



# Synchronization and Monitoring of WIS Discovery Metadata

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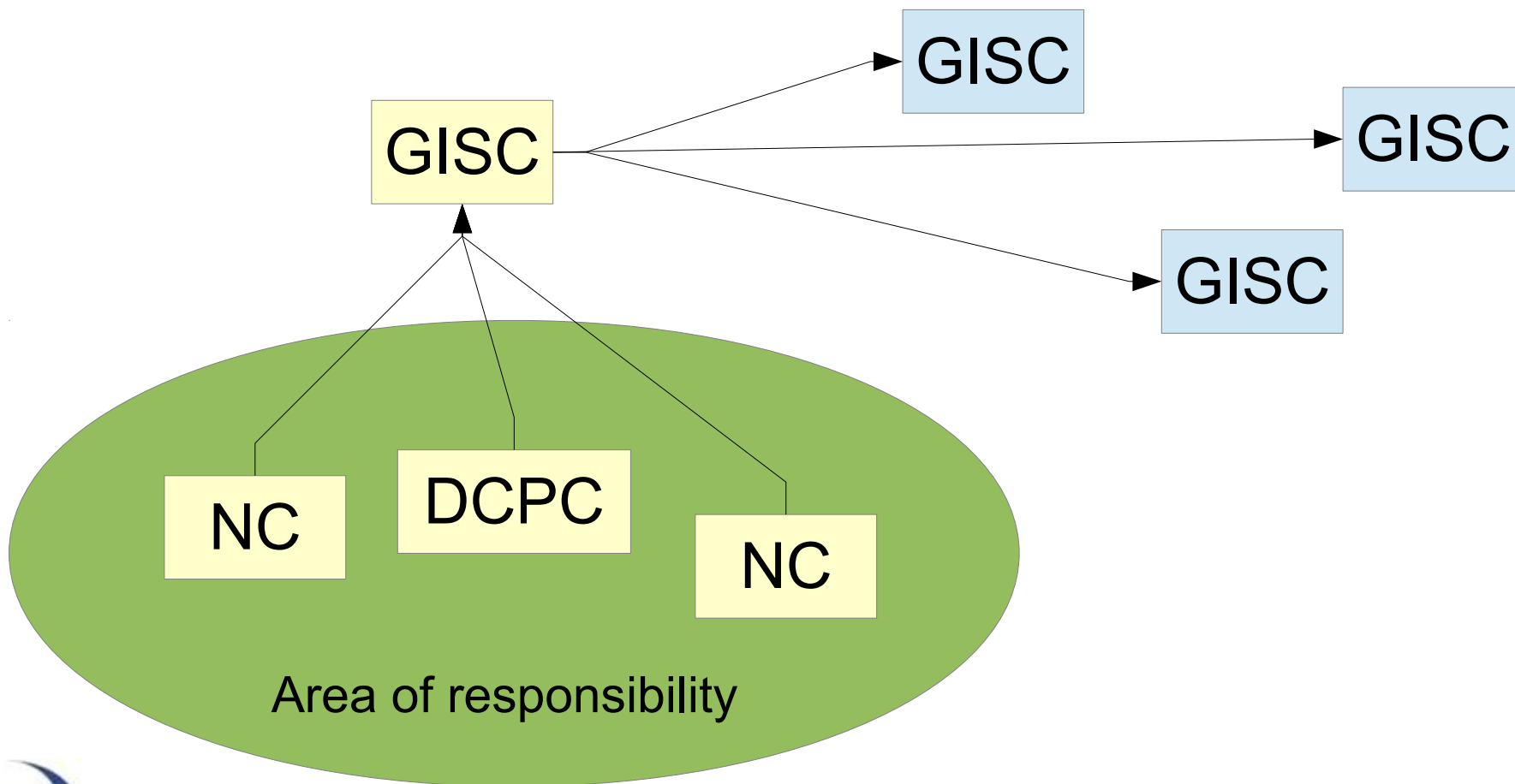
# What's *synchronization*

- Every GISCs updates set of metadata records
  - Add, change, or delete
- The same set at other GISCs are updated by synchronization

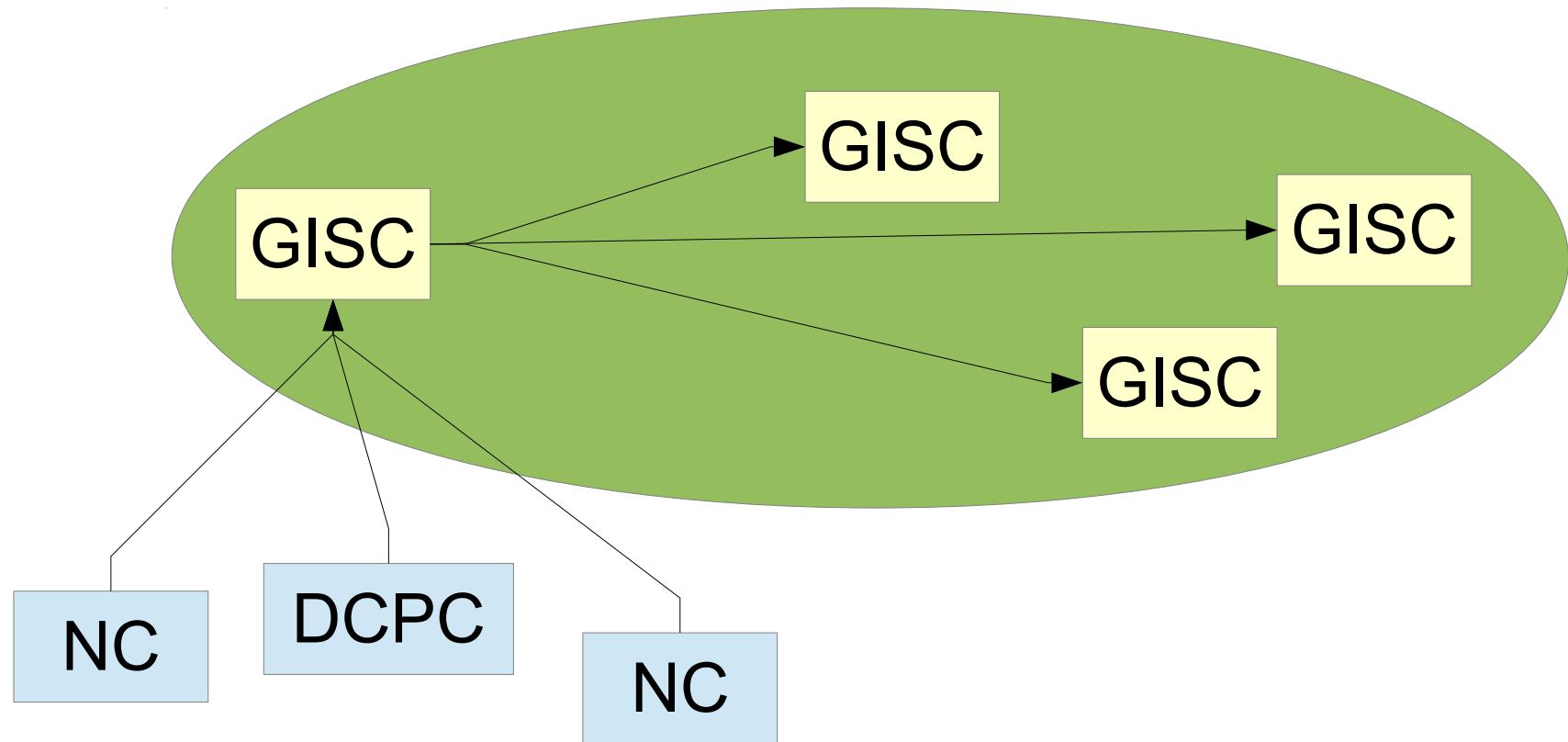


# GISC collects metadata records

from NC / DCPC in its responsibility area



# Then the GISC exchanges it





# How GISCs exchange metadata



# OAI-PMH

- Open Archive Initiative's Protocol for Metadata Harvesting
- Developed in the library community
- Manual on WIS tells GISCs exchange metadata by OAI-PMH

# OAI-PMH: web-based

- Based on HTTP GET
- Parameters specified by query string

<http://www.wis-jma.go.jp/meta/oaiprovider.jsp?verb=ListSets>

- Easily tested by web browsers



Query string

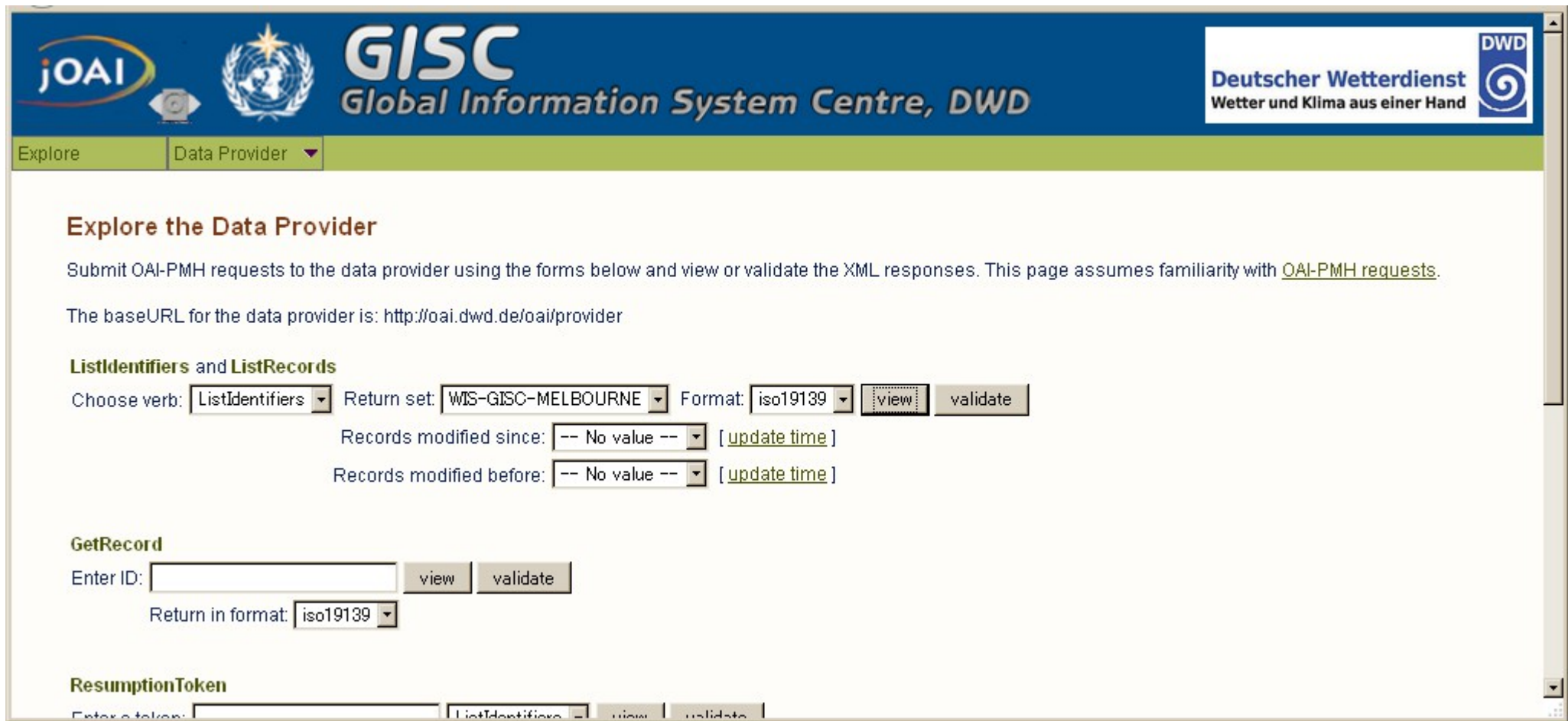
# Often-used queries

- verb=**ListIdentifiers**&metadataPrefix=iso19139&from=2013-04-01
- verb=**GetRecord**&metadataPrefix=iso19139&identifier=urn:x-wmo:md:int.wmo.wis::SMJP01RJTD
- verb=**ListRecords**&metadataPrefix=iso19139&from=2013-04-01
-



# GISC Offenbach interface

## http://oai.dwd.de



The screenshot shows the GISC (Global Information System Centre, DWD) interface. The header includes logos for jOAI, the United Nations, and the German Weather Service (DWD). The main content area is titled 'Explore the Data Provider' and contains instructions for submitting OAI-PMH requests. It includes a 'Choose verb:' dropdown menu set to 'ListIdentifiers', a 'Return set:' dropdown menu set to 'WIS-GISC-MELBOURNE', and a 'Format:' dropdown menu set to 'iso19139'. There are also buttons for 'view' and 'validate', and two 'Records modified since/before' dropdown menus set to '-- No value --' with 'update time' links.

**Explore the Data Provider**

Submit OAI-PMH requests to the data provider using the forms below and view or validate the XML responses. This page assumes familiarity with [OAI-PMH requests](#).

The baseURL for the data provider is: <http://oai.dwd.de/oai/provider>

**ListIdentifiers** and **ListRecords**

Choose verb:  Return set:  Format:

Records modified since:  [ [update time](#) ]

Records modified before:  [ [update time](#) ]

**GetRecord**

Enter ID:

Return in format:

**ResumptionToken**

Enter token:

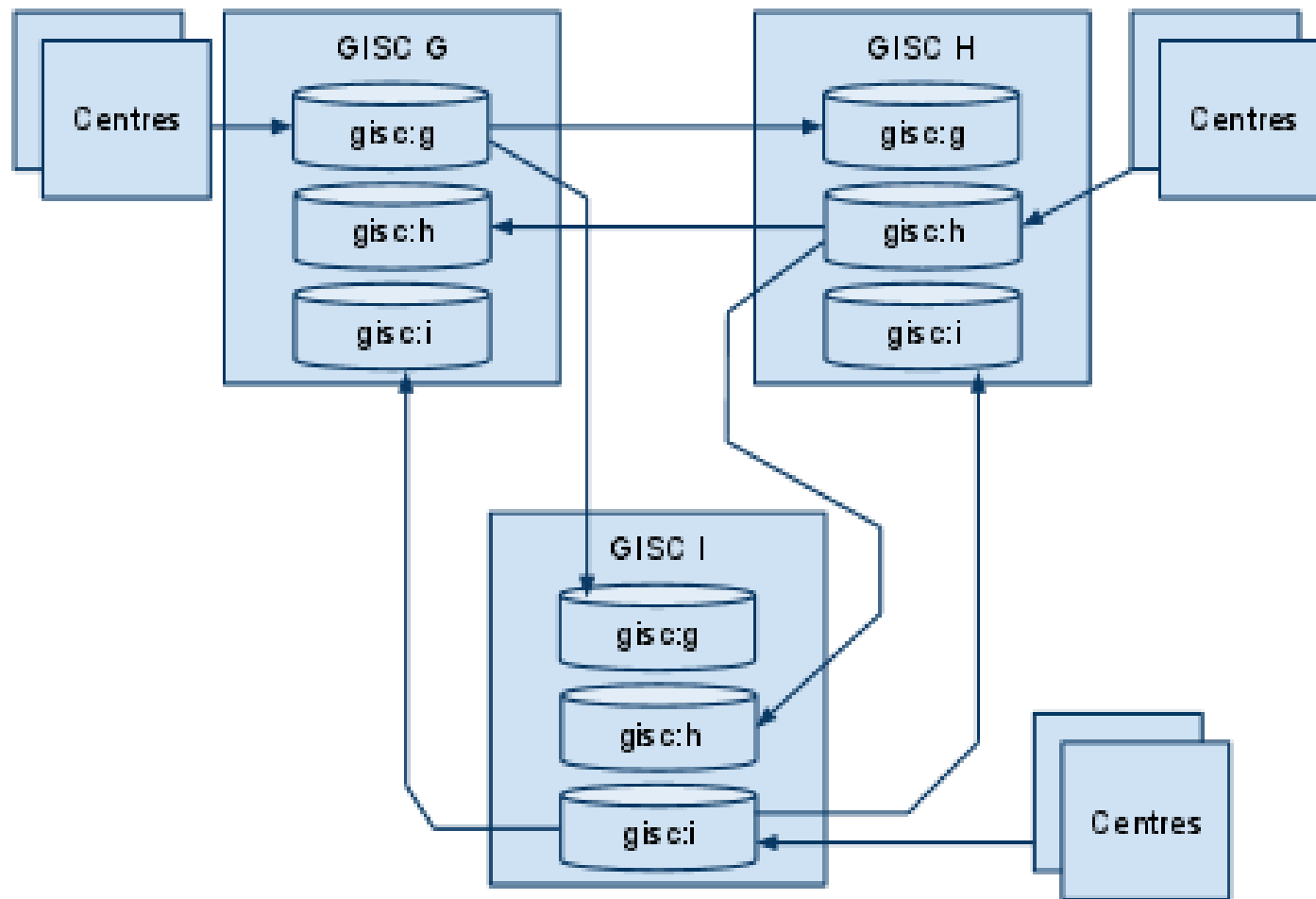
One tricky thing in WIS



# OAI-PMH and topology

- OAI-PMH is designed for directional network
  - We must define who is source and who is copy
- The network of GISCs is non-directional
  - Every GISC may insert metadata record, and everything must be distributed globally
- So one trick is invented

# Each GISC has own set



# Set naming convention

- WIS-GISC-BEIJING
- WIS-GISC-EXETER
- WIS-GISC-MELBOURNE
- ...



# Application of OAI-PMH network

A vibrant rainbow arches across a sunset sky over a cityscape. The sky is a mix of orange, yellow, and red, with the rainbow's colors clearly visible. The cityscape is silhouetted against the bright sky.

GISCs publish the OAI-PMH servers,  
thus anybody with knowledge can  
join developing applications:

# DWD's OAI-PMH monitor

<http://oai.dwd.de/oaimonitorgui>



**GISC**  
Global Information System Centre, DWD

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



## WIS OAI Synchronisation

This page shows the status of the OAI Synchronisation between GISC centres in the WMO Information System. We periodically run queries against all OAI-Providers and count the number of identifiers in predefined sets. Each run creates a new table in the list below. Each table-cell contains the number of records and the number of deleted records e.g. 30 | 10 means: 30 active records and 10 deleted records in the set. By clicking and , the difference between the current provider and the authoritative source of the set can be displayed. shows the redundant and the missing files.

all synced missing or redundant files no authoritative info from provider

20130427-030706-1243	WIS-GISC-OFFENBACH	WIS-GISC-BEIJING	WIS-GISC-TOKYO	WIS-GISC-TOULOUSE	WIS-GISC-EXETER	WIS-GISC-MELBOURNE	WIS-GISC-SEOUL	WIS-CATALOGUE
DWD	30155   8947 	61250   167 	27306   1515 	1869   1 	15224   0 	916   0 	137   0 	144650   15857
CMA	29922   8947 	63468   1438 	27000   1445 	1902   0 	0   0 	0   0 	0   0 	148103   11775
JMA	30155   8946 	60543   1197 	27416   1479 	1869   0 	15224   1 	0   0 	0   0 	144014   11650
MF	30039   608 	63419   0 	24117   0 	1869   0 	15224   0 	0   0 	0   0 	0   0

# http://toyoda-eizi.net/2011/syncmon

diag/size summary (2013-04-27T03Z) - Mozilla Firefox

ファイル(E) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

diag/size summary (2013-04-27T03Z) +

toyoda-eizinet/2011/syncmon/curr/SMRY.html

2013-04-27T03:00:00Z

diag/size summary

Set	size	diff	diag history
WIS-CATALOGUE cma	146153	<a href="#">cma-jma=5266</a>	-0/+26/26T06, -0/+14/23T00, -6/+0/22T09
WIS-CATALOGUE dwd	144758	<a href="#">dwd-jma=1058</a>	-0/+7/25T12, -0/+2/25T09, -0/+3/24T15, -0/+1126/24T01, -1027/+0/23T09, -0/+7/22T15, -0/+7/22T12, -0/+20/22T09
WIS-CATALOGUE jma	144014	<a href="#">jma-cma=3000</a> <a href="#">jma-dwd=187</a>	-10/+0/26T06, -0/+9/26T03, -10/+0/25T06, -0/+3/25T03, -10/+0/24T06, -3/+73/24T01, -10/+0/23T06, -0/+14/23T03, -75/+27/22T09
WIS-GISC-BEIJING au	49870	<a href="#">au-cma=20820</a>	
WIS-GISC-BEIJING cma	63468	<a href="#">cma-au=34418</a> <a href="#">cma-dwd=3437</a> <a href="#">cma-jma=3233</a> <a href="#">cma-kma=3191</a> <a href="#">cma-mf=49</a>	
WIS-GISC-BEIJING dwd	61250	<a href="#">dwd-cma=1219</a>	
WIS-GISC-BEIJING jma	60543	<a href="#">jma-cma=308</a>	-10/+0/26T06, -10/+0/25T06, -10/+0/24T06, -10/+0/23T06, -10/+0/22T09
WIS-GISC-BEIJING kma	61095	<a href="#">kma-cma=818</a>	
WIS-GISC-BEIJING mf	80723	<a href="#">mf-cma=17304</a>	
WIS-GISC-EXETER au	15224	au-uk=0	
WIS-GISC-EXETER dwd	15224	dwd-uk=0	

# WCMP Schematron Validator can take result of OAI-PMH GetRecord

Requirements by WMO Core Metadata Profile v1.3 - Mozilla Firefox

ファイル(E) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

Requirements by WMO Core Metadata Pro... +

toyoda-eizi.net/xmlvw/wcmp13/http://www.wis-jma.go.jp/meta/oaiprovider.jsp?verb=GetRecord&metadataPrefix=iso19139&identifier=urn:x-wmo:md:int.wmo.wis::SMJP01RJTD

## Schematron validation result

Title: Requirements by WMO Core Metadata Profile v1.3

Version: 2013-04-23

Source: <http://www.wis-jma.go.jp/meta/oaiprovider.jsp?verb=GetRecord&metadataPrefix=iso19139&identifier=urn:x-wmo:md:int.wmo.wis::SMJP01RJTD>

<http://toyoda-eizi.net/xmlvw/wcmp13/http://www.wis-jma.go.jp/meta/oaiprovider.jsp?verb=GetRecord&metadataPrefix=iso19139&identifier=urn:x-wmo:md:int.wmo.wis::SMJP01RJTD>

Level	Source	Rule id	Location	Message
Info	NONE	print.fileIdentifier	/ OAI-PMH/ GetRecord/ record/ metadata/ gmd:MD_Metadata	urn:x-wmo:md:int.wmo.wis::SMJP01RJTD
Mand	ISO	ISO19139_A21.nilReason	/ OAI-PMH/ GetRecord/ record/ metadata/ gmd:MD_Metadata/ gmd:characterSet	XML Class Type must have value either by content, by uuid reference or by xlink reference, otherwise use gco:nilReason to document why the value is missing.
Mand	ISO	ISO19139_A21.nilReason	/ OAI-PMH/ GetRecord/ record/ metadata/ gmd:MD_Metadata/ gmd:hierarchyLevel	XML Class Type must have value either by content, by uuid reference or by xlink reference, otherwise use gco:nilReason to document why the value is missing.
Mand	ISO	ISO19139_A21.nilReason	/ OAI-PMH/ GetRecord/ record/ metadata/ gmd:MD_Metadata/ gmd:contact/	XML Class Type must have value either by content, by uuid reference or by xlink reference, otherwise use gco:nilReason to document why the value is missing.



# Summary

- GISCs exchange metadata records with other GISCs
- GISCs use OAI-PMH, open web standard
- Applications
  - Synchronization Monitor
  - Validator