ICT-ISS

27-30 September 2010, Geneva

27 September 2010
08:31

Note on papers for CBS:

- **Documents** are translated into all official languages
- Information papers (**INF document**) are translated into English and French
- **Background** papers are presented ONLY in the originating language

Meeting wiki page: http://www.wmo.int/pages/prog/www/WIS/wiswiki/tiki-index.php?page=ict_iss-meeting-geneva&structure=WIS

Meeting objective:

1. create (realistic) draft work plan for now until next CBS (2012)
2. Finalise the report to CBS

Each session should allocate at least half of their time to decisions and forward planning

Attendees:

- Steve Foreman (UK) [SF]
- Hiroyuki Ichijo (Japan) [HI]
- Peiliang Shi (WMO) [PS]
- Pierre Kerherve (WMO) [PK]
- Leonid Bezruk (Russia) [LB]
- Heinrich Knottenberg (Germany) [HKn]
- Jeremy Tandy (UK) [JT]
- Henry Karanja (Kenya) [HKa]
- Atsushi Shimazaki (WMO) [AS]
- Jose Luis Gianni (Argentina) [JLG]
- Timo Proescholdt (WMO) [TP]
- Kelvin Wong (Australia) [KW]
- Simon Elliott (EUMETSAT) [SE]
- Remy Giraud (ECMWF) [RG]
- Matteo Dell Aqua (France) [MDA]
- Dave Thomas (WMO) [DT]

Report of ISS Chair [Doc 1.3]

Cross-cutting interactions -

- WIS
- WIGOS
- THORPEX
- IPY
- DRR
- GEOSS

Note on GEOSS;

GEOSS clearing houses will harvest metadata from WIS catalogues

Issues concern new data-policy being developed; which is likely to insist that ALL data is provided for free and unrestricted access (at least for academic usage) - this is like 'Resolution 40 Essential Data'; but 'Resolution 40 Additional Data' will be problematic. WMO has officially chosen not to block the data policy proposal being taken to Ministerial Summit - even though there is a fundamental objection

GEOSS mandates CSW catalogues; whilst GISC requires OAI-PMH. WMO secretariat have provided a gateway to transform incoming requests from GEOSS
WIS is considered an exemplary component of the GEOSS infrastructure

Note on DRR:

Focused on humanitarian activities; but WIS is a core component for delivering information to these services.

No specific ISS representation on (new) CBS ET for DRR; secretariat are working hard regarding coordination. Once political issues are resolved (!), expect technical coordination with ISS

Note on IPY:

Metadata & data policy requirements during the IPY-period
Data custodians - need to move forward on data management (aligned with WIS)

However, progress by an affiliated organisation (Dave Thomas refers) regarding data-management for IPY data assets is not well aligned with WIS (DT: 'Going around in circles!')

Note on THORPEX:

'Huge' … (particularly TIGGE); prime example of using Internet to deliver products rather than private networks; TIGGE is subject of (pending) examples for (complex) data hierarchies.

Note on WIGOS:

WIS is meeting the WIGOS requirements; as large of these refer to data interoperability concerns, which are one of the central concerns from WIS

⭐ WIGOS & WIS both operate under Tech Reg #49; and both subject to a review of how Tech Regs will be structured. Therefore a thorough revision of the Technical Regulations is likely to wait until AFTER WIGOS has been signed off by WMO EC.

Priorities for OPAG-ISS

Relevant extract from IPET-MDI ToRs:

e) Create a standard vocabulary for describing information (this is needed for metadata)
f) Provide guidelines on how to create and use metadata, with worked examples

IPET-DRC: main activity is representation of **new** data types

? *What does this mean - this is required input for resolving boundaries between IPET-MDI and IPET-DRC … this issue is resolve; see below*

Also, [JT] noted to CHAIR, the lack of focus on Aviation outcomes; OPMET data exchange & WXXM and the opportunity to avoid further fragmentation

Key new issues to Resolve in the Next Work Plan

From the chairman's report:

10) With an increasing user base and a growing variety in the information that will be provided by WIS, there will be a need to increase the support for data representations to support different communities. ICT-ISS will need to find ways of translating information between these representations, and development of a uniform data model is the most likely way of enabling this. Much of the work needed to develop such a model has already been done, and is implicit in the TDCFs, but this needs to be formalised if it is to

be of use.

Loss-less translation between TDCF and other representations, including XML.

GTS and WIS Data Communication Techniques and Structure

Report from ET-CTS

Designation of 'metadata' within WMO filenames:

[SE] indicates that the purpose of the P-flag is to indicate how to parse the [product identifier]; the proposal 'overloads' the P-flag. Furthermore, it is likely that MSS implementors are likely to have WRONGLY assumed that P-flag is only a single character. Overloading the P-flag is the 'thin end of the wedge'. Also, note that a .bin file might contain GRIB or BUFR; in which case the first bytes of the data file are parsed to define its type*. Simon suggests that the [product identifier] is the place to describe the content of the file. However, IPET-MDI wanted to maintain the [product identifier] according to the existing rules (T, A, W or Z) to enable a human to quickly infer a linkage between data and metadata files based on the file-name.

The desire to maintain a 'human inferable' link between data files and associated metadata files (see IPET-MDI-1--Recommendation 1), was also the reason why a new P-flag [M] was rejected. This proposal was raised again by [HKn].

Why not use the .met extension? The decision to maintain .xml extension is important for interoperability within tooling sourced from outside the WMO community - *I think Geonetwork requires .xml extension*. For this reason, the .met extension was rejected.

This decision will also have bearing on CAP messages; like metadata, these EMERGENCY bulletins need special routing

At present, the guidance from the secretariat was to note the issues raised, but endorse the proposal from ET-CTS using P-flag TM, AM, WM or ZM.

* the root element will always be MI_Metadata or MD_Metadata … could this be parsed to ascertain the type of XML content; noting that the .xml extension would force applications to load an XML parser (ideally a stream-based parser, rather than a DOM-based parser) to assess the root-element.

Email discussion thread:

Timo Proescholdt 24 September 2010 08:04
To: jeremy.tandy
Dear Jeremy,
the Expert Team on WIS-GTS Communication Techniques and Structure (ET-CTS) would kindly like to request your comment on three issues that have come up during the discussion of the excellent report of the first meeting of the CBS Inter-Programme Expert Team on Metadata and Data Interoperability (IPET-MDI).
On invitation of the IPET-MDI, the ET-CTS has discussed Recommendation 1 of the IPET-MDI, which, inter alia, intends to devise a way to clearly identify metadata files using the filename only. The IPET-MDI proposal is to use the file extension ".iso19139.xml" as a way to achieve this.
The ET-CTS has indicated that there is a risk that the introduction of this extension would break existing standard which does not allow dots in the "type field".
The meeting would like to seek your comment on an additional way to achieve clear identification of metadata files, by introducing into the WMO filename convention the additional PFLAG values "TM","AM","WM" and "ZM", which would identify metadata files corresponding to "T","A","W" and "Z" files. This has the advantages of not breaking existing systems, since the WMO filename convention allows for several characters in the PFLAG field.
The ET-CTS would also like to seek clarification on the three examples following Recommendation 1 (page 12 of the IPET-MDI report).
The examples contain a date stamp and an .xml extension, despite the recommendation 1 & 2 propose that "the date and amendment / correction code will be excluded" and "Allocate a new extension=".iso19139.xml"".
Finally, the ET-CTS endorses your recommendation to add ".xml" as file type, recognizing that is not limited to metadata (PFLAG is used to distinguish), but would be interested in knowing more about the motivation not to use ".met", which is already a valid extension and is not used on the GTS.
The ET-CTS would like the express its gratefulness for the excellent work done by the IPET-MDI and would very much appreciate your comments ASAP.
best regards

Jeremy Tandy 24 September 2010 18:20
To: Timo Proescholdt
I will try to give you the answers during ICT WIS next week .... if I need any clarification I will contact you directly
Jeremy

Jeremy Tandy 27 September 2010 08:31
To: Timo Proescholdt
Please see my reponses to the queries from ET-CTS.
IPET-MDI members (CC'd) - please notify me before wednesday this week if this proposal is not workable, or some significant advantage may be gained from an alternative solution. I will then counter-propose your alternative to Remy and Hiro who are here with me at ICT-ISS in Geneva.
...
Extracted from the IPET-MDI-1 report:

Recommendation 1: when metadata file is transferred between WIS centres, the metadata filenames:
- must comply with the WMO file-naming-convention;
- should use T_ product identifiers in place of A_ product identifiers to aid simplicity
- should truncate W_ product identifiers to form an invariant string; i.e. the date and amendment / correction code will be excluded
- must ensure that Z_ product identifier are globally unique within the WIS
- must use the «YYYYMMDDhhmmss» element from the top-level file-naming convention to express the metadata publication / update date-time (this must represent the same date-time as the MD_Metadata/dateStamp element);

- Use an '.xml' extension:
- Examples:
- T_FCUK31_C_EGRR_20100310180000.xml
- T_HHXA05_C_BABJ_20100427083000.xml
- W_FR-meteofrance-toulouse,GRIB,ARPEGE-75N10N-60W65E_C_
LFPW_20100428115800.xml

2.1.2.8 Where metadata records are harvested from contributors outside the WIS community using OAI-PMH, there is no way for the harvester to know file naming conventions used by the metadata provider. Therefore, in this situation, there is no requirement to constrain the filename. Only where metadata records are transferred via the GTS or other GTS-like file-transfer mechanisms do the filenames need to conform with the convention above.
XML formats are not currently used to transfer data via the GTS. However, once this changes, it is conceivable to have collisions between data-files and metadata files. To remedy this, there is a need to be able to distinguish between the files with additional information in the filename.

Note 2: The '.xml' file extension does not currently appear in the permitted list in the file-naming convention. A proposal to modify the file-naming convention is offered to ET_CTS & ET_OI: Allocate a new extension=".iso19139.xml"

Your proposal regarding the use of an amended PFlag (TM, AM, WM, ZM) appears to meet all the requirements outlined in IPET-MDI-1--Recommendation 1 ... and avoids breaking the parsing rules for the 'type' field.
You ask "why add .xml, when there is already a .met file extension?" ... the semantics of the file extension describe the ENCODING FORMAT of the content whilst '.met' makes reference to the content type enclosed within the file. We anticipate the need for a .xml file extension for DATA FILES in the near future, so this amendment seems appropriate.
Given this update, is appropriate to deprecate the '.met' file extension?
The examples shown do indeed include a date stamp - this is the date-stamp of the METADATA record ... the guidance states: - ***must use the «YYYYMMDDhhmmss» element from the top-level file-naming convention to express the metadata publication / update date-time (this must represent the same date-time as the MD_Metadata/dateStamp element)****;*
The subsequent note regarding truncation of 'W_' type filenames asks that the datestamp from the [productIdentifier] be removed so that it is invariant and does not conflict with the datestamp of the metadata record. Our examples do not include a '.iso1939.xml' as this was only a proposal.
Best Regards, Jeremy

Eizi TOYODA 27 September 2010 11:30
To: Jeremy Tandy
Hi Jeremy,
** The ET-CTS proposal is basically doable, i.e. using two letters as pflag (ex. "TM") and ".xml" suffix.*
** However, I consider pflag="AM" is confusing, and I don't find why it is useful, because it will have either*
- duplicate meaning with "TM" where BBB is absent, or
- strange meaning where BBB is present,
as long as we use product (static) metadata as agreed in recent ET-WISC or IPET-MDI.
For example please consider GTS bulletin TTAAii=SMJP01 and CCCC=RJTD (six-hourly synoptic observation from Japan).
Begin with real data, we usually file it as
A_SMJP01RJTD270000_C_RJTD_201009270027.txt
A_SMJP01RJTD270600_C_RJTD_201009270623.txt
A_SMJP01RJTD270600CCA_C_RJTD_201009270645.txt
A_SMJP01RJTD271200_C_RJTD_201009271232.txt
....
CCA means correction.
But it is no problem at all to do like this.
T_SMJP01_C_RJTD_201009270027.txt
T_SMJP01_C_RJTD_201009270623.txt
T_SMJP01_C_RJTD_201009270645.txt
T_SMJP01_C_RJTD_201009271232.txt
....
We don't do this, not because it's illegal, but its simply user-unfriendly to hide BBB=CCA.
Then come back to metadata. Allowing pflag="AM", we will have following two filenames to describe above bulletins.
TM_SMJP01_C_RJTD_201009132359.xml
AM_SMJP01RJTD132359_C_RJTD_201009132359.xml
We will have to have software mechanism to consolidate this duplication.
And which is worse, we will be allowed to create metadata for "first correction of SMJP01 RJTD", which I don't know how to handle.
AM_SMJP01RJTD132359CCA_C_RJTD_201009132359.xml
If somebody are thinking of "dynamic" or "instance" metadata (metadata files issued every time bulletin is created), we could simply use ".met" suffix, which is already defined.
Best Regards,
--
Eiji (aka Eizi) TOYODA

Jeremy Tandy 27 September 2010 12:55
To: toyoda
Regarding instance level metadata (i.e. including the BBB) - the DISCOVERY metadata will never resolve down to this level of detail ...
To clarify your other point, are you suggesting that P-flag = TM should ALWAYS be used instead of P-flag = AM ... to avoid potential duplications; you seem to indicate that the P-flag = TM carries sufficient information for identifying the metadata record.
A_SMJP01RJTD271200_C_RJTD_201009271232.txt
T_SMJP01_C_RJTD_201009271232.txt
in this example, the [CCCC] "RJTD" and [YYGGgg] "271200" are duplicate information. We will NEVER include the [BBB] in the metadata file-name.

So if I have understood, we should amend IPET-MDI-1--Recommendation 1 to indicate that Pflag = TM should always be used for the metadata file that describes instances of files with P-flag = T OR P-flag = A.
Our metadata file-name would be:
TM_SMJP01_C_RJTD_201009271232.txt
... irrespective of whether the filename is P-flag = T or P-flag = A
Please confirm.
Also, what do you think about the possiblilty of using a stream-based XML parser to read the root element of the XML file to acertain its type. Is this feasible from a MSS operations perspective?
Jeremy

Eizi TOYODA 27 September 2010 13:35
To: Jeremy Tandy
Jeremy,
(1) Confirm: Good to have your response. I agree with you. Our metadata would be TM_SMJP01_....
(2) .met deprecation: it's okay for me. I don't expect dynamic (instance, or per-bulletin) metadata is useful in the foreseeable future.
I saw your email on discussion in Geneva after I sent my last mail. I don't oppose if people wants all XML have ".xml" suffix for tools (such as GeoNetwork) compatibility.
(3) Regarding stream-based XML parser. Yes it's the best way to determine the type of XML in the shortest time.
But why does MSS need to parse upto the root node? It is enough to determine if it is XML, isn't it?
Anyway XML parser is necessary since it's not as easy as we can simply describe it as "reading first bytes".
Followings are all legal beginning of metadata record file.
(a) <MD_Metadata xmlns="http://www.isotc211.org/2005/gmd"
(b) <gmd:MD_Metadata xmlns:gmd="http://www.isotc211.org/2005/gmd"
(c) <GRIB:MD_Metadata xmlns:GRIB="http://www.isotc211.org/2005/gmd"
(d) <funnyCrazyLongLongLongPrefix:MD_Metadata xmlns:funnyCrazyLongLongLongPrefix="http://www.isotc211.org/2005/gmd"
(e) <?xml version="1.0"
(f) <?xml version="1.1"
(g) <?XML encoding="UTF-8" version="1.0"
(h) <!-- BUFR --><gmd:MD_Metadata
And did you know MD_Metadata and MI_Metadata are not all root node allowed? We have agreed in Rec 40 to use class MD_DS_Aggregate. This is abstract and actually it means either DS_OtherAggregate, DS_Series or DS_Initiative. So we have five root nodes. Ted will get mad if you ignore his favorite ones :)
Best Regards,
--
Eiji (aka Eizi) TOYODA

Jeremy Tandy 27 September 2010 13:43
To: toyoda, remy.giraud, Hiroyuki Ichijo, David Thomas
For info to ET-CTS ... see Eiji's response below.
The concept of using stream-based XML parsers to read the first root-node of the xml document is informational; it wsa just another way of checking the content of an XML file (in the same way you can read the first few bytes of a GRIB or BUFR file).
So we are still using P-flag = TM, WM and ZM.
Jeremy

'.met' file extension will be deprecated.

Side-note:

[HKn] proposed registering BUFR and GRIB as official mime-types within IANA; this would allow metadata & other ancillary information (such as digital signatures) to be bundled with data-files within a single package.

Work-plan

- Each TASK is allocated to a CORE TEAM MEMBER; associate members are allocated to support the core team member

The key here is that the work-plan is based around EXPLICIT TASKS with clearly defined (& dated) outcomes … see http://www.wmo.int/pages/prog/www/WIS/wiswiki/tiki-download_wiki_attachment.php?attId=160&download=y

GTS Operation

Report from ET-OI

Note: assertion regarding use of CAP messages;

- How to integrate / harmonize with WMO data models? … create a CAP profile that is harmonized with WMO data model.

Discussion regarding transition from Vol C1 to WIS DAR catalogue (agreed at ET-OI)

- Maintenance of Vol C1 is responsibility of RTHs
- RTH's were uncomfortable with reliance on WIS DAR catalogue until next WMO financial period (2015)
- RTH's will continue to maintain Vol C1 using existing processes; Vol C1 will remain the primary source of information describing Resolution 40 Essential Data until formal migration starts in 2015
- Existing Vol C1 maintenance process:
  - NMCs update RTH (via email)
  - RTH create advanced notification of changes & email WMO
  - WMO collate changes …
    - Notify members of changes via METNO bulletins

- Update MASTER COPY of Vol C1
- RTH's (in support of NC's and DCPC's) will contribute amendments to WIS DAR catalogue in PARALLEL to existing Vol C1 maintenance procedures; noting that the WIS DAR catalogue is a SUPER-SET of Vol C1
- As robustness of WIS DAR catalogue (and associated GISC implementations) improves, RTH's (especially those that are part of a GISC) will consider extraction of amendments to Vol C1 from the WIS DAR catalogue via some automated process; the expectation is that the manual collation of amendments for Vol C1 will gradually disappear during the period 2011 - 2015.
- It is anticipated that METNO messages will be replaced / complemented with a variant of RSS/ATOM syndication feeds
- From 2015 onwards, WIS DAR catalogue will begin migration to be the primary source of information describing Resolution 40 Essential Data.

☐ **ACTION (IPET-MDI): define elements required from WMO Core Metadata record that are required to create 'advanced notification of changes' for amending Vol C1; additionally create an reference tools (e.g. a style-sheet) to transform a WMO Core Profile record into the required form for an advanced notification of changes for Vol C1**
Added to IPET-MDI work-plan

It was noted by ET-OI that the same process must be applied to Resolution 40 Additional Data.

Representative from RA1 requested clarification regarding the initial preparation of metadata for the WIS DAR catalogue.

In accordance with IPET-MDI-1 para 2.1.2.53 [http://www.wmo.int/pages/prog/www/WDM/IPET-MDI-I/report/Report_IPETMDI_I_20100503.htm] Meteo France will create reference (or baseline) metadata for the initial population of the WIS DAR catalogue on behalf of members. Meteo France have generated software tooling to automate the process of creating WMO Core Profile records from Vol C1 and Additional Data catalogue; these tools are being amended to reflect the guidance from IPET-MDI-1. DWD noted that they also were building metadata generation tools for their GISC implementation activities. ICT-ISS noted that Meteo France is responsible for creating the REFERENCE version of the baseline WIS DAR metadata, hence it is likely that their tooling should also be considered the reference implementation for automatic generation of WMO Core Profile metadata records from Vol C1 etc.

☑ **ACTION (Heinrich Knottenberg, Matteo Dell Acqua & Jeremy Tandy): propose mechanism to harmonise tooling for automated generation of WIS DAR metadata from Vol C1 and the catalogue of Additional Data products; the intention is to avoid the generation of 'standards-compliant' metadata with a variety of different flavours.**

Meteo France will ensure that their metadata generation tools comply with the conformance tests (see action below), and publish the software and guidance notes via the WIS wiki. DWD will also ensure their software tooling adheres to the conformance tests, thus ensuring different 'flavours' of standards-compliant metadata are eradicated. If problems persist with DWD software tools, they are happy to adopt Meteo France's (reference) implementation.

Meteo France notes that much of the information in Vol C1 appears to be missing or out of date. Meteo France requests that WMO Secretariat request members to review Vol C1 and ensure that the content is up to date prior to the automated generation of baseline WIS DAR metadata.

As indicated in IPET-MDI-1 para 2.1.2.51, Members are required to review the automatically generated WMO Core Profile records that describe data products for they are responsible, amending the records as necessary. Once editing is complete, Members must provide their final set of WMO Core Profile metadata records to Météo-France, for insertion in the reference set and upload to the WIS DAR catalogue. This process **must** completed prior to delivery of WIS 'Initial Operating Capability' (**Q2 2011**)

☐ **ACTION (WMO Secretariat): Execute the pre-validation proposal from Meteo France and request that members review the automatically generated WMO Core Profile records that describe data products for they are responsible, amending the records as necessary, and notify Meteo France of amendments by end Q1 2011.**

Notes from ad-hoc discussion:

Pre-validation proposal from Meteo France:

A pre-validation procedure is proposed to facilitate the approval by Members of their set of GTS metadata records.
Following this procedure will ensure better identification of the GTS bulletin originator centre, and will spare redundant metadata editing by Members.

In the absence of pre-validation, errors will be possible such as:
§ Bulletin affected to the wrong met service or centre, or affected to no met service at all,
§ Erroneous owner details requiring modifications in all metadata records of the owner.

An Association Table is proposed allowing the identification of the data owner as a function of Volume C1 fields, as well as the description of the owner (see the companion IR3.JPA.v0.1.xls sheet).

Using only the Volume C1 Centre field to determine the owner of a GTS bulletin may be misleading. Indeed, the Country and CCCC fields also need to be considered, as they may indicate Antarctic stations, regional offices, military bases, laboratories or international organization.

The Association Table lists the available combinations of these fields – Centre, Country and CCCC-, and attempts to document the associated data owner.

Owner details were collected online for every Member met service, using the list of official web sites provided by WMO. When information was scarce, the list and contact details of the national Permanent Representatives (WMO # 5) contributed to validate details.

The Association Table also lists ISO3166 country names and associated 2 letter codes.

The Team agreed on the proposed pre-validation procedure:
(1) WMO to distribute the Association Table to Members,
(2) WMO to collect modifications from Member and consolidate a validated table,
(3) WMO to provide validated information to Météo-France,
(4) Météo-France to generate GTS metadata records taking the validated information into account.

The Association Table (effectively a 'pro-forma' for Members to check and amend) is ready for distribution to Members. Secretariat agreed to begin disseminate the request to the Members immediately, noting the 1-month delay required to translate documents to the official languages. Meteo France will resend the Association Table and supporting information to ensure the Secretariat have up to date information.

☐ **ACTION (IPET-MDI): Provide tooling to support review and amendment of WMO Core Metadata records by Members.**
Added into IPET-MDI work-plan

The Secretariat noted that they have created a wiki page describing tools for automated metadata generation, and indicated that they would be keen to include the 'reference' tooling from Meteo France, enabling Members to experiment with generation of WMO Core Profile records themselves. With regard to capacity building in RA1 (e.g. developing metadata expertise), the Secretariat noted the need for the Regional Association to REQUEST this support! " *The squeaky door gets the oil*"

DWD noted their preference to convene with other active GISC implementation teams and IPET-MDI to develop conformance tests based on the standards defined by IPET-MDI, with a view to ensuring that WMO Core Profile records in de-jure usage will validate, albeit with warnings. It is essential that the WMO Core Profile metadata standard does not cause GISC implementors significant re-work.

☑ **ACTION (Heinrich Knottenberg, Matteo Dell Acqua & Jeremy Tandy): propose mechanism to convene active GISC implementors with IPET-MDI to develop conformance tests for validating metadata records .**

IPET-MDI agreed to convene active members of the GISC implementation community and IPET-MDI to develop conformance tests for WMO Core Profile metadata records based on the standards and guidance from developed by IPET-MDI. Engagement from the GISC implementation community is required to ensure that records employing the de-jure practices will validate against the conformance tests, albeit producing warnings where the standards or guidance are 'loosely' interpreted.

☐ **ACTION [JT]: Chair of IPET-MDI to convene active members of the GISC implementation community and IPET-MDI to develop conformance tests for WMO Core Profile metadata records based on the standards and guidance from developed by IPET-MDI. Conformance tests to be published by Feb 2011 (see IPET-MDI work-plan)**

Note that for CBS (November 2010) the metadata will not have been validated against conformance tests. The WIS demonstration for CBS will use the DRAFT metadata provided by Meteo France.

Finally, it was noted that during the 'pre-operational' period of WIS (dates TBD) interim mechanisms must be defined to maintain the reference WIS DAR metadata (as crea ted by Meteo France) prior to the complete network of GISCs being available to NC's and DCPC's.

ACTION (Heinrich Knottenberg, Matteo Dell Acqua & Jeremy Tandy): propose interim mechanisms to maintain reference WIS DAR metadata during WIS pre-operational period. Whilst it is desirable to understand the proposal prior to CBS (November 2010), it is ESSENTIAL to provide resolution ahead of EC (May 201 1).

Meteo France agreed to continue maintenance of the reference WIS DAR catalogue on behalf of Members who are unable to provide their WMO Core Profile metadata records to the WIS DAR catalogue via a GISC; for example, if their GISC is not yet fully functional. Meteo France will collate amendments (perha ps using METNO bulletins)and re-publish the amended metadata records to the WIS DAR catalogue. ***Matteo Dell Acqua*** *will confirm the duration that Meteo France is able to provide this service; it is unlikely that provision of this service wi ll extend to 2015.*

WIS Development and Implementation

Report from IPET-MDI

Discussion regarding relationship between IPET-DRC and IPET-MDI

IPET-MDI
- Develop (new) approaches to resolve new / emerging interoperability requirements
- Propose new vocabularies
- Provide an 'initial' publication of data encodings / metadata encodings / vocabulary catalogue (etc.)

IPET-DRC
- Maintain existing approaches to ensure interoperability does not degrade
- Manage controlled vocabularies
- Add new attributes to 'classes' of objects
- Create new specializations (extensions) of 'classes' of objects
- Maintain encoding rules[1] in step with amendments

[1] For example, when amending the WMO Core Profile, this may include XML schema or schematron rules

[SE] noted that, from experience, the underlying DATA MODEL evolves very slowly (he used the example of BUFR); only minor ame ndments are required that do not substantially affect the underlying data model

[SE] also noted that as additional data representations are created for WMO content, IPET-DRC will need to supplement the skill-set available within members; e.g. XML & UML.

? At what year will usage of WMO Core Profile become routine? Perhaps 2015(?), when the pre-operational phase of WIS is completed? At this stage, will IPET-DRC take over the management?
? Does a format need to achieve version 2.0 to be considered mature enough for transfer to IPET-DRC?

We agreed that this issue does not need to be resolved NOW, but we should formulate plans so that when creating the Terms of Reference for ISS ET's for CBS 2012, we are able to present a robust concept.

ACTION (complete): [JT] discuss this further with [SE]

Following a post-meeting discussion with SE, a workable solution was identified …

- *Looking at the future work plan of IPET-MDI indicates an expectation to maintain WMO Core Profile until the version 2.0 delivery. Our proposal is to apply this rule to ALL standards developed by IPET-MDI:* ***when a WMO Profile reaches version 2.0 it will be passed from IPET-MDI to IPET-DRC for long-term maintenance****.*
- *The advantages offered by this proposal are manifold:*
  - *The split of responsibility is extremely clear;*
  - *The standard is highly likely to be officially part of WMO Technical Regulations;*
  - *The time take by IPET-MDI to develop the standard to version 2.0 gives IPET-DRC time to become familiar with the concepts;*
  - *IPET-MDI's working practices used whilst maintaining the standard will serve as a baseline for IPET-DRC to follow; and*
  - *The majority of the 'flux' in a standard will be resolved on-route to version 2.0 where upon is will have had the benefit of 'operational' deployment within the community of users to identify opportunities for optimization.*
- *IPET-MDI will follow the standard procedures used by IPET-DRC for maintaining the standards (i.e. 'fast-track' procedures for interim releases) including appropriate consultation periods etc.*

ACTION (complete): [SE] to refer [JT] to standard maintenance procedures employed by IPET-DRC

SE provided an excerpt of the maintenance processes agreed at IPET-DRC's 2010 meeting:

Extract from IPET-DRC ...

(you can also find the document* here: http://www.wmo.int/pages/prog/www/ISS/Meetings/IPET-DRC_Brasilia2010/Documents/IPETDRC-II_Doc6-2_annexII.doc)

* note that the document underwent some modifications during the IPET-DRC meeting in Brasillia - the URL refers to the original version (I think)

ACTION: IPET-MDI to develop procedures for maintenance of the WMO Core Profile based on those of IPET-DRC

Cross-Commission Liaison

Following the question raised about maintaining software libraries, [SN] recounted previous discussions on this subject; WMO officially rejected the notion of maintaining software components, preferring to point people to the correct Member-state (e.g. ECMWF maintains the BUFR en/decoder). Software library maintenance is considered to be a Member-state function.

On the subject of cross-Commission liaison, [DT] noted that the largest concern from CAS / GAWS is the development of controlled vocabularies. It was also noted that CAS members are typically using other metadata standard, such as DIF & DC, so require guidance in understanding how to express their content in in a fo rm compliant with WMO Core Metadata Profile (ISO19139)

[DT] also noted that Eliot Christian has successfully supported Members in RA1 through attendance at the CLIDATA workshop in Kenya. His objective was to explain the use of DAR metadata and station metadata

Side-note

For STATION GAZETTEER - please refer to GCOS … they have best practice for defining the information required regarding station history

Common Alerting Protocol

[SE] reported that there has been a wide uptake of CAP; the transfer of CAP throughout the GTS has been supported since 2008(?)[2] . [JT] suggested that CAP needs further standardization of

content; [SE] was not in agreement ...

☑ ACTION (complete): talk to [SE] regarding current best practices for use of CAP.

[SE]: WMO is right behind CAP at a very high level and has been for some time. Eliot Christian is the number one fan - David Thomas is not. The praxis is that in 2008 there was a proposal presented about how to exchange alerts (CAP) on the GTS . During the last few weeks, this has come back into focus as the exchange is about to start. IPET-DRC is aware but do not maintain CAP. It belongs to OASIS. Its really easy.

Refer to the OASIS EM TC page for more information: http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=emergency#technical
Cap v1.2 can be found here: http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2.pdf

Here's an example CAP file from EUMETSAT:

```
<?xml version = "1.0" encoding= "UFT-8"?>
<alert xmlns = "urn:oasis:names:tc:emergency:cap:1.1">
   <identifier>EUM.MET 9.FIRE.1</identifier>
   <sender>ops@eumetsat.int</sender>
   <status>Actual</status>
   <msgType>Alert</msgType>
   <scope>Public</scope>
        <info>
           <category>Geo</category>
           <event>FIRE</event>
           <response>Avoid</response>
           <urgency>Immediate</urgency>
           <severity>Moderate</severity>
           <certainty>Likely</certainty>
        <effective>2009-11-20T14:00:00-00:00</effective>
        <expires>2009-11-20T14:30:00-00:00</expires>
           <senderName>EUMETSAT</senderName>
           <headline>Fire detection report</headline>
           <description> Fire detection. This is a computer generated report and has not been reviewed by a
human.</description>
           <area>
              <areaDesc>List of detected fires (latitude, longitude, radius)</areaDesc>
              <circle>  -4.694 -39.446   2.235 </circle>
              <circle>  -4.695 -39.527   2.242 </circle>
              <circle>  -4.666 -39.444   2.241 </circle>
              <circle>  -4.666 -39.484   2.235 </circle>
              <circle>  -3.504 -40.422   2.240 </circle>
              <circle>  -3.476 -40.461   2.242 </circle>
              <circle>   4.315  18.958   2.234 </circle>
              <circle>   4.343  18.988   2.211 </circle>
              <circle>   4.342  18.959   2.219 </circle>
              <circle>   4.867  19.005   2.218 </circle>
              <circle>   8.627  -1.885   2.065 </circle>
              <circle>   8.627  -1.913   2.207 </circle>
              <circle>   8.627  -1.940   2.146 </circle>
              <circle>   8.655  -1.885   2.197 </circle>
              <circle>   8.655  -1.913   2.199 </circle>
           </area>
           <web>http://oiswww.eumetsat.org/IPPS/html/MSG/PRODUCTS/FIR</web>
        </info>
        <info>
           <category>Geo</category>
           <event>FIRE</event>
           <response>Avoid</response>
           <urgency>Immediate</urgency>
           <severity>Moderate</severity>
           <certainty>Possible</certainty>
        <effective>2009-11-20T14:00:00-00:00</effective>
        <expires>2009-11-20T14:30:00-00:00</expires>
           <senderName>EUMETSAT</senderName>
           <headline>Fire detection report</headline>
           <description> Fire detection. This is a computer generated report and has not been reviewed by a
human.</description>
           <area>
              <areaDesc>List of detected fires: latitude, longitude, radius(km)</areaDesc>
              <circle> -22.802 -43.279   2.235 </circle>
              <circle> -22.812 -43.475   2.242 </circle>
              <circle> -22.779 -43.459   2.241 </circle>
              <circle> -22.739 -43.296   2.235 </circle>
              <circle> -22.747 -43.443   2.240 </circle>
              <circle> -22.749 -43.492   2.242 </circle>
              <circle> -22.706 -43.280   2.234 </circle>
              <circle> -15.203 -45.328   2.211 </circle>
              <circle> -14.165 -45.803   2.219 </circle>
              <circle> -14.135 -45.793   2.218 </circle>
              <circle> -13.911 -41.546   2.065 </circle>
              <circle> -12.731 -45.843   2.207 </circle>
              <circle> -12.507 -44.265   2.146 </circle>
              <circle> -12.486 -45.628   2.197 </circle>
              <circle> -12.488 -45.676   2.199 </circle>
              <circle> -12.489 -45.725   2.201 </circle>
              <circle> -12.082 -42.791   2.090 </circle>
              <circle>  -9.978 -43.208   2.090 </circle>
              <circle>  -9.979 -43.253   2.091 </circle>
              <circle>  -7.035 -35.097   1.847 </circle>
              <circle>  -5.964  12.950   1.548 </circle>
              <circle>  -5.964  12.922   1.547 </circle>
              <circle>  -5.936  12.949   1.547 </circle>
              <circle>  -5.909  12.948   1.547 </circle>
              <circle>  -5.512 -38.596   1.928 </circle>
              <circle>  -4.830 -44.209   2.100 </circle>
              <circle>  -4.831 -44.255   2.102 </circle>
              <circle>  -4.831 -44.300   2.103 </circle>
              <circle>  -4.801 -44.206   2.100 </circle>
           </area>
           <web>http://oiswww.eumetsat.org/IPPS/html/MSG/PRODUCTS/FIR</web>
```

```
            </info>
        </alert>
```

*PMN: [JT] considers that CAP messages are somewhat like 'discovery metadata' … like Atom Syndication Format, it can refer to a more detailed source of information… such as a full ISO19139 record or a data access service that may expose KML, GML, BUFR, GRIB … (will need to deal with the mime-type issues so that users unfamiliar with BUFR or GRIB etc. know what to do with it). Critically, where the CAP message allows free text, it **may** be pertinent to bind it to a controlled vocabulary.*

ET-OI: allocate T1=X *[from the TTAAii header]* to "Common Alert Protocol (CAP) messages" in place of "GRID regional use"; the allocations of $T_2A_1A_2ii$ are deleted. New allocations of $T_2A_1A_2ii$ will be studied further.

The allocation of the $T_2A_1A_2ii$ can be done at any time once the T_1 has been endorsed. Until this happens, these messages CANNOT be transferred on the GTS.

? *Discussion indicated that EUMETSAT want to start using CAP to transfer information about Forest Fires in Nov 2011*

EUMETSAT's previous guidance was to use WONT for TTAAii [Warning][Other][North Atlantic] for Volcanic Ash warningsrelating to Eyjafjallajokul

[2] ISS has an explicit requirement to pass CAP messages through WMO networks

Report from ET-WISC

[DT] identifies the need for **Technical Papers** (best practice documentation) to be written by the expert teams - these have no 'official' standing in WMO, but are necessary for the Member community to understand best practices.

Report from ET-GDDP

[DT] outlined some thoughts for the Metadata guidance material …

- Eliot Christian <EChristian@wmo.int> has created some training aids for metadata; I think relating to his CLIDATA mission in Kenya

- Other sources of guidance material could be 'harvested' - noting that the content may need to be 'tuned' for WMO community:
  - NOAA COMET; online metadata training resources (see Ted Habermann)
  - IODE / JCOMM; marine metadata training materials
  - INSPIRE
  - UK Locations Programme - Gemini
  - *Books - e.g. "Everything is miscellaneous"*
- The goal of the guidance should be to complement the 'technical documentation' - an 'introduction to metadata' providing the reader with information on:
  - What's the WMO Core Profile & what does it mean to me … *WIS DAR metadata!*
  - What should I do with my metadata & why
- Later we will want to add content relating to the kind of content that should be put into metadata records …

[DT] also noted that WMO is prepared to deploy Voluntary Contribution Programme funds to pay for training etc.; perhaps with the training being provided by IODE / COMET or others

[TP] (Timo Proescholdt <TProescholdt@wmo.int>) indicated that he is happy to help prepare the guidance materials; his motivation …

- He needs training materials for his forthcoming WIS Jump-Start missions to Morocco and Indonesia; and
- He has 2-weeks effort allocated to developing automated validation / UI forms within Geonetwork for the WMO Core Profile

Specifically [TP] indicated that he is happy to help develop the schematron rules.

☐ **ACTION: [JT] to contact [TP] to discuss how best to use his offer of support**

Review of WIS documentation:

Overview of governance authorities & approvals …

Technical Regulation *(WMO-No. 49), Volume I, Section A.3*
[Proposed amendment]
- *Must be translated to all 6 official languages, prior to CBS*
- *Must be approved by CBS for submission to Congress*

Manual on WIS *(WMO-No.1060) [New publication]*
- *Must be translated to French, prior to CBS*
- *Must be translated to all 6 official languages, prior to distribution deadline for Congress*

Guide to WIS *(WMO-No.1061) [New publication]*
- *Must be translated into French prior to CBS*
- *To be approved by CBS only*

Note: that only the **Technical Regulations** (which includes the **Manual**) are **binding** ("shall"). The **Manual** *can* include **recommended** practices ("should"). The **Guide** is for **information only**, and is **not** considered part of the Technical Regulations.

Amendments to Technical Regulations

[Draft 5, including amendments agreed at ICT-ISS, Geneva 2010]

The use of terminology:
- standard practices, procedures and specifications are annotated "**shall**"
- recommended practices, procedures and specifications annotated "**should**"

Para A.3.2.3 is important for instructing participants to use (metadata) standards and not make up their own solutions …

A.3.2.3 WIS shall make use of international standards for relevant practices, procedures and specifications.

Para A.3.3.4 describes the relevance of metadata to WIS and the WMO community:

A.3.3.4 WIS functions and operation shall be based on catalogues that contain metadata describing data and products available across WMO, plus metadata describing dissemination and access options. These catalogues shall be maintained by WIS Centres.

Also … the Technical Regulations mandate the responsibility for maintaining catalogues (of metadata). The DCPC and NC paragra phs are explicit about their responsibilities to provide metadata to WIS:

A.3.3.5 Through collaboration across all GISCs, each GISC shall provide comprehensive search across catalogues. [...]

A.3.3.6 DCPCs shall use WIS to provide data and responsibilities in accord with their programme responsibilities. DCPCs shall collect, disseminate, provide access to, and store relevant regional or programme-specific data and products. DCPCs shall maintain catalogues of their holdings and services, and provide appropriate parts of these catalogues to the GISCs to ensure a comprehensive catalogue of WIS holdings.

A.3.3.7 NCs shall use WIS to provide data and products in accord with their programme responsibilities. NCs shall provide associated metadata to other WIS Centres to become part of the comprehensive catalogue of WIS holdings.

Para A.3.5.1 indicates the linkage to the Manual on WIS (WMO-No. 1060):

A.3.5.1 The WIS data management and information exchange functions shall be established and operated in accordance with practices, procedures and specifications set out in Annex VII (Manual on the WMO Information System (WMO No. 1060)).

Manual on WIS
[Draft 5, including amendments agreed at ICT-ISS, Geneva 2010]

Side note on terminology:

(4.5.1) ~~Note: The phrase "information intended for global exchange" encompasses time-critical and operation-critical information (data and products). This includes "essential data" and part of the "additional data", as specified in WMO Resolution 25 (Cg-XIII) and Resolution 40 (Cg-XII).~~

[debate over clarity of the message above ...]

(4.6.1) Note: The term information is used in a general sense and includes data and products.

Para 2.1.1 indicates the types Centres operated within WIS. Participants will be affiliated to one of these types of Centre.

2.1.1 In keeping with WMO No. 49, Vol I, A.3, Centres operated by WMO Members and their collaborating organizations shall be categorized as one of the three types of WIS Centres forming the core infrastructure of WIS:

- *Global Information System Centres (GISCs),*
- *Data Collection or Production Centres (DCPCs),*
- *National Centres (NCs).*

[...]

Para 2.3 [Interaction among WIS Centres]

[...] Data, products and metadata shall flow to a GISC from DCPCs and from NCs within its area of responsibility. [...]

Para 2.5 [Discovery, Access and Retrieval Function] indicates metadata responsibilities of participants …

As required per WMO No. 49, Vol. I, A.3, WIS shall be based on catalogues that contain metadata describing the full set of data and products available across WMO and how these may be retrieved. The Discovery, Access and Retrieval (DAR) function of WIS shall be the primary realization of the WIS comprehensive catalogue, maintained collaboratively by all WIS Centres.

Para 2.7.1 indicates the mechanisms for data collection and dissemination:

[...] Routine collection and dissemination [...]
Discovery, Access and Retrieval (DAR) service: This service is based on request/reply "pull" mechanism with relevant data management functions; it is implemented through the Internet.
[…] Timely delivery service [...]

Para 3.2.3 [Demonstration of GISC Capabilities] indicates the responsibilities of a GISC for managing metadata:

[...]storage functions for the required set of data and products and relevant up-to-date metadata catalogues […]

Para 3.3.4 [Demonstration of DCPC Capabilities] indicates the responsibilities of a DCPC for managing metadata:

[...] provision of relevant up-to-date metadata catalogues [...]

Para 3.4.1 indicates the [Procedure for a National Centre (NC)] relating to metadata:

[…] each NC shall provide data and products, in accord with its programme responsibilities. These shall be provided with associated metadata, in accordance with WIS practices, procedures and specifications. [...]

Para 4.2 [List of WIS Functions] clearly mandates the requirement to create, maintain and publish metadata to populate the WIS catalogue:

4.2.1 WIS Centres shall support the major WIS functions listed here:
1 Collect Observations, Generate Products, Create Metadata and Archive Information
[...]
Note: WIS is concerned with data management and telecommunications aspects but the actual content of data and products is out of scope for WIS itself. Such content is a matter for the specific programme supported.

Para 4.5 further illustrates the functional requirements for GISCs

4.5.2 Receive Information from GISC Area
4.5.2.1 Each GISC shall receive information intended for global exchange from NCs and DCPCs within its area of responsibility, reformatting and aggregating as necessary. This requirement also intersects the WIS Discovery Access and Retrieval (DAR) requirement, noted here following.
4.5.2.2 See also sections 5.2, WIS-TechSpec-1 (Uploading of Metadata for Data and Products), and 5.3, WIS-TechSpec-2 (Uploading of Data and Products).

4.5.6 Discovery Access and Retrieval
4.5.6.1 In support of the Discovery, Access and Retrieval (DAR) function, each GISC shall maintain and provide access to a comprehensive catalogue of information across all WMO programmes encompassed by WIS. This includes, but is not limited to, information intended for global exchange. To satisfy the DAR functional requirement, GISCs are required to support, in interactive and batch modes: upload, change and delete of metadata; user discovery of metadata; user access to metadata; and synchronization of the WIS comprehensive metadata catalogue with other GISCs.

4.5.6.2 See also sections 5.9, WIS-TechSpec-8 (DAR Catalogue Search and Retrieval), and 5.10, WIS-TechSpec-9 (Consolidated View of Distributed DAR Metadata Catalogues).

Para 4.6 further illustrates the functional requirements for DPCPs

4.6.1.1 [...] Each DCPC shall provide metadata describing the information its makes available through the WIS comprehensive catalogue, […]

4.6.2 Collect Information from DCPC Area
4.6.2.1 […]
4.6.2.2 See also sections 5.2, WIS-TechSpec-1 (Uploading of Metadata for Data and Products), and 5.3, WIS-TechSpec-2 (Uploading of Data and Products).

4.6.3 Collect Programme-Related Information
4.6.3.1 […]
4.6.3.2 See also sections 5.2, WIS-TechSpec-1 (Uploading of Metadata for Data and Products), and 5.3, WIS-TechSpec-2 (Uploading of Data and Products).

4.6.4 Production Support of Programme-Related Information
4.6.4.1 […]
4.6.4.2 See also sections 5.2, WIS-TechSpec-1 (Uploading of Metadata for Data and Products), and 5.3, WIS-TechSpec-2 (Uploading of Data and Products).

4.6.5 Provide Information Intended for Global Exchange
4.6.5.1 […]
4.6.5.2 See also sections 5.2, WIS-TechSpec-1 (Uploading of Metadata for Data and Products), and 5.3, WIS-TechSpec-2 (Uploading of Data and Products).

Para 4.6.8 provides definitive information regarding the responsibility of a DCPC to describe it information assets with meta data

4.6.8 Describe Information with Metadata

4.6.8 Each DCPC shall describe its products according to an agreed WMO standard and provide access to this catalogue of products and provide this information as appropriate to other centres, in particular a GISC.

4.6.8.2 See also sections: 5.9, WIS-TechSpec-8 (DAR Catalogue Search and Retrieval); 5.10, WIS-TechSpec-9 (Consolidated View of Distributed DAR Metadata Catalogues);.

The Manual describes 15 Technical Specifications [5 TECHNICAL SPECIFICATIONS OF WIS] (WIS-TechSpecs) that further define the interfaces to major WIS functions. These include:

1. **Uploading of Metadata for Data and Products**
2. Uploading of Data and Products
3. Centralization of Globally Distributed Data
4. Maintenance of User Identification and Role Information
5. Consolidated View of Distributed Identification and Role Information
6. Authentication of a User
7. Authorization of a User Role
8. *DAR Catalogue Search and Retrieval*
9. *Consolidated View of Distributed DAR Metadata Catalogues*
10. Downloading Files via Dedicated Networks
11. Downloading Files via Non-dedicated Networks
12. Downloading Files via Other Methods
13. *Maintenance of Dissemination Metadata*
14. *Consolidated View of Distributed Dissemination Metadata Catalogues*
15. Reporting of Quality of Service

The Technical Specifications reinforce the difference between **DAR metadata** (required for populating the WIS DAR Catalogue) and **dissemination metadata** (a.k.a. messagerouting information). This document only provides guidance on the DAR metadata.

Para 5.1.2 indicates the specifications that must be supported by an NCs, DCPCs and GISCs:

5.1.2 WIS NCs shall support eight of the 15 Technical Specifications, specifically: WIS-TechSpec-1, -2, -4, -10, -11, -12, -13, and -15. An NC can arrange through bilateral agreements for a DCPC or a GISC to perform functions on its behalf.

5.1.3 According to the particular requirements of a DCPC in its programme role, WIS DCPCs shall support up to 13 of the 15 Technical Specifications. DCPCs are not required to support WIS-TechSpec-3 and WIS-TechSpec-9.

5.1.4 WIS GISCs shall support all 15 Technical Specifications.

File-naming conventions are explicitly referenced in Para 5.1.6. This is compliant with guidance from IPET-MDI-1.

*5.1.6 The WMO file naming convention shall be used for files and the **associated metadata record** whenever it is necessary. The WMO file naming convention is documented in GTS Manual (WMO No. 386, Vol. 1, Part II, Attachment II-15).*

The Technical Specification [5.2 WIS-TechSpec-1: Uploading of Metadata for Data and Products] clearly mandates:

a) The use of WMO Core Metadata Profile of ISO 19115:
5.2.1 This specification requires that each metadata record uploaded shall be represented in compliance with the WMO Core Metadata Profile of ISO 19115 with a unique identifier.

b) The upload methods:
5.2.3 Uploading shall use methods prescribed by the receiver, which is typically the host of a WIS DAR Metadata Catalogue.

c) The time-sequencing between upload of metadata and data:
5.2.4 DAR Metadata should have been catalogued in all GISCs prior to files or messages associated with that metadata record being disseminated though WIS.

[guidance needs to indicate how this happens - i.e. upload more than 24-hours before hand to ensure a complete GISC synchronization cycle]

a) The mechanisms provided by GISCs to uploading metadata to the WIS DAR catalogue:
5.2.5 For updating the DAR Metadata Catalogue, WIS Centres should support two kinds of maintenance facilities: a file upload facility for batch updating (add, replace, or delete metadata records treated as separate files); and an online form for changing metadata entries in the DAR Metadata Catalogue (add, change, or delete of elements in a record as well as whole records).

WIS-TechSpec-1 also specifies the requirements for ensuring the WIS DAR Metadata Catalogue is provided as a searchable resource (WIS-TechSpec-8 also refers), and the synchronization of metadata records between physically distributed WIS Centres (WIS-TechSpec-9 refers)

For information, it is also worth understanding what the metadata published to the WIS DAR Catalogue will be used for. The WIS Technical Specification [5.9 WIS-TechSpec-8: DAR Catalogue Search and Retrieval] outlines the mechanisms by which WIS DAR Catalogue content may be searched.

Using the ISO23950 SRU protocol v1.1 (Search and Retrieve via URL) a user may search according to indexed metadata attributes. At a minimum, for text-based searches, these include:

I) abstract
II) title
III) author
IV) keywords
V) format
VI) identifier
VII) type
VIII) crs (coordinate reference system)

For date-based searches, these include:

I) creationDate
II) modificationDate
III) publicationDate
IV) beginningDate
V) endingDate

The user is also able to search according to location or geographical extent (bounding box is specified in decimal degrees, north, west, south and east).

More information on ISO23950 SRU can be found in [Guide to WIS 5.9 WIS SRU Implementors Note]

Para 5.10.3 indicates the time constraints applied to synchronization of metadata records throughout the distributed WIS DAR Catalogue:

5.10.3 The exchange of metadata catalogue updates should satisfy that distributed instances of DAR Metadata do not diverge in content by more than one day.

WHAT IS REQUIRED FOR [6.1 Data and Metadata Representation]

ACTION (complete): [JT] to provide short paragraph [6.1.2 Metadata Representation] [JIRA WIS-217 https://vets.development.ucar.edu/jira/browse/WIS-217**]**
*Discusses the location of the WMO Core Metadata Profile and it's provenance from ISO19115 / ISO19115-2 … need to define location of resources [**version 1.2**]*

WHAT IS REQUIRED FOR [6.7 DAR Catalogue Metadata Entry Tools]
Removed. This will be part of the [Guide to WIS]

? Should the information & guidance developed by IPET-MI and more recently IPET-MDI (@ meeting 1) be inserted here?

Para [2.5 Discovery, Access and Retrieval Function] outlines this activity; focusing on a user perspective:

2.5.1 As required per WMO No. 49, Vol I, A.3, and Manual on WIS 2.5, WIS is based on metadata catalogues describing the full set of data and products available across WMO and how these may be retrieved. The Discovery, Access and Retrieval (DAR) function of WIS is the primary realization of the WIS comprehensive catalogue, hosted collaboratively by all WIS Centres.

2.5.2 A typical user of WIS DAR should find available data and products using a Web browser or other Internet tool. The searcher should be able to discover available data and products by browsing the catalogue or by searching the catalogue using discovery concepts such as subject keywords, geographic extent, or temporal range.

2.5.3 A typical user of WIS DAR should first receive a list of relevant items with associated metadata such as originator, data type, generation date, use constraints, and the like. Once desired data or products have been identified, an authenticated user should be able to request immediate retrieval ("pull") or subscription for recurring delivery ("push"). The user's authorization for delivery of the data or product should then be checked against his or her role. The WIS Centre having the item should then facilitate delivery through any of a broad range of online and offline transmission options. In the case of a subscription, the WIS Centre should maintain further information to support recurring delivery.

Para [5.2 WIS-TechSpec-1: Uploading of Metadata for Data and Products] covers the following sections:

5.2.1 Applicable Standards

- *WMO Core Metadata Profile of ISO19115*
- ? *Upload mechanisms prescribed by the receiver (GISC?)*
- ? *Network-level protocols? [Assume APPLICATION-level standards listed here only]*

? Para [5.2.3] appears to need information for users about HOW to compile metadata for their datasets / bulletins

☐ **ACTION: IPET-MDI populate [6.1.2 Metadata Representation] [JIRA WIS-217** https://vets.development.ucar.edu/jira/browse/WIS-217**]**

This is where the information that is extracted from the IPET-MDI-1 report should go ...

☐ **ACTION: IPET-MDI populate [6.7 DAR Catalogue Metadata Entry Tools] [JIRA WIS-217** https://vets.development.ucar.edu/jira/browse/WIS-217**]**

THESE SECTIONS WILL BE REPLACED BY NEW SECTION: [6 METADATA GUIDANCE] … will include entries on Metadata Representation (how to create meaningful metadata, metadata entry tools) & Metadata Management etc.