

両極の国際連携： 研究データの管理公開と利活用 - Polar Data Journal の紹介 -



金尾 政紀

極域環境データサイエンスセンター



◆ 研究データの管理と公開(主に南極域)

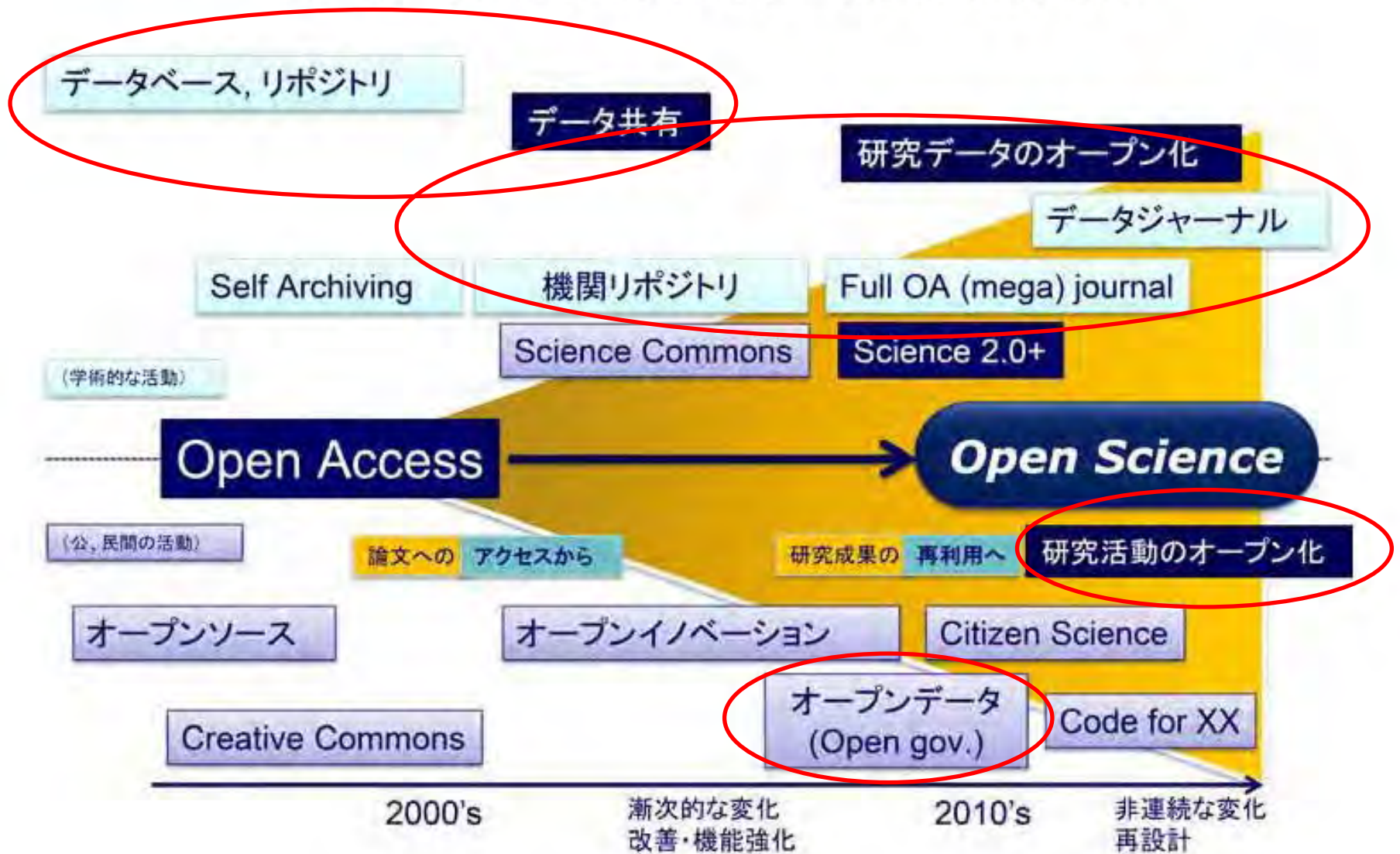
- オープンデータ・オープンサイエンス
- 極域環境データサイエンスセンター(PEDSC)
- データリポジトリの例 (極地研学術データベース)
- 研究データへのDOI付与について

◆ データジャーナル(Polar Data Journal)

◆ データ関連の国際シンポジウム(極地研・DS施設主催)

- 極域データフォーラム(Polar Data Forum)
- データサイエンス国際シンポジウム(DSWS)、他
- 特集号としてのData Science Journalの活用

㊦ オープンアクセスからオープンサイエンスへ



国際的動向を踏まえたオープンサイエンスに関する検討会報告書,
2015年3月30日, 内閣府

Polar Environment Data Science Center / DS / ROIS

NIPR

DS/ROIS

External
Community

Polar Environment Data Science Center

Observation and Research activity
in Arctic and Antarctic regions

Digital data

- Space and Upper Atmospheric Sciences Group
PANSY, EISCAT, aurora, magne, ULF, VLF, CNA
- Meteorology and Glaciology Group
CO₂, CH₄, aerosole, meteorological satellite
- Geoscience Group: seismology, gravity, VLBI
- Bioscience Group: marine biology, genome data

Sample data

- Ice core
- Meteorite
- Rock
- Greenhouse effect gas
- Biodiversity

Data Base System

- Science Data Base
- ADS (Arctic Data archive System)
- UGONET (Inter-university Upper atmosphere Global Observation NETwork)
- Antarctic GIS system

Collaboration with national and international communities

Data Science, Collaborative research

Data Publication (Polar Data Journal)

Integrated
Database

- University, College
- Research Institution
- Company
- Public

- ArCS
- GRENE
- JCAR
- IASC
- SIOS

- SCAR/ICSU
- WDS/ICSU
- CODATA/ICSU
- GCMD/NASA

SCADM (南極データマネージメント委員会)

- Standing Committee on Antarctic Data Management -



Scientific Committee on Antarctic Research
(SCAR / ICSU->ISC) 南極科学委員会

HOME ABOUT US SCIENCE POLICY PRODUCTS

PRODUCTS MENU

STANDING COMMITTEE ON ANTARCTIC DATA
MANAGEMENT (SCADM)



年1回の会合(SCAR総会+各国主催)
最近は、月1回のネット会合(SCRUM)



National Antarctic Data Centers (NADC)
各国のデータセンターの代表者



南極科学委員会 (SCAR) に関する データのインフラストラクチャー

Antarctic Master Directory (AMD) / GCMD / NASA
南極マスターディレクトリー



registering metadata



A user can search a metadata catalogue. Data might be linked ??

Antarctic Data Management System (ADMS)
= AMD + NADCs

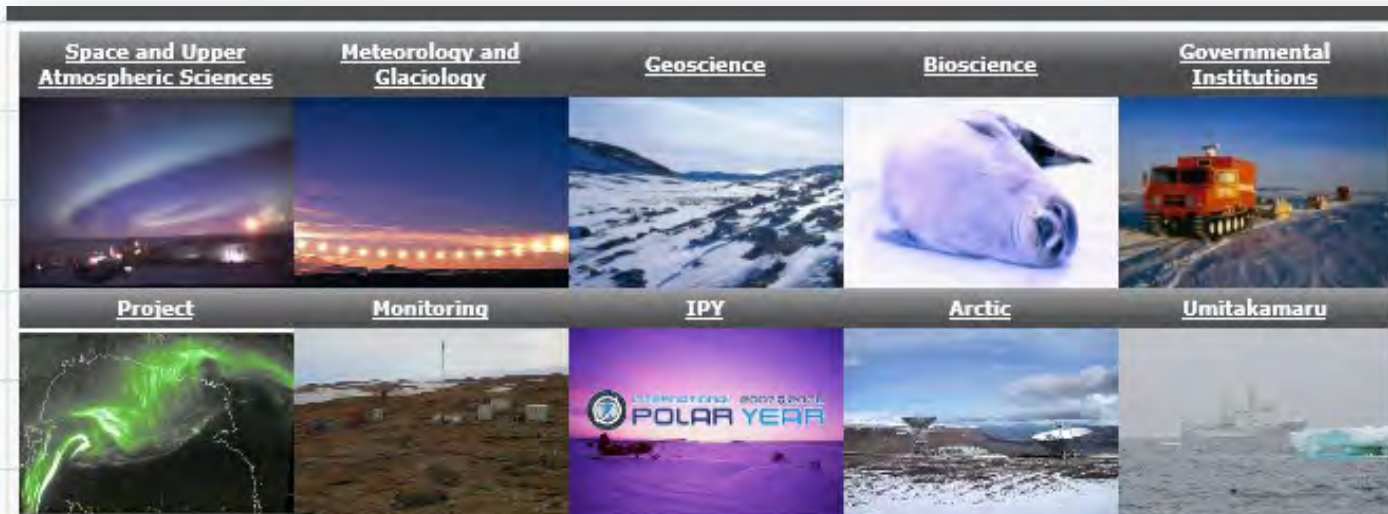
National Antarctic Data Centers (NADC)
各国のデータセンター

極域の学術データベース

- ◆ 南極観測事業(JARE)をはじめ、(北極を含む)両極域での調査・研究活動により取得された科学的データのメタ情報を収集・公開

(1997年発足のJCADMの要請)

- IGY(1957-58)以後の長期間に渡るモニタリング観測
- 短期間に集中的に行うプロジェクト研究
- 極地研(研究分野別) + 定常官庁
- ◆ 文字情報・数値形式の所在情報(メタデータ)として、一括して集積
- ◆ 専用のポータルサーバで公開 <http://scidbase.nipr.ac.jp/>
- ◆ NASAの南極マスターディレクトリー(Antarctic Master Directory)等とも連携




Flow Chart of Data Publication on Polar Science

193,500 access from
2011. December

データ共有(相互利用)の促進


Science Metadata Base (English & Japanese)

<http://scidbase.nipr.ac.jp/>



HOME ABOUT SC-ADM ADMS DATA CENTRES


Standing Committee on Antarctic Data Management / SCAR




International Polar Year Data and Information Service

IPY Data and Information Service / IPY-DIS

PIC JP; N=20



Polar Information Commons / CODATA



World Data System • CODATA / ICSU

National Institute of Polar Research Science Database

Welcome admin

日本語 English

meta data list

Space and Upper Atmosphere Sciences	Atmospheric Sciences	Oceanography	Glaciology	Bio-Science	Governmental Institution

New Meta Data

Date	Time	Title
2011/3/7	12:06	EISCAT radar
2011/3/4	18:36	Teleseismic digital waveform records
2011/3/4	14:11	Teleseismic digital waveform records
2011/3/4	7:51	All-sky Imager Observation at South Pole Station
2011/3/4	7:46	Monitoring of marine pollution
2011/3/4	7:45	Antarctic region topographical map
2011/3/4	7:43	Photocatalytic survey of exposed rock areas
2011/3/4	7:41	Ultraviolet limits solar radiation observation classified by wave length
2011/3/4	7:40	Whale sighting efficiency of the crew on board ocean research vessels in BIOMASS-FIREX
2011/3/4	7:35	Quaternary fossil information near the Syowa Station

related databases

- NIPR
- Polar Data Center
- world data center for Aurora
- EISCAT Japan
- THE PENGUIN BOOK
- Antarctic Meteorite Database
- NIPR
- PIC

HOT NEWS!

- Cherry blossoms bloomed (2011-03-04 11:52:40)
- The plain tree bloomed (2011-03-04 11:52:12)
- (2011-03-04 11:52:47)

NIPR_MetaDB; N=390



ANTARCTIC MASTER DIRECTORY

A Global Change Master Directory Portal

Antarctic Master Directory / GCMD

Japanese Antarctic Portal (AMD_JP)

AMD_JP+Arctic_JP; N=300

Japanese Arctic Portal (Arctic_JP)

IPY Portal in GCMD

IPY JP; N=250

International Data Management Organization / Committee

Exchange of Data & Information

Science Database in Polar Data Center / NIPR

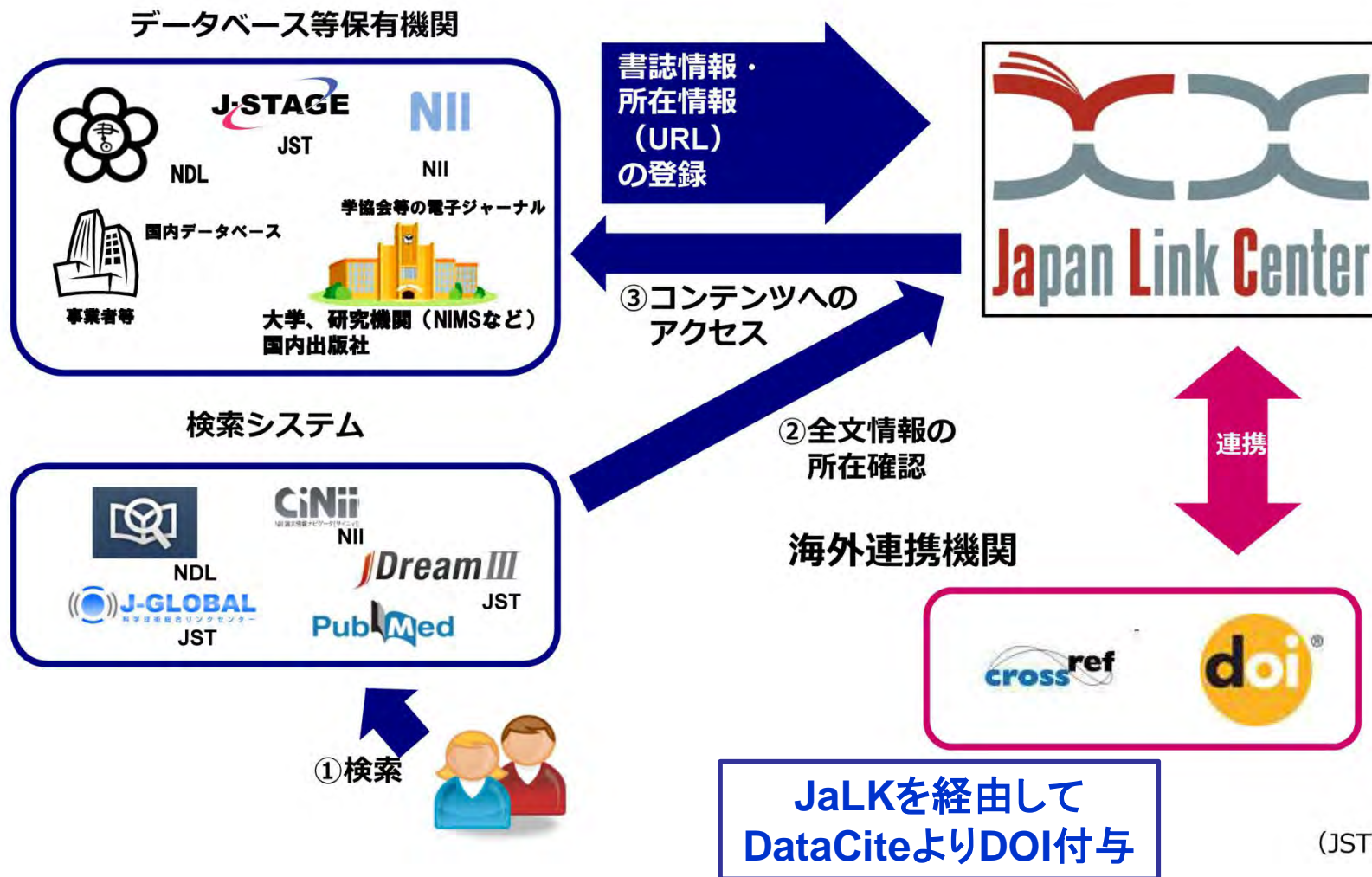
Exchange of Data & Information

NASA / GCMD / Antarctic Master Directory

ジャパンリンクセンター (Japan Link Center) の概要

JaLC 研究データへのDOI登録実験プロジェクト

<https://japanlinkcenter.org/top/>

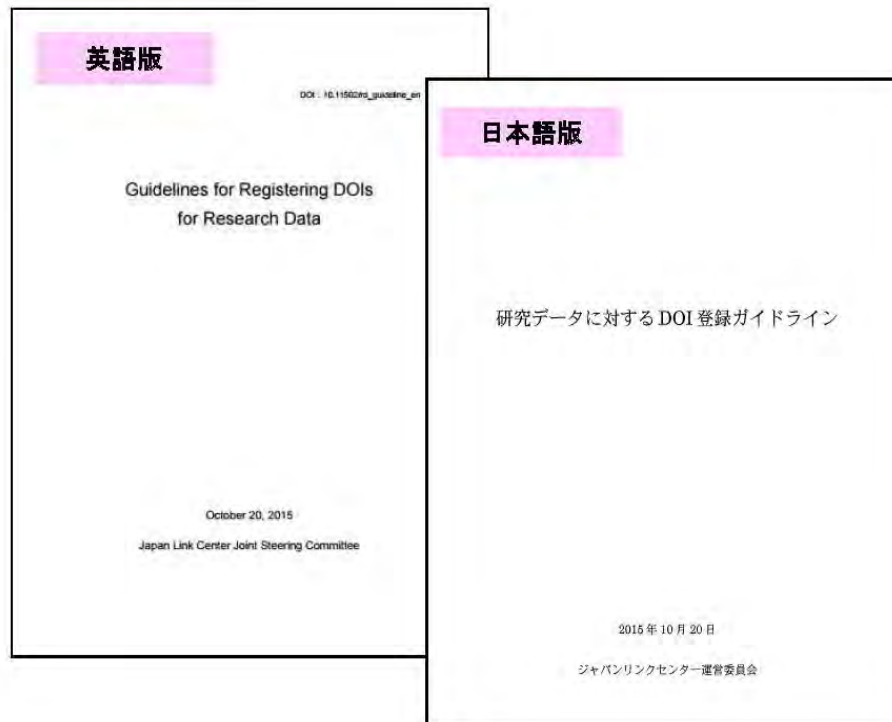


JaLC研究データ登録実験プロジェクト②

研究データに対するDOI登録ガイドライン

研究データへのDOI登録実験プロジェクトで得られた知見と議論をもとに「研究データへのDOI登録ガイドライン」として取りまとめた。

今後、研究機関等がデータに対するDOI登録を開始する際の指針になり、実作業への参考となることを目指す。



【DOI登録ガイドラインの内容】

- ◆ ワークフロー
- ◆ DOI登録の対象データ
- ◆ アクセスの持続性の保証
- ◆ DOI登録対象の粒度
- ◆ DOIのランディングページ
- ◆ 機関ポリシーの制定
- ◆ 事例集、参考文献

研究データへのDOI登録ガイドライン

日本語版DOI : [10.11502/rd_guideline_ja](https://doi.org/10.11502/rd_guideline_ja)

英語版DOI : [10.11502/rd_guideline_en](https://doi.org/10.11502/rd_guideline_en)

- 1) 北極域データアーカイブス(ADS), 2) 情報図書室 学術情報リポジトリ,
- 3) PEDSC 学術(メタ)データベース by NIPR / ROIS-DS → DOI付与可能

(JST作成資料)

研究者向け

総合的データベース



極地研学術データベース



北極域データアーカイブ



南極マスターディレクトリ
— Japan



極地研学術情報リポジトリ

PEDSC・NIPR ADS・北極センター

情報図書館

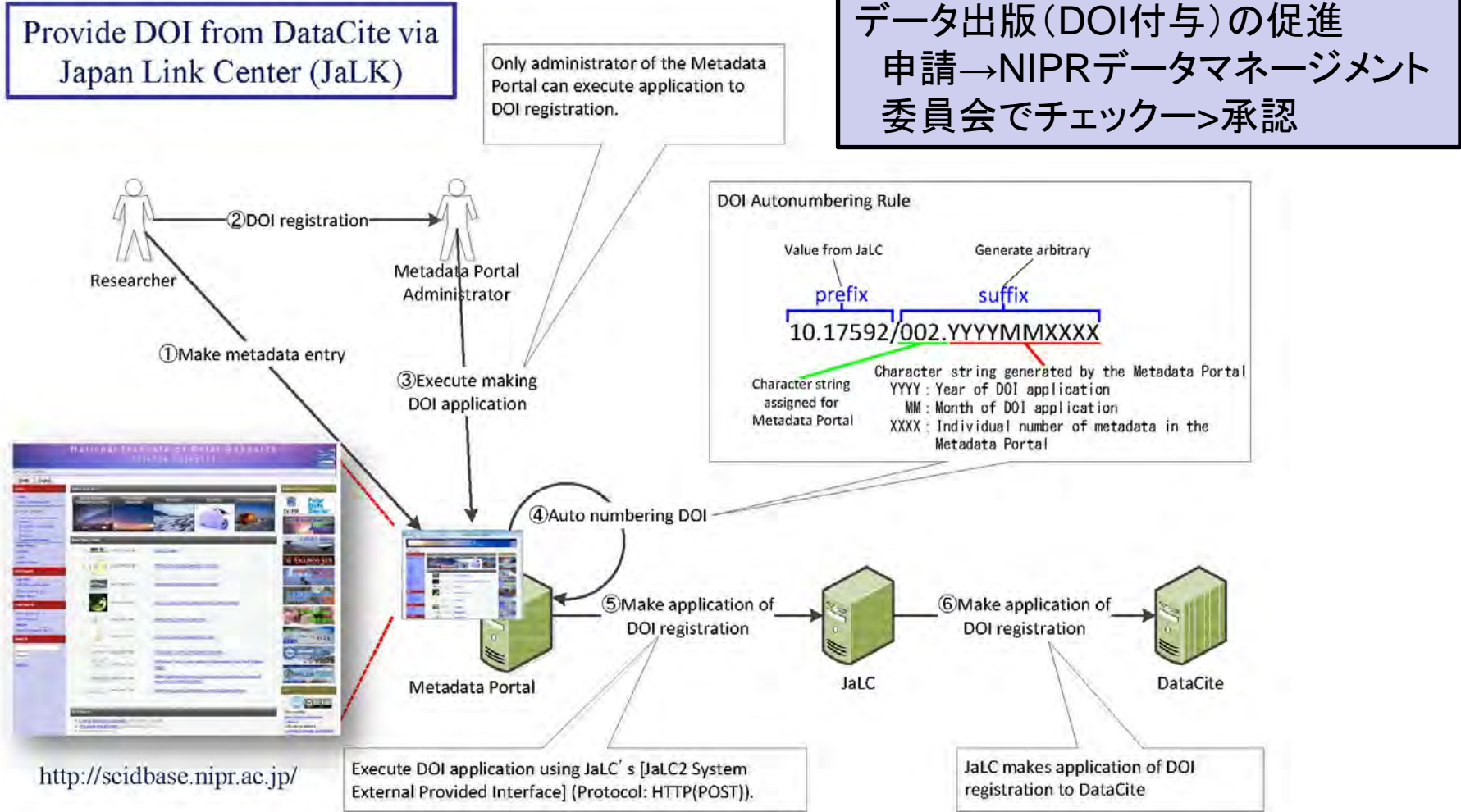
宙空間



- 1) 北極域データアーカイブス(ADS),
- 2) 情報図書館 学術情報リポジトリ,
- 3) PEDSC 学術(メタ)データベース by NIPR / ROIS-DS → DOI付与可能

Data Publication

(DOI assignment to the data inside PEDSC metadata portal)



A flow chart to get DOI prefix from DataCite to PEDSC server (<http://scidbase.nipr.ac.jp/>) via JaLC gateway interface.

Kanao, M., M. Okada, J. Friddell and A. Kadokura, Data Science Journal, 17: 1, pp.1-6, 2018

Data Publication (DOI assignment to the data inside PEDSC metadata portal)

DOI (対流圏・成層圏, 中間圏)

対流圏・成層圏

DOI : 10.17592/002.2020070383

中間圏

DOI : 10.17592/002.2020070384



昭和基地・大型大気レーダ(PANSY)のデータ

ランディングページ =
メタデータの英語版 URL

『NIPR 学術データベース DOI付与の流れ』

◇申請から付与承認通知まで

【 National Institute of Polar Research Repository ; <http://scidbase.nipr.ac.jp> 】

【チェック担当者】
(原則として)所内データマネジメント委員会委員、必要に応じて所内外関係者に依頼

【管理者】
学術データベース担当

【申請者】

様式1(申請書)

事前にメタデータポータルサーバにデータ登録

差し戻し・再申請

(申請書内容に不備がある場合)

様式2(チェックシート)

データの確認・評価

ケース3.

チェック依頼

ケース4., 5.

ケース2.

チェック担当者による評価確認

データ修正

ケース2., 3.

ケース1.

付与承認を委員会へ打診・資料回付

審査結果通知+様式2

【データマネジメント委員会】

DOI付与の認定

ポータルサーバでのDOI付与作業

審査結果通知+様式2

付与承認の連絡

【申請者】

評価ランク

- ケース1. このままDOI付与をしてよい。
- ケース2. コメントまたはチェックシートに書き入れた問題点が解決されれば付与してよい。
- ケース3. メタデータの該当項目について記載内容の修正を行った上で、再度確認作業が必要。
- ケース4. 「データ公開方法」のランクアップを行った上で、再申請すべきである。
- ケース5. 却下すべきである。

主なデータジャーナル

No.	ジャーナル名	出版者	タイプ	OA*	URL
1	Geoscience Data Journal	Wiley	商業出版	y	http://www.geosciencedata.com
2	Scientific Data	Nature	商業出版	y	http://www.nature.com/sdata/
3	Data in Brief	Elsevier	商業出版	y	http://www.journals.elsevier.com/data-in-brief
4	International Journal of Robotics Research Data Papers	Sage	商業出版	n	http://ijr.sagepub.com/
5	Biodiversity Data Journal	Pensoft	商業出版	y	http://www.pensoft.net/journals/bdj/
6	BMC Research Notes	BMC	新興OA出版	y	http://www.biomedcentral.com/bmcresnotes/
7	Dataset Papers in Science	Hindawi publishing	新興OA出版	y	http://www.datasets.com/
8	Earth System Science Data	Copernicus	新興OA出版	y	http://earth-system-science-data.net/
9	Ubiquity Press metajournals	Ubiquity Press	新興OA出版	y	http://www.metajnl.com/
10	F1000 Research	F1000 Research	新興OA出版	y	http://f1000research.com/
11	GigaScience	BioMed Centralと中国のBGI (旧・北京ゲノム研究所)	新興OA出版	y	http://www.gigasciencejournal.com/
12	Ecological Archives – Data Papers	ESA(Ecological Society of America)	学会出版	y	http://esapubs.org/archive/
13	The Journal of Chemical & Engineering Data	American Chemical Society	学会出版	n	http://pubs.acs.org/journal/jceaax
14	Journal of Physical and Chemical Reference Data	American Institute of Physics	学会出版	n	http://jpcrd.aip.org/resource/1/jpcrbu
15	CODATA's Data Science Journal	CODATA	学会出版	y	http://www.codata.org/publications/data-science-journal

25

*OA オープンアクセスかどうか(y/n)

林 和弘, 村山 泰啓. 「科学技術動向研究 オープンサイエンスをめぐる新しい潮流(その3) 研究データ出版の動向と論文の根拠データの公開促進に向けて」
<http://hdl.handle.net/11035/2999>, (参照 2015-05-07).



International Forum on Polar Data Activities in Global Data Systems Communiqué

Recommendations & Observations Arising From the 'International Polar Data Forum'

15–16 October 2013, Tokyo (Japan)

Participants in the International Polar Data Forum (comprising of data managers, scientists, and research coordinators) share observations about the current state of polar data activities and their recommendations for enhancing and sustaining core data services into the future.

General Remarks

Despite the focus generated by the International Polar Year 2007–2008 (<http://www.ipy.org/>) there are still unresolved deficiencies

**極域データ関連の国際シンポジウム開催
参加者 海外40名・国内50名、DSJ 特集号;計16編**

underpinned research publication need to be updated accordingly. Scientists must factor the costs of managing and publishing data in their research/monitoring funding proposals, and explicitly address these tasks in research/observing system plans.

The Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science governmental organizations coordinating international polar research, are now embarking on (i.e., the SCAR Science Horizon Scan and the 3rd International Conference on Arctic Research) committed to recommending—through their strategic-direction setting initiatives—not only data networks is seen as a science-funded activity but also that this activity has visibility in plans and strategies. Through their policies and actions, IASC and SCAR member countries of data management as an integral part of science implementation and to contribute to the design and development of shared global data infrastructure. Participation in the ICSU World Data System (ICSU-WDS; a global system of accredited scientific repositories and data service providers) is one mechanism for member countries to engage in such collaborative infrastructure and capability development.

Forum Observations & Recommendations

- Improving polar data discovery, data preservation, and reusability relies in part on building more pervasive systems interoperability. This interoperability is now a commonly stated goal for polar research organizations, but it is recognized that interoperability needs to be addressed at a number of different levels and covers both social and technical aspects; the combination of which is difficult to address. Considerable investment



to develop robust solutions implementable across that are concurrently sustainable and cost-effective. The long-term activity invested to date has been through often-fragmented spurts of voluntary labour, making slow. New initiatives such as the Research Data Alliance (<http://www.researchdataalliance.org/>) potentially offer coordinated mechanisms for addressing interoperability problems in a more efficient, many manner. Technology (<http://www.eurogeos.eu/broker>) is often a solution to unify disparate systems whilst preserving domain requirements. However, the heterogeneity and inconsistency (i.e., descriptive information about data) that typically results from differences, and which underpins such approaches, can reduce



フォーラムコミュニケ:
一般向けの宣伝用、HPに掲載、WDS, SCAR, IASC 関係者へ配布、Newsletterに掲載

systems should be actively pursued. ICSU-WDS is taking a lead role in this area. Polar repositories and service providers can engage in, and affiliate with, accredited networks such as ICSU-WDS. The assessment process, which is already in transformation and is adapting to accommodate new social norms, must highly prioritize the inclusion of dataset citation as a new norm. This necessarily involves a quality and validity, and these should then be encompassed in peer-based acknowledgement and access resources (e.g., publications, datasets, dataset components, people, places, projects) using Hypertext Transfer Protocol offers exciting possibilities to interlink currently disparate silos of data and data. This 'Linked Data' approach then has the capacity to enhance the data discovery and integration process.

Polar Data Forum プロシーディングス:
データ情報学会の欧文誌「Data Science Journal」の特集号として発行 (計16編でオンライン出版)

the long-term. However, utilizing the inherent structure of any digital resources provides an objective framework to discover relationships in a manner that complements existing content and context management solutions. More attention should be paid to making data web-accessible. Numerous exemplars of data management best practice both inside and outside of the polar community. Generally these are willing to share their experiences and often their technologies and methods. Frequently, what are lacking are appropriate communication channels and the necessary social connections to capitalize on this best practice. Members of the Arctic community have led in setting up social media avenues (e.g., <https://arcticclub.net/groups/adcn> and the Twitter feed @ArcticDCN) to foster communication, and are now inviting participation from across the polar community.

A Special Issue in the CODATA Data Science Journal

“Special Collection” for DSWS-2020 in the Data Science Journal

The screenshot shows the homepage of the Data Science Journal. At the top, there is a navigation bar with links for Home, About, Contact, Content, and Research Integrity. A search bar and links for Log in and Register are also present. The main header features the journal's logo and the title "DATA SCIENCE JOURNAL". Below this, there are buttons for "Start Submission" and "Become a Reviewer". The central content area displays a "Special Collection Call for Papers: Multidisciplinary Data Activities Bridging the Research Community and Society". To the right, there is a social media sharing section with a tweet from Mark Parsons and a tweet from Anirudh Prabhu. A blue box on the left side of the page lists the types of articles accepted: Research articles, Practice papers, Review articles, and Essays. A light blue box on the right side of the page contains Japanese text about the DSWS-2020 special issue.

Home About Contact Content Research Integrity Search... Log in Register

DATA SCIENCE JOURNAL Start Submission Become a Reviewer

Special Collection Call for Papers: Multidisciplinary Data Activities Bridging the Research Community and Society

Researcher
Administrator
Limor Peer & Joshua
YARD: A Tool for

Share: f t g+ in

CONVERSATIONS < previous ne

Mark Parsons @chutneyboy
This is useful #OpenScience

Anirudh Prabhu @Anirudh_14
The #preprint for the "Encyclopedia of Mathematical Geosciences" entry that @taswegian and I wrote has been published on @arxiv.
arxiv.org/abs/2012.13427
@IAMG Math Geo #OpenScience

The global data community, led by the World Data System of the International Science Council (WDS), organized the International Symposium on 'Global Collaborations on Data beyond Disciplines' on 23–25 September 2020 (https://ds.rois.ac.jp/article/ds_ws_2020/). This online conference was conducted whilst the world was in the grips of the COVID-19 pandemic. The significance of multidisciplinary approaches to data management and of Open Data were comprehensively discussed by participants. Many presentations highlighted the close connection between data-oriented activities and society. Examples included mitigating against detrimental environmental changes, disasters, and health crises worldwide. The conclusion of the multidisciplinary activities by society; in particular, 'Goals that need a data collection' will improve systems and data are not restricted. editors welcome submissions from anyone globally for whom the symposium themes resonate.

Types of article:

- ✓ Research articles
- ✓ Practice papers
- ✓ Review articles
- ✓ Essays

DSWS-2020 の特集号:
データ情報学会の欧文誌「Data Science Journal」
として発行中(現在6編が受理・公開済み)

Collection Title:

- 21 Expression of Interest for Article Submission
- Handled by 5 Guest Editors (M.Kanao, others)
- Deadline of Article Submission: 31 March 2021

“ Multidisciplinary Data Activities Bridging the Research Community and Society ”

[\(https://datascience.codata.org/\)](https://datascience.codata.org/)

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[Reasons to publish](#)

[Submission Guidelines](#)

[Guide to Authors](#)

Submission Guidelines

This page contains details of how to submit a manuscript. Please see our [guide to authors](#).

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- > [Methods](#)
- > [Data Records](#)
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- > [Usage Notes](#)
- > [Code Availability](#)
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5 [Check methods for transparency and reproducibility](#)

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Additional Guidance

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1 Choose a content-type

	Data Descriptor	Analysis	Article	Comment
Scope	Detailed descriptions of research datasets, which focus on helping others reuse data, rather than testing hypotheses or presenting new interpretations	A new analysis or meta-analysis of existing data, which highlights examples of data reuse or new findings	Reports on new policies, repositories, standards, ontologies, workflows, or any topic relating to the mechanics of data sharing	Short commentaries or opinions on research data policy, workflows or infrastructure that don't need to report a specific technology or finding.
Peer-reviewed?	Yes	Yes	Yes	Yes
	<ul style="list-style-type: none"> • Abstract • Background & Summary • Methods • Data Records • Technical Validation 	<ul style="list-style-type: none"> • Abstract • Introduction • Results • Discussion • Methods • Data 	<ul style="list-style-type: none"> • Abstract • Introduction • Results • Discussion • Methods • Data 	<ul style="list-style-type: none"> • Competing Interests <p>(otherwise structure at</p>

極域科学のデータジャーナル創刊

国際的に投稿受け付け

国立極地研究所は、極域科学に関するデータジャーナル「Polar Data Journal」(https://pdr.repo.nii.ac.jp)の創刊を発表した。学術機関によるデータジャーナルの出版は国内初となる。

研究者が実験や観測で取得した

データは、学術論文に使用される一部のものを除き、その多くが公表されない傾向にある。極地研ではこれまでも、南極や北極での研究・観測で得られた貴重なデータを広く学術コミュニティに提供するため、報告書2誌(「JARE Da

ta Reports」「NIPR Arctic Data Reports」)を出版し、それぞれ、南極地域観測隊員が南極観測で得たデータ、極地研の研究者が北極域での観測や実験で得たデータを公開してきた。

この取り組みを発展させた極域科学に関するデータジャーナル「Polar Data Journal」では、南極や北極など、極域での実験や観測で得られたデータおよびそのデ

ータに関する記述(データ論文)について、所属や学術分野にかかわらず、広く国際的に投稿を受け付ける。投稿されたデータ論文は査読を行い、品質をチェックしたうえで掲載。

実験や観測を担当した研究者にとっては、データ論文の著者としてデータジャーナルに掲載されることで、データの生産が学術的な業績として評価されやすくなるという利点がある。さらに、掲載されるデータ論文には、一般の学術論文と同様に、DOIを付与する。これにより、他の論文での引用および引用後の追跡を容易にし、デ

ータの利活用を促す。

また、このデータジャーナルは、国立情報学研究所(NII)が開発・運用している共用リポジトリサービスJAIRO Cloudを利用したものである。JAIRO Cloudは独自に機関リポジトリの構築や運用が難しい教育・研究機関などに対してNIIが提供している共用リポジトリサービス。昨年未現在、国内で機関リポジトリを公開している651機関のうち、約54%にあたる354機関がJAIRO Cloudを利用している。公開準備中や利用申請中の機関を合わせると、JAIRO Cloud導入機関数は489となる。

極域科学のデータジャーナル創刊！ 「Polar Data Journal」 2017年1月19日

ジャーナル名：Polar Data Journal

発行・編集：情報・システム研究機構 国立極地研究所

使用言語：英語（海外関係者を含む Editorial Board, Advisory Board）

論文発行頻度：随時

URL：https://pdr.repo.nii.ac.jp/

主な特徴：

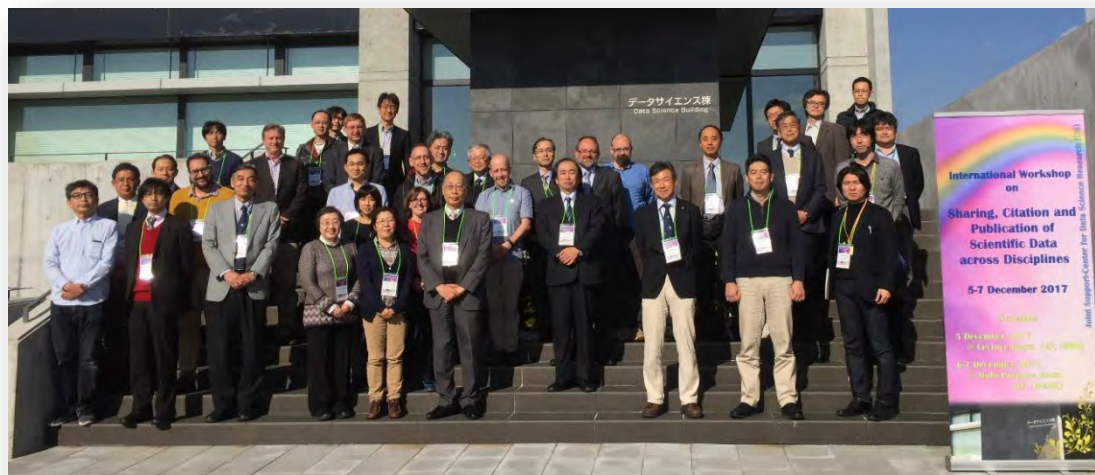
- フリーアクセスのオンラインジャーナル
- 研究で得られたデータに関する「データ論文」を査読・出版
- 「データ論文」には、DOI及びクリエイティブ・コモンズ・ライセンス（原則としてオープンライセンスのみを採用）を付与
- 真正性の担保のため、査読レポートも論文と同時に公開

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◆大学共同利用機関法人情報・システム研究機構◆ データサイエンス共同利用基盤施設で 科学データに関わる国際ワークショップを開催（PEDSC主催）

- 平成29年12月5日～7日、大学共同利用機関法人 情報・システム研究機構 データサイエンス共同利用基盤施設は、「**分野を超えた科学データの共有・引用・出版に関する国際ワークショップ**」を開催。
- 様々な所属と研究分野の研究者70名が参加。極域科学・地球惑星科学・生物学・人文学・社会学を含む学際的視野に立ち、科学データ全般を扱うオープンサイエンス・オープンデータの最近の動向について議論。
- 分野横断型研究への発展の可能性を含め、**データ共有(相互利用)・データ出版と引用・データジャーナル等**に関する情報交換を重点的に実施。
- 国際連携の枠組みをベースにした学際的データサイエンス推進・関連コミュニティとの連携強化を視野に、今後の同施設における共同利用・共同研究のための各種プラットフォーム構築の方向性・展望を検討。



藤井良一機構長、藤山秋佐夫施設長を囲んだオープニングの参加者



シンポジウム会場の様子

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Title

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Background and Summary

Location (or Observation)

Methods

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Technical Validation

Usage Notes (optional)

Acknowledgements

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Competing Interests

Figures (optional)

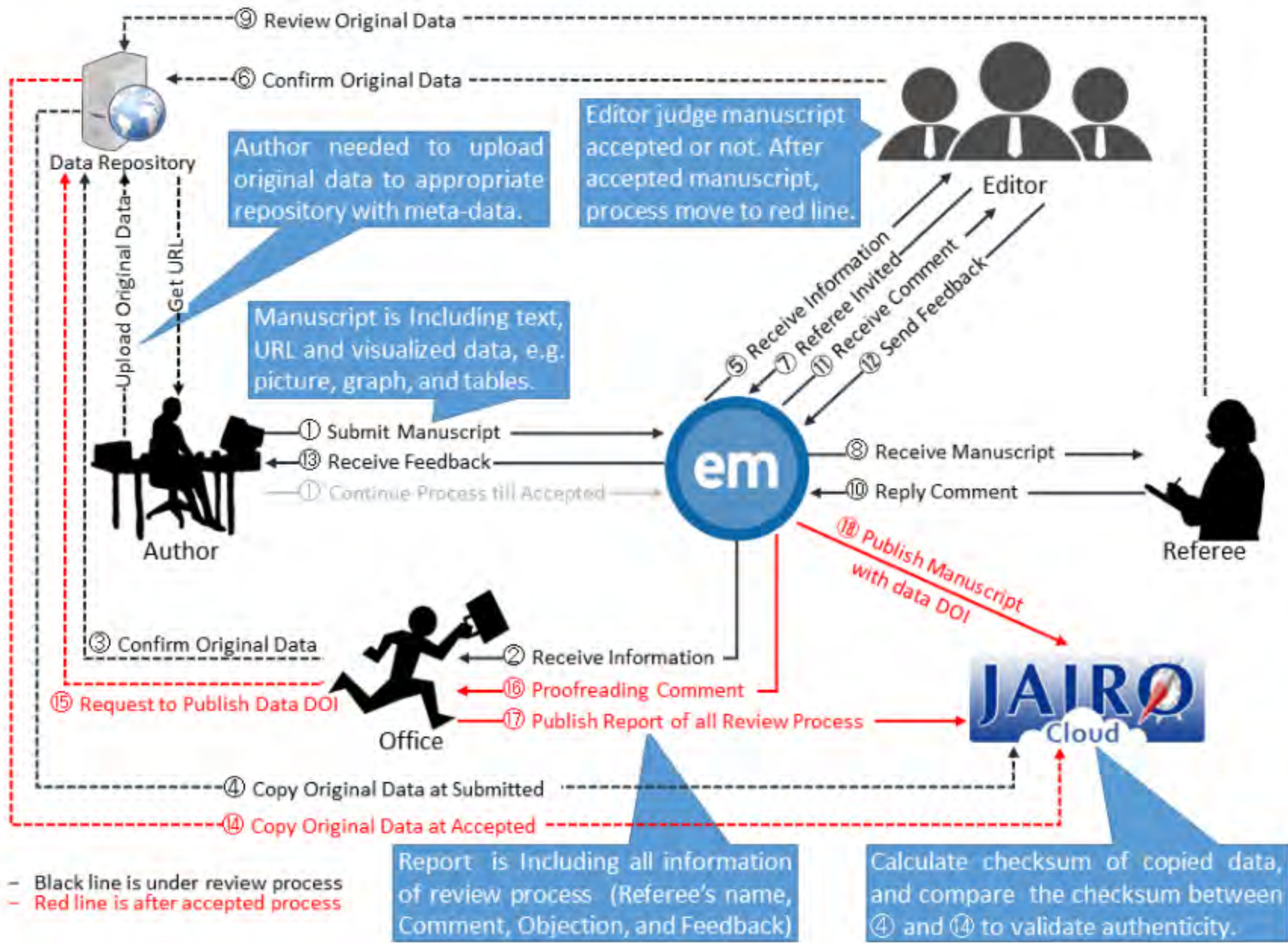
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- PEDSCの貢献：編集作業支援、関連実データの登録とDOI付与

Infrasound observation at Japanese Antarctic Station "Syowa": 11 years observations and results

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Masa-yuki YAMAMOTO³,
Takeshi MATSUSHIMA⁴, and Masaki KANAOKA⁵

July 30, 2019

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Abstract: Infrasound observation at Syowa Station (SYO), Antarctica started as one of the projects related International Polar Year (IPY2007 - 2008) as one-sensor pilot observation, and after the pilot observation, we then migrate to 3-sensor arrayed observation. The obtained 11 years infrasound data enable us to examine characteristics of infrasound behavior around SYO. Spectral analysis of recorded data clearly shows continuous arrivals of microbaroms from southern ocean and weak annual change of the energy. Array analysis of the 3-sensor observation data detected infrasound signals generated by ice-related activities around SYO.

1. Background & Summary

The "infrasound" is human-inaudible sound (pressure wave) whose frequency range is cut-off frequency of sound (3.21 mHz, for a 15-degree C isothermal atmosphere) to 20 Hz, and the wave can be excited by large energy which propagates

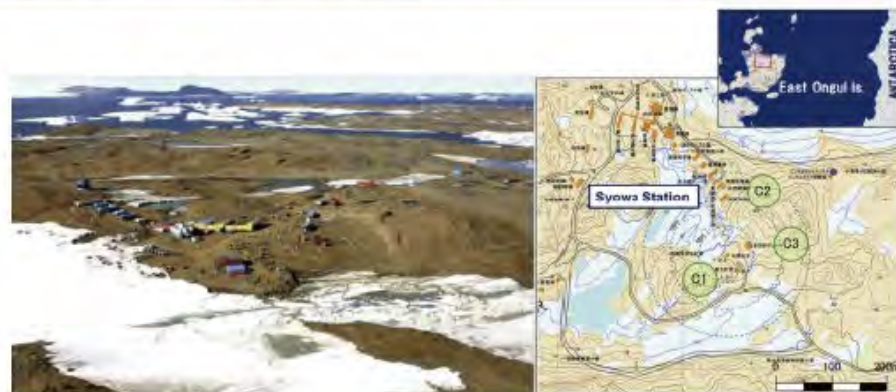


Figure 1: Overview of Syowa Station in East Ongul Island, LHB and location of the infrasound array at Syowa Station.

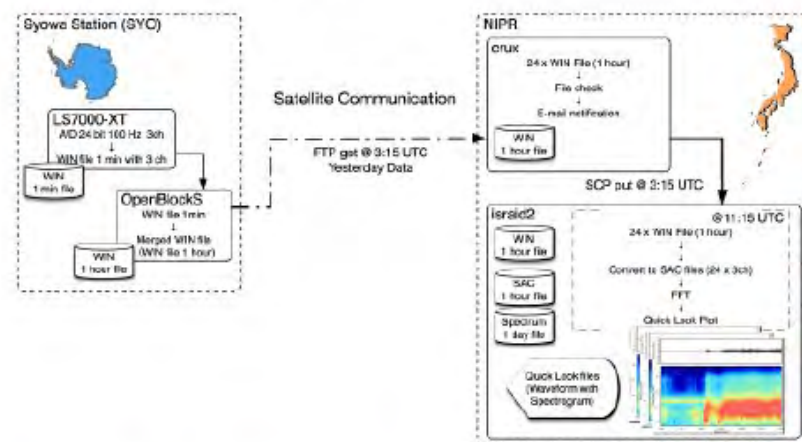


Figure 3: Schematic diagram of the data recording and transfer flow of the SYO infrasound observation system. (SYO) Infrasound signals are digitized by a datalogger (Datamark LS7000-XT) with 24 bit / 100 Hz sampling and then stored in the logger as 1 min WIN format file. At the same time, the data was copied to a small linux box (OpenBlockS) and a merged WIN file (1 hour long WIN file) will be created and stored. (NIPR) Infrasound data files (1 hour long WIN files) recorded on the previous day are automatically transferred to master linux server (erux) using satellite communication, then those files checked and stored. After that, those files transferred to another linux workstation (israid2) and then file format conversion to SAC files, FFT analysis, Quick Lock Plot processes are executed.

Polar Data Journal : 2008-2019のデータ公開

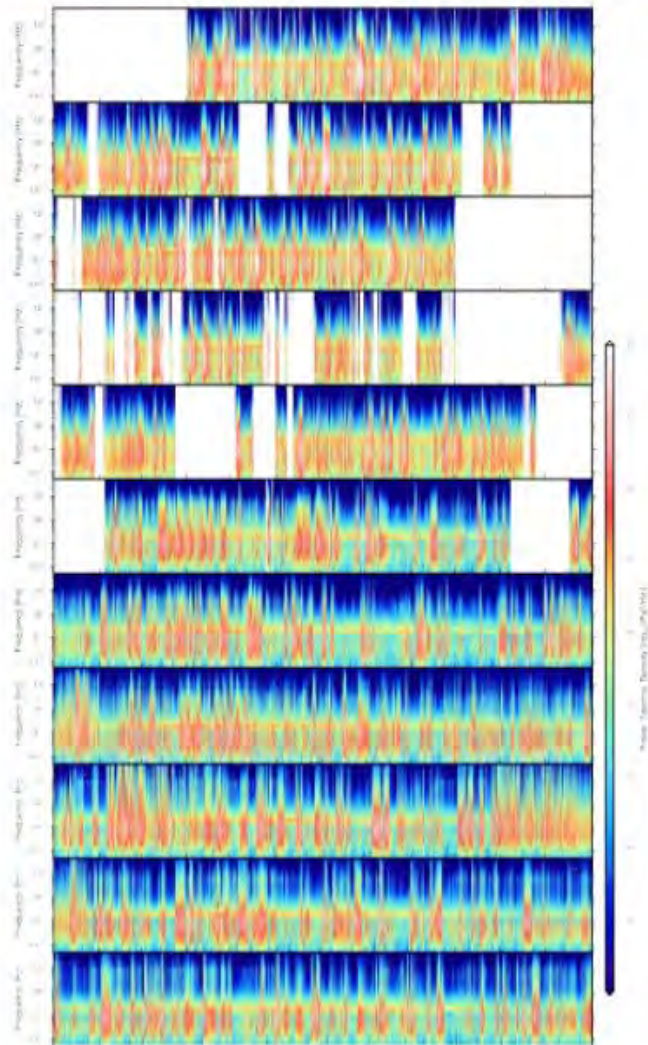


Figure 4: Spectrogram (Power spectral densities (PSD) of infrasound signals for eleven years (2008 (uppermost frame) to 2018 (bottom frame)) from the beginning of pilot observations at Syowa Station (SYO; one of the array sites; C1). The white colored time zones correspond to the lack of data, otherwise any errors occurred during the PSD processing. Predominant frequencies corresponding to the microbaroms (0.1 to 0.3 Hz bands) are clearly identified during the recording periods. The horizontal axis is the month of the year.

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14. Murayama, T., Kanao, M., Yamamoto, M.-Y., Ishihara, Y., Infrasound Signals and Their Source Location Inferred from Array Deployment in the Lützow-Holm Bay Region, East Antarctica: January-June 2015. *Int. J. Geosci.*, 2017, 08, 181188. <https://doi.org/10.4236/ijg.2017.82007>

Data Citations

1. Ishihara, Y., T. Murayama, M. Yamamoto, T. Matsushima, M. Kanao, 2019, Infrasound observation at Japanese Antarctic Station 'Syowa': 11 years observations and results, 1.00, Arctic Data archive System (ADS), Japan, <https://ads.nipr.ac.jp/dataset/A20190705-001>

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Polar Data Journal : Absolute Gravity Measurement

<https://doi.org/10.20575/00000032>

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Absolute Gravity Measurements at Jang Bogo Station and Mario Zucchelli Station, Antarctica, in 2019

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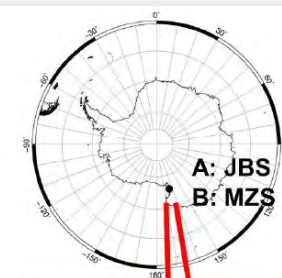


Fig. 1. Locations of A:Jang Bogo Station (JBS) and B:Mario Zucchelli Station (MZS), Terra Nova Bay, Victoria Land, Antarctica. The circle on the regional map (upper) marks the location of

9. Tables

Table 1. Summary of the absolute gravity measurements at Jang Bogo Station (JBS).

Points	Lat (deg N)	Lon (deg E)	H (m)	Date (2019)	dg/dz (μGal/cm)	Number of accepted drops	Precision (μGal)	gravity at 130 cm (μGal)	gravity at 0 cm (μGal)
JBSAG1	-74.62340	164.22547	18.3	Nov. 19-25	-2.249	19101	0.38	962856925.6 ± 1.9	962856218.0 ± 4.3
JBSAG2	-74.62342	164.22553	18.4	Nov. 25-28	-2.597	14300	0.32	962855650.2 ± 1.9	962856039.8 ± 4.3

Table 2. Summary of the absolute gravity measurements at Mario Zucchelli Station (MZS).

Points	Lat (deg N)	Lon (deg E)	H (m)	Date (2019)	dg/dz (μGal/cm)	Number of accepted drops	Precision (μGal)	gravity at 130 cm (μGal)	gravity at 0 cm (μGal)
TNB AB	-74.6048	164.1129	30	Nov. 29- Dec. 2	-3.120	12812	0.24	962865582.8 ± 1.8	962865968.4 ± 4.3
IAGG	-74.6929	164.1018	54.3	Dec. 3-5	-3.570	12304	0.32	962854049.6 ± 1.0	962855313.7 ± 4.3

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※参考：JaLCのDOI付与ガイドライン

https://japanlinkcenter.org/top/doc/JaLC_tech_rd_guideline_ja.pdf