLTER @eLTER_EU

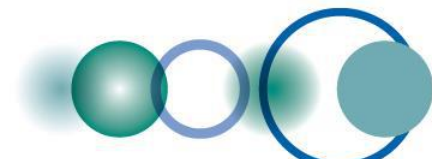
Use Facebook & interested in #longterm #ecosystem #research in Europe? Why not visit our Facebook page: facebook.com/eLTEReu/

06 Oct

Embed

View on Twitter

Provide Feedback



Create Dataset

Dataset Title *

Identification *

Responsible Parties *

Language

Abstract *

Keywords *

Parameters

Access and Use Constraints

Intellectual Rights

Online Distribution

Data Sources

Geographic *

Temporal Extent *

Taxonomic Coverage

Methods and Instrumentation *

Sampling Description *

Reporting

Related Information

Create Site

You have to fill in all required fields in order to be able to save and publish your changes. You can't create the same person/organization over and over again. [Use the search fields to look for existing sites.](#)
[Video demonstration on How to Add a Site.](#)
 List of required fields for ILTER

Name And General Description *

Contact Details *

Metadata Provider

Geographic Location *

Ecosystem and Environmental Characteristics

Network affiliation *

Site Classification

Status and History

Focus, Design and Scale of Site

Protection Status and Resource Management

Infrastructure and Operation

Data Sharing Policy

Data Management

Sensors (beta)

Project related forms

Create Site

You have to fill in all required fields in order to be able to save and publish your changes. You can't create the same person/organization over and over again. [Use the search fields to look for existing sites.](#)
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Focus, Design and Scale of Site

Protection Status and Resource Management

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Data Management

Sensors (beta)

Project related forms

Focus, Design and Scale of Site

Research Topics

Research Topics

- biology
- chemistry
- conservation
- ecology
 - terrestrial ecology
 - population ecology
 - plant ecology
 - evolutionary ecology
 - community ecology
 - ecosystem ecology
 - microbial ecology
 - fungal ecology
 - animal ecology
 - aquatic ecology
 - paleoecology
- environmental science
- geography
- geology
- glaciology
- history
- hydrography
- hydrology
- limnology



Takayama site - Japan

Basic Information



Site Name: Takayama site
Site Code: LTER_EAP_JP_13
Web Address: [Takayama site portal](#)
Country (Site Location): Japan
LTER Member Network: Japan (JaLTER)
Contact: Site Manager: Hiroyuki Muraoka

Keywords originating from EnvEurope Thesaurus: [aboveground production](#) [phenology](#) [CO2 fluxes](#)

General Site Description:

Two sub sites are included. (1) TKY: Deciduous broadleaf forest, ca. 60 years. Canpy is dominated by *Quercus crispula*, *Betula ermanii* and *Betula platyphylia*. Understory if dominated by an evergreen dwarf bamboo (*Sasa kurinensis*). CO2 flux measurements since 1994, net primary production (by bio-metric method) and soil respiration observations since 1999, plant ecophysiology since 2003, canopy phenological observations since 2004, linkage of in-situ and satellite observations since 2004. (2) TKC: Evergreen coniferous forest, ca. 50 years. Canopy is dominated by *Cryptomeria japonica* and *Chamaecyparis*
... [Show more](#)

UUID: b6d98924-db1d-4444-9b52-93bc27a65c2b



Environmental monitoring facilities

General Characteristics, Purpose, History

Metadata provider: [Hiroyuki Muraoka](#)

Site Status: existing
Year Established: 1993
Size : 1.00ha

Purpose of Site :

Takayama site (deciduous broadleaf forest site, TKY) was established in 1993 in order to monitor the atmospheric CO2 concentration and the CO2 flux between the atmosphere and forest ecosystems. Since 1999 ecological research has been conducted to investigate the ecological and biogeochemical processes of the carbon cycle and budget, and remote sensing and plant ecophysiology were introduced in 2003. Evergreen coniferous forest site (TKC) was established in 2004 for the same purposes of TKY.

History of Site:

CO2 flux observation initiated in 1993 and on-going. In 1998 ecological process research on forest carbon cycle (bio-metric method for NPP) and soil respiration were initiated, to be cooperated with CO2 flux observation. In 2003 tree ecophysiological research (leaf photosynthesis, phenology) was initiated to bridge micrometeorological and bio-metric observations under climate change. Phenological Eyes Network (PEN) was established in 2003 to link in-situ observations and satellite observation.

Research Topics:

[biology](#) [physiology](#) [ecophysiology](#) [phenology](#) [ecology](#) [terrestrial ecology](#) [forest ecology](#) [plant ecology](#) [ecosystem ecology](#) [ecosystem function](#) [environmental science](#) [hydrology](#) [meteorology](#) [climatology](#)

Parameters:

[ecosystem measure](#) [biological measure](#) [atmospheric measure](#) [experimental measure](#) [landscape measure](#) [soil measure](#) [water measure](#)

Photos



Canopy access tower for ecological research and sensors



Geographic



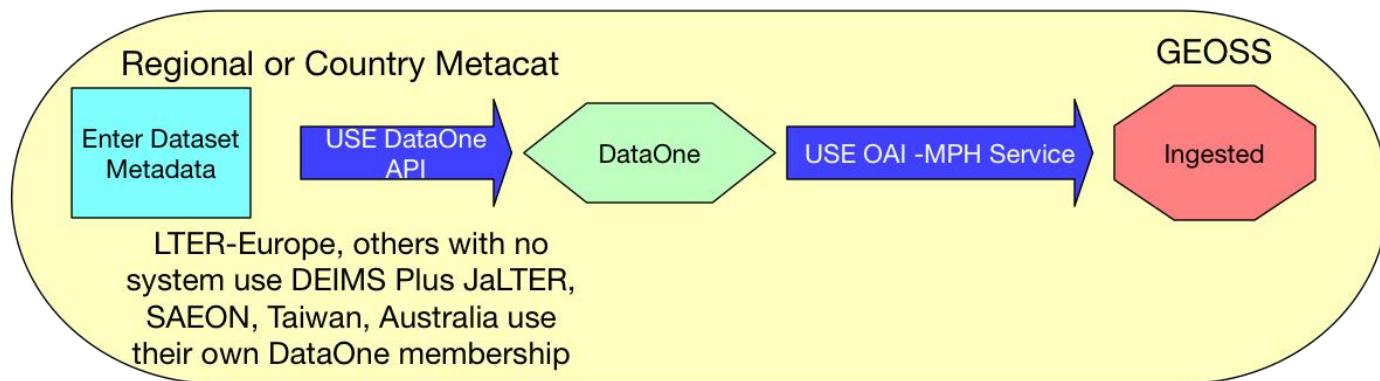
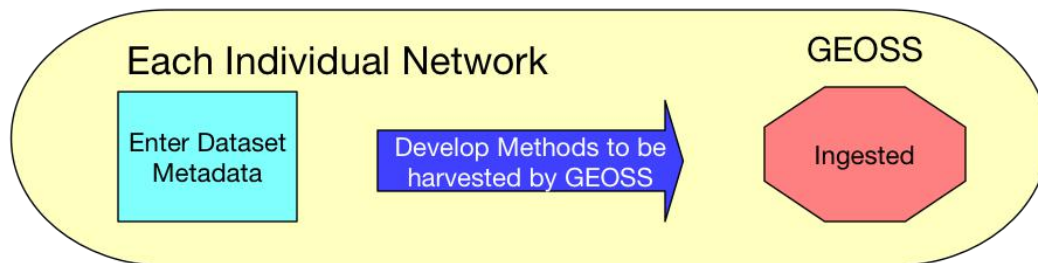
Coordinates:

Latitude: 36.150000000000
Longitude: 137.333000000000

[Download boundaries \[.shp \]](#)

Brokering ILTER-DEIMS to GEOSS Portal

Possible Methods for Transferring ILTER Dataset Metadata to GEOSS



DIAS: Data Integration and Analysis System

(The Univ. of Tokyo,; MEXT)



DIAS データ俯瞰・検索システム
Dataset Search and Discovery

<http://search.diasjp.net/finder>

日本語

Home How to use About

External Systems: JAMSTEC Data Catalog **JaLTER Data Catalog** NIPR Science Database NIPR Arctic Data archive System

What?

All:

Title:

Contact info.:

Abstract:

Where?

N 90
W -180 180 E
S -90 Global

overlaps encloses

When?

From 1950 1 1
 Use this condition

To 2017 12 31
 Use this condition

overlaps between dates

Search

Vertical axis GCMD Science Keywords Horizontal axis GCMD Platforms

of dataset titles displayed 0 (# of datasets only) Visible empty category

		GCMD Platforms								
		Aircraft	Balloons / Rockets	Earth Observation Satellites	In Situ Land-based Platforms	In Situ Ocean-based Platforms	Maps / Charts / Photographs	Models	Navigation Platforms	Undefined
GCMD Science Keywords	Agriculture			[2]	[44]			[27]		[1]
	Atmosphere	[4]	[8]	[34]	[28]	[21]		[47]	[3]	[100]
	Biological Classification				[1]	[3]				[9]
	Biosphere			[4]	[5]	[2]		[1]		[39]
	Climate Indicators							[27]		[2]
	Cryosphere			[8]	[34]		[1]	[27]		[12]
	Human Dimensions									[2]
	Land Surface			[6]	[49]		[1]	[27]		[35]
	Oceans			[22]	[2]	[31]		[37]		[61]
	Paleoclimate					[5]				
	Solid Earth			[1]	[12]	[6]				[19]
	Spectral / Engineering			[10]	[1]					[19]
	Sun-Earth Interactions									[14]
	Terrestrial Hydrosphere			[6]	[2]			[1]		[1]
Others			[2]							
Undefined	[1]		[1]				[9]		[475]	

[View all datasets](#)

One possibility: Sharing your data with GEO community *via* LTER... “Data Paper” by JaLTER and ESJ



“Data papers” in Ecological Research
(Ecological Society of Japan, published by Springer)

- ✓ Data will be archived in JaLTER database
- ✓ Will be fully opened to public, and be searchable using EML



The screenshot shows a web browser displaying the 'Ecological Research Data Paper Archives' page. The browser address bar shows 'db.cger.nies.go.jp/jALTER/ER_DataPapers/info'. The page has a dark green header with the title 'Ecological Research Data Paper Archives' and navigation links for Home, News, Archives, Info, and Link. The main content area features a large landscape photograph of a grassy hill with trees. Below the photo, there is an 'Info' section with the following text:

INFORMATION

“Ecological Research Data Papers” is a new category on Ecological Research which is a scientific journal for ecology edited by ESJ, i.e. Ecological Society of Japan.

“Data Papers” aims to facilitate the long-term sharing of good quality datasets with a detailed metadata. All datasets and metadata of Data Papers are examined under a peer review process, so Data Papers are treated as scientific articles.

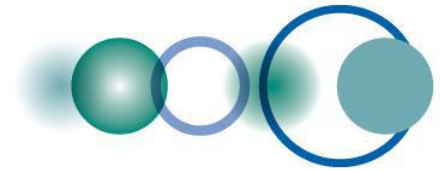
Everyone is permitted to use Data Papers for their study/research if they mention the citations in their outputs.

See below for detail:

[Guidelines for data papers \(springer.com\)](#)

On the right side of the page, there is a 'News' section with a table of updates:

Update	Date
ERDP-2012-03	May 20, 2015
ERDP-2012-01	Apr 16, 2015
ERDP-2015-01 available	Mar 02, 2015
ERDP-2014-02 available	Nov 18, 2014
ERDP-2012-01	May 27, 2014



GEOSS Portal <http://www.geoportal.org/>

ILTER Site Meta-data

<https://data.lter-europe.net/deims/>

→ to be connected to GCI (GEOSS Common Infrastructure)

“Data Paper” on Ecological Research + JaLTER database

→ JaLTER database is connected to DIAS

“DIAS” (Data Integration and Analysis System)

<http://search.diasjp.net/finder>

→ DIAS is connected to GCI