



# Status of the vGISC Procurement

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Use of GIS/OGC Standards in Meteorology, Toulouse, 2009-11-23/25



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#### Some WIS Background





#### **Global Telecoms System**



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# **GTS** Background



**Global Telecommunications** System (GTS)

Managed by WMO - World Meteorological Organization

Use to exchange

- Observations
- Forecasts
- Warnings

**Private Network** 

- Node to Node network
- NOT an Internet
- 'Store and Forward'
- Resilient and inflexible





### **Global Telecommunication System**

It works!

Developed in early 1960s

National, regional & international exchange

Terrestrial & satellite links

- Mainly point-to-point circuits, also Multi-point circuits
- X.25, IP & asynchronous links, Mixture of speeds

Relatively expensive, legacy technologies

Secure Extranet: limited use of Internet

No overall system manager

Store & Forward

• No explicit addressing, based on distributed routeing directories Very robust, loosely coupled

Very slow to change, ad hoc development

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**Met Office** WMO Information System (WIS) Origins at CBS-Ext (1998)

CBS-XII (2000) established scope, principles, GISC/DCPC/NC roles

Congress Cg-XIV (2003)

- Multiplicity of systems of different Programmes causes incompatibilities, inefficiencies, duplication of efforts and higher overall costs.
- Congress approves the concept of the Future WMO Information System (FWIS), to provide a single coordinated global infrastructure for the collection and sharing of information in support of all WMO and related international programmes.

Executive Council EC-LVI (2004)

- Identified FWIS to be one of the key contributions of WMO to GEOSS
- Established Inter-commission Coordinating Group on WIS

Executive Council EC-LVII (2005)

- Renamed FWIS to WIS
- Accelerated the development and implementation of WIS
- Evolution not revolution, but faster than usual WMO



## WIS Background







#### Some vGISC History







e 2000 RA-VI (Europe+) co-operation proposed

2001 Workshop at ECMWF

• Considered politics, funding, tech options

2002 RA-VI Steering/Policy Group established

- Formally started programme:
- Western European Virtual GISC
- Technology Pilots, build on GTS and Internet
- 2002-4 Technical subgroups
  - WMO WIS global groups also meeting
- 2006 First WMO Metadata Core profile V1.0
  - SIMDAT live demo at WMO CBS
  - Other pilot projects: NCAR, JCOMM





http://www.wmo.int/pages/prog/www/WIS-Web/RefDocuments.html

High level user requirements agreed across WMO Commissions

- 15 High level Interfaces defined
- 11 high level Use Cases agreed

http://www.wmo.int/pages/prog/www/WIS-Web/documents/WIS-TechSpec-v1-0.doc

WMO Core Metadata Profile

ISO 19115:2003 + Tech Corr 1: 2006 Metadata, ISO 19139 XML Schema

http://www.wmo.int/pages/prog/www/WIS-Web/Metadata.html

http://www.wmo.ch/pages/prog/wis/2006/metadata/WMO%20Core%20Metadata%20Profil e%20(October%202006)/documentation.htm

Updated: Version 1.1 defined, endorse 2009/3



#### vGISC Last Year



#### vGISC Last year



2007 RA-VI VGISC Procurement Steering Group established

- 2007-12-12 Formal collaboration: France, Germany, UK ECMWF, EUMETSAT & Oslo join as DCPCs ITT Drafting Team
- 2008-03-03 Technology Day Toulouse
- 2008-01-08 ITT Drafting Team commenced work
- 2008-05-14 EU Competitive Dialogue Advert, DWD procure
- 2008-06-10 Draft ITT presented to WMO group
- 2008-06-23 ITT Version 1.0
- 2008-07-11 Short-listing

#### 2008-09-15/17 First Dialogue

Lots of clarification of 290 Requirements

Some risk reduction

No dialogue to reduce costs



#### vGISC ITT Structure



Based on:

- WIS Compliance Specification
- WIS Technical Specification

Project management section

Virtual Organisation arrangements

Testing & Acceptance processes

Use cases

General requirements

Specific Technical requirements:

- Mandatory,
- Desirable,
- Highly Desirable



#### Some Metadata Requirements



Met Office The system MUST produce metadata that validate against XML schemas produced according to ISO 19139:2007

The system MUST support, as searchable elements of the DAR catalogue, at a minimum, mandatory & conditional elements in the WMO Core Profile 1.1

- The system MUST support, as searchable elements of the service catalogue, at a minimum, mandatory & conditional elements of ISO 19119
- The system MUST support the WMO Core Profile Version 1.1 of ISO 19115:2003
- It is DESIRABLE that the System fully supports the extension mechanisms of ISO 19115:2003 to deal with metadata conforming to multiple profiles
- It is DESIRABLE that the system supports the optional elements in version
  - 1.1 of the WMO Core Profile of ISO 19115:2003 and ISO Technical Corrigendum 1:2006
- References to external code lists MUST be validated
- When validating metadata, Xlinks and XIncludes MUST also be validated
- It MUST be possible to distinguish between data and data instances





The System MUST support searching on keywords (full text), subject terms, spatial bounding boxes, date / time ranges

- It is DESIRABLE that the system supports searching on any of the elements within the ISO 19115:2003 and ISO 19119:2006
- Searching on spatial bounding boxes MUST support at minimum lat / long coordinates specified in Spatial Reference Systems EPSG:4326
- The system MUST support searches performed according to ISO 23950 using SRU profile version 1.2 (over both HTTP GET & POST, but not required to support SRU through WSDL/SOAP)
- It is DESIRABLE that the system supports searches according to other query languages and schemes, such as OGC/CSW
- It is HIGHLY DESIRABLE that the system meets the requirements of the INSPIRE directive





Gross mismatch between likely price & budgets

3 major partners unable to subsidise each other

2008-10-24 Friday Procurement stopped

2008-10-27 Monday Vendors informed

2008-11-06 RA-VI Steering Group discuss options:

- Issue re-scoped/phased ITT
- DIY re-factor & enhance SIMDAT software, based at ECMWF
- Centres build GISCs separately

2008-12 ITT available to WMO community

© Crown 2008 m12 ce 19 Choose option at RA-VI SG



# vGiSC Last year



DWD

**EUMETSAT** 

Meteorological Institute

**ECEMWF** 

Norwegian

- Jacques Anquetil
- Jacques Roumilhac
- Jean-Pierre Aubagnac •Lothar Wolf
- Heinrich Knottenberg
- •Beatriz Garcia

Marta Gutierrez

Øystein Godøy

- Siegfried Fechner
- Markus Heene
- Duncan Jeffery
- Chris Little



World Meteorological Organization Working together in weather, climate and water •Eliot Christian

- •Project Support:
  - •August-Clemens Thole
  - •Peter Piotrowski
  - •Karla Schöttler-Jansen
  - •Karl Solchenbach



### vGISC This year





**METEO FRANCE** 

Toujours un temps d'avance

Islamic Republic Of Iran

USA

Australia

France

India

Germany

**Brazil China** 





Algeria

Australia 4

Bulgaria

Canada

Croatia

**ECMWF** 

Egypt 6

#### Fiji Finland Argentina 5 France 6 Germany 9 Hong Kong India Italy 2 Czech Republic Japan 7 Kenya 3 Korea 3 EUMETSAT Netherlands 2



New Zealand 2 Niger 2 Norway **Russian Federation 8** Saudi Arabia 2 Senegal 3 Sweden 3 Thailand UK<sub>6</sub> **USA 10** Uzbekistan





RA-VI SG met ECMWF 2008/11/06

Three options agreed:

- a) Re-scoped/phased ITT
- b) Simdat industrialisation, in-house development

(perhaps team at ECMWF) or ITT

• c) Centres each build GISC 'go it alone', perhaps join later

DWD presents its 'go it alone' approach

Météo-France and UK Met Office decide to collaborate





Collaboration agreement for new ITT prepared by UKMO

Started working 2009-01

- Backup workshop
- Open source s/w (Geonetwork, Open SSO, ...) gap analysis
- Prototyping for risk reduction
- ITT requirements document
- ITT definition: firm components, optional components

Advert issued 2009-06, Météo-France procurement

Bidder selection 2009-09

© Crown cop Software initial delivery 2010-03



# vGISC This year



Use off the shelf components where possible

- Catalogue
- Metadata editor
- Entity management

Use SIMDAT as 'glue'

Tender for re-factoring and missing functionality

- Monitoring and Administration
- Subscription and pull request
- Emphasis on interfaces

Tender for baseline and options



- Other partners (GISC and DCPC) are welcome
- Share the work
- Candidate Open Source components proposed

Requirements

• Light document: We know what we want and don't give options

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Toujours un temps d

- Need to have the main requirements
- Reasonable performances but a scalable system
- ITT document based on V1.5 of VGISC requirements document

Target

• Solution that can be used by a large WMO community



Geonetwork

- Licence compatibility with Open SSO licence
- Use with or without modifications
- Learning curve and cost integration

Open SSO

- Licence
- Learning curve and cost integration

Effort for GEMS/SMART

Interfaces definition

- Middleware with standards based interfaces
- Possibility to add different software





#### Questions



#### Spare slides, extra info





- 1 Main Telecoms Network (MTN) links:
- 3 World Meteorological Centres (WMCs) Melbourne, Moscow and Washington
- 6 Regional Meteorological Telecoms Networks (RMTNs) 15 Regional Telecommunication Hubs (RTHs) Algiers, Beijing, Brasilia, Buenos Aires, Cairo, Dakar, Exeter, Jeddah, Nairobi, New Delhi, Offenbach, Toulouse, Prague, Sofia and Tokyo
- 182 National Meteorological Telecoms Networks (NMTNs)
- Ad hoc extensions: Satellite, Internet





- WMO Expert Teams started 1998
- WIS defined in outline in 2000:
  - GISCs, DCPC, NCs
  - 6-10 Global Information System Centres
  - > 20 Data Collection & Production Centres
  - > 188 National Centres (not just NMHSs)
- Pilot projects explore technologies & concepts
- Build on GTS and Internet
- Evolution not revolution, but faster than usual WMO





- EUMETNET UNIDART: data portal using ISO/GIS metadata
- RA-II&V: VPNs via Internet linking NMCs in Regions
- Cooperation with Earth Sciences Portal, NCAR, etc
- Test & evaluate WMO Core Metadata standard, coordinated by focal points of the Technical Commissions
- EU Framework VI project SIMDAT
  - Demonstrated 'pull' over Internet
  - Synchronised metadata catalogues
  - Demo CBS-XIV (2006) 11 countries, 27K data sets, some real time
  - Distributed security
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## Other GISC activities

- Washington building Catalogue only first
- Moscow contracting studies by industry
- New Delhi contracted consultancy
- Beijing/Tokyo/Seoul ?
- Melbourne ?
- RA-III (South America) ?

• WMO asked for GISC/DCPC self-nominations by 2008/12 for endorsement at CBS 2009/3





# Why Me?

- Member of VGISC ITT Drafting Teams
- WMO Regional Association VI Co-Rapporteur for Information Systems & Services
  - (with Leonid Bezruk, Russia)
- WMO Focal Point for RTH Exeter
- Been around a long time
  - (I am partly to blame for GRIB, BUFR & CREX)