

UK Academic Geospatial Metadata Application Profile, Version 2.1 (UK AGMAP 2.1): Geo Services

The UK Academic Geospatial Metadata Application Profile (UK AGMAP 2.1), (Appendix A) is a template designed to support the documentation and discovery of spatial data geo services within Higher and Further Education. The Profile contains all the elements, required to generate compliant metadata records for the GoGeo portal. In addition, the Profile was created to achieve the following:

- serve as a metadata element field template for the GoGeo portal and Geodoc Metadata Editor Tool;
- deliver support of geospatial dataset documentation across an eclectic academic community;
- facilitate data management and sharing requirements within academia;
- ensure compliance with the new ISO 19115 geospatial metadata standard, ISO 19115-compliant UK GEMINI 2.1 and INSPIRE. UK GEMINI 2.1 was ratified in 2010 and supersedes UK GEMINI (2004) and the National Geospatial Data Framework (NGDF) for the UK; and
- provide academic users the necessary information about a spatial data geo service.

The UK AGMAP 2.1 profile is based primarily on ISO 19115, the international geographic information metadata standard which was ratified in 2003. ISO 19115 provides more than 300 metadata elements to describe spatial datasets. These elements are available for geographic information (GI) communities to select and use to generate profiles to support dataset documentation. ISO 19115 provides a core element group of mandatory elements that should be incorporated into every profile. The numerous optional ISO 19115 elements available for profile creation can support a range of needs at the GI community level, whether it be the public or private sector or academia. The incorporation of these elements into a profile should be intended to support the documentation of datasets generally created within a specific GI community. In addition, a profile can be extended to provide further benefits to each community. In this instance, metadata elements are included in the profile to ensure document support to describe a spatial dataset's specific conditions which would be relevant to users from that specialised community. Again, it is important to support the inclusion of ISO 19115 core mandatory elements in all profiles to ensure that data users outwith a specialised GI community can discover these and all other spatial datasets using any geo-data portal which is based on ISO 19115.

The UK AGMAP 2.1 profile comprises the ISO 19115 core mandatory elements and extended to include a considerable number of ISO 19115's optional elements, and other elements identified as relevant to spatial data created within UK academia. The optional elements have been selected based on the eclectic nature of academic disciplines using GI technology for research and teaching and learning. These elements also provide further information that describes a dataset in detail including applications, quality assessment, processing steps and feature descriptions. Inclusion of this detailed metadata information allows a potential user the opportunity to ascertain which data the geo service provides, and assess its suitability and reliability. In addition, the UK AGMAP 2.1 profile includes elements which provide contact details or on-line links so that a data user can access the dataset, dataset series or service.

The UK AGMAP 2.1 profile is also extended (Figure 1) to support specialised needs of the academic community and ensure interoperability between other UK and EU spatial data portals. Part of this extension includes elements from UK GEMINI 2.1, an ISO 19115-compliant standard ratified in 2004 for use in the UK geospatial community. UK GEMINI 2.1 is also INSPIRE compliant and supersedes UK GEMINI (2004) and the National Geospatial Data Framework (NGDF) (2000), the previous UK metadata standard for geospatial data, which was originally derived from the US Federal Geographic Data Committee's (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM) during the latter part of the 1990s

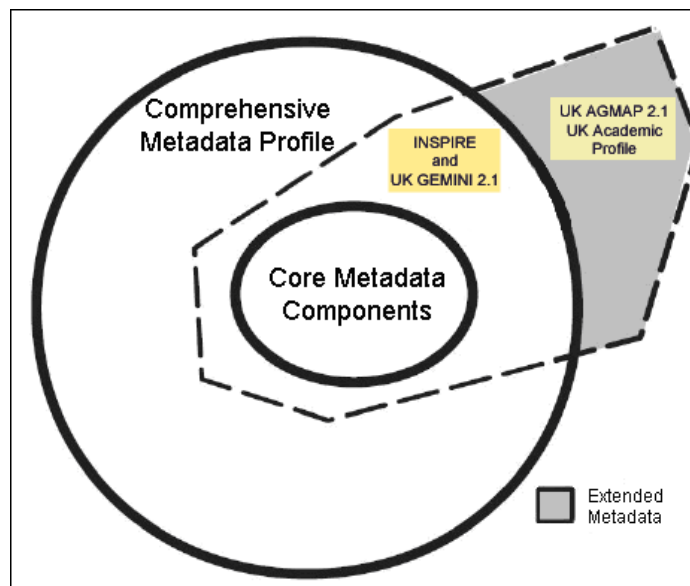


Figure 1. UK AGMAP 2 profile for UK academia

This UK AGMAP 2.1 profile for geo services documentation provides 39 elements for describing the when, where, how and what of a geo service, access and use conditions and the metadata record itself. Though the total number of elements in the UK AGMAP 2.1 profile is considerable, only 22 elements are mandatory. Providing information for only these mandatory elements will satisfy the minimum conditions required for creating an UK AGMAP 2.1 compliant metadata record; these will also suffice for creating UK GEMINI 2.1 compliant metadata; an INSPIRE compliant metadata record requires completion of the CONFORMITY element subgroup under QUALITY INFORMATION element group. The task of metadata creation

is less onerous considering that 7 of the 22 UK AGMAP 2.1 mandatory elements require only contact information. A metadata creator can also create and save a template file containing these contact details for re-use with each new record.

MyGoGeo (<http://www.gogeo.ac.uk/>) also provides a template form for entering contact information, which then is transferred to each new record created with Geodoc, the metadata editor tool. It is worth noting that many of the remaining mandatory elements include drop-down lists and dates, so the metadata creator only needs to select the relevant values from the lists, which have been incorporated into Geodoc.

Metadata Entities and Element Groups

UK AGMAP 2.1 uses seven metadata compound element or entity headings to categorise and group the 39 elements. As a means to provide further clarification for metadata creators and editors, metadata entity subheadings were also created to separate and categorise relevant elements into subgroups. The metadata entity headings and subheadings are as follows:

- **G1 Citation** (6 elements);
- **G2 Identification Information (What)** (5 elements);
- **G3 Data Quality Information** (7 elements);
 - G3.1 Conformity
 - G3.2 Level of Spatial Detail
- **G4 Extents of Dataset (Where and When)** (6 elements);
 - G4.1 Extents of a Dataset Based on the Co-ordinates of a Bounding Rectangle
 - G4.2 Temporal Extents of a Dataset
- **G5 Responsible Party (Who)** (3 elements);
- **G6 Distributor (Access)** (5 elements);
 - G6.1 Use and Access Constraints
- G7 Metadata Creator** (7 elements).



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GROUP	SUBGROUP	Entity and Element ID	GoGeo Metadata Entity and Element Names	GoGeo Definition	Obligation	MO (Maximum Occurrence)	Data Type	Domain
		G1	CITATION	Dataset reference information	Mandatory	1	Metadata Entity GROUP 1	
CITATION		1	Resource Type	Resource type that is being documented.	Mandatory (1)	1	Enumerated List	Dataset Series
		2	Title	The name by which service is known.	Mandatory (2)	1	Character String	Text
		3	Unique Identifier Code	A unique string or number used to identify the service.	Optional	1	Character String	Text
		4	Unique Identifier Namespace	Namespace of the service identifier code.	Optional	1	Character String	Text
		5	Date Code	Service event used for reference date.	Mandatory (3)	1	Enumerated List	Creation Publication Revision
		6	Event Date	Service event date.	Mandatory (4)	1	Date	Date

		G2	IDENTIFICATION INFORMATION (WHAT)	Basic Information about the dataset	Mandatory	1	Metadata Entity GROUP 2	
IDENTIFICATION INFORMATION		7	Service Type	Term(s) which best describe the type of spatial data service.	Mandatory (5)	1	Enumerated List	Discovery Service View Service Download Service Transformation Service Invoke Spatial Data Service Other Service
		8	INSPIRE Service Category	Term(s) which best describe the type of INSPIRE Service.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	N	Enumerated List	See list on page
		9	GEMET Controlled Keywords	Keywords taken from GEMET thesaurus summarising the subject of the service.	Mandatory (6)	N	Character String	Search GEneral Multilingual Environmental Thesaurus (GEMET) for term(s) (Text)
		10	Abstract	A brief description of the service. This should include some explanation as to reasons for the service and how service used since creation.	Mandatory (7)	1	Character String	Text
		11	Coupled Resource	Identifier of operational datasets for the service.	<i>Conditional:</i> Mandatory if linkage to service is available.	N	Character String	Text

		G3	QUALITY INFORMATION	A general assessment of the conformity and quality of a service for determining fitness for use. Quality is stated in terms of spatial granularity.	Mandatory	1	Metadata Entity GROUP 3	
QUALITY INFORMATION		G3.1	CONFORMITY	Degree of conformity and citation with the product specification or user requirement being evaluated against the service.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	1	Metadata Entity GROUP 3 SUBGROUP 1	
	CONFORMITY	12	Specification	Citation of the product specification or user requirement against which service is evaluated.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	1	Character String	Text
		13	Specification Code	Event used for Specification.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	1	Enumerated List	Creation Publication Revision
		14	Specification Date	Event date for Specification.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	1	Date	Date
		15	Explanation	Explanation of the meaning of conformance for this result.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	1	Character String	Text
		16	Conformity	Degree of conformity with the product specification or user requirement being evaluated against the service.	<i>Conditional:</i> Mandatory if claiming conformance to INSPIRE	1	Boolean	true if conformant false if not conformant
		G3.2	LEVEL OF SPATIAL DETAIL	Description of the spatial level of granularity associated with the service.	Conditional	1	Metadata Entity GROUP 3 SUBGROUP 2	
	LEVEL OF SPATIAL DETAIL	17	Source Scale Denominator	Denominator of the representative fraction on the source map(s) associated with a service (e.g. on a 1: 50 000 scale map, the source scale denominator value is 50000). It is also the number below the line of a vulgar fraction. If no source map used, enter the number 0. If multiple source map scales were used, enter the Source Scale Denominator of the smallest scale map (largest denominator).	<i>Conditional:</i> Mandatory if known and Ground Scale Distance not provided.	1	Integer	Integer
		18	Ground Scale Distance	The ground sample distance or equivalent scale of the datasets associated with a service.	<i>Conditional:</i> Mandatory if known and Source Scale Denominator not provided.	1	Real Number	Real Number

		G4	EXTENTS OF A SERVICE (WHERE AND WHEN)	The geographic and temporal extents of the service expressed in terms of geographic co-ordinates of a bounding rectangle and time period.	Mandatory	1	Metadata Entity GROUP 4	Any combination of the following five extent options may be used, but bounding rectangle, temporal extents and nations are mandatory.
EXTENTS OF A DATASET OR DATASETS OF A SERIES (WHERE AND WHEN)		G4.1	EXTENTS OF SERVICE BASED ON CO-ORDINATES OF A BOUNDING RECTANGLE	The geographic coverage of the service expressed in terms of geographic co-ordinates of a bounding rectangle.	Mandatory	N	Metadata Entity GROUP 4 SUBGROUP 1	Longitude and latitude values.
	CO-ORDINATES OF A BOUNDING RECTANGLE	19	West Bounding Co-ordinate	Westernmost co-ordinate of a bounding rectangle.	Mandatory (8)	1	Real Number	Longitude value
		20	East Bounding Co-ordinate	Easternmost co-ordinate of a bounding rectangle.	Mandatory (9)	1	Real Number	Longitude value
		21	North Bounding Co-ordinate	Northernmost co-ordinate of a bounding rectangle.	Mandatory (10)	1	Real Number	Latitude value
		22	South Bounding Co-ordinate	Southernmost co-ordinate of a bounding rectangle.	Mandatory (11)	1	Real Number	Latitude value
		G4.2	TEMPORAL EXTENTS OF A SERVICE	Time period that the content of a service covers.	Optional	N	Metadata Entity GROUP 4 SUBGROUP 2	
	TEMPORAL EXTENTS OF A SERVICE	23	Temporal Extent's Start Date	The start date of the actual time period the service covers.	Optional	1	Date	Date
		24	Temporal Extent's End Date	The end date of the actual time period the service covers.	Optional	1	Date	Date

		G5	RESPONSIBLE PARTY (WHO)	The organisation or person responsible for the service.	Mandatory	N	Metadata Entity GROUP 5	
CUSTODIAN (WHO)		25	Responsible Party Title/Role	Role or position of the responsible person for the service.	Mandatory (12)	N	Enumerated List	Resource provider Custodian Owner User Distributor Originator Point of Contact Principle Investigator Processor Publisher Author
		26	Name of Responsible Party	The name of the organisation or person responsible for the maintenance of the service.	Mandatory (13)	1	Character String	Text
		27	Email Address of Responsible Party	Internet email address of the organisation or person responsible for the service.	Mandatory (14)	1	Character String	Text
		G6	DISTRIBUTOR (ACCESS)	The organisation or person responsible for the distribution of the service.	Mandatory	1	Metadata Entity GROUP 6	
DISTRIBUTOR (ACCESS)		28	Distribution Organisation Name	The name of the organisation responsible for the distribution of the service.	Mandatory (15)	1	Character String	Text
		29	Email Address of Distributor	Internet email address of the organisation or person responsible for the distribution of the service.	Mandatory (16)	1	Character String	Text
		30	On-line Linkage	The name of the World Wide Web site or other online source for the service.	<i>Conditional: If available, then mandatory.</i>	N	Character String	Text
		G6.1	USE AND ACCESS CONSTRAINTS	Restrictions and legal prerequisites for accessing or using the service.	Optional	1	Metadata Entity GROUP 6 SUBGROUP 1	
	ACCESS AND USE CONSTRAINTS	31	Use Constraints Details	Limitations affecting the data resource's fitness for use.	Mandatory (17)	N	Character String	Text
	32	Limitations on Public Access	Other restrictions and legal prerequisites for accessing the data resource.	Mandatory (18)	N	Character String	Text	

		G5	METADATA CREATOR INFORMATION	The organisation or person responsible for creating and updating metadata record(s).	Mandatory	1	Metadata Entity GROUP 7	
METADATA CREATOR INFORMATION	33	Name of Metadata Creator	The name of the organisation or person responsible for creating and updating the metadata record(s).	Mandatory (19)	N	Character String	Text	
	34	Email Address of Metadata Creator	Internet email address of the organisation or person responsible for creating and updating the metadata record(s).	Mandatory (20)	N	Character String	Text	
	35	Metadata Language	Language used for creating the metadata record.	Mandatory (21)	1	Enumerated List	English Cornish Gaelic (Scottish) (Gallic) Irish Welsh Ulster Scots	
	36	Metadata Record Identifier	Unique identifier for the metadata record.	Optional	1	Character String	Text	
	37	Metadata Last Updated	Date on which the metadata record was last updated.	Mandatory (22)	1	Date	Date	
	38	Metadata Standard Name	Name of the metadata standard and HFE Profile used.	Optional	1	Character String	Text	
	39	Metadata Standard Version	Version of the metadata standard and HFE Profile used.	Optional	1	Character String	Text	