

www: <http://www.france-nord.ird.fr/>

The mapping department of IRD has initiated a project to make available around 2800 paper maps that are stored in the map library as rectified images. The project has received funding under the NumeriSud project, the digital campus in Bondy.

**Contact:**

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The transformation of the images into a standard coordinate system has been done by:

GMR (Global Mapping Resources)

P.O. Box 414113

Craighall 2024

South Africa.

email: [Maurizio@madmappers.com](mailto:Maurizio@madmappers.com)

GRM has extensive international experience in this kind of work.

This zip file contains the initial scanned maps and the final standardized product. The name of the files follows the nomenclature:

## File Name Nomenclature

| Field      | Signification  | Example   |
|------------|--|-----------|
| SPHAERA    | Identifier of the map sheet in the <a href="#">IRD Sphaera</a> database  | 00947     |
| EDITOR     | Editor of the map- three-letter code   | IRD       |
| GEOUNIT    | Three-letter area code (table 1)<br>See table 1  | MDG       |
| TOPIC      | IRD topic category - four-letter code (table 2)<br>See table 2.  | CGPP      |
| YYYY       | Year of publication of the map sheet<br>In case of mosaic over successive years the first year refers to the year of publication of the oldest map sheet and the last two to the year of publication of the most recent map sheet. | 1983      |
| SCALE      | Reciprocal value of the map scale<br>In case of different map scales the first value refers to the smallest scale and the last value to the largest scale.   | 1000000   |
| PROJECTION | Datum and map projection<br>See projection file .prj for more information.   | Geo_WGS84 |

The scanned paper maps have undergone different processing steps to produce the final product. The files that the workflow has generated are organized in subfolders:

## Main folder

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- Main folder and zip file name.

[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].zip

### Subfolder /01\_scan

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- Scanned maps  
[SPHAERA].tif
- Ground control points (GCPs) that has been used to rectify the map sheets  
[SPHAERA].gcp

### Subfolder /02\_scan\_RC/[PROJECTION]/

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- Rectified and cropped map files in ecw format  
[SPHARERA]RC\_[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].ecw, .ers, .eww, .tab
- Quicklook (1063×1063 pixels)  
[SPHARERA]RC\_[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].png
- Projection file

Coordinate system: Geographic (Latitude/Longitude) / WGS84 / arc degrees unless otherwise specified in subfolder name and projection file.

Rectification method: Triangulation (for >5 GCPs) or Polynomial (for >4 GCPs)

[SPHARERA]RC\_[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].prj

### Subfolder /03\_scan\_RC\_MOS/[PROJECTION]

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- Mosaic(s) of rectified and cropped map files in ecw format  
[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].ecw, .ers, .eww, .tab
- Quicklook (1063×1063 pixels)  
[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].png
- Projection file

Coordinate system: Geographic (Latitude/Longitude) / WGS84 / arc degrees unless otherwise specified in subfolder name and projection file.

[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].prj

### Subfolder /shapefile

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- Index shapefile of the rectified and cropped map files as well as the mosaic(s).  
[EDITOR]\_[ISO3]\_[TOPIC]\_[YYYY]\_[SCALE].shp

### Subfolder /legend

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- Legend(s) of the scanned map sheets  
[SPHAERA]\_legend.jpg

Rainer Zaiss (IRD), Mauricio, Felice (GMR)

Table 1

## Geographic subdivision

| Continent | T* | Region         | T* | Geounit                  | T*         | ID         |
|-----------|----|----------------|----|--------------------------|------------|------------|
| Africa    | GN | Central Africa | GN | Angola                   | GN         | <b>AGO</b> |
|           |    |                |    | Cameroon                 | GN         | <b>CMR</b> |
|           |    |                |    | Central African Republic | GN         | <b>CAF</b> |
|           |    |                |    | Chad                     | GN         | <b>TCD</b> |
|           |    |                |    | Congo, Dem Republic of   | GN         | <b>COD</b> |
|           |    |                |    | Congo, Republic of       | GN         | <b>COG</b> |
|           |    |                |    | Equatorial Guinea        | GN         | <b>GNQ</b> |
|           |    |                |    | Gabon                    | GN         | <b>GAB</b> |
|           |    |                |    | Sao Tome and Principe    | GN         | <b>STP</b> |
|           |    | Eastern Africa | GN | Burundi                  | GN         | <b>BDI</b> |
|           |    |                |    | Comoros                  | GN         | <b>COM</b> |
|           |    |                |    | Djibouti                 | GN         | <b>DJI</b> |
|           |    |                |    | Eritrea                  | GN         | <b>ERI</b> |
|           |    |                |    | Ethiopia                 | GN         | <b>ETH</b> |
|           |    |                |    | Kenya                    | GN         | <b>KEN</b> |
|           |    |                |    | Madagascar               | GN         | <b>MDG</b> |
|           |    |                |    | Malawi                   | GN         | <b>MWI</b> |
|           |    |                |    | Mauritius                | GN         | <b>MUS</b> |
|           |    |                |    | Mayotte                  | GN         | <b>MYT</b> |
|           |    |                |    | Mozambique               | GN         | <b>MOZ</b> |
|           |    |                |    | <b>Puntland</b>          | <b>IRD</b> | <b>SOP</b> |
|           |    |                |    | Reunion                  | GN         | <b>REU</b> |
|           |    |                |    | Rwanda                   | GN         | <b>RWA</b> |
|           |    |                |    | Seychelles               | GN         | <b>SYC</b> |
|           |    |                |    | Somalia                  | GN         | <b>SOX</b> |
|           |    |                |    | <b>Somaliland</b>        | <b>IRD</b> | <b>SOL</b> |
|           |    | Eastern Africa | GN | <b>South Sudan</b>       | <b>IRD</b> | <b>SDS</b> |
|           |    |                |    | <b>Tanzania</b>          | <b>IRD</b> | <b>TZY</b> |
|           |    |                |    | Uganda                   | GN         | <b>UGA</b> |
|           |    |                |    | Zambia                   | GN         | <b>ZMB</b> |
|           |    |                |    | <b>Zanzibar</b>          | <b>IRD</b> | <b>TZZ</b> |
|           |    |                |    | Zimbabwe                 | GN         | <b>ZWE</b> |
|           |    | North Africa   | GN | Algeria                  | GN         | <b>DZA</b> |
|           |    |                |    | Egypt                    | GN         | <b>EGY</b> |
|           |    |                |    | Libyan Arab Jamahiriya   | GN         | <b>LBY</b> |
|           |    |                |    | Morocco                  | GN         | <b>MAR</b> |
|           |    |                |    | Sudan                    | GN         | <b>SDN</b> |
|           |    |                |    | Tunisia                  | GN         | <b>TUN</b> |
|           |    |                |    | Western Sahara           | GN         | <b>SAH</b> |

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| Continent | T*  | Region          | T* | Geounit                             | T*         | ID         |
|-----------|-----|-----------------|----|-------------------------------------|------------|------------|
| Africa    | GN  | Southern Africa | GN | Botswana                            | GN         | <b>BWA</b> |
|           |     |                 |    | Lesotho                             | GN         | <b>LSO</b> |
|           |     |                 |    | Namibia                             | GN         | <b>NAM</b> |
|           |     |                 |    | South Africa                        | GN         | <b>ZAF</b> |
|           |     |                 |    | Swaziland                           | GN         | <b>SWZ</b> |
|           |     | Western Africa  | GN | Benin                               | GN         | <b>BEN</b> |
|           |     |                 |    | Burkina Faso                        | GN         | <b>BFA</b> |
|           |     |                 |    | Cape Verde                          | GN         | <b>CPV</b> |
|           |     |                 |    | Gambia                              | GN         | <b>GMB</b> |
|           |     |                 |    | Ghana                               | GN         | <b>GHA</b> |
|           |     |                 |    | Guinea                              | GN         | <b>GIN</b> |
|           |     |                 |    | Guinea-Bissau                       | GN         | <b>GNB</b> |
|           |     |                 |    | Ivory Coast                         | GN         | <b>CIV</b> |
|           |     |                 |    | Liberia                             | GN         | <b>LBR</b> |
|           |     |                 |    | Mali                                | GN         | <b>MLI</b> |
|           |     |                 |    | Mauritania                          | GN         | <b>MRT</b> |
|           |     |                 |    | Niger                               | GN         | <b>NER</b> |
|           |     |                 |    | Nigeria                             | GN         | <b>NGA</b> |
|           |     |                 |    | Saint Helena                        | GN         | <b>SHN</b> |
|           |     |                 |    | Senegal                             | GN         | <b>SEN</b> |
|           |     |                 |    | Sierra Leone                        | GN         | <b>SLE</b> |
|           |     |                 |    | Togo                                | GN         | <b>TGO</b> |
| Americas  | IRD | Caribbean       | GN | Anguilla                            | GN         | <b>AIA</b> |
|           |     |                 |    | <b>Antigua</b>                      | <b>IRD</b> | <b>ACA</b> |
|           |     |                 |    | Aruba                               | GN         | <b>ABW</b> |
|           |     |                 |    | Bahamas                             | GN         | <b>BHS</b> |
|           |     |                 |    | <b>Bajo Nuevo Bank (Petrel Is.)</b> | <b>IRD</b> | <b>BJN</b> |
|           |     |                 |    | Barbados                            | GN         | <b>BRB</b> |
|           |     |                 |    | <b>Barbuda</b>                      | <b>IRD</b> | <b>ACB</b> |
|           |     |                 |    | British Virgin Island               | GN         | <b>VGB</b> |
|           |     |                 |    | <b>Caribbean Netherlands</b>        | <b>IRD</b> | <b>NLY</b> |
|           |     |                 |    | Cayman Island                       | GN         | <b>CYM</b> |
|           |     |                 |    | Cuba                                | GN         | <b>CUB</b> |
|           |     |                 |    | <b>Curaçao</b>                      | <b>IRD</b> | <b>CUW</b> |
|           |     |                 |    | Dominica                            | GN         | <b>DMA</b> |
|           |     |                 |    | Dominican Republic                  | GN         | <b>DOM</b> |
|           |     |                 |    | Grenada                             | GN         | <b>GRD</b> |
|           |     |                 |    | Guadeloupe                          | GN         | <b>GLP</b> |
|           |     |                 |    | Haiti                               | GN         | <b>HTI</b> |
|           |     |                 |    | Jamaica                             | GN         | <b>JAM</b> |

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| Continent | T*  | Region          | T* | Geounit                      | T*  | ID  |
|-----------|-----|-----------------|----|------------------------------|-----|-----|
| Americas  | IRD | Caribbean       | GN | Martinique                   | GN  | MTQ |
|           |     |                 |    | Montserrat                   | GN  | MSR |
|           |     |                 |    | Navassa Island               | IRD | BQI |
|           |     |                 |    | Puerto Rico                  | GN  | PRI |
|           |     |                 |    | Saint Barthelemy             | IRD | BLM |
|           |     |                 |    | Saint Kitts and Nevis        | GN  | KNA |
|           |     |                 |    | Saint Lucia                  | GN  | LCA |
|           |     |                 |    | Saint Martin                 | IRD | MAF |
|           |     |                 |    | Saint Vincent/Grenadines     | GN  | VCT |
|           |     |                 |    | Serranilla Bank              | IRD | SER |
|           |     |                 |    | Sint Maarten                 | IRD | SXM |
|           |     |                 |    | Trinidad and Tobago          | GN  | TTO |
|           |     |                 |    | Turks and Caicos Is          | GN  | TCA |
|           |     |                 |    | US Naval Base Guantanamo Bay | IRD | USG |
|           |     |                 |    | US Virgin Islands            | GN  | VIR |
|           |     | Central America | GN | Belize                       | GN  | BLZ |
|           |     |                 |    | Clipperton Island            | IRD | CLP |
|           |     |                 |    | Costa Rica                   | GN  | CRI |
|           |     |                 |    | El Salvador                  | GN  | SLV |
|           |     |                 |    | Guatemala                    | GN  | GTM |
|           |     |                 |    | Honduras                     | GN  | HND |
|           |     |                 |    | Mexico                       | GN  | MEX |
|           |     |                 |    | Nicaragua                    | GN  | NIC |
|           |     |                 |    | Panama                       | GN  | PAN |
|           |     |                 |    | Bermuda                      | GN  | BMU |
|           |     | North America   | GN | Canada                       | GN  | CAN |
|           |     |                 |    | Greenland                    | GN  | GRL |
|           |     |                 |    | Midway Islands               | GN  | MQI |
|           |     |                 |    | Saint Pierre & Miquelon      | GN  | SPM |
|           |     |                 |    | United States of America     | GN  | USA |
|           |     | South America   | GN | Argentina                    | GN  | ARG |
|           |     |                 |    | Bolivia                      | GN  | BOL |
|           |     |                 |    | Brazil                       | GN  | BRA |
|           |     |                 |    | Chile                        | GN  | CHL |
|           |     |                 |    | Colombia                     | GN  | COL |
|           |     |                 |    | Ecuador                      | GN  | ECU |
|           |     |                 |    | Falkland Islands             | GN  | FLK |
|           |     |                 |    | French Guiana                | GN  | GUF |
|           |     |                 |    | Guyana                       | GN  | GUY |
|           |     |                 |    | Paraguay                     | GN  | PRY |

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| Continent  | T*  | Region             | T*  | Geounit                           | T*  | ID  |
|------------|-----|--------------------|-----|-----------------------------------|-----|-----|
| Americas   | IRD | South America      | GN  | Peru                              | GN  | PER |
|            |     |                    |     | Suriname                          | GN  | SUR |
|            |     |                    |     | Uruguay                           | GN  | URY |
|            |     |                    |     | Venezuela                         | GN  | VEN |
| Antarctica | GN  | Antarctica         | GN  | Antarctica                        | GN  | ATA |
|            |     |                    |     | Bouvet Island                     | GN  | BVT |
| Asia       | GN  | Central Asia       | IRD | Baykonur Cosmodrome               | IRD | KAB |
|            |     |                    |     | Kazakhstan                        | GN  | KAZ |
|            |     |                    |     | Kyrgyzstan                        | GN  | KGZ |
|            |     |                    |     | Tajikistan                        | GN  | TJK |
|            |     |                    |     | Turkmenistan                      | GN  | TKM |
|            |     |                    |     | Uzbekistan                        | GN  | UZB |
|            |     | Eastern Asia       | IRD | China, Mainland                   | GN  | CHN |
|            |     |                    |     | China, Taiwan Prov of             | GN  | TWN |
|            |     |                    |     | Hong Kong S.A.R.                  | IRD | HKG |
|            |     |                    |     | Japan                             | GN  | JPN |
|            |     |                    |     | Korea, Dem People's Rep           | GN  | PRK |
|            |     |                    |     | Korea, Republic of                | GN  | KOR |
|            |     |                    |     | Korean Demilitarized Zone (north) | IRD | KNZ |
|            |     |                    |     | Korean Demilitarized Zone (south) | IRD | KNX |
|            |     |                    |     | Macao S.A.R                       | IRD | MAC |
|            |     |                    |     | Mongolia                          | GN  | MNG |
|            |     |                    |     | Paracel Islands                   | IRD | PFA |
|            |     | South-Eastern Asia | IRD | Brunei Darussalam                 | GN  | BRN |
|            |     |                    |     | Cambodia                          | GN  | KHM |
|            |     |                    |     | Christmas Island                  | GN  | CXR |
|            |     |                    |     | Cocos Islands                     | GN  | CCK |
|            |     |                    |     | East Timor                        | GN  | TLS |
|            |     |                    |     | Indonesia                         | GN  | IDN |
|            |     |                    |     | Laos                              | GN  | LAO |
|            |     |                    |     | Malaysia                          | GN  | MYS |
|            |     |                    |     | Myanmar                           | GN  | MMR |
|            |     |                    |     | Philippines                       | GN  | PHL |
|            |     |                    |     | Scarborough Reef                  | IRD | SCR |
|            |     |                    |     | Singapore                         | GN  | SGP |
|            |     |                    |     | Spratly Islands                   | IRD | PGA |
|            |     |                    |     | Thailand                          | GN  | THA |
|            |     |                    |     | Viet Nam                          | GN  | VNM |
|            |     | South Asia         | GN  | Afghanistan                       | GN  | AFG |
|            |     |                    |     | Bangladesh                        | GN  | BGD |

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|-----------|----|---------------------|------------|-------------------------------------|------------|------------|
| Asia      | GN | South Asia          | GN         | Bhutan                              | GN         | <b>BTN</b> |
|           |    |                     |            | India                               | GN         | <b>IND</b> |
|           |    |                     |            | Iran, Islamic Rep of                | GN         | <b>IRN</b> |
|           |    |                     |            | Maldives                            | GN         | <b>MDV</b> |
|           |    |                     |            | Nepal                               | GN         | <b>NPL</b> |
|           |    |                     |            | Pakistan                            | GN         | <b>PAK</b> |
|           |    |                     |            | <b>Siachen Glacier</b>              | <b>IRD</b> | <b>KAY</b> |
|           |    |                     |            | Sri Lanka                           | GN         | <b>LKA</b> |
|           |    | <b>Western Asia</b> | <b>IRD</b> | <b>Ajaria</b>                       | <b>IRD</b> | <b>GEA</b> |
|           |    |                     |            | <b>Akrotiri Sovereign Base Area</b> | <b>IRD</b> | <b>WSB</b> |
|           |    |                     |            | Armenia                             | GN         | <b>ARM</b> |
|           |    |                     |            | Azerbaijan, Republic of             | GN         | <b>AZE</b> |
|           |    |                     |            | Bahrain                             | GN         | <b>BHR</b> |
|           |    |                     |            | Cyprus                              | GN         | <b>CYP</b> |
|           |    |                     |            | <b>Cyprus No Mans Area</b>          | <b>IRD</b> | <b>CNM</b> |
|           |    |                     |            | <b>Dhekelia Sovereign Base Area</b> | <b>IRD</b> | <b>ESB</b> |
|           |    |                     |            | Gaza Strip                          | GN         | <b>GAZ</b> |
|           |    |                     |            | Georgia                             | GN         | <b>GEG</b> |
|           |    |                     |            | Iraq                                | GN         | <b>IRR</b> |
|           |    |                     |            | <b>Iraqi Kurdistan</b>              | <b>IRD</b> | <b>IRK</b> |
|           |    |                     |            | Israel                              | GN         | <b>ISR</b> |
|           |    |                     |            | Jordan                              | GN         | <b>JOR</b> |
|           |    |                     |            | Kuwait                              | GN         | <b>KWT</b> |
|           |    |                     |            | Lebanon                             | GN         | <b>LBN</b> |
|           |    |                     |            | <b>Northern Cyprus</b>              | <b>IRD</b> | <b>CYN</b> |
|           |    |                     |            | Oman                                | GN         | <b>OMN</b> |
|           |    |                     |            | Qatar                               | GN         | <b>QAT</b> |
|           |    |                     |            | Saudi Arabia                        | GN         | <b>SAU</b> |
|           |    |                     |            | Syrian Arab Republic                | GN         | <b>SYX</b> |
|           |    |                     |            | Turkey                              | GN         | <b>TUR</b> |
|           |    |                     |            | <b>UNDOF</b>                        | <b>IRD</b> | <b>SYU</b> |
|           |    |                     |            | United Arab Emirates                | GN         | <b>ARE</b> |
|           |    |                     |            | West Bank                           | GN         | <b>WEB</b> |
|           |    |                     |            | Yemen                               | GN         | <b>YEM</b> |
| Europe    | GN | Eastern Europe      | GN         | Belarus                             | GN         | <b>BLR</b> |
|           |    |                     |            | Bulgaria                            | GN         | <b>BGR</b> |
|           |    |                     |            | Czech Republic                      | GN         | <b>CZE</b> |
|           |    |                     |            | Hungary                             | GN         | <b>HUN</b> |
|           |    |                     |            | Moldova, Republic of                | GN         | <b>MDA</b> |
|           |    |                     |            | Poland                              | GN         | <b>POL</b> |

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| Continent | T* | Region          | T*  | Geounit                 | T*         | ID         |
|-----------|----|-----------------|-----|-------------------------|------------|------------|
| Europe    | GN | Eastern Europe  | GN  | Romania                 | GN         | ROU        |
|           |    |                 |     | Russian Federation      | GN         | RUS        |
|           |    |                 |     | Slovakia                | GN         | SVK        |
|           |    |                 |     | Ukraine                 | GN         | UKR        |
|           |    | Northern Europe | IRD | <b>Aland</b>            | <b>IRD</b> | <b>ALD</b> |
|           |    |                 |     | Denmark                 | GN         | DNK        |
|           |    |                 |     | <b>England</b>          | <b>IRD</b> | <b>ENG</b> |
|           |    |                 |     | Estonia                 | GN         | EST        |
|           |    |                 |     | Faeroe Islands          | GN         | FRO        |
|           |    |                 |     | Finland                 | GN         | FIN        |
|           |    |                 |     | <b>Guernsey</b>         | <b>IRD</b> | <b>GGY</b> |
|           |    |                 |     | Iceland                 | GN         | ISL        |
|           |    |                 |     | Ireland                 | GN         | IRL        |
|           |    |                 |     | Isle of Man             | GN         | IMN        |
|           |    |                 |     | <b>Jan Mayen</b>        | <b>IRD</b> | <b>NJM</b> |
|           |    |                 |     | <b>Jersey</b>           | <b>IRD</b> | <b>JEY</b> |
|           |    |                 |     | Latvia                  | GN         | LVA        |
|           |    |                 |     | Lithuania               | GN         | LTU        |
|           |    |                 |     | <b>Northern Ireland</b> | <b>IRD</b> | <b>NIR</b> |
|           |    |                 |     | Norway                  | GN         | NOW        |
|           |    |                 |     | <b>Scotland</b>         | <b>IRD</b> | <b>SCT</b> |
|           |    |                 |     | Svalbard Is             | GN         | NSV        |
|           |    |                 |     | Sweden                  | GN         | SWE        |
|           |    |                 |     | <b>Wales</b>            | <b>IRD</b> | <b>WLS</b> |
|           |    | Southern Europe | IRD | Albania                 | GN         | ALB        |
|           |    |                 |     | Andorra                 | GN         | AND        |
|           |    |                 |     | <b>Azores</b>           | <b>IRD</b> | <b>PAZ</b> |
|           |    |                 |     | Bosnia and Herzegovina  | GN         | BHF        |
|           |    |                 |     | <b>Brcko District</b>   | <b>IRD</b> | <b>BHB</b> |
|           |    |                 |     | Croatia                 | GN         | HRV        |
|           |    |                 |     | Gibraltar               | GN         | GIB        |
|           |    |                 |     | Greece                  | GN         | GRC        |
|           |    |                 |     | Italy                   | GN         | ITA        |
|           |    |                 |     | <b>Kosovo</b>           | <b>IRD</b> | <b>KOS</b> |
|           |    |                 |     | Macedonia               | GN         | MKD        |
|           |    |                 |     | <b>Madeira</b>          | <b>IRD</b> | <b>PMD</b> |
|           |    |                 |     | Malta                   | GN         | MLT        |
|           |    |                 |     | <b>Montenegro</b>       | <b>IRD</b> | <b>MNE</b> |
|           |    |                 |     | Portugal                | GN         | PRX        |
|           |    |                 |     | <b>Republic Srpska</b>  | <b>IRD</b> | <b>BIS</b> |



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| Continent | T*  | Region                    | T*  | Geounit                     | T*  | ID  |
|-----------|-----|---------------------------|-----|-----------------------------|-----|-----|
| Europe    | GN  | Southern Europe           | IRD | San Marino                  | GN  | SMR |
|           |     |                           |     | Serbia                      | IRD | SRS |
|           |     |                           |     | Slovenia                    | GN  | SVN |
|           |     |                           |     | Spain                       | GN  | ESP |
|           |     |                           |     | Vatican                     | IRD | VAT |
|           |     |                           |     | Vojvodina                   | IRD | SRV |
|           |     | Western Europe            | GN  | Austria                     | GN  | AUT |
|           |     |                           |     | Brussels Capital Region     | IRD | BCR |
|           |     |                           |     | Flemish Region              | IRD | BFR |
|           |     |                           |     | France                      | GN  | FXX |
|           |     |                           |     | Germany                     | GN  | DEU |
|           |     |                           |     | Liechtensten                | GN  | LIE |
|           |     |                           |     | Luxembourg                  | GN  | LUX |
|           |     |                           |     | Monaco                      | GN  | MCO |
|           |     |                           |     | Netherlands                 | GN  | NLX |
|           |     |                           |     | Switzerland                 | GN  | CHE |
|           |     |                           |     | Walloon Region              | IRD | BWR |
| Oceania   | IRD | Australia and New Zealand | IRD | Ashmore and Cartier Islands | IRD | ATC |
|           |     |                           |     | Australia                   | GN  | AUS |
|           |     |                           |     | Coral Sea Islands           | IRD | CSI |
|           |     |                           |     | New Zealand                 | GN  | NZL |
|           |     |                           |     | Norfolk Island              | GN  | NFK |
|           |     | Melanesia                 | IRD | Bougainville                | IRD | PNB |
|           |     |                           |     | Fiji Islands                | GN  | FJI |
|           |     |                           |     | NewCaledonia                | GN  | NCL |
|           |     |                           |     | Papua New Guinea            | GN  | PNX |
|           |     |                           |     | Solomon Islands             | GN  | SLB |
|           |     |                           |     | Vanuatu                     | GN  | VUT |
|           |     | Micronesia                | IRD | Baker Island                | IRD | FQI |
|           |     |                           |     | Guam                        | GN  | GUM |
|           |     |                           |     | Howland Island              | IRD | HQI |
|           |     |                           |     | Jarvis Island               | IRD | DQI |
|           |     |                           |     | Johnston Atoll              | IRD | JQI |
|           |     |                           |     | Kingman Reef                | IRD | KQI |
|           |     |                           |     | Kiribati                    | GN  | KIR |
|           |     |                           |     | Marshall Island             | GN  | MHL |
|           |     |                           |     | Micronesia,Fed States of    | GN  | FSM |
|           |     |                           |     | Nauru                       | GN  | NRU |
|           |     |                           |     | Northern Mariana Is         | GN  | MNP |
|           |     |                           |     | Palau                       | IRD | PLW |

| Continent                  | T*  | Region                     | T*  | Geounit                  | T*  | ID  |
|----------------------------|-----|----------------------------|-----|--------------------------|-----|-----|
| Oceania                    | IRD | Micronesia                 | IRD | Palmyra Atoll            | IRD | LQI |
|                            |     |                            |     | Wake Atoll               | IRD | WQI |
|                            |     | Polynesia                  | IRD | American Samoa           | GN  | ASM |
|                            |     |                            |     | Cook Islands             | GN  | COK |
|                            |     |                            |     | French Polynesia         | GN  | PYF |
|                            |     |                            |     | Niue                     | GN  | NIU |
|                            |     |                            |     | Pitcairn Islands         | GN  | PCN |
|                            |     |                            |     | Samoa                    | GN  | WSM |
|                            |     |                            |     | Tokelau                  | GN  | TKL |
|                            |     |                            |     | Tonga                    | GN  | TON |
|                            |     |                            |     | Tuvalu                   | GN  | TUV |
|                            |     |                            |     | Wallis and Futuna Is     | GN  | WLF |
| Seven seas<br>(open ocean) | IRD | Seven seas<br>(open ocean) | IRD | British Indian Ocean Ter | GN  | IOT |
|                            |     |                            |     | French South Terr        | GN  | ATF |
|                            |     |                            |     | Heard and McDonald Is    | GN  | HMD |
|                            |     |                            |     | SouthGeorgia/Sandwich Is | GN  | SGS |

\* **GN:** Geonetwork regions thesaurus 2.10.2, **IRD:** Natural Earth version 3.1.0, Admin 0 – Details, Map units, <http://www.naturalearthdata.com/>.

Table 2

Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1 | GEMET      | IRD level 2                                | GEMET      | INSPIRE Theme                                  | ISO topic category                   |
|------|-------------|------------|--|------------|--|--------------------------------------|
| AGRO | agronomy    | Full match | -  | -          | <i>land use</i>                                | farming<br>planning cadastre         |
| AGRT | agronomy    | Full match | agricultural land                          | Full match | <i>soil</i>                                    | farming                              |
| AGUN | agronomy    | Full match | agronomical units                          | -          | <i>land use</i>                                | farming<br>planning cadastre         |
| AGCU | agronomy    | Full match | crop production                            | Full match | <i>land use</i>                                | farming<br>planning cadastre         |
| AGCE | agronomy    | Full match | crops and livestock                        | -          | <i>land use</i>                                | farming<br>planning cadastre         |
| AGAC | agronomy    | Full match | cultural aptitudes                         | -          | <i>soil</i>                                    | farming<br>geoscientific information |
| AGPA | agronomy    | Full match | cultural aptitudes, actual productivity    | -          | <i>soil</i>                                    | farming<br>geoscientific information |
| AGPT | agronomy    | Full match | cultural aptitudes, potential productivity | -          | <i>soil</i>                                    | farming<br>geoscientific information |
| AGEX | agronomy    | Full match | farm                                       | Full match | <i>agricultural and aquaculture facilities</i> | farming                              |
| AGPE | agronomy    | Full match | fishery                                    | Full match | <i>land use</i>                                | farming<br>planning cadastre         |
| AGFO | agronomy    | Full match | forest                                     | Full match | <i>land use</i>                                | farming<br>planning cadastre         |
| AGFN | agronomy    | Full match | land access                                | Full match | <i>land use</i>                                | planning cadastre                    |
| AGAS | agronomy    | Full match | landscape                                  | Full match | <i>land use</i>                                | farming<br>planning cadastre         |
| AGEL | agronomy    | Full match | livestock                                  | Full match | <i>land use</i>                                | farming<br>planning cadastre         |
| AGCG | agronomy    | Full match | physical environment                       | Full match | <i>agricultural and aquaculture facilities</i> | farming                              |
| ARCH | archaeology | Full match | -  | -          | <i>population distribution -- demography</i>   | society                              |
| AAAA | atlas       | Full match | map collection                             | -          | <i>population distribution -- demography</i>   | society                              |

Table 2

Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1  | GEMET        | IRD level 2        | GEMET      | INSPIRE Theme                                | ISO topic category  |
|------|--------------|--------------|--------------------|------------|--|---------------------|
| BAME | bathymetry   | oceanography | -                  | -          | <i>elevation</i>                             | elevation<br>oceans |
| BGEO | biogeography | Full match   | -                  | -          | <i>bio-geographical regions</i>              | biota               |
| BGBM | biogeography | Full match   | biomass            | Full match | <i>bio-geographical regions</i>              | biota               |
| BGEP | biogeography | Full match   | evapotranspiration | Full match | <i>meteorological geographical features</i>  | climatology         |
| BGFA | biogeography | Full match   | fauna              | Full match | <i>species distribution</i>                  | biota               |
| BGFI | biogeography | Full match   | flora (biology)    | Full match | <i>species distribution</i>                  | biota               |
| CLIM | climatology  | Full match   | -                  | -          | <i>meteorological geographical features</i>  | climatology         |
| CLBI | climatology  | Full match   | bioclimatology     | Full match | <i>meteorological geographical features</i>  | climatology         |
| CLGE | climatology  | Full match   | frost              | Full match | <i>meteorological geographical features</i>  | climatology         |
| CLPR | climatology  | Full match   | precipitation      | -          | <i>meteorological geographical features</i>  | climatology         |
| CLTE | climatology  | Full match   | temperature        | Full match | <i>meteorological geographical features</i>  | climatology         |
| ECON | economy      | Full match   | -                  | -          | <i>population distribution -- demography</i> | economy<br>society  |
| ECAR | economy      | Full match   | craft              | Full match | <i>population distribution -- demography</i> | economy<br>society  |
| ECZO | economy      | Full match   | economic zoning    | Full match | <i>population distribution -- demography</i> | economy<br>society  |
| ECPR | economy      | Full match   | primary sector     | Full match | <i>population distribution -- demography</i> | economy<br>society  |
| ECSC | economy      | Full match   | secondary sector   | Full match | <i>population distribution -- demography</i> | economy<br>society  |
| ECST | economy      | Full match   | tertiary sector    | Full match | <i>population distribution -- demography</i> | economy<br>society  |
| ENTO | entomology   | insect       | -                  | -          | <i>species distribution</i>                  | biota               |
| ENAN | entomology   | insect       | anopheles          | -          | <i>species distribution</i>                  | biota               |

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Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1      | GEMET      | IRD level 2             | GEMET      | INSPIRE Theme                                | ISO topic category        |
|------|------------------|------------|-------------------------|------------|--|---------------------------|
| ENGL | entomology       | insect     | glossina                | -          | <i>species distribution</i>                  | biota                     |
| EVPH | environment      | Full match | physical environment    | Full match | <i>geology</i>                               | geoscientific information |
| ETHN | ethnology        | Full match | -                       | -          | <i>population distribution -- demography</i> | society                   |
| ETBO | ethnology        | Full match | ethnobotanics           | -          | <i>population distribution -- demography</i> | society                   |
| GEOL | geology          | Full match | -                       | -          | <i>geology</i>                               | geoscientific information |
| GEHY | geology          | Full match | hydrogeology            | Full match | <i>geology</i>                               | geoscientific information |
| GEST | geology          | Full match | structural geology      | -          | <i>geology</i>                               | geoscientific information |
| GMOR | geomorphology    | Full match | -                       | -          | <i>geology</i>                               | geoscientific information |
| GPHY | geophysics       | Full match | -                       | -          | <i>geology</i>                               | geoscientific information |
| GPGR | geophysics       | Full match | gravimetry              | -          | <i>geology</i>                               | geoscientific information |
| GPIS | geophysics       | Full match | isostasy                | -          | <i>geology</i>                               | geoscientific information |
| GPMA | geophysics       | Full match | magnetism               | Full match | <i>geology</i>                               | geoscientific information |
| HIST | history          | Full match | -                       | -          | <i>population distribution -- demography</i> | society                   |
| SANT | human health     | Full match | -                       | -          | <i>population distribution -- demography</i> | society                   |
| POPU | human population | Full match | -                       | -          | <i>population distribution -- demography</i> | society                   |
| PODM | human population | Full match | demography              | Full match | <i>population distribution -- demography</i> | society                   |
| POED | human population | Full match | education               | Full match | <i>population distribution -- demography</i> | society                   |
| POET | human population | Full match | ethnic groups           | -          | <i>population distribution -- demography</i> | society                   |
| POMI | human population | Full match | human migration         | Full match | <i>population distribution -- demography</i> | society                   |
| POPO | human population | Full match | politics                | Full match | <i>population distribution -- demography</i> | society                   |
| PODE | human population | Full match | population density      | Full match | <i>population distribution -- demography</i> | society                   |
| PODI | human population | Full match | population distribution | Full match | <i>population distribution -- demography</i> | society                   |
| PORE | human population | Full match | religion                | Full match | <i>population distribution -- demography</i> | society                   |
| POPE | human population | Full match | settlements             | -          | <i>population distribution -- demography</i> | society                   |

Table 2

Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1      | GEMET              | IRD level 2          | GEMET      | INSPIRE Theme                                | ISO topic category                                     |
|------|------------------|--------------------|----------------------|------------|--|--|
| POSE | human population | Full match         | socioeconomics       | Full match | <i>population distribution -- demography</i> | society  |
| POLO | human population | Full match         | spatial distribution | Full match | <i>population distribution -- demography</i> | society  |
| POEL | human population | Full match         | transhumance         | Full match | <i>population distribution -- demography</i> | society  |
| HYGR | hydrography      | Full match         | -                    | -          | <i>hydrography</i>                           | inland waters  |
| HLOG | hydrology        | Full match         | -                    | -          | <i>hydrography</i>                           | geoscientific information<br>inland waters             |
| ILLU | illustration     | map                | -                    | -          | <i>population distribution -- demography</i> | society  |
| ILSI | illustration     | map                | situation map        | -          | <i>population distribution -- demography</i> | society  |
| CACA | index map        | map chart          | -                    | -          | <i>geographical names</i>                    | location   |
| CAAP | index map        | aerial photography | aerial photography   | Full match | <i>geographical names</i>                    | geoscientific information<br>location                  |
| CAAG | index map        | agronomy           | agronomy             | Full match | <i>geographical names</i>                    | farming<br>location                                    |
| CAGE | index map        | geology            | geology              | Full match | <i>geographical names</i>                    | geoscientific information<br>location                  |
| CAGM | index map        | geomorphology      | geomorphology        | Full match | <i>geographical names</i>                    | geoscientific information<br>location                  |
| CAGP | index map        | geophysics         | geophysics           | Full match | <i>geographical names</i>                    | geoscientific information<br>location                  |
| CAHL | index map        | hydrology          | hydrology            | Full match | <i>geographical names</i>                    | geoscientific information<br>inland waters<br>location |
| CAPE | index map        | soil map           | soil science         | Full match | <i>geographical names</i>                    | geoscientific information<br>location                  |
| CAAS | index map        | survey             | survey               | Full match | <i>geographical names</i>                    | location<br>society                                    |

Table 2

Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1    | GEMET      | IRD level 2                    | GEMET      | INSPIRE Theme                                | ISO topic category                                     |
|------|----------------|------------|--------------------------------|------------|--|--|
| CATO | index map      | map chart  | topographic maps               | -          | <i>geographical names</i>                    | elevation<br>imagery base maps earth cover<br>location |
| CAVE | index map      | vegetation | vegetation                     | Full match | <i>geographical names</i>                    | biota<br>location                                      |
| INFR | infrastructure | Full match | -                              | -          | <i>population distribution -- demography</i> | society  |
| INAD | infrastructure | Full match | administration                 | Full match | <i>population distribution -- demography</i> | society  |
| INED | infrastructure | Full match | education                      | Full match | <i>population distribution -- demography</i> | society  |
| INPE | infrastructure | Full match | fishing                        | Full match | <i>population distribution -- demography</i> | society  |
| INSA | infrastructure | Full match | health care                    | Full match | <i>population distribution -- demography</i> | society  |
| INHA | infrastructure | Full match | housing                        | Full match | <i>population distribution -- demography</i> | society  |
| INSC | infrastructure | Full match | industrial equipment           | Full match | <i>population distribution -- demography</i> | society  |
| INSP | infrastructure | Full match | primary sector                 | Full match | <i>population distribution -- demography</i> | society  |
| INRE | infrastructure | Full match | religion                       | Full match | <i>population distribution -- demography</i> | society  |
| INSO | infrastructure | Full match | sport                          | Full match | <i>population distribution -- demography</i> | society  |
| INST | infrastructure | Full match | tertiary sector                | Full match | <i>population distribution -- demography</i> | society  |
| INTO | infrastructure | Full match | tourism                        | Full match | <i>population distribution -- demography</i> | society  |
| INTR | infrastructure | Full match | traffic infrastructure         | Full match | <i>population distribution -- demography</i> | society  |
| INWA | infrastructure | Full match | water supply                   | Full match | <i>population distribution -- demography</i> | society  |
| USOL | land use       | Full match | -                              | -          | <i>land use</i>                              | planning cadastre                                      |
| USDE | land use       | Full match | degradation of the environment | Full match | <i>soil</i>                                  | geoscientific information                              |
| USDS | land use       | Full match | desertification                | Full match | <i>natural risk zones</i>                    | geoscientific information                              |
| USRE | land use       | Full match | dry residues                   | -          | <i>land use</i>                              | planning cadastre                                      |
| USER | land use       | Full match | erosion                        | Full match | <i>soil</i>                                  | geoscientific information                              |
| USSA | land use       | Full match | salination                     | Full match | <i>soil</i>                                  | geoscientific information                              |

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Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1           | GEMET          | IRD level 2             | GEMET      | INSPIRE Theme                                | ISO topic category        |
|------|-----------------------|----------------|-------------------------|------------|--|---------------------------|
| USZO | land use              | Full match     | zoning                  | Full match | <i>land use</i>                              | planning cadastre         |
| LING | linguistics           | social science | -                       | -          | <i>population distribution -- demography</i> | society                   |
| CSVI | map collection        | atlas          | city                    | Full match | <i>population distribution -- demography</i> | society                   |
| CSPA | map collection        | atlas          | country                 | -          | <i>population distribution -- demography</i> | society                   |
| CSRE | map collection        | atlas          | region                  | Full match | <i>population distribution -- demography</i> | society                   |
| CSLO | map collection        | atlas          | village                 | Full match | <i>population distribution -- demography</i> | society                   |
| MARI | marine environment    | Full match     | -                       | -          | <i>oceanographic geographical features</i>   | oceans                    |
| REEN | natural resource      | Full match     | energy resource         | Full match | <i>energy resources</i>                      | economy                   |
| REMI | natural resource      | Full match     | mineral resource        | Full match | <i>mineral resources</i>                     | economy                   |
| TNYM | place names           | map chart      | -                       | -          | <i>geographical names</i>                    | location                  |
| PGPG | political geography   | Full match     | -                       | -          | <i>population distribution -- demography</i> | society                   |
| ESPA | region                | Full match     | development plan        | Full match | <i>population distribution -- demography</i> | society                   |
| ESGM | region                | Full match     | general map             | -          | <i>population distribution -- demography</i> | society                   |
| ESOR | region                | Full match     | organisation            | -          | <i>population distribution -- demography</i> | society                   |
| ESIM | region                | Full match     | remote sensing          | Full match | <i>population distribution -- demography</i> | society                   |
| ESUR | region                | Full match     | urban area              | Full match | <i>population distribution -- demography</i> | society                   |
| RESU | resource              | Full match     | -                       | -          | <i>energy resources</i>                      | economy                   |
| SEDI | sedimentology         | Full match     | -                       | -          | <i>geology</i>                               | geoscientific information |
| SEPC | sedimentology         | Full match     | continental shelf       | Full match | <i>geology</i>                               | geoscientific information |
| PEDO | soil science          | soil map       | -                       | -          | <i>soil</i>                                  | geoscientific information |
| PECE | soil science          | soil map       | edaphic constraints     | -          | <i>soil</i>                                  | geoscientific information |
| PEFA | soil science          | soil map       | factorial pedology      | -          | <i>soil</i>                                  | geoscientific information |
| PEMP | soil science          | soil map       | soil geomorphology      | -          | <i>soil</i>                                  | geoscientific information |
| ADMI | sub-national boundary | Full match     | administrative boundary | Full match | <i>administrative units</i>                  | boundaries                |



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Relationships between IRD keywords, ISO 19115 topic categories, INSPIRE SPATIAL DATA THEMES, and the GEMET thesaurus

| ID   | IRD level 1           | GEMET         | IRD level 2          | GEMET      | INSPIRE Theme                                | ISO topic category                         |
|------|-----------------------|---------------|----------------------|------------|--|--|
| ADCA | sub-national boundary | Full match    | land register        | Full match | <i>cadastral parcels</i>                     | planning cadastre                          |
| TOPO | topography            | relief (land) | -                    | -          | <i>elevation</i>                             | elevation<br>imagery base maps earth cover |
| TOPC | topography            | relief (land) | continental shelf    | Full match | <i>elevation</i>                             | elevation                                  |
| TOOR | topography            | relief (land) | orography            | Full match | <i>elevation</i>                             | elevation                                  |
| TOOH | topography            | relief (land) | orohydrographie      | -          | <i>elevation</i>                             | elevation                                  |
| TORE | topography            | relief (land) | relief (land)        | Full match | <i>elevation</i>                             | elevation                                  |
| TOPE | topography            | relief (land) | slope                | Full match | <i>elevation</i>                             | elevation                                  |
| COME | trade (economic)      | Full match    | -                    | -          | <i>population distribution -- demography</i> | economy<br>society                         |
| COPA | trade (economic)      | Full match    | agricultural product | Full match | <i>population distribution -- demography</i> | economy<br>society                         |
| UROR | urban area            | Full match    | urban structure      | Full match | <i>population distribution -- demography</i> | society                                    |
| VEGE | vegetation            | Full match    | -                    | -          | <i>bio-geographical regions</i>              | biota                                      |
| VEPG | vegetation            | Full match    | phytogeography       | -          | <i>bio-geographical regions</i>              | biota                                      |
| VEFO | vegetation            | Full match    | vegetation type      | Full match | <i>bio-geographical regions</i>              | biota                                      |

**Table 3** **ISO 19115 TOPIC CATEGORIES and INSPIRE SPATIAL DATA THEMES**

| ISO TOPIC CATEGORIES |   |   | INSPIRE THEMES                       |  |
|----------------------|---|---|--------------------------------------|--|
| Name                 | Description                                     | Examples  | Name                                 | Description  |
| biota                | flora and/or fauna in natural environment       | wildlife, vegetation, biological sciences, ecology, wilderness, sea life, wetlands, habitat, biological resources   | Bio-geographical regions             | Areas of relatively homogeneous ecological conditions with common characteristics.   |
|                      |   |   | Habitats and biotopes                | Geographical areas characterised by specific ecological conditions, processes, structure, and (life support) functions that physically support the organisms that live there. Includes terrestrial and aquatic areas distinguished by geographical, abiotic and biotic features, whether entirely natural or semi-natural. |
|                      |   |   | Species distribution                 | Geographical distribution of occurrence of animal and plant species aggregated by grid, region, administrative unit or other analytical unit.  |
| boundaries           | legal land descriptions                         | political and administrative boundaries, governmental units, marine boundaries, voting districts, school districts, international boundaries  | Administrative units                 | Units of administration, dividing areas where Member States have and/or exercise jurisdictional rights, for local, regional and national governance, separated by administrative boundaries.   |
|                      |   |   | Statistical units                    | Units for dissemination or use of statistical information.   |
| climatology          | processes and phenomena of the atmosphere       | cloud cover, weather, climate, atmospheric conditions, climate change, precipitation  | Atmospheric conditions               | Physical conditions in the atmosphere. Includes spatial data based on measurements, on models or on a combination thereof and includes measurement locations.  |
|                      |   |   | Meteorological geographical features | Weather conditions and their measurements; precipitation, temperature, evapotranspiration, wind speed and direction.   |
| economy              | economic activities, conditions, and employment | production, labor, revenue, business, commerce, industry, tourism and ecotourism, forestry, fisheries, commercial or subsistence hunting, exploration and exploitation of resources such as minerals, oil and gas | Energy resources                     | Energy resources including hydrocarbons, hydropower, bio-energy, solar, wind, etc., where relevant including depth/height information on the extent of the resource.   |
|                      |   |   | Mineral resources                    | Mineral resources including metal ores, industrial minerals, etc., where relevant including depth/height information on the extent of the resource.  |
| elevation            | height above or below seal level                | altitude, bathymetry, digital elevation models, slope, derived products, DEMs, TINs   | Elevation                            | Digital elevation models for land, ice and ocean surface. Includes terrestrial elevation, bathymetry and shoreline.  |

**Table 3** **ISO 19115 TOPIC CATEGORIES and INSPIRE SPATIAL DATA THEMES**

| ISO TOPIC CATEGORIES                 |  |  | INSPIRE THEMES                                 |   |
|--------------------------------------|--|--|--|---|
| Name                                 | Description  | Examples   | Name   | Description   |
| <b>environment</b>                   | environmental resources, protection and conservation | environmental pollution, waste storage and treatment, environmental impact assessment, monitoring environmental risk, nature reserves, landscape, water quality, air quality, environmental modeling   | <b>Protected sites</b>                         | Area designated or managed within a framework of international, Community and Member States' legislation to achieve specific conservation objectives.   |
| <b>farming</b>                       | rearing of animals and/or cultivation of plants      | agriculture, irrigation, aquaculture, plantations, herding, pests and diseases affecting crops and livestock   | <b>Agricultural and aquaculture facilities</b> | Farming equipment and production facilities (including irrigation systems, greenhouses and stables).  |
| <b>geoscientific information</b>     | information pertaining to earth sciences             | geophysical features and processes, geology, minerals, sciences dealing with the composition, structure and origin of the earth's rocks, risks of earthquakes, volcanic activity, landslides, gravity information, soils, permafrost, hydrogeology, groundwater, erosion | <b>Geology</b>                                 | Geology characterised according to composition and structure. Includes bedrock, aquifers and geomorphology.   |
|                                      |  |  | <b>Natural risk zones</b>                      | Vulnerable areas characterised according to natural hazards (all atmospheric, hydrologic, seismic, volcanic and wildfire phenomena that, because of their location, severity, and frequency, have the potential to seriously affect society), e.g. floods, landslides and subsidence, avalanches, forest fires, earthquakes, volcanic eruptions.  |
|                                      |  |  | <b>Soil</b>                                    | Soils and subsoil characterised according to depth, texture, structure and content of particles and organic material, stoniness, erosion, where appropriate mean slope and anticipated water storage capacity.  |
| <b>health</b>                        | health, health services, human ecology, and safety   | disease and illness, factors affecting health, hygiene, substance abuse, mental and physical health, health services, health care providers, public health   | <b>Human health and safety</b>                 | Geographical distribution of dominance of pathologies (allergies, cancers, respiratory diseases, etc.), information indicating the effect on health (biomarkers, decline of fertility, epidemics) or well-being of humans (fatigue, stress, etc.) linked directly (air pollution, chemicals, depletion of the ozone layer, noise, etc.) or indirectly (food, genetically modified organisms, etc.) to the quality of the environment. |
| <b>imagery base maps earth cover</b> | base maps  | land/earth cover, topographic maps, imagery, unclassified images, annotations, digital ortho imagery   | <b>Land cover</b>                              | Physical and biological cover of the earth's surface including artificial surfaces, agricultural areas, forests, (semi-)natural areas, wetlands, water bodies.  |
|                                      |  |  | <b>Orthoimagery</b>                            | Geo-referenced image data of the Earth's surface, from either satellite or airborne sensors.  |

**Table 3** **ISO 19115 TOPIC CATEGORIES and INSPIRE SPATIAL DATA THEMES**

| ISO TOPIC CATEGORIES         |   |   | INSPIRE THEMES  |  |
|------------------------------|---|---|---|--|
| Name                         | Description   | Examples  | Name  | Description  |
| <b>inland waters</b>         | inland water features, drainage systems and characteristics                 | rivers and glaciers, salt lakes, water utilization plans, dams, currents, floods and flood hazards, water quality, hydrographic charts, watersheds, wetlands, hydrography | <b>Hydrography</b>  | Hydrographical elements, including marine areas and all other water bodies and items related to them, including river basins and sub basins.   |
| <b>intelligence military</b> | military bases, structures, activities                                      | barracks, training grounds, military transportation, information collection   | -   | -  |
| <b>location</b>              | positional information and services   | addresses, geodetic networks, geodetic control points, postal zones and services, place names, geographic names   | <b>Addresses</b>  | Location of properties based on address identifiers, usually by road name, house number, postal code.  |
|                              |   |   | <b>Geographical names</b>   | Names of areas, regions, localities, cities, suburbs, towns or settlements, or any geographical or topographical feature of public or historical interest.   |
| -                            | -   | -   | <b>Coordinate reference systems</b>                                     | Systems for uniquely referencing spatial information in space as a set of coordinates (x,y,z) and/or latitude and longitude and height, based on a geodetic horizontal and vertical datum.   |
| -                            | -   | -   | <b>Geographical grid systems</b>  | Harmonised multi-resolution grid with a common point of origin and standardised location and size of grid cells.   |
| <b>oceans</b>                | features and characteristics of salt water bodies (excluding inland waters) | tides, tidal waves, coastal information, reefs, maritime, outer continental shelf submerged lands, shoreline  | <b>Oceanographic geographical features</b>                              | Physical conditions of oceans (currents, salinity, wave heights, etc.).  |
|                              |   |   | <b>Sea regions</b>  | Physical conditions of seas and saline water bodies divided into regions and sub-regions with common characteristics.  |
| <b>planning cadastre</b>     | information used for appropriate actions for future use of the land         | land use maps, zoning maps, cadastral surveys, land ownership, parcels, easements, tax maps, federal land ownership status, public land conveyance records                | <b>Area management/restriction/regulation zones and reporting units</b> | Areas managed, regulated or used for reporting at international, European, national, regional and local levels. Includes dumping sites, restricted areas around drinking water sources, nitrate-vulnerable zones, regulated fairways at sea or large inland waters, areas for the dumping of waste, noise restriction zones, prospecting and mining permit areas, river basin districts, relevant reporting units and coastal zone management areas. |
|                              |   |   | <b>Cadastral parcels</b>  | A single area of land or more particularly a volume of space, under homogeneous real property rights and unique ownership.   |

**Table 3** | **ISO 19115 TOPIC CATEGORIES and INSPIRE SPATIAL DATA THEMES**

| ISO TOPIC CATEGORIES           |  |   | INSPIRE THEMES                               |   |
|--------------------------------|--|---|--|---|
| Name                           | Description  | Examples  | Name   | Description   |
|                                |  |   | <b>Land use</b>                              | Territory characterized according to its current and future planned functional dimension or socio-economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational).  |
| <b>society</b>                 | characteristics of society and culture   | settlements, housing, anthropology, archaeology, education, traditional beliefs, manners and customs, demographic data, tourism, recreational areas and activities, parks, recreational trails, historical sites, cultural resources, social impact assessments, crime and justice, law enforcement, census information, immigration, ethnicity | <b>Population distribution -- demography</b> | Geographical distribution of people, including population characteristics and activity levels, aggregated by grid, region, administrative unit or other analytical unit.  |
| <b>structure</b>               | man-made construction  | buildings, museums, churches, factories, housing, monuments, shops, towers, building footprints, architectural and structural plans   | <b>Buildings</b>                             | Geographical location of buildings.   |
|                                |  |   | <b>Environmental monitoring facilities</b>   | Location and operation of environmental monitoring facilities includes observation and measurement of emissions, of the state of environmental media and of other ecosystem parameters (biodiversity, ecological conditions of vegetation, etc.) by or on behalf of public authorities. |
|                                |  |   | <b>Production and industrial facilities</b>  | Industrial production sites, including installations covered by Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (1) and water abstraction facilities, mining, storage sites.   |
| <b>transportation</b>          | means and aids for conveying persons and/or goods                              | roads, airports/airstrips, shipping routes, tunnels nautical charts, vehicle or vessel location, aeronautical charts, railways  | <b>Transport networks</b>                    | Road, rail, air and water transport networks and related infrastructure. Includes links between different networks.   |
| <b>utilities communication</b> | energy, water and waste systems and communications infrastructure and services | hydroelectricity, geothermal, solar and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio, communication networks  | <b>Utility and governmental services</b>     | Includes utility facilities such as sewage, waste management, energy supply and water supply, administrative and social governmental services such as public administrations, civil protection sites, schools and hospitals.  |