

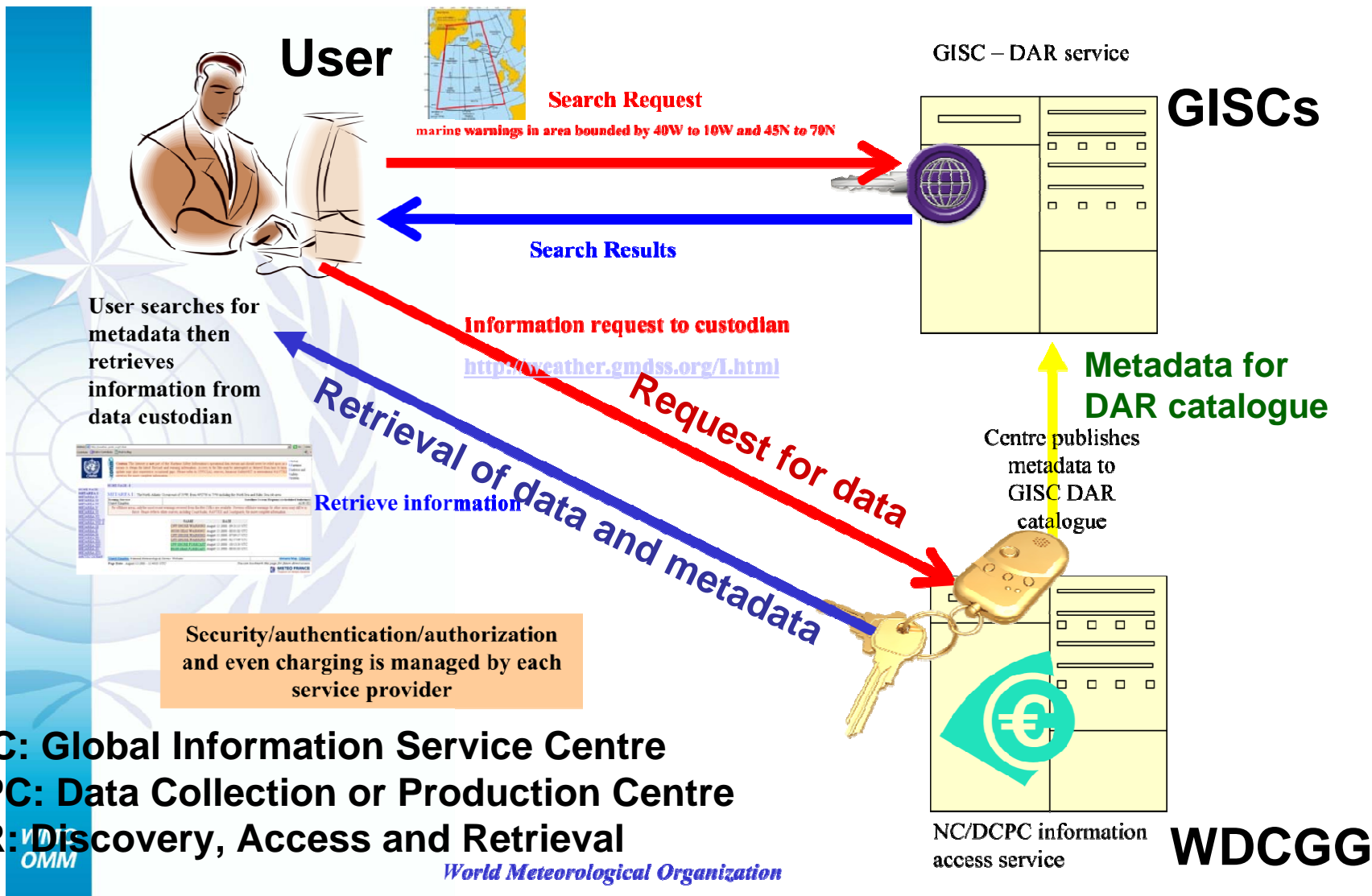


# **WMO World Data Centre for Greenhouse Gases (WDCGG)**

**SUDA Kazuto**

**Senior Coordinator for  
Global Atmosphere Watch  
Japan Meteorological Agency**

# WMO Information System (WIS)



**GISC: Global Information Service Centre**  
**DCPC: Data Collection or Production Centre**  
**DAR: Discovery, Access and Retrieval**

# A Global Information Service Centre (GISC) to be established in Tokyo



## SRU Search

placekey = minamitorishima

searchRetrieve explain

3 records found.

### [Alphanumeric SYNOP from Japan at Tokyo Metadata](#)

GTS Bulletins provided at blog server of GISC Tokyo. .

[Z\\_\\_C\\_RJTD\\_20100225114910\\_UUID\\_5EA2F5E8-FCC9-3C19-6FC3-2C3E0F0D4011.met](#). 2010-02-25 11:49:10.

### [Alphanumeric TEMP from Japan at Tokyo Metadata](#)

GTS Bulletins provided at blog server of GISC Tokyo. .

[Z\\_\\_C\\_RJTD\\_20100225114902\\_UUID\\_7D93758A-B7CF-36CC-E890-F296E7855E20.met](#). 2010-02-25 11:49:02.

### [Greenhouse gases at Minamitorishima observed by JMA](#)

Air sampling observation of CO2 at Minamitorishima.

[Z\\_\\_C\\_RJTD\\_-----\\_UUID\\_5B8BE406-027C-3DBA-AA8D-A1C1F87B1EAE.met](#). 2010-03-23 00:00:00.


# An example of metadata for Discovery, Access and Retrieval (DAR)

## Greenhouse gases at Minamitorishima observed by JMA

<b>Identifier</b>	
<b>Title</b>	Greenhouse gases at Minamitorishima observed by JMA
<b>Abstract</b>	Air sampling observation of CO2 at Minamitorishima
<b>Content:</b>	<p><b>Subject keyword:</b> chemistry, global warming, greenhouse gas, climatology, global environment, WMO/GAW</p> <p><b>Theme keyword:</b> JMA, CO2, Air sampling observation, continuous, hourly, daily, monthly, JMA</p> <p><b>Format:</b> WDCGG format, PNG, PDF</p>
<b>Place:</b>	<p><b>Bounds:</b> (24.28N - 24.28N) , (153.98E - 153.98E)</p> <p><b>Keywords:</b> Minamitorishima, Japan, REGION II (Asia), Stationary, Ground base, MNM, Global</p>
<b>Height:</b>	<b>Keywords:</b> Surface
<b>Time:</b>	<b>Coverage:</b> from 1993-01-01 to 2009-12-31.
<b>Distribution:</b>	<p><b>URL:</b> <a href="http://gaw.kishou.go.jp/cgi-bin/wdcgg/accessdata.cgi?index=MNM224N00-JMA&amp;param=200612120017&amp;select=parameter">http://gaw.kishou.go.jp/cgi-bin/wdcgg/accessdata.cgi?index=MNM224N00-JMA&amp;param=200612120017&amp;select=parameter</a></p> <p><b>Access:</b> <ul style="list-style-type: none"> <li>• agreement on terms required</li> </ul> </p> <p><b>Audience:</b> open to the public</p> <p><b>Redistribution:</b> <ul style="list-style-type: none"> <li>• restricted</li> </ul> </p> <p><b>Use:</b> <ul style="list-style-type: none"> <li>• advance notification required for publication</li> <li>• WDCGG Data Submission and Dissemination Guide</li> <li>• GAW Report No.188</li> </ul> </p>
<b>Contact on data content:</b>	<p><b>Originator:</b> Japan Meteorological Agency</p> <p><b>Contact:</b> <a href="http://gaw.kishou.go.jp/cgi-bin/wdcgg/accessdata.cgi?index=MNM224N00-JMA&amp;param=200612120017&amp;select=parameter&amp;parac=contact">http://gaw.kishou.go.jp/cgi-bin/wdcgg/accessdata.cgi?index=MNM224N00-JMA&amp;param=200612120017&amp;select=parameter&amp;parac=contact</a></p>
<b>Contact on this metadata</b>	<p><b>Distributor:</b> WDCGG</p> <p><b>Contact:</b> <a href="mailto:wdcgg@met.kishou.go.jp">mailto:wdcgg@met.kishou.go.jp</a></p> <p><b>Datestamp:</b> 2010-03-23</p> <p><b>Update:</b> annually</p>

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<jmd:subjkey>climatology</jmd:subjkey>
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<jmd:ruse>GAW Report No.188</jmd:ruse>
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# An example of metadata describing data that are archived at the WDCGG



WMO Global Atmosphere Watch  
**World Data Centre  
for Greenhouse Gases**

[Introduction](#)

[Contributors](#)

[Data/  
Quick Plot](#)

[Minamitorishima](#)

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search](#)

[Search  
form](#)

[Map  
search](#)

[Advanced  
search  
and plot](#)

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[FTP](#)

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programs](#)

[Publications](#)

[Related  
Links](#)

[Update  
Note](#)

## Minamitorishima - JMA

[Parameter Inventory](#)
[Parameter Metadata](#)
[Station](#)
[Contributor](#)

[CH<sub>4</sub><sup>\\*\\*\\*</sup>](#)  
continuous
[CO<sup>\\*</sup>](#)  
continuous
[CO<sub>2</sub><sup>\\*\\*\\*</sup>](#)  
continuous
[O<sub>3</sub><sup>\\*</sup>](#)  
continuous

[Observation](#)
[Processing/Calibration](#)
[Contact Person](#)
[Reference](#)
[Data/Quick Plot](#)

<b>Category</b>	Air sampling observation
<b>Sampling Type</b>	continuous
<b>Sampling Height/Depth</b>	20
<b>Sampling and Analysis Frequency</b>	Continuous flow of 0.5 liters per minute and data is analyzed every 30 seconds
<b>Sampling Environment</b>	The observatory is located on a little isolated island in the western North Pacific, about 2000 km southeast of Tokyo. The observatory is surrounded by insignificant shrubs and grass.
<b>Measurement Method</b>	NDIR
<b>Current status and history of Instruments</b>	Jan. 1993 -present VIA-510R HORIBA, Ltd.
<b>Description of Instruments</b>	Measurement range : 0 to 50 ppm Lowest detection limit: 1.0 ppm Repeatability: ± 1% of full-scale Zero drift: <1% (full scale) per day Span drift: <2% (full scale) per week
<b>Time Zone</b>	Local time (UTC+9)
<b>Data Period</b>	1993-01-01 - 2009-12-31

# Information flow in the WIS DAR process

• What are included in DAR metadata?

**WIS PORTAL GISC Tokyo**

Navigation: Data Discovery, Data Delivery, Documentation, Registration, WIS Centers, Top Page

Search (SRU), Browse Catalogue, 24h Cache of GTS data

**Data Discovery, Access and Retrieval (DAR)**

DAR is request/reply "pull" type of data services implemented essentially on the Internet. Its primary role is to facilitate ad-hoc utilization of information among all WMO and related programmes i.e. not limited to the World Weather Watch (WWW) the GTS is serving for.

**Data Services**

All Data on GTS are available at 24 hour cache of GISC for 24 hours of dissemination.  
Non-GTS information is served by its originating/collecting DCPC.

**DAR Catalogue and Metadata**

All WIS centres publish catalogue of their data, describing what the data are and how they are served. Elements of the catalogue are called DAR metadata.

**GAW SIS STATION INFORMATION SYSTEM**

Find Information, Edit/Add Information, Provide Feed-back

Home, Advanced Search, Edit/Add Information, GAW IDs, Feed-back, FAQs & Glossary, about

2009-01-05/147256320 **Alert (Canada)**  
Global fixed station in WMO RA IV - North/Central America  
62.45000°N 62.51667°W (210 m a.s.l.)

**Station Characteristics**

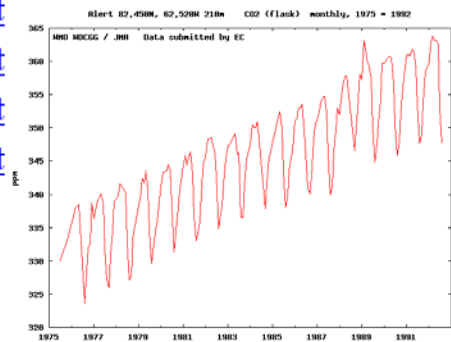
**GAW ID:** ALT  
**station status:** established 1986 / full operation  
**time zone:** UTC-5  
**climate zone:** ET (Tundra climate)  
**other affiliations:** CAPMON, NOAA-ESRL/CCG, NOAA-ESRL/AERQ(ALT), NDACC

**description:**  
In 1986, the Alert Background Air Pollution Monitoring Network (BAPMON) Observatory was opened as Canada's first research station for the continuous monitoring of background concentrations of trace gases and aerosols. Currently, the Dr. Neil Trivett Global Atmosphere Watch Observatory at Alert, NU is the most northerly site in the GAW Network. It is located on the northeastern tip of Ellesmere Island in Nunavut, Canada at 82°28'N and 62°30'W, far removed from the major industrial regions of the Northern Hemisphere. Alert is also the site of a military station (CFS Alert) staffed with about 60 personnel, and an Environment Canada Upper Air Weather Station. The Alert GAW Observatory is approximately 400 m2 in size and is situated 210 m above sea level and 6 km SSW of CFS Alert. It is a key site for Arctic atmospheric process studies, which have led to the discovery of such phenomena as Arctic haze, important chemical interactions of pollutants with snow surfaces, and rapid changes in the chemical composition of the atmospheric boundary layer during polar sunrise. The program at Alert has grown substantially since its inception. A team of Canadian scientists, working in partnership with international scientists, maintains the extensive measurement program at Alert. The measurement and research of trace atmospheric constituents thought to have an impact on climate remains a primary function for this station.



- Data files: 4 / 4      Stations: 1
- [ALT-EC-CO2-flask](#)      [Alert](#)
  - [ALT-NOAA-CO2-flask](#)      [Alert](#)
  - [ALT-EC-CO2-cont.](#)      [Alert](#)
  - [ALT-CSIRO-CO2-flask](#)      [Alert](#)

WMO Global Atmosphere Watch  
World Data Centre  
for Greenhouse Gases



**Alert (ALT482N00-EC)**

Parameter Inventory	Parameter Metadata	Station	Contributor
City	City <sup>2</sup>	CO <sub>2</sub>	CO <sub>2</sub> <sup>2</sup>
flask	continuous	flask	flask

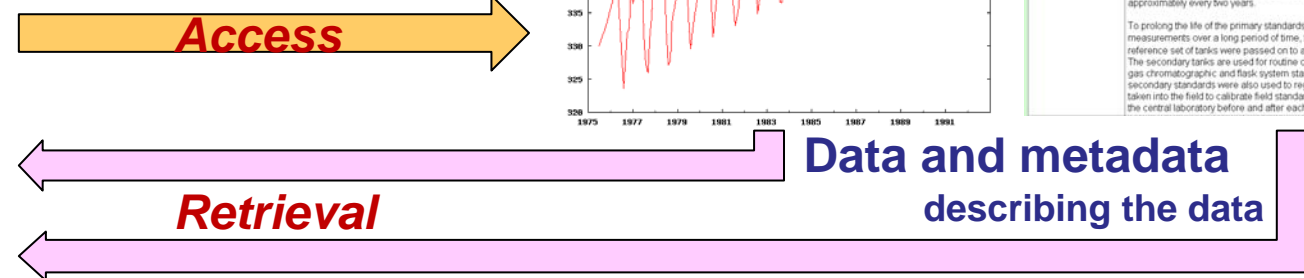
Observation, Processing/Calibration, Contact Person, Reference, Data/Quick Plot

**Current Scale:** WMO X93 scale

**Scale and Calibration (traceability):** WMO Scale

**Measurement Calibration:** All CO<sub>2</sub> measurements (continuous and flask) are directly traceable to the international absolute WMO mole fraction scale maintained by the WMO Central Calibration Laboratory in Boulder. A set of 9 calibration tanks is regularly calibrated by NOAA/GMD approximately every two years.

To prolong the life of the primary standards and to maintain the consistency of the CO<sub>2</sub> measurements over a long period of time, the CO<sub>2</sub> concentration values from the primary reference set of tanks were passed on to a secondary set of tanks via NDIR calibrations. The secondary tanks are used for routine calibrations of working gases, field standards, gas chromatographic and flask system standards, and all international calibrations. The secondary standards were also used to regulate a set of transfer standards that are taken into the field to calibrate field standards. The transfer standard set is calibrated in the central laboratory before and after each trip to the field site.



# Interoperability of GAW WDCs



**Interoperability**



World Ozone and Ultraviolet Radiation Data Centre

Meteorological Service of Canada

Service météorologique du Canada

Centre Mondial des Données sur l'Ozone et le Rayonnement Ultraviolet



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<jmd abstract="Air sampling observation of CO2 at Minamitorishima
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<jmd themeskey="JMA" <jmd themeskey>
<jmd revision="2010-02-23" <jmd revision>
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**GAW SIS**  
STATION INFORMATION SYSTEM

- Find Information
- EDIT/Add Information
- Provide Feed-back

Home | Advanced Search | Edit/Add Information | GAW SIS | Feed-back | FAQs & Glossary | About

Station Characteristics

**GAW ID:** ALT

**station status:** established 1995 / full operation

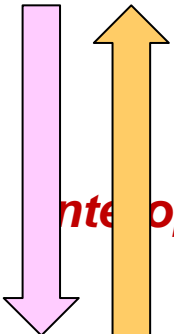
**time zone:** UTC-5

**climate zone:** ET (Tundra climate)

**other affiliations:** CEMON, NOAA/ES&L/CCO, NOAA/ES&L/NER/CALTY, NDACC

**description:** In 1996, the Alert Background Air Pollution Monitoring Network (BAPMON) Observatory was opened as Canada's first research station for the continuous monitoring of background concentrations of trace gases and aerosols. Currently, the Dr. Neil Trivett Global Atmosphere Watch Observatory at Alert, NU is the most northerly site in the GAW network. It is located on the northeastern tip of Ellesmere Island in Nunavut, Canada at 62°28'N and 62°30'W, far removed from the major industrial regions of the northern hemisphere. Alert is also the site of a military station (CFS Alert) staffed with about 50 personnel, and an Environment Canada Upper Air Weather Station. The Alert GAW Observatory is approximately 400 m in size and is situated 220 m above sea level and 6 km SWW of CFS Alert. It is a key site for Arctic atmospheric process studies, which have led to the discovery of such phenomena as Arctic haze, important chemical interactions of pollutants with snow surfaces, and rapid changes in the chemical composition of the atmospheric boundary layer during polar sunrise. The program at Alert has grown substantially since its inception. A team of Canadian scientists, working in partnership with international scientists, maintains the extensive measurement program at Alert. The measurement and research of trace atmospheric constituents thought to have an impact on climate remains a primary function for this station.

2009-01-05/147256320  
**Alert (Canada)**  
Global fixed station in WHO BA IV - North/Central America  
82.45000°W 62.51667°W (210 m a.s.l.)



**Interoperability**

• **What should we interoperate?**

**DAR metadata cataloguing the data**

World Data Centre for Greenhouse Gases

**Discovery**

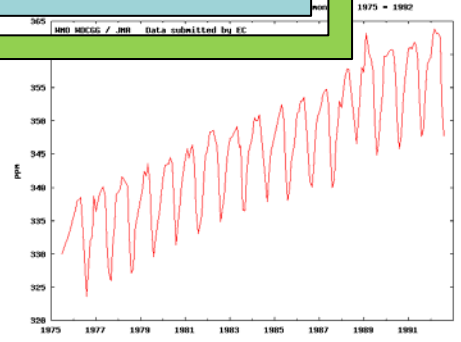
**Interoperability**



**Users**

**Access**

**Retrieval**



Parameter Inventory	Parameter Metadata	Station	Contributor
CH <sub>4</sub> flask	CO <sub>2</sub> continuous	CO <sub>2</sub> flask	N <sub>2</sub> O flask
Observation	Processing/Calibration	Contact Person	Reference
<b>Alert (ALT482N00-EC)</b>			
<b>Current Scale:</b> WMO X83 scale			
<b>Scale and Calibration (traceability):</b> WMO Scale			
<b>Measurement Calibration:</b> All CO <sub>2</sub> measurements (continuous and flask) are directly traceable to the international absolute WMO mole fraction scale maintained by the WMO Central Calibration Laboratory in Boulder. A set of 9 calibration tanks is regularly calibrated by NOAA/GMD approximately every two years.			
To prolong the life of the primary standards and to maintain the consistency of the CO <sub>2</sub> measurements over a long period of time, the CO <sub>2</sub> concentration values from the primary reference set of tanks were passed on to a secondary set of tanks via NDIR calibrations. The secondary tanks are used for routine calibrations of working gases, field standards, gas chromatographic, and flask system standards, and all international calibrations. The secondary standards were also used to regulate a set of transfer standards that are taken into the field to calibrate field standards. The transfer standard set is calibrated in the central laboratory before and after each trip to the field site.			

**Data and metadata describing the data**