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EO4GEO – Towards an innovative strategy for skills
development and capacity building in the space geo-
information sector supporting Copernicus User
Uptake



With the support of the Erasmus+ Programme of the European Union Sector Skills Alliances N° 591991-EPP-1-2017-1-IT-EPPKA2-

BoK Visualization and Search (BVS)

EO4GEO Tools User guides



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About

The [BoK Visualization and Search \(BVS\)](#) tool allows users to navigate and visualize the EO4GEO Body of Knowledge (BoK) in a graphical and textual way.

Each concept in the BoK has a Universal Resource Identifier (URI), i.e. a permanent URL, to refer to it, a name, description, associated skills, contributor(s), source document(s) and relationships to other concepts. The versioning system allows previous versions of the BoK, and each concept in it, to be browsed. An advanced search is available to search in concepts and their attributes.

The BVS is public, no registration is required.

The BoK Visualization and Search (BVS) is part of the EO4GEO ecosystem of tools, and was developed by the [Geospatial Technologies Research Group](#) (GEOTEC) from the Universitat Jaume I, Castelló de la Plana, Spain in the context of the Erasmus+ Sector Skills Alliance project [EO4GEO](#).



1. Main view

Figure 1 shows BVS's main view where users can **explore the Body of Knowledge**, navigating between concepts and their historical versions. There are two ways of exploring the BoK, graphically, clicking on the different circles which represent concepts (1), and textually, clicking on the links which represent super/sub concepts (2) or – if present – other relationships (i.e., similar as, pre-requisite; not shown in Figure 1) of the current concept. This view shows the current selected concept details. By default, browsing starts with the root concept, Geographic Information Science and Technology. When navigating from concept to concept, the visualized information changes accordingly.

BoK Visualization and Search

Copy to Clipboard :

Check the attributes to match with term searched:

Code
 Name
 Description
 Skills / Learning outcomes

3

Permalink: <https://bok.eo4geo.eu/GIST>

[GIST] Geographic Information Science and Technology

Description:

Geographic Information Science and Technology
Subconcepts [14]

- [AM] Analytical Methods
- [CF] Conceptual Foundations
- [CV] Cartography and Visualization
- [DA] Design and Setup of Geographic Information Systems
- [DM] Data Modeling, Storage and Exploitation
- [GC] Geocomputation
- [GD] Geospatial Data
- [GS] GI and Society
- [IP] Image processing and analysis
- [OI] Organizational and Institutional Aspects
- [PP] Physical principles
- [PS] Platforms, sensors and digital imagery
- [TA] Thematic and application domains
- [WB] Web-based GI

Skills [2]

Classify the main knowledge domains of GI Science and Earth observation.
Discuss the synergy between processes in geo-information systems and earth observation systems.

Contributors [1]

[EO4GEO project](#)

Versioning

→ You are viewing: **version 4.0 (2020/10/21) (Current Bok Version)**

- version 3.0 (2020)
- version 2.0 (2019)
- version 1.0 (2016)

Figure 1 General information to annotate a PDF



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This view also allows to search by typing in the search box (3), see next section [Search and results view](#) for more information.

If concept exists in other (previous) versions of the BoK, a link is included for each version (4). Click the link to [access another version of the BoK](#) and load the information for a concept in that given version. See a more detailed example in [Visualizing a concept in the BoK](#) section.

2. Search and results view

To [search concepts in the BoK](#) (Figure 2), type a search string in the search box (1) and the matching concepts will be displayed in the graphic visualiser (left) with a wider black border (2) and in the textual part (right) highlighting the matching text found in bold (3).

The screenshot shows the 'BoK Visualization and Search' interface. On the left, a circular bubble chart (2) displays various concepts. The search box (1) contains the text 'cartogra'. The search criteria (4) are checked for 'Code', 'Name', and 'Description'. The results (3) show 24 results for 'cartogra'. The first result is 'CV Cartography and Visualization Details', which includes a description and a link to 'Details'. The second result is 'CV1-1 History and evolution of cartography Details', which includes a description and a link to 'Details'. The third result is 'AM Analytical Methods Details', which includes a description and a link to 'Details'. The fourth result is 'AM13 Representation transformation Details', which includes a description and a link to 'Details'. The fifth result is 'AM14-1 Scale and generalization Details', which includes a description and a link to 'Details'. The sixth result is 'AM14 Generalization and aggregation Details', which includes a description and a link to 'Details'. The seventh result is 'CF1-2b Contributions to GIS and T by key allied fields Details', which includes a description and a link to 'Details'. The eighth result is 'CF1b Introduction to Geographic Information Science and Technology Details', which includes a description and a link to 'Details'. A 'Next >>' button (6) is located at the bottom right of the results list.

Figure 2 Searching concepts in the BoK



By default, the search is performed in code, concept names and descriptions. You can also **define the search criteria** by (de)selecting the check boxes (4), to search in specified attributes of concepts: in the code of a concept, in the name, in the description or in the skills/ learning outcomes.

From the list of concepts matching a search, you can access the full information of a concept by clicking on the 'Details' link (5) close to the name of the concept.

When the search produces more than 8 results, you can navigate between result pages with the 'Next' and 'Previous' buttons (6). You can go back to the main view with the 'Clear search results' button (7)

3. Visualizing a concept in the BoK

Figure 3 shows the detail view of a concept: the graph (1) is zoomed in on the concept (left), and its associated textual information is shown in the textual part (right).

The textual information includes the permalink of the concept (2), which redirects to the last available version of this concept (usually, the current version), the name of the concept (3), the description and information about the status (in progress, completed...), it also includes links to the superconcepts (4) and subconcepts (5) which you can use to **navigate through the BoK**. If available, the textual view also shows similar and prerequisite concepts (not shown in Figure 3).

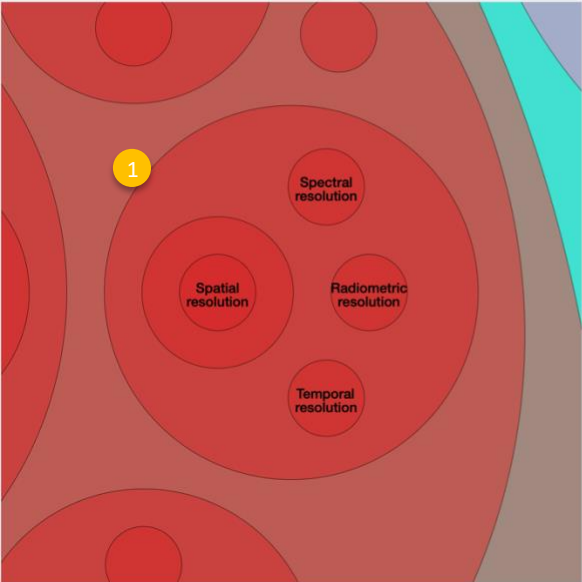
A list of skills associated to the concept is shown (6), a list of contributors with links to their researcher profiles (7), a list of source documents or bibliography (8) and finally the links to **access previous versions of the concept** (9).

As each concept has a unique URI identifier (i.e., a permalink), you can **copy the permalink**, with the 'Permalink' button (10), this will always reference the selected concept. The 'HTML code' button generates an HTML code of a link pointing to the permalink.



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Copy to Clipboard: [HTML code](#) [Permalink](#) **10**



Permalink: <https://bok.eo4geo.eu/PS3-4> **2**

[PS3-4] Properties of digital imagery **3**

Status: Completed

Description:

A digital image begins as an analog signal. Through computer data processing, the image becomes digitized and is sampled multiple times. The critical characteristics of a digital image are spatial resolution, spectral resolution, radiometric resolution, contrast resolution, noise, and dose efficiency. These depend upon satellite orbit configuration and sensor design. Different sensors have different resolutions. Spectral resolution describes the ability of a sensor to define fine wavelength intervals. The narrowest spectral interval that can be resolved by an instrument. Spectral resolution (spectral capability) also refers to the number of wavebands within the EM spectrum that an optical sensor is taking measurements over. Radiometric resolution can be defined as the ability of an imaging system to record many levels of brightness. Radiometric resolution refers to the range in brightness levels that can be applied to an individual pixel within an image, determined on a grayscale. E.g., Sentinel-2 sensor MSI is a 12 bit sensor imaging with 4,096 levels. Spatial resolution of an image corresponds to the size of the minimum area that can be resolved by the sensor. Temporal resolution, also referred to as the revisit cycle, is defined as the amount of time it takes for a satellite to return to collect data from exactly the same location on the Earth. Imaging of the exact same area at the same viewing angle a second time is temporal resolution.

Superconcepts [1]

- Geographic Information Science and Technology
- [PS] Platforms, sensors and digital imagery
- [PS3] Remote sensing data and imagery **4**

Subconcepts [4]

- [PS3-4-1] Spectral resolution
- [PS3-4-2] Spatial resolution
- [PS3-4-3] Radiometric resolution **5**
- [PS3-4-4] Temporal resolution

Skills [5]

- Distinguish and explain the different types of properties of digital imagery
- Explain and discuss what the radiometric resolution is
- Explain and discuss what the spatial resolution is
- Explain and discuss what the spectral resolution is **6**
- Explain and discuss what the temporal resolution is

Contributors [1]

- Clémence Dubois **7**

Source documents [2]

- Campbell, J.B., Wynne, R.H. (2003). Introduction to Remote Sensing, Fifth edition, The Guilford Press, New York, US.
- Lavender, S., Lavender, A. (2017). Practical Handbook of Remote Sensing, CRC Press, Taylor & Francis Group, Boca Raton, US. **8**

Versioning

- You are viewing: **version 4.0 (2020/10/21) (Current Bok Version)**
- version 3.0 (2020) **9**
- version 2.0 (2019)

Figure 3 Detail view of a concept



Glossary of terms

Body of Knowledge (BoK) is the complete set of concepts and relations between them, that make up a professional domain, (in this case EO/GI BoK) and the related learning outcomes as defined by the relevant learned society or a professional association.

BVS. BoK Visualization and Search tool

Knowledge The body of facts, principles and theories and practices that is related to a field of work or study

Permalink Is a unique URI to identify a single concept that remains valid over the time.

Skills means the ability to apply knowledge and use know-how to complete tasks and solve problems.

URI – Universal Resource Identifier, a way to uniquely and unambiguously identify a resource