Cataloguing Electronic Cartographic Materials: Standard Cataloguing

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The author describes the cataloguing of electronic cartographic materials according to the international standards published in the Anglo-American Cataloguing Rules, 2nd revised edition, and the MARC21 format. Guidance on the special interpretation of fields found in records for all cartographic materials, as well as instructions for completing those fields used specifically for electronic formats are given. The different MARC21 fields are itemized and an example of a complete catalogue record for an electronic resource are provided.

IS IT CARTOGRAPHIC MATERIAL OR ISN’T IT?

Before the cataloguer does any other work, he/she must be positive that the resource is indeed cartographic material. As a very helpful aid to making that yes/no decision, in January of 1998, a variety of bodies from the United States’ Library of Congress (Cataloging Policy and Support Office, Network Development and MARC Standards Office, the Geography and Map Division, and the Special Materials Cataloging Division) issued guidelines for determining when to catalogue materials on the so-called MARC21 map format and when to catalogue the materials on the MARC21 computer file (formerly machine-readable data file) format, information carried in the Leader/06 position in MARC21. This was a follow-up to the American Library Association’s MARBI (Machine-Readable Bibliographic Committee) Proposal 95-9 (1995),3 which redefined code ‘c’ from ‘printed map’ to ‘cartographic material’, making it possible for cataloguers to use ‘c’ (and thus the map format) not only for printed maps, but for all forms of cartographic materials in either hard copy (as long as it is non-manuscript) or digital form.

The guidelines—revised in 2001—state that one is to consider as cartographic material any scanned graphic images, digital orthophotos or remotely-sensed images, any graphic images processed by software (such as GIS software) and any geographic atlases where the most significant aspect of the resource is cartographic (Guidelines for Distinguishing Cartographic Electronic Resources from Other Electronic Resources, Library of Congress, 1998). What about the items that, even if they have a cartographic aspect or subject matter, are to be catalogued as computer files? These are:

- application software including GIS software (e.g. ArcInfo);
- multimedia works that have no most significant aspect or have a non-cartographic significant aspect;
- materials that are primarily text in nature;
- databases with a subject focus that have a geographic interface to the data (e.g. ‘International Station Meteorological Climate Summary’).

It is this last mentioned that is most likely to give the cataloguer pause, since upon calling up the information on the computer, the cataloguer may assume that any data presented cartographically are therefore cartographic in nature. It is made even more problematic by the point that GIS software results in databases that, for as many geographic points as possible, have attribute data—textual or statistical information, generally in tabular form (for example, the ‘Info’ side of ArcInfo). The best way to deal with this is to consider this last category of materials to be the inside-out version of a GIS database; that is, it is a system where all the information is collected generally in tabular form and then may be viewed by clicking on an area on a map display, with the map display considered only as a display, and secondary to the numeric or textual data that is presented. A quick way to determine this is to do a directory of files and look at the file extensions of the files; if the majority of the total number of bytes are non-image file types, then the item is, in all likelihood, not considered to be cartographic material. The cataloguer will need to look at the files anyway, in order to be sure that the files are indeed digital in nature and not analogue.

Fields in the Bibliographic Record

Now, to the heart of the matter—which fields to use with a sample record. The emphasis will be on those fields that are

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different from fields for textual resources. Fields will be discussed in MARC21 field-number order and all MARC21 fields are copied from www.loc.gov/marc/ (viewed March 2005). The sample record appears as the first figure in this section (Figure 1).

007, 008 and 006

Coded fields—especially when they are non-mnemonic—are easily the most irritating part of cataloguing, especially when a cataloguer’s Integrated Library System (ILS) does not have pull-down menus for the fields. For many years, 007 was a mandatory field for full-level cataloguing, so cataloguers looking for existing copy of older resources will very frequently see this field. It contains information relating to the primary nature of the item—its intellectual content as compared with its physical form, the latter being secondary. For those cataloguers whose local library practice is to include the 007, a very brief explanation is given of it and the MARC21 field information as Figure 2, at the end of the 007 explanation.

To fill in 007 correctly, the next decision a cataloguer must make is whether the digital data is a map, remote-sensing image or globe, since each has a different set of codes for 007. It is recognized that a globe is either a map or a remote-sensing image, but since a 007 for globes has been created, that is the one that should be used for a globe. There has been some discussion concerning the use of 007 for remote-sensing images, given that in it there is no position for physical medium, type of reproduction, production/reproduction details or polarity, and thus in order to transmit this information in the coded fields, one would need to use also the 007 for map, which does include each of these fields (respectively, positions 4, 5, 6 and 7). It is, in addition, a bit confusing that the 007 for map still contains, in position 1, ‘r’, for remote-sensing image, which it would seem should be removed, since a 007 field for remote-sensing image now exists.

It is this cataloguer’s interpretation that the values for an electronic atlas composed primarily or solely of maps displayed in colour would be, using the 007 for maps:

```
007 $a [map] $b [multicolored] $c [other] $n [not applicable]
```

It would be an improvement if the position for reproduction details (intended to indicate the photographic technique used to produce the item) have the value ‘n,’ for ‘not applicable’, rather than leaving the cataloguer to decide between the Scylla of ‘u[nknown]’ and the Charybdis of ‘x’ (‘other’).

If the atlas were in the main or solely composed of satellite images from non-camera sensors, then the 007 field would be:

```
007 $a [remote-sensing image] $b [blank – no type of SMD appropriate] $c [spaceborne – altitude of sensor] $d [vertical – attitude of sensor] $e [percent cloud cover between 0 and 9%] $f [unmanned spacecraft] $g [surface-observing – platform-use category] $h [combination of spectral characteristics]
```

Next are the 008 and the 006 fields. 008 (see Figure 3) codes the primary characteristics of the material and 006 any secondary characteristics of the material. So if one had a serial cartographic item on CD, the 008 would code its cartographic aspect, and two 006’s would code computer file and serial form.

Each 008 field begins with the same subfields 00–17 and ends with the same 35–39 subfields, having to do with dates, language, when modified and cataloguing source. The remaining fields for the 008 for cartographic materials are Relief, Projection, Type of cartographic material, Government publication, Index and Special format characteristics. Please especially note that position 29, Form of item, includes a value for ‘Electronics’.

Field 006 (see Figure 4) for computer files/electronic resources is extremely important, in that it is used by ILS and other bibliographic software in order to find out if a resource is digital or not. The values for a commercially produced electronic atlas on CD would be:

```
006 $000 m [computer file] $05 g [general – target audience] $09 c [representational – pictorial or graphic information] $11 [blank; not a government publication]
```

**TITLE AND GENERAL MATERIAL DESIGNATION (GMD)**

Finding a title for an electronic cartographic resource may take some detective work and the note indicating source of title is mandatory in full-level cataloguing. Very often the title for resources on disc is taken from the label on the disc; if there’s nothing there to help the cataloguer, readme.txt files or—best of all—metadata text files accompanying the resource are very useful.

Selecting a GMD has its own painful decision points. As standard cataloguing rules now have it, the cataloguer must use the GMD ‘electronic resource’ for any e-resource. There is in process within the AACR4 cataloguing community a movement to have multiple GMDs as needed; so, for example, if a cartographic resource in digital form had nothing in its title to indicate its cartographic material aspects, the cataloguer could use a double GMD, one for intellectual content and one for physical form:

```
040 [cartographic material ; electronic resource]
```

**Edition**

Use version numbers for the resource as a whole, not just for, for example, the software used to run the data; the latter information is given in 538 (System requirements) and any other partial version numbers may be given in a note.

**Mathematical and Other Material-specific Details Area**

This area is composed, for cartographic material, of scale (and we hope in future of resolution), projection and coordinates. There are two MARC21 fields involved:

- 034, a fixed field expressly created for computer searching; and
Figure 1. Sample bibliographic record in MARC21 format; variable fields are given in toto, plus selected fixed fields

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006  m g c s [computer files]

008  abg zz b ss 0
020  8439395764
034  1 a $b 250000
052  6563 $b C56
090  G6563.C56 C2 2003 $b .15 Digital CD
110  2 Institut Cartogràfic de Catalunya.
245  10 Mapa topogràfic de Catalunya 1:250 000 $h <electronic resource>
246  1 Si Title from spine insert of jewel case: $a Mapa topogràfic de Catalunya 1:250 000 (raster)
255  Scale 1:250,000 ; $b UTM proj.
352  Raster, vector ; $q .dl, $shp, .sbn, .sbx, .dbf.
300  maps (ca. 112 megabytes) on 1 CD-ROM ; $b col. ; $c disc
4 ¾ in.
538  System requirements: PC (486/100 or higher); Windows 95 or higher, or Windows NT 4; minimum 16MB RAM (32 MB recommended), minimum 10MB free space on hard drive; software on CD (VisTopo250); CD-ROM drive.

500  Relief shown by contours, spot heights and shaded relief.
500  Title from jewel case insert.
500  "Versió 4.0."
342  02 $a Horizontal co-ordinate system: Universal Transverse Mercator grid.
342  05 $a Horizontal co-ordinate system: European Datum 50.
342  16 $a Vertical co-ordinate system: Altituds referides al nivell mitjà del mar a Alacant.
500  'Connectable a GPS'—from front of jewel case insert.
500  '© Institut Cartogràfic de Catalunya. All rights reserved'
500  'Dipòsit legal: B.29 541-2003'
540  'Unauthorized copying is illegal. .... Aquest CD-ROM és protegit per la Llei. Es prohibeix qualsevol reproduccio total o parcial... i la seva difusió per qualsevol mitja si no ha estat expressament autoritzada per l'Institut Cartogràfic de Catalunya'
530  Also available online, at http://www.icc.es/mapa1250000/intro.html.
520  'La informació ... és actualitzada a maig de 2003. S'hi representa la coberta vegetal, la batimetria, l'orografia i els vèrtexs, la hidrografia, la toponimia i les comunicacions de Catalunya. A més, quest producte permet activar i desactivar els límits administratius, ampliar una zona en concret, canviar colors, fer cerques a partir de topònims (en recull més d 3 000), personalitzar les zones d'interès i imprimir-les o copiar-les a altres aplicacions'
651  0 Catalunya $v Maps, Topographic.
651  0 Catalunya $v Maps $v Databases.
650  0 Geodatabases $z Catalunya $v Maps.
653  Maps, digital
856  4 $u http://www.icc.es/mapa1250000/intro.html

Figure 1. Sample bibliographic record in MARC21 format; variable fields are given in toto, plus selected fixed fields
Cartographic materials other than globes.

Character Positions

- **00** - Category of material
  - a - Map

- **01** - Specific material designation
  Indicates the special class of cartographic material to which the item belongs.
  - d - Atlas
  - g - Diagram
    A map characterized by simplified or schematic representation.
  - j - Map
    A two-dimensional map.
  - k - Profile
    A scale representation of the intersection of a vertical surface with the surface of the ground or of a three-dimensional model of phenomena having continuous distribution.
  - q - Model
    A three-dimensional representation of a real object.
  - r - Remote-sensing image
    An image produced by a recording device that is not in physical or intimate contact with the object under study.
  - s - Section
    A scaled representation of a vertical surface displaying both the intersection profile and the underlying structures.
  - u - Unspecified
  - y - View
    A perspective representation of the landscape shown as though it were projected onto an oblique plane.
  - z - Other
  - | - No attempt to code

- **02** - Undefined
  Each contains a blank (#) or fill character (|)

- **03** - Colour
  Indicates whether the item is one colour or multicoloured.
  - a - One colour
  - c - Multicoloured
  - | - No attempt to code

- **04** - Physical medium
  Indicates the material out of which the item is made.
  - a - Paper
    Any kind of cellulose-based paper.
  - b - Wood
    Includes particle board, but may or may not include other materials based on wood particles or fibres.
  - c - Stone
  - d - Metal
  - e - Synthetic
    Includes all man-made substances other than textiles.
  - f - Skin
    Does not include synthetic materials that resemble animal skin.
  - g - Textile
    Includes all natural or synthetic fibre fabrics.
  - j - Glass
  - p - Plaster
    Includes mixtures of ground solids and plaster.
  - q - Flexible base photographic, positive
    The material is a flexible base photographic medium designed to render a positive image.
  - r - Flexible base photographic, negative
    The material is a flexible base photographic medium designed to render a negative image.
  - s - Non-flexible base photographic, positive
    The material is a non-flexible base photographic medium designed to render a positive

Figure 2. MARC21 field 007
007—GLOBE

A model of a celestial body depicted on the surface of a sphere. See the descriptions of character positions /01-05 under 007 MAP.

Character Positions

- 00 - Category of material
  - d - Globe

- 01 - Specific material designation
  - a - Celestial globe
    A model relating to the sky of visible heavens.
  - b - Planetary or lunar globe
    Does not include a globe of planet Earth.
  - c - Terrestrial globe
  - e - Earth moon globe
  - u - Unspecified
  - z - Other
  - | - No attempt to code

- 02 - Undefined
  Each contains a blank () or fill character (f)

- 03 - Colour
  - a - One colour
  - c - Multicoloured

Figure 2. Continued
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007—REMOTE-SENSING IMAGE

Indicates that the item is a remote-sensing image, which is defined as an image produced by a recording device that is not in physical or intimate contact with the object under study. This may be a map or other image that is obtained through various remote sensing devices such as cameras, computers, lasers, radio frequency receivers, radar systems, sonar, seismographs, gravimeters, magnetometers and scintillation counters.

Character Positions

- 00 - Category of material
  - r - Remote-sensing image

- 01 - Specific material designation
  Indicates the special class of material, usually the class of physical object, to which an item belongs.
  - u - Unspecified
  - | - No attempt to code

- 02 - Undefined
  Each contains a blank (#) or fill character (|)

- 03 - Altitude of sensor
  Indicates the general position of the sensor relative to the object under study.
  - a - Surface
  - b - Airborne
  - c - Spaceborne
  - n - Not applicable
  - u - Unknown
  - z - Other
  - | - No attempt to code

- 04 - Attitude of sensor
  Indicates the general angle of the device from which a remote-sensing image is made.
  - a - Low oblique
  - b - High oblique
  - c - Vertical
  - n - Not applicable
  - u - Unknown
  - | - No attempt to code

- 05 - Cloud cover
  Indicates the amount of cloud cover that was present when a remote-sensing image was made.
  - 0 - 0–9%
  - 1 - 10–19%
  - 2 - 20–29%

Figure 2. Continued
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- **06 - Platform construction type**
  Indicates the type of construction of the platform serving as the base for the remote-sensing device. For the purposes of this data element, ‘platform’ refers to any structure that serves as a base, not only flat surfaces.
  - a - Balloon
  - b - Aircraft—low altitude
  - c - Aircraft—medium altitude
  - d - Aircraft—high altitude
  - e - Manned spacecraft
  - f - Unmanned spacecraft
  - g - Land-based remote-sensing device
  - h - Water surface-based remote-sensing device
  - i - Submersible remote-sensing device
  - n - Not applicable
  - u - Unknown
  - z - Other
  - - No attempt to code

- **07 - Platform use category**
  Indicates the primary use intended for the platform specified in 007/06 (Platform construction type).
  - a - Meteorological
  - b - Surface observing
  - c - Space observing
  - m - Mixed uses
  - n - Not applicable
  - u - Unknown
  - z - Other
  - - No attempt to code

- **08 - Sensor type**
  Indicates the recording mode of the remote-sensing device, specifically, whether the sensor is involved in the creation of the transmission it eventually measures.
  - a - Active
  - b - Passive
  - u - Unknown
  - z - Other
  - - No attempt to code

- **09-10 - Data type**
  A two-character code that indicates the spectral, acoustic, or magnetic characteristics of the data received by the device producing the remote-sensing image. It can be used to indicate both the wave length of radiation measured and the type of sensor used to measure it.
  - aa - Visible light
  - da - Near infrared
  - db - Middle infrared
  - dc - Far infrared
  - dd - Thermal infrared
  - de - Shortwave infrared (SWIR)
  - df - Reflective infrared
  - dv - Combinations
  - dz - Other infrared data
  - ga - Side looking airborne radar (SLAR)
  - gb - Synthetic aperture radar (SAR)-Single frequency
  - gc - SAR-multifrequency (multichannel)
  - gd - SAR-like polarization
  - go - SAR-cross polarization
  - gf - Infometric SAR

Figure 2. Continued
These are paired fields (although only scale and co-ordinate information are in 034) and when one appears in the bibliographic record, so must the other.

Let’s begin with scale. The problem here is that there is some discussion as to what meaning the concept of scale has when one is dealing with digital data, given that the only statement of scale that remains correct when a cartographic resource is enlarged or reduced is the bar scale. All other forms of scale statements—representative ratio/fraction; verbal statement—are incorrect. The current AACR-community practice is to use ‘Scale not given’, unless the scale is specifically stated in the title of the resource; a note is made for ‘input scale’ in the former case, when the scale of the hard-copy resource from which the digital resource was scanned or digitized is known.

The current draft of ISBD(CM)\(^5\) has proposed for electronic resources the inclusion of resolution and this is an excellent idea, since it is the measure of level of detail with which users of this data have the most familiarity. An example of a resolution statement is ‘Resolution, 1 metre’. This means that the smallest object that may be discerned or mapped on the item is 1 metre in diameter.

Next are co-ordinates. These may be entered either in the form of degrees/minutes/seconds or as decimal degrees/decimal degrees, minutes/decimal degrees, minutes and seconds. In addition, the co-ordinates may be entered as each of the four corners of a bounding box (in the order of western-most and eastern-most longitude, and northern-most and southern-most latitude) or as each vertex of a non-bounding-box polygon (each vertex with first a longitude value and then a latitude value; begin the polygon in the southeast corner and proceed clockwise, except for an exclusion ring, in which situation one proceeds counter-clockwise; and the first and last set of vertices must have exactly the same values, so that the polygon is closed).

Computer File Characteristics

Frequency of use of this field—MARC21 256 (see Figure 6)—varies from country to country. The most commonly used phrase is ‘Computer data and software’. ISBD(ER)\(^6\) has, in its Appendix C (pp. 90–91), a good many possibilities for phrases to use in this area, e.g. ‘Electronic representational data’ with ‘Electronic map data’ being listed as a subcategory under this; ‘Electronic image data’ as yet another option, which unfortunately has the implication, but one suspects not the intent of including remote-sensing images. Probably it would be more sensible to have something on the order of ‘Electronic cartographic-materials...
Figure 3. MARC21 field 008 for cartographic materials

008—MAPS

Character Positions

- 18—21 - Relief
  Up to four one-character codes that indicate the relief type specified on the item. Codes are recorded in order of their importance to the described item. If fewer than four codes are assigned, the codes are left justified and each unused position contains a blank (#).
  - # - No relief shown
  - a - Contours
  - b - Shading
  - c - Gradient and bathymetric tints
  - d - Hachures
  - e - Bathymetry/soundings
  - f - Form lines
  - g - Spot heights
  - i - Pictorially
  - j - Land forms
  - k - Bathymetry/isolines
  - m - Rock drawings
  - z - Other relief type
  - i - No attempt to code

- 22—23 - Projection
  A two-character code that indicates the projection used in producing the item.
  - ## - Projection not specified
  - aa - Aitoff
  - ab - Gnomic
  - ac - Lambert's azimuthal equal area
  - ad - Orthographic
  - ae - Azimuthal equidistant
  - af - Stereographic
  - ag - General vertical near-sided
  - am - Modified stereographic for Alaska
  - an - Chamberlin trimetric
  - ap - Polar stereographic
  - au - Azimuthal, specific type unknown
  - az - Azimuthal, other
  - ba - Gall
  - bb - Goode's homolographic
  - bc - Lambert's cylindrical equal area
  - bd - Mercator
  - be - Miller
  - bf - Mollweide
  - bg - Sinusoidal
  - bh - Transverse Mercator
  - bi - Gauss–Kruger
  - bj - Equirectangular
  - bo - Oblique Mercator
  - br - Robinson
  - bs - Space oblique Mercator
  - bu - Cylindrical, specific type unknown
  - bz - Cylindrical, other
  - ca - Alber's equal area
  - cb - Bonne
  - cc - Lambert's conformal conic
  - ce - Equidistant conic
  - cp - Polyconic
  - cu - Conic, specific type unknown
  - cz - Conic, other
  - da - Armadillo
  - db - Butterfly
  - dc - Eckert
  - dd - Goode's homolosine
  - de - Miller's bipolar oblique conformal conic
24 - Undefined
Each contains a blank (#) or fill character (())

25 - Type of cartographic material
A one-character code that indicates the type of cartographic item described in the bibliographic record.

- a - Single map
- b - Map series
  A number of related, but physically separate and bibliographically distinct cartographic units intended by the producer or issuing body to form a single group.
- c - Map serial
  A cartographic publication issued in successive parts bearing numerical or chronological designations and intended to be continued indefinitely.
- d - Globe
- e - Atlas
- f - Separate map supplement to another work
- g - Map bound as part of another work
- u - Unknown
- z - Other
- | - No attempt to code

26-27 - Undefined
Each contains a blank (#) or fill character (())

28 - Government publication
A one-character code that indicates whether the item is published or produced by or for a government agency, and, if so, the jurisdictional level of the agency.

- # - Not a government publication
- a - Autonomous or semi-autonomous component
- c - Multilocal
- f - Federal/national
- i - International intergovernmental
- l - Local
- m - Multistate
- o - Government publication—level undetermined
- s - State, provincial, territorial, dependent, etc.
- u - Unknown if item is government publication
- z - Other
- | - No attempt to code

29 - Form of item
A one-character code that indicates the form of material for the item.

- # - None of the following
- a - Microfilm
- b - Microfiche
- c - Micro-opaque
- d - Large print
- f - Braille
- r - Regular print reproduction
  Eye-readable print.
- s - Electronic
- | - No attempt to code

30 - Undefined
Contains a blank (#) or fill character (())

31 - Index
A one-character code that indicates whether the item or accompanying material includes a location index or gazetteer.

- 0 - No index
- 1 - Index present
- | - No attempt to code

32 - Undefined
Contains a blank (#) or fill character (())

33-34 - Special format characteristics
Up to two one-character codes that indicate the special format characteristics of the map. Codes are recorded in order of their importance to the described item. If only one code is assigned, it is left justified and the unused position contains a blank (#).

- # - No specified special format characteristics
- e - Manuscript
- j - Picture card, post card
- k - Calendar
- l - Puzzle
- n - Game
- o - Wall map
- p - Playing cards
- r - Loose-leaf
- z - Other
- I - No attempt to code

Field 256 also includes information on number of files, number of records and number of bytes. Counting files and records is analogous to counting plates in books—and is just as much a waste of time—and unless the information is specifically given on the item or its accompanying material, it seems unnecessary to supply it. Given that file size is one of the first questions that any user of digital data asks, it is important to supply an estimate of total file size if at all possible, but since this information is quantitative rather than qualitative in nature, it should instead appear in physical description—MARC21 field 300.

Digital Graphic Representation

Now let's move on to digital graphic representation, MARC21 field 352 (see Figure 7). This information should appear following field 255, but as previously noted, to have that occur requires working with the systems programmers in a given individual library. This is a field for which the cataloguer should make every effort to determine values, since it indicates what digital format and what files are in the dataset—and these tell the user what applications software the user will need to obtain, and know or learn how to use. These are matters that users of digital data invariably ask at the reference desk, so it makes sense to have the bibliographic record prominently include the information.

Physical Description

For cartographic items catalogued on the map format, the pattern is to use the appropriate specific material designation (SMD) in MARC21 300a, together with physical carrier as appropriate, noting if colour in 300b and then giving dimensions—either of the cartographic item, its

006—COMPUTER FILES/ELECTRONIC RESOURCES

For descriptions of character positions 01–17, see the descriptions of corresponding character positions 18–34 in the 008—COMPUTER FILES section of Control Field 008.

Character Positions

- 00 - Form of material
  - m - Computer file/Electronic resource
- 01-04 - Undefined
  - Each contains a blank (#) or a fill ( ) character
- 05 - Target audience
  See the description of position 22 (Target audience) under 008—COMPUTER FILES
- 06-08 - Undefined
  - Each contains a blank (#) or a fill ( ) character
- 09 - Type of computer file
  See the description of position 26 (Type of computer file) under 008—COMPUTER FILES
- 10 - Undefined
  - Each contains a blank (#) or a fill ( ) character
- 11 - Government publication
  See the description of position 28 (Government publication) under 008—COMPUTER FILES
- 12—17 - Undefined
  - Each contains a blank (#) or a fill ( ) character
034 - CODED CARTOGRAPHIC MATHEMATICAL DATA (R)

The coded form of the mathematical data contained in field 255 (Mathematical Data Area) of the bibliographic record.

Indicators

- First - Type of scale
  A value that indicates the type of scale contained in the field.
  - 0 - Scale indeterminable/No scale recorded
  - 1 - Single scale
  - 3 - Range of scales

- Second - Type of ring
  - # - Not applicable
  - 0 - Outer ring
  - 1 - Exclusion ring

Subfield Codes

- $a$ - Category of scale (NR)
  A one-character code that indicates the type of scale of the item.
  - a - Linear scale
  - b - Angular scale
    Used for celestial charts.
  - z - Other type of scale

- $b$ - Constant ratio linear horizontal scale (R)
  The denominator of the representative fraction for the horizontal scale.

- $c$ - Constant ratio linear vertical scale (R)
  The denominator of the representative fraction for the vertical scale of relief models and other three-dimensional items.

- $d$ - Co-ordinates—westernmost longitude (NR)

- $e$ - Co-ordinates—easternmost longitude (NR)

- $f$ - Co-ordinates—northernmost latitude (NR)

- $g$ - Co-ordinates—southernmost latitude (NR)
  Subfields $d$, $e$, $f$, and $g$ always appear together. The co-ordinates may be recorded in the pattern $ddmmss$, however, other forms are also allowed, such as decimal degrees. The subelements are each right justified and each unused position contains a zero.

- $h$ - Angular scale (R)
  The scale for celestial charts.

- $i$ - Declination—northern limit (NR)

- $k$ - Declination—southern limit (NR)
  Subfields $i$ and $k$ are each eight characters in length and consist of the hemisphere, degree, minutes, and seconds of the declination of a celestial chart, recorded in the pattern $ddmmss$. The degree, minute and second subelements are each right justified, and each unused position contains a zero.

- $m$ - Right ascension—eastern limit (NR)

- $n$ - Right ascension—western limit (NR)
  Subfields $m$ and $n$ are each six characters in length and consist of the right ascension of a celestial chart, recorded in the pattern $hhmmss$. Each subelement is right justified and each unused position contains a zero.

- $p$ - Equinox (NR)
  The year or year and month of a celestial chart recorded in the pattern yyyy.mm.

- $s$ - G-ring latitude (R)

- $t$ - G-ring longitude (R)

- $6$ - Linkage (NR) See Control Subfields

- $8$ - Field link and sequence number (R) See Control Subfields

Examples

Figure 5. MARC21 fields 034 and 255
255—CARTOGRAPHIC MATHEMATICAL DATA (R)

Mathematical data that is associated with map material, including celestial charts. This data is also be coded in field 034 (Coded Mathematical Data).

Indicators

- First - Undefined
  - # - Undefined
- Second - Undefined
  - # - Undefined

Subfield Codes

- $a - Statement of scale (NR)
  Includes any equivalency statements, vertical scales or vertical exaggeration statements for relief models and other three-dimensional items.
- $b - Statement of projection (NR)
- $c - Statement of co-ordinates (NR)
- $d - Statement of zone (NR)
  Used for celestial charts.
- $e - Statement of equinox (NR)
- $f - Outer G-ring co-ordinate pairs (NR)
- $g - Exclusion G-ring co-ordinate pairs (NR)
- $6 - Linkage (NR) See Control Subfields
- $8 - Field link and sequence number (R) See Control Subfields

Examples

255 $aScale not given.

255 $aScale [ca. 1:90,000].

255 $aScale [1:6,336,000]. 1" = 100 miles. Vertical scale [1:192,000]. 1/16" = approx. 1000'.

Figure 5. Continued
physical carrier, both or just the physical carrier if it would be difficult or impossible to supply the measurement of the cartographic item (see Figure 8); for example:

300a 1 map on 9 sheets : lb col. ; lc 239 × 200 cm., sheets 30 × 20 cm.

So for electronic cartographic materials, this is the appropriate form:

300a 184 remote-sensing images (ca. 5 Gb) on 10 CD-ROMs : lb col. ; lc CDs 4½ in.

Whether a digital file is presented in gray-scale (which would be considered to be black and white), or in colour is a mixture of a capability of the software and of the user’s requirements. What we mean in this case is that, provided the user has software with this capability, the image can be viewed in colour.

Using the pattern above rids us of the problem with the current form of physical description for non-cartographic materials—it looks to many users as if the carrier of the data is in colour, not the actual information on the carrier, e.g.:

300a 1 computer laser optical disc : lb col. ; lc 4½ cm.

The subfield for accompanying material, 300e, seems most appropriately used only for print texts and guides that

Figure 5. Continued

255—COMPUTER FILE CHARACTERISTICS (NR)

Characteristics of a computer file, such as the type of file, the number of records or statements.

Indicators
- First - Undefined
  - + - Undefined
- Second - Undefined
  - + - Undefined

Subfield Codes
- Sa - Computer file characteristics (NR)
- Sb - Linkage (NR) See Control Subfields
- Sc - Field link and sequence number (R) See Control Subfields

Examples

256 SaSaComputer data (2 files : 876,000, 775,000 records).
256 SaSaComputer programs (2 files : 4,000, 1,250 bytes).
256 SaSaData(1 file : 350 records).

Figure 6. MARC21 field 256, computer file characteristics

362—DIGITAL GRAPHIC REPRESENTATION (R)

A description of the method of referencing and the mechanism used to represent graphic information in a data set. This information consists of the type of storage technique used, the number of items in the data set, and the format in which the data is stored.

Indicators
- First - Undefined
  - + - Undefined
- Second - Undefined
  - + - Undefined

Subfield Codes
- Sa - Direct reference method (NR)
- Sb - Object type (R)
- Sc - Object count (R)
- Sd - Row count (NR)
- Se - Column count (NR)
- Sf - Vertical count (NR)
- Sg - WVP technology level (NR)
- Sh - Indicator reference description (NR)
- Si - Format of the digital image (R)
- Sj - Linkage ONL See Control Subfields
- Ss - Field link and sequence number (R) See Control Subfields

Examples

352 #SaSaVector.
352 #SaSaPoint : SbEntity point.
352 #SaSaRaster : SbPixel Sd5.000 × Sc7.000 ; Sg0/F.
352 #SaSaVector : SgGT-polygon composed of chains Sg70b.
352 #SaSaVector : Sg100 year floodplain boundary, 500 year floodplain boundary

Figure 7. MARC21 field 352, digital graphic representation

300—PHYSICAL DESCRIPTION (R)

A physical description of the described item, including its extent, dimensions, and such other physical details as a description of any accompanying materials and unit type and size.

Indicators
- First - Undefined
  - + - Undefined
- Second - Undefined
  - + - Undefined

Subfield Codes
- Sa - Extent (R)
  - The number of pages, volumes, cassettes, total playing time, etc., of the described item.
- Sb - Other physical details (NR)
  - Physical characteristics such as illustrative matter, orientation; playing speed, geometric characteristics, presence and kind of sound, number of channels, and motion picture presentation format.
- Sc - Dimensions (R)
  - Expressed in centimeters, millimeters or inches, may include a parenthetical qualifier giving the format of the item (e.g., (fol.)), (kilo)).
- Sd - Accompanying material (NR)
  - May include a parenthetical physical description of the accompanying material.
- Se - Type of unit (R)
  - Term used in page, volume, boxes, etc. (linear ft), etc. that identify the configuration of the material and how it is stored.
- Sf - Size of unit (R)
  - The size of the unit contained in subfield Sc. Subfield Sf is repeatable when additional forms of extent data are given.
- Sh - Materials specified (NR)
  - The part of the described materials in which the subfield applies.
- Si - Linkage ONL See Control Subfields
- Ss - Field link and sequence number (R) See Control Subfields

Figure 8. MARC21 field 300, physical description
856—ELECTRONIC LOCATION AND ACCESS (R)

The information needed to locate and access an electronic resource. The field may be used in a bibliographic record for a resource when that resource or a subset of it is available electronically. In addition, it may be used to locate and access an electronic version of a non-electronic resource described in the bibliographic record or a related electronic resource. Field 856 is repeated when the location data elements vary (subfields $a, b, d$, when used). It is also repeated when more than one access method is used, different portions of the item are available electronically, mirror sites are recorded, different formats/resolutions with different URLs are indicated and related items are recorded. See the Guidelines for the Use of Field 856 for a more thorough discussion on the use of field 856.

Indicators

- First - Access method
  A value that defines the access method to the electronic resource. If the resource is available by more than one access method, the field is repeated. When recording a URL in subfield Su, the value corresponds to the access method (URL scheme), which is also the first element in the string.
  - # - No information provided
  - 0 - Email
    Indicates that access is through the Mail Transfer Protocol (MAILTP).
  - 1 - FTP
  - 2 - Remote login (Telnet)
  - 3 - Dial-up
    Indicates that access to the electronic resource is through a conventional telephone line.
  - 4 - HTTP
    Indicates that access to the electronic resource is through the Hypertext Transfer Protocol.
  - 7 - Method specified in subfield S2

- Second - Relationship
  A value that identifies the relationship between the electronic resource at the location identified in field 856 and the item described in the record as a whole. Subfield S3 is used to provide further information about the relationship if it is not a one-to-one relationship.
  - # - No information provided
  - 0 - Resource
    Indicates that the electronic location in field 856 is for the same resource described by the record as a whole. In this case, the item represented by the bibliographic record is an electronic resource. If the data in field 856 relates to a constituent unit of the resource represented by the record, subfield S3 is used to specify the portion(s) to which the field applies.
  - 1 - Version of resource
    Indicates that the location in field 856 is for an electronic version of the resource described by the record. In this case, the item represented by the bibliographic record is not electronic, but an electronic version is available. If the data in field 856 relates to a constituent unit of the resource represented by the record, subfield S3 is used to specify the portion(s) to which the field applies.
  - 2 - Related resource
    Indicates that the location in field 856 is for an electronic resource that is related to the item described by the record. In this case, the item represented by the bibliographic record is not the electronic resource itself. Subfield S3 can be used to further characterize the relationship between the electronic item identified in field 856 and the item represented by the bibliographic record as a whole.
  - 8 - No display constant generated

Figure 9. MARC21 field 856, electronic location and access
accompany the digital data, although it would be possible to make a case for the readme files that thankfully are included with most digital data. Certainly, these files could be indicated in this subfield if they are printed out; if they are not printed out, it is important to indicate in a note field that these manuals or readme files exist.

How about electronic cartographic materials that are either only available via the Internet, or that the library has downloaded from the net and stored on a hard-drive in the library? Be sure to have a 300 field, in this pattern for a resource available online:

1 map (ca. 120 megabytes) online : |b col.

Subfield Codes

- Sa - Host name (R)
  The fully qualified domain (host name) of the electronic location. It contains a network address that is repeated if there is more than one address for the same host.

- Sb - Access number (R)
  The access number associated with a host. It can contain the Internet Protocol (IP) numeric address if the item is an Internet resource or a telephone number if dial-up access is provided through a telephone line. This data may change frequently and may be generated by the system, rather than statically stored.

- Sc - Compression information (R)
  Information about the compression of a file, in particular, whether a specific program is required to decompress the file.

- Sd - Path (R)

- Sf - Electronic name (R)

- Sh - Processor of request (NR)
  The username or processor of the request; generally the data which precedes the ‘@’ in the host address.

- Si - Instruction (R)
  An instruction needed for the remote host to process a request.

- SJ - Bits per second (NR)

- SK - Password (NR)

- SL - Login (NR)
  Characters needed to connect (i.e., logon, login, etc.) to an electronic resource or FTP site. This subfield is used to record general-use logon strings, which do not require special security.

- Sm - Contact for access assistance (R)

- Sn - Name of location of host (NR)
  The full name of the location of the host in subfield Sa, including its geographical location.

- So - Operating system (NR)

- Sp - Port (NR)
  The portion of the address that identifies the process or service in the host.

- Sq - Electronic format type (NR)
  An identification of the electronic format type, which is the data representation of the resource, such as text/HTML, ASCII, Postscript file, executable application, or JPEG image. Electronic format type may be taken from enumerated lists such as registered Internet Media Types (MIME types).

- Sr - Settings (NR)

- Ss - File size (R)

- St - Terminal emulation (R)

- Su - Uniform Resource Identifier (R)
  The URL which provides standard syntax for locating an object using existing Internet protocols. Field 856 is structured to allow for the creation of a URL from the concatenation of other separate 856 subfields. Subfield Su may be used instead of those separate subfields in addition to them. Subfield Su may be repeated only if both a URN or a URL or more than one URN are recorded.

- Sv - Hours access method available (R)

- Sw - Record control number (R)

- Sx - Non-public note (R)

- Sy - Link text (R)

- Sz - Public note (R)

- $2 - Access method (NR)
  The access method when the first indicator position contains value 7.

- $3 - Materials specified (NR)

- $6 - Linkage (NR) See Control Subfields

- $8 - Field link and sequence number (R) See Control Subfields

Figure 9. Continued
NOTE FIELDS, INCLUDING GEOSPATIAL REFERENCE INFORMATION AND PLANAR CO-ORDINATE DATA

Notes for electronic geospatial data in several cases contain information that a user must have in order to access a dataset. While, as a general rule, notes are generally considered to be optional, the rules for electronic items have two required notes: system requirements (MARC21 field 538); and source of title (MARC21 field 500). Notes relating to restrictions on access (MARC21 field 506) and on use (MARC21 field 540; terms governing use and reproduction) are especially important for digital data. The decision about what other notes should be included for electronic cartographic materials is best made on a local-policy basis that is keyed toward what the majority of the library’s users of this data will find to be helpful.

There are several note fields specifically created for electronic cartographic material and, of course, there are also note fields specifically created for all electronic material. We will begin with two fields—geospatial reference information, MARC21 342 and planar co-ordinate data, MARC21 343—that if one’s online catalogue will allow it should appear in the note area, i.e. within MARC21’s 566 fields. The problem here is that according to cataloguing theory and practice, these two fields since they are notes on ISBD area 3—MARC21 field 538—and planar co-ordinate data, MARC21 343—that if one’s online catalogue will allow it should appear in the note area, i.e. within MARC21’s 5XX fields. The problem here is that according to cataloguing theory and practice, these two fields since they are notes on ISBD area 3—MARC21 field 255—should appear in that portion of the notes, which would seem to be very difficult to program, since what notes appear in any given catalogue record is not predictable; that is, there is no way to know that in any (much less every) bibliographic record, the third MARC21 500 field is going to be the last note on area 2, so therefore 342 and 343 can be placed next. One possibility is to have 342 and 343 appear at the end of the note area, but right before local notes (MARC21 field 590).

Both of these fields contain both basic (e.g. the name of a projection, the name of a grid) and very detailed (e.g. latitude resolution, longitude resolution) information. Depending upon a library’s users, the very detailed information may instead be kept only in a metadata file that accompanies the data—with the bibliographic record referring users to that file for specifics. If this route is taken, either the cataloguer may use a generic note (MARC21 500), or the field for electronic location and access (MARC21 856), which allows the cataloguer to specify in the second indicator that the URL in the field is for an item related to the item being catalogued, and is not the URL for the item being catalogued (see Figure 9 for 856 field values).

Geospatial reference information—MARC21 field 342—is used to give detailed information on horizontal and vertical co-ordinate systems, e.g. projections, grids and datums. As currently defined in MARC21, both it and planar co-ordinate data—MARC21 field 343—do require that the cataloguer input a display constant for each subfield, so that users will know what that subfield value means. When the field was initially established in MARC21, it was thought that it would be searched by computer software and would not be read by general users; as it turned out, such is not the case. For example, for projection, the first indicator would be 0 (horizontal co-ordinate system) and the second would be 1 (map projection), so what the library patron would most usefully see would be, e.g.:

Projection: Albers equal area.

not just:

Albers equal area.

The first indicator in 342 is to signal whether the information is for a horizontal (value 0) or a vertical (value 1) reference system, and the second indicator codes the specific geospatial reference method. Punctuation is generally a colon after the subfield name (e.g. ‘Projection: Albers equal area’), and semicolons in between subfields except when subfields directly relate to the immediately preceding subfield and not to subfields after them. (See Figure 10 for examples without the subfield labels.) Here is the first example from 342 with subfield labels added:

342 01 Sa Projection: polyconic; $g longitude of central meridian or projection center: 0.9996; $h latitude of...
342—GEOSPATIAL REFERENCE DATA (R)

A description of the frame of reference for the co-ordinates in a data set. To work with a data set a user must be able to identify how location accuracy has been affected through the application of a geospatial reference method, thus enabling the user to manipulate the data set to recover location accuracy.

Indicators

- First - Geospatial reference dimension
  - 0 - Horizontal co-ordinate system
  - 1 - Vertical co-ordinate system
- Second - Geospatial reference method
  - 0 - Geographic
  - 1 - Map projection
  - 2 - Grid co-ordinate system
  - 3 - Local planar
  - 4 - Local
  - 5 - Geodetic model
  - 6 - Altitude
  - 7 - Method specified in $2
  - 8 - Depth

Subfield Codes

- $a - Name (NR)
- $b - Co-ordinate or distance units (NR)
- $c - Latitude resolution (NR)
- $d - Longitude resolution (NR)
- $e - Standard parallel or oblique line latitude (R)
- $f - Oblique line longitude (R)
- $g - Longitude of central meridian or projection centre (NR)
- $h - Latitude of projection origin or projection centre (NR)
- $i - False easting (NR)
- $j - False northing (NR)
- $k - Scale factor (NR)
- $l - Height of perspective point above surface (NR)
- $m - Azimuthal angle (NR)
- $n - Azimuth measure point longitude or straight vertical longitude from pole (NR)
- $o - Land sat number and path number (NR)
- $p - Zone identifier (NR)
- $q - Ellipsoid name (NR)
- $r - Semi-major axis (NR)
- $s - Denominator of flattening ratio (NR)
- $t - Vertical resolution (NR)
- $u - Vertical encoding method (NR)
- $v - Local planar, local, or other projection or grid description (NR)
- $w - Local planar or local georeference information (NR)
- $x - Reference method used (NR)
- $y - Linkage (NR) See Control Subfields
- $z - Field link and sequence number (R) See Control Subfields

Examples

342 01SaPolyconic$g0.9996$h0$i500.000$j0

342 16SaNational geodetic vertical datum of 1929$v1$bmeters$wImplicit co-ordinates.

342 00Sc0.0004$d0.0004$bDecimal degrees

Figure 10. MARC21 field 342, geospatial reference information; and MARC21 field 343, planar co-ordinate information
Cataloguing Electronic Cartographic Materials

342 058sWorld geodetic system 72Sf6378135Su298.26

342 185taLowest astronomical tide

342 055aWorld Geodetic System 1984 (WGS-84)Sc0.00000001Sh0.0000001SbDegrees, Minutes, and Decimal secondsSqWorld Geodetic System 1984 (WGS-8)Sr6378137.0Ss298.257223563

342 025aUniversal Transverse MercatorSp13Sk0.9996Sg-105.00Sh0.00Sf500.0000Sj0.0

342 025aState Plane Co-ordinate System 27, Lambert Conformal ConicSp0405Sg69.0Sf0.050000000.0Sj0.0

342 035vMissouri East State Plane NAD27SqClarke 1866Sr6378206.4 Mf5294.97869821

342 18SaNGVD 1929Sf0.01SbfeetSgExplicit depth co-ordinate included with horizontal co-ordinates

343—PLANAR CO-ORDINATE DATA (R)

Information about the co-ordinate system developed on a planar surface. The information is provided to allow the user of a geospatial data set to identify the quantities of distances, or distances and angles. These define the position of a point on a reference plane onto which the surface of the Earth has been projected.

Indicators

- First - Undefined
  - # - Undefined
- Second - Undefined
  - # - Undefined

Subfield Codes

- Sa - Planar co-ordinate encoding method (NR)
- Sb - Planar distance units (NR)
- Sc - Abscissa resolution (NR)
- Sd - Ordinate resolution (NR)
- Se - Distance resolution (NR)
- Sf - Bearing resolution (NR)
- Sg - Bearing units (NR)
- Sh - Bearing reference direction (NR)
- Si - Bearing reference meridian (NR)
- S6 - Linkage (NR) See Control Subfields
- S8 - Field link and sequence number (R) See Control Subfields

Examples

343 ##SaDistance and bearing.

343 ##SaCo-ordinate pair:Sbmetres;Sc22;Sd22.

343 ##SaCo-ordinate pairSc30.0;Sf0.0001;SgDegrees, minutes and decimal seconds;ShNorth;SbU.S. feet.

343 ##SiMagnetic.

Figure 10. Continued
514 $a Attribute accuracy report: The map layer that displays Special Feature Symbols shows the approximate location of small (less than 2 acres in size) areas of soils ... [subfield $a shortened in this example] $d Logical consistency report: Quarter quadrangles edited and joined internally and to surrounding quads. All known errors corrected. $e Completeness report: The actual on-ground transition between the area represented by the Special Feature Symbol and the surrounding soils generally is very narrow with a well defined edge. The center of the feature area was compiled and digitized as a point. The same standards for compilation and digitizing used for line data were applied to the development of the Special Feature Symbols layer.

Next we come to yet another field created expressly for electronic cartographic material, MARC21 field 552 (formerly field 551), entity and attribute overview. The purpose of this field is to provide either detailed descriptions about layers in a GIS dataset, or more commonly—and more sensibly!—to provide an overview (in $o), coupled with an 856 field if the entity and attribute detailed information is available online. For an example of the latter (see the last example in Figure 12). Here are the last two examples with subfield labels entered (except for $z). Note that each subfield generally ends with a full stop:


Classification and Subject Headings

Classification: What seems most sensible is to indicate either as a location in the ILS's holdings record, or at the end of the call number when an item is digital and, as needed, what the location is (e.g. ‘Digital CD’; ‘Digital online’)—just as one indicates in a call number when an item is in microfiche.

Subject Headings: There are certain facets of an electronic cartographic material that the cataloguer would like to present to the user, if at all possible in one subject heading:

- Intellectual content:
  - geographic area: e.g. Barcelona;
  - theme or topic: e.g. geology;
  - type of cartographic material: e.g. maps;
  - digital nature.

The type of digital carrier—e.g. DVD, CD, magnetic tape on a reel, magnetic tape in a cartridge, online, computer

Field 343 has information on planar co-ordinate data (e.g. abscissa and ordinate resolution), which in comparison with projection and geodetic datum is relatively seldom provided (see Figure 10 for examples). Here is one of the examples from Figure 10, with subfield labels included:

343 $a Planar co-ordinate encoding method: co-ordinate pair; $e distance resolution: 30.0 $f bearing resolution: 0.0001; $g bearing units: degrees, minutes and decimal seconds; $h bearing reference direction: north; $b distance units: U.S. feet.

Another MARC21 field created specifically for electronic cartographic materials is the data quality field, 514. This is information about the quality and the accuracy of the data. Here again, when this field is used in a bibliographic record, the cataloguer will need to provide text labels for each subfield, so users understand what is being stated (see Figure 11 for examples). Here is the first example, which provides information on the accuracy of information for layers in a GIS dataset, with subfield labels added. Note that each subfield in this example ends with a full stop:
552—ENTITY AND ATTRIBUTE INFORMATION NOTE (R)

A description of the information content of the data set, including the entity types, their attributes and the domains from which attribute values may be assigned.

Indicators

- First - Undefined
  - # - Undefined
- Second - Undefined
  - # - Undefined

Subfield Codes

- $a$ - Entity type label (NR)
- $b$ - Entity type definition and source (NR)
- $c$ - Attribute label (NR)
- $d$ - Attribute definition and source (NR)
- $e$ - Enumerated domain value (R)
- $f$ - Enumerated domain value definition and source (NR)
- $g$ - Range domain minimum and maximum (NR)
- $h$ - Codeset name and source (NR)
- $i$ - Unrepresentable domain (NR)
- $j$ - Attribute units of measurement and resolution (NR)
- $k$ - Beginning date and ending date of attribute values (NR)
- $l$ - Attribute value accuracy (NR)
- $m$ - Attribute value accuracy explanation (NR)
- $n$ - Attribute measurement frequency (NR)
- $o$ - Entity and attribute overview (R)
- $p$ - Entity and attribute detail citation (R)
- $u$ - Uniform Resource Identifier (R)
- $z$ - Display note (R)
  A note that introduces the data in the field when needed.
- $6$ - Linkage (NR) See Control Subfields
- $8$ - Field link and sequence number (R) See Control Subfields

Examples

552 ##SaElevation point $b$ a point of known elevation $c$ Elevation $d$ altitude above or below a reference datum $g$ 999 to 264 $f$meters.

552 ##SaScale bar and text, title information text $b$ Level 1, Green

552 ##SaSoil type $b$ soil mapping unit polygon (SCS) $e$ numbered $d$ soil category, user-defined $g$ 1-4 $i$ integer $sk$ 19940809-19940812 $l$ untested

552 ##SaFloodplain polygon $b$ 100 and 500 year floodplain zones (FEMA) $e$ user-defined $d$ floodplain zone, USACE $g$ L $s$ 100-500 $f$ Years (time)

552 ##SaThree observables: Carrier-phase measurements, pseudorange (code) measurements, and observation times, as well as station and antenna information $g$ GPS Bulletin, Vol. 3, No. 3, September-October 1990 issue, from the Commission VIII International Co-ordination of Space Techniques for Geodesy and Geodynamics

552 ##SaEntity values: $u$ [URI]

Figure 12. MARC field 552, entity and attribute overview
hard drive—is best presented in $c of MARC21 300, physical description.

Let us take the Library of Congress Subject Headings (LCSH, 1986) as an example. LCSH headings deal well with intellectual content (e.g. ‘Maps’; ‘Remote-sensing images’; ‘Aerial photographs’). There is a temporary implementation by LC of the phrase ‘Maps, Digital’ in MARC21 field 653, uncontrolled index term. We also need parallel terms for remote-sensing images, e.g. ‘Aerial photographs, Digital’.

The exception to this would be for GISs—the data, not the software to run them—which are indeed databases and for which one may then use the subdivision ‘Databases’ or the new term, ‘Geodatabases’. A little history on the term ‘Databases’; before May, 1996, it was used for any computer file except software; since that date, it is restricted to actual databases. This excludes its use for remote-sensing images in digital form, which are not databases, although they may be part of a database, such as a GIS. If software accompanies the data, a subject heading that has ‘Software’ as a final subdivision should be present in the bibliographic record.

This leads nicely into what is an easy error to fall into while cataloguing digital data—the use of subject headings meant to be applied to works about a topic, rather than to items that are that topic. Classic examples of this are:

- Computer mapping;
- CD-ROMs;
- Digital mapping;
- Maps, statistical.

These are intended for use in bibliographic records for works about each of these topics, and are not to be used as, in effect, free-floating subdivisions such as, ‘Maps’.\(^7\)

ENDNOTES

1 This article was prepared in conjunction with the course ‘Electronic Cartographic Materials Cataloging and Metaloging’ held at the Institut Cartogràfic de Catalunya in November 2004. The editors are grateful to the ICC for permission to reproduce the English version.

2 The MARC formats are standards for the representation of bibliographic information in machine-readable form. They are used in many libraries across the world to build their online catalogues. MARC is an acronym for Machine Readable Cataloguing. The MARC21 documentation reproduced in this article is courtesy of the Library of Congress’ Network Development and MARC Standards Office (1969). See www.loc.gov/marc/ for more information.

3 American Library Association (1995); available online at: www.loc.gov/marc/cdfmap.html


6 International Standard Bibliographic Description (Electronic Resources).

7 ‘Cartographic Materials: a Manual of Interpretation for AACRZ, 2002 revision’ is the standard manual for cataloguing cartographic materials, and should be consulted as needed.

REFERENCES


