

MSc Research Skills

Topic: Finding & evaluating information

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UT/ITC Enschede

Topics for this lecture

1. **Information and information overload**
2. **Literature review**
3. **Types of sources and their reliability**
4. **How to search**

Topic: Information and information overload

- Information
- Information overload
- Information literacy
- Information skills
- Personal information infrastructure

Information

“Knowledge is power. The more one knows, the more one will be able to control events.”

– Francis Bacon, *Meditationes Sacrae* (1597)

Information has become a vital resource for world economies, and drives research. Information is highly **synergistic**: the more information one has, the more information one can generate.

It is certainly the basic component of any **research** project.

Information overload

Information is available from many sources and in many formats, such as:

- printed text (newspapers, magazines, journals, reports ...);
- television (increasingly international);
- videos;
- library databases; and
- web sites.

Much of the printed material is also on the **Internet**.

- **Question**: How to avoid **information overload**?
- **Answer**: With a clear **information strategy**

Information skills

Information skills can be grouped in five categories:

1. **awareness** (that we need reliable information);
2. **access** (how to find it);
3. **evaluation** (how to decide what is most relevant and reliable);
4. **use** (how to use it in our work);
5. **generation** (how to produce new information).

Information skills for the MSc thesis proposal

- find **relevant** and **accurate** information on the research topic;
- relate these in a **literature review**

Personal information infrastructure

Slowly you can build up:

- A list of *your* favourite **reference materials** such as handbooks, user's guides and texts;
- A list of *your* favourite **journals** and book series;
- A list of the best **searchable databases** for *your* purpose;
- A set of *your* **saved searches** in the databases, also as e-mail or RSS **alerts**.

This is in fact an **infrastructure** for *your* research career.

Topic: Literature review in a research proposal

When proposing a research project:

1. to establish its **originality**
 - prove that the proposed work has not been done before;
2. to place the proposed research in **context** (related work);
 - how it fits in the “big picture”
 - related work done by others that influence the choices made for this research
3. to compare and justify the choice of **research methods**
 - methods used in similar studies
 - why some methods are preferred or appropriate in this research

Topic: Types of sources and their reliability

“Don’t believe everything you read!”

Especially on the internet!

Not all sources are equally **reliable**, nor have they all had the same **quality control**.

Recommended: ITC library’s **Information Literacy Course**¹ module 2 “*Selecting the right information sources*”

¹<http://www.itc.nl/Pub/Home/library/Library-Guides/LiteracyCourse>

Journal Article

This is an **original contribution** that appears in a published **scientific journal**.

These contributions have been **peer-reviewed** to ensure quality control

Note: not all peer-review is equally effective.

In general, the more **influential** the journal (i.e. the more its work is cited and considered of top quality), the more likely that peer review has been rigorous.

Peer-review for quality control

1. The **authors** submit a **draft** of the article to a journal editor.
2. The **editor** checks the relevance for the journal and the format of the paper.
3. The **editor** sends the draft to several other scientists familiar with the subject matter; these are the **peer-reviewers**.
4. The reviewers read the draft and **advise the editor** to either:
 - (a) **accept**;
 - (b) **accept with minor revisions**;
 - (c) **Reconsider** if major changes are made; or
 - (d) **reject** outright.

Where is the quality control?

1. Recommendation to **revise** and possibly re-submit because:

- **Incorrect analysis**, not suitable to the data
- **Unjustified conclusions**, poor reasoning;
- Work does not properly consider **related work**;
- Poor **writing**.

2. Outright **rejection** because:

- **Fraud**, e.g. plagiarism of others' work
- Incorrect data collection or processing methods (therefore the **data are not reliable**);
- Work **repeats** what has already been done, **nothing new is added** to the existing literature;
- Work is **too narrow** ("light") to justify publishing, but could be incorporated into a bigger study.

Types of journal articles

Research Article Describes an **original** investigation, method, or procedure.
Specific and limited

- ▷ Dobos, E.; Micheli, E.; Baumgardner, M. F.; Biehl, L.; & Helt, T. 2000. *Use of combined digital elevation model and satellite radiometric data for regional soil mapping. Geoderma* 97(3-4):367–391

Review Article **Summarises** a set of research articles; surveying the state-of-art in a particular field. The title may include words like “review”, “summary”, or “overview”.

- ▷ McBratney, A. B.; Odeh, I. O. A.; Bishop, T. F. A.; Dunbar, M. S.; & Shatar, T. M. 2000. *An **overview** of pedometric techniques for use in soil survey. Geoderma* 97(3-4):293–327

Opinion A scientific **editorial**, either by the journal editor or an invited contributor.

- ▷ Basher, L. R. 1997. *Is pedology dead and buried? Australian Journal of Soil Research* 35:979–94

Which journals are most reliable?

There are a great many journals, and all may have useful and reliable information.

However, certain journals have been identified as the most **important** and **prestigious** journals within a subject field.

The MSc researcher should prefer articles out of these journals; it would be very unusual not to refer to any of these.

These are called **ISI** journals.

- ISI: **Institute for Scientific Information** (Thompson Reuters)
- about 1/3 of all journals are ISI (about 3 700 in the sciences)

Criteria for selection as ISI journal

- the journal's **publishing standards**:
 - * selectivity;
 - * **peer-review** process.
- its editorial content (including **reputation of its editorial board**);
- the international diversity of its authorship;
- its **citation record** in other journals (**importance** of its papers).

Is a journal ISI?

Search the Journal Citation Reports (JCR).

Example, there are 15 ISI journals² in the “Remote Sensing” category (in alphabetic order):

1. Canadian Journal of Remote Sensing (Canadian Aeronautics & Space Institute)
2. GIScience & Remote Sensing (Bellwether Publishing, USA)
3. GPS Solutions (Springer)
4. IEEE Geoscience and Remote Sensing Letters (IEEE)
5. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
(continued ...)

²as of 12-April-2010

6. IEEE Transactions on Geoscience and Remote Sensing (IEEE)
 7. International Journal of Applied Earth Observation and Geoinformation (Elsevier Science)
 8. International Journal of Remote Sensing (Taylor & Francis)
 9. ISPRS Journal of Photogrammetry and Remote Sensing (Elsevier Science for ISPRS)
 10. Journal of Geodesy (Springer)
 11. Photogrammetric Engineering and Remote Sensing (American Society of Photogrammetry and Remote Sensing)
 12. Photogrammetric Record (Wiley-Blackwell)
- (continued ...)

13. Photonirvachak (Indian Society of Remote Sensing)
14. Radio Science (American Geophysical Union)
15. Remote Sensing of Environment (Elsevier Science)
16. Survey Review (Commonwealth Association of Surveying and Land Economy)

Relevance to MSc project

ISI journals have been **expertly evaluated** as:

- **reliable** (especially their quality control and editorial policies);
- **important** (i.e. their papers are cited by other researchers).

so the MSc student (beginning researcher) has an easier job of **evaluating** papers – these have been **screened** (filtered, pre-selected).

Open Access

Open Access (OA) publications are those made **freely available online** to libraries and readers, anywhere, with no charges imposed for access.

- The “Green” Road to OA: **repositories** of papers published commercially but then made available (often after a time lag);
 - * Directory of Open Access Repositories (OpenDOAR):
<http://www.opendoar.org/>
- The “Golden” Road to OA: **Open Access journals**: producer pays costs, papers are immediately OA
 - * Directory of Open Access Journals (DOAJ); <http://www.doaj.org/>
 - * Example: *Hydrology and Earth System Sciences*;
<http://www.hydro1-earth-syst-sci.net/>

Conference Paper

- An original contribution that was presented at a scientific meeting;
- Usually **not** or minimally **peer-reviewed**, because ...
- ... conferences are mainly to discuss **work in progress**;
- Intensity of peer-review depends on quality of the conference;
- In most fields, papers presented at a conference should appear as **journal papers** theses within a few years of the conference;
- Some **high-prestige** conferences use **peer review**; the proceedings are **published** to the same standards as an edited book or a journal article

Conference papers in a journal

Conference papers may be collected for a **special issue** of a **peer-reviewed** journal; in that case they are peer-reviewed and cited as a journal paper, even though the work was first presented in a conference:

- Conference paper:
 - ▷ Rossiter, D. G. 2006. *Classification of urban and industrial soils in the World Reference Base for Soil Resources*. In *18th World Congress of Soil Science*. Philadelphia, PA (USA): IUSS
- Journal article:
 - ▷ Rossiter, D. G. 2007. *Classification of urban and industrial soils in the World Reference Base for Soil Resources*. *Journal of Soils and Sediments* 7(2):96–100

There is no reason to cite the conference paper once the journal article is published.

Book chapter

This is an **original contribution** that is collected into an **edited book** on a specific topic.

These are typically invited by the book editor and may undergo some peer review; certainly they are edited. Often they are **review articles**.

- ▷ Skidmore, A. K. 1999. *Accuracy assessment of spatial information*. In Stein, A.; Meer, F. v. d.; & Gorte, B. G. F. (eds.), *Spatial statistics for remote sensing*, pp. 197–209. Dordrecht: Kluwer Academic.

Textbook

This is a published book meant to **introduce a subject** for classroom teaching or self-study.

It can treat a topic at any **level** (i.e. pre-requisites for understanding it), but given that level, it is intended as the **first contact** with the subject.

Not peer-reviewed as such, but are typically extensively **edited** and sent by the publisher to people who might use the text in teaching, to see if they find the book accurate and useful.

Example Textbooks

Some say “text”:

- ▷ Dupriez, H. & de Leener, P. 1998. *Trees and multistorey agriculture in Africa : a **textbook** for agro - forestry*. Nivelles; Wageningen: Terres et Vie; Technical Centre for Agricultural and Rural Cooperation (CTA)
- ▷ Kutilek, M. & Nielsen, D. 1994. *Soil hydrology : **textbook** for students of soil science, agriculture, forestry, geoecology, hydrology, geomorphology or other related disciplines*. Geoecology paperback. Reiskirchen (D): Catena Verlag

Others don't:

- ▷ Lillesand, T. M. & Kiefer, R. W. 1994. *Remote sensing and image interpretation*. New York: John Wiley & Sons, 3rd edition
- ▷ Bishop, Y.; Fienberg, S.; & Holland, P. 1975. *Discrete multivariate analysis: theory and practice*. Cambridge, MA: MIT Press

Technical Report

These are publications from an institution or project, and often contain **primary data** and maps which do not appear elsewhere.

They are often difficult for others to obtain, but if they are the only source of information (e.g. of **primary data**), they should be cited.

They are not peer-reviewed; the **quality control was only as good as the project**.

- ▷ Center for Advanced Spatial Technologies (CAST). 1998. *AR-GAP final report: State-wide biodiversity mapping for Arkansas*. Report, Center For Advanced Spatial Technologies (CAST), Fayetteville, AR.
- ▷ Anonymous. 1985. *Soils and soil conditions, Kali Konto upper watershed, East Java*. Project Report ATA 206, Universitas Brawijaya (Malang), Agricultural University (Wageningen)

On-line access

More and more journals (also books and reports) are only available **on-line**, and have no printed equivalent.

Some of these are fully **peer-reviewed** and of good quality; they are used like printed journal articles.

Example:

- ▷ Bourne, P. 2005. *Ten simple rules for getting published*. *PLoS Computational Biology* 1(5):e57. <http://dx.doi.org/10.1371/journal.pcbi.0010057>

Note the use of the **Digital Object Identifier (DOI)** system to help the reader locate the article on-line.

All peer-reviewed journal articles which are available on-line have a permanent DOI.

Web access to printed sources

- e.g. on-line versions of printed journals, technical reports, books.
 - the web source is a **copy** or a differently-formatted version of a **printed source**.
 - The web alternative is **easier to access**
 - The **printed source** is cited, optionally with the web address
-
- ▷ Center for Advanced Spatial Technologies (CAST). 1998. *AR-GAP final report: State-wide biodiversity mapping for Arkansas*. Report, Center For Advanced Spatial Technologies (CAST), Fayetteville, AR. URL: <http://www.cast.uark.edu/gap/>
 - ▷ Dobos, E.; Micheli, E.; Baumgardner, M. F.; Biehl, L.; & Helt, T. 2000. *Use of combined digital elevation model and satellite radiometric data for regional soil mapping*. *Geoderma* 97(3-4):367–391 DOI: [http://dx.doi.org/10.1016/S0016-7061\(00\)00046-X](http://dx.doi.org/10.1016/S0016-7061(00)00046-X)

Web pages

Some information is only available via the web.

Tomorrow's version may be different from today's, it may move to another cyber-address, or it may even disappear.

- **not peer-reviewed**;
- **not permanent**;
- **not 'published'** in the traditional sense, or even the digital equivalent

Example of a web page

“In the USA, soil conservation is aggressively promoted through attractive web sites [e.g. 1].”

Entry in the list of references:

- [1] USDA Natural Resources Conservation Service. No date. *North Carolina NRCS*. On-line document; URL:
<http://www.nc.nrcs.usda.gov/>. Access date: 05-April-2013

The **access date** must be given, because digital sources may change, move or disappear.

Judging the reliability of web pages

- **Accuracy:**

- * As far as you can evaluate, is the factual information correct?
- * Are there grammatical, spelling and/or typographical errors?

- **Authority:**

- * Who sponsors the page?
- * Who wrote the material? What are the author's qualifications?
- * Who is the copyright holder?

If you can't even tell who sponsors the page or who wrote the text, that is a bad sign: no **accountability** implies no authority.

(continued ...)

- **Objectivity:**

- * Is the text an advertisement?
- * Does the text seem to only present one side of a known controversy?
- * Is the sponsor known to be objective?
- * Is there a reason the sponsor would distort or exaggerate?

- **Currency:**

- * When was the page written?
- * Is the information kept current?
- * When is the information from any graphs and charts gathered?

- **Coverage:**

- * Is it completed or under construction?
- * Is there a print equivalent (or at least some printed sources to back it up)?
- * Is it an entire work or just a fragment?

Reliable web pages

- Technical pages of responsible organizations, e.g. NASA
<http://www.nasa.gov/>
- Official pages of organizations, when presenting facts within their competence, e.g. FAO <http://www.fao.org/>
- **Collaborative** sites (many small contributors) with community peer-review, e.g. CC-CEDICT (Chinese-English dictionary) <http://cc-cedict.org/wiki/>

Wikipedia is a special case of a collaborative site: generally reliable because it requires a **neutral point of view** but this is difficult to enforce; there is no final authority.

Problematic web pages

- **Commercial** sites
 - * obviously, promoting their product – but they can be reliable sources for technical information about the product
- **Special-interest** and **advocacy** groups, promoting a programme or viewpoint
 - * May have valid information but often is one-sided (“slanted”)
 - * May have purposely misleading or exaggerated information to stimulate activism or financial support
- Lecture notes or tutorials: check the **credentials** of the author (their peer-reviewed journal articles)
- “Hobby” sites: an **amateur** with enthusiasm for a subject but not necessarily sufficient knowledge

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Home

What's wrong with geostatistics?

- Sampling paradox
- Kriging game
- Kriged estimate
- Missing variance
- Kriging Variance

Geostatistical factoids

- Spatial dependence

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Topic: How to Search

Finding **relevant** material, and especially the **most important** for your purpose, is not easy.

It requires **patience**, **detective skills**, and continued **hard work**.

Fortunately, in the **digital age** it is possible to make much more rapid progress than previously. But, you should have a sound **search strategy**.

And, you have help from the information specialists in the **ITC library**.

Recommended: ITC library's **Information Literacy Course**³ module 3 "*Searching the literature*"

³<http://www.itc.nl/Pub/Home/library/Library-Guides/LiteracyCourse>

ITC library search resources

Recommended: ITC library's **Information Literacy Course**⁴ module 5 "*Databases*"

- Search and view **full-text** (if ITC has a subscription):

1. Web of Science
2. Science Direct / Elsevier
3. SpringerLink
4. JSTOR

- Search **abstracts**, some links to full-text

1. Scopus
2. Google Scholar

- **Subject-oriented** bibliographic databases

1. Geobase
2. CAB Abstracts

⁴<http://www.itc.nl/Pub/Home/library/Library-Guides/LiteracyCourse>

Starting points for search

- Keyword searches in **electronic resources** (e.g. ScienceDirect)
- Reference lists in **lecture notes**;
- Reference lists in earlier **theses**;
- Reference lists in **textbooks**;
- **Review papers**
 - * Each reference is placed in **context**, with an indication of **importance**;
- Reference lists in **research papers** in recent issues of relevant **journals**.

Search strategy

- build **concept groups** from your research topic;
- develop a **set of terms** for each concept group;
- find **synonyms**;
- decide which **Boolean logic** is needed, place brackets and combine concepts;
- decide whether to use **truncation** or not;
- choose the **databases** and use proper search commands for each.

Example: Concept groups

From the ITC tutorial:

“These concepts are the main topics which best describe the information you seek. Analyze the topic you need information about by writing out a few detailed sentences about this topic. Underline the main words in these sentences.”

Example: “Kampala has a severe problem with flooding after heavy rains, which is caused by rapid runoff from impermeable areas (paved roads, compacted soils) and insufficient infiltration in vegetated areas. I want to assess this spatially with a distributed hydrological model, for urban flooding which needs a gridded map of soil parameters, especially infiltration rate, over a large area. Has anyone made a soil properties map of Kampala? Has anyone developed a methodology for rapidly identifying compacted soils from imagery? What methods have been used to interpolate from point samples of soil infiltration to a grid?”

Example: Terms from concept groups

1. Kampala (specific area), African urban/city/cities (similar areas)
2. distributed hydrological/runoff/infiltration model for urban flooding
3. soil properties/hydrology map
4. identify/map compacted/impermeable/impervious soil from imagery
5. interpolate point to grid/raster

These may have synonyms, to be joined with OR (see next)

Boolean (logical) operators

- **And** operator:
 - * Retrieves records that include **both** terms
 - * **narrows** your search
 - * Used for terms or concepts that are **not related**
- **Or** operator:
 - * Retrieves records that include **either** of the terms
 - * **Widens** your search
 - * Used for **related** terms or concept
- **Not** operator:
 - * Retrieves records that include one term but **not** another term
 - * Eliminates all the records containing the second term
 - * **Narrows** your search
 - * May eliminate relevant records

Truncation

Replace part of a word with a symbol, the search engine will match anything for the missing part.

Truncation symbols can be used either **inside** the word or at the **end** of it.

Each database uses its own truncation symbols; the **asterisk *** is most common.

- 'wom*n' - finds 'woman' or 'women'
- 'diet*' - finds 'diets', 'dietician', 'dieting', 'dietary', but also 'diethylstilbestrol' (a synthetic estrogen)
- 'cartograph*' - finds 'cartographic', 'cartography', 'cartographical'
- 'plan*' - finds 'plan', 'plans', 'planning' but also 'planet', 'planetary'
- 'system*' - finds 'system', 'systems'
- 'science*' - finds 'science', 'sciences'

Search in ScienceDirect

ScienceDirect – Journals Search

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Term(s): (digital or computer) and "soil mapping" within: Title
 AND within: Abstract, Title, Keywords
 Source: All journals ☒ Include Articles in Press

Select one or more:
 Subject: - All Sciences -
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 Hold down the Ctrl key (or ⌘ key) to select multiple entries.

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Dates: 2002 to: Present ☐ All Years

Volume: Issue: Page:

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Search results

ScienceDirect – Search Results: pub-date > 2001 and TITLE((digital or computer) and "soil mapping")

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pub-date > 2001 and TITLE((digital or computer) and "soil mapping")

Full-text available Non-subscribed What does this mean?

Article List Full Abstracts Sort by Date | Sort by Relevance
 Display Selected Articles E-mail Articles Export Citations

1. On digital soil mapping
 Geoderma, Volume 117, Issues 1-2, November 2003, Pages 3-52
 A. B. McBratney, M. L. Mendonça Santos and B. Minasny
[SummaryPlus](#) | [Full Text + Links](#) | [PDF \(767 K\)](#) | [View Related Articles](#)
2. Estimation and potential improvement of the quality of legacy soil samples for digital soil mapping
 Geoderma, Volume 141, Issues 1-2, 15 September 2007, Pages 1-14
 F. Carré, Alex B. McBratney and B. Minasny
[SummaryPlus](#) | [Full Text + Links](#) | [PDF \(4999 K\)](#) | [View Related Articles](#)

2 Articles Found Edit Search | Save Search | Save as Search Alert | Search Feed
 pub-date > 2001 and TITLE((digital or computer) and "soil mapping")

The “spider” approach

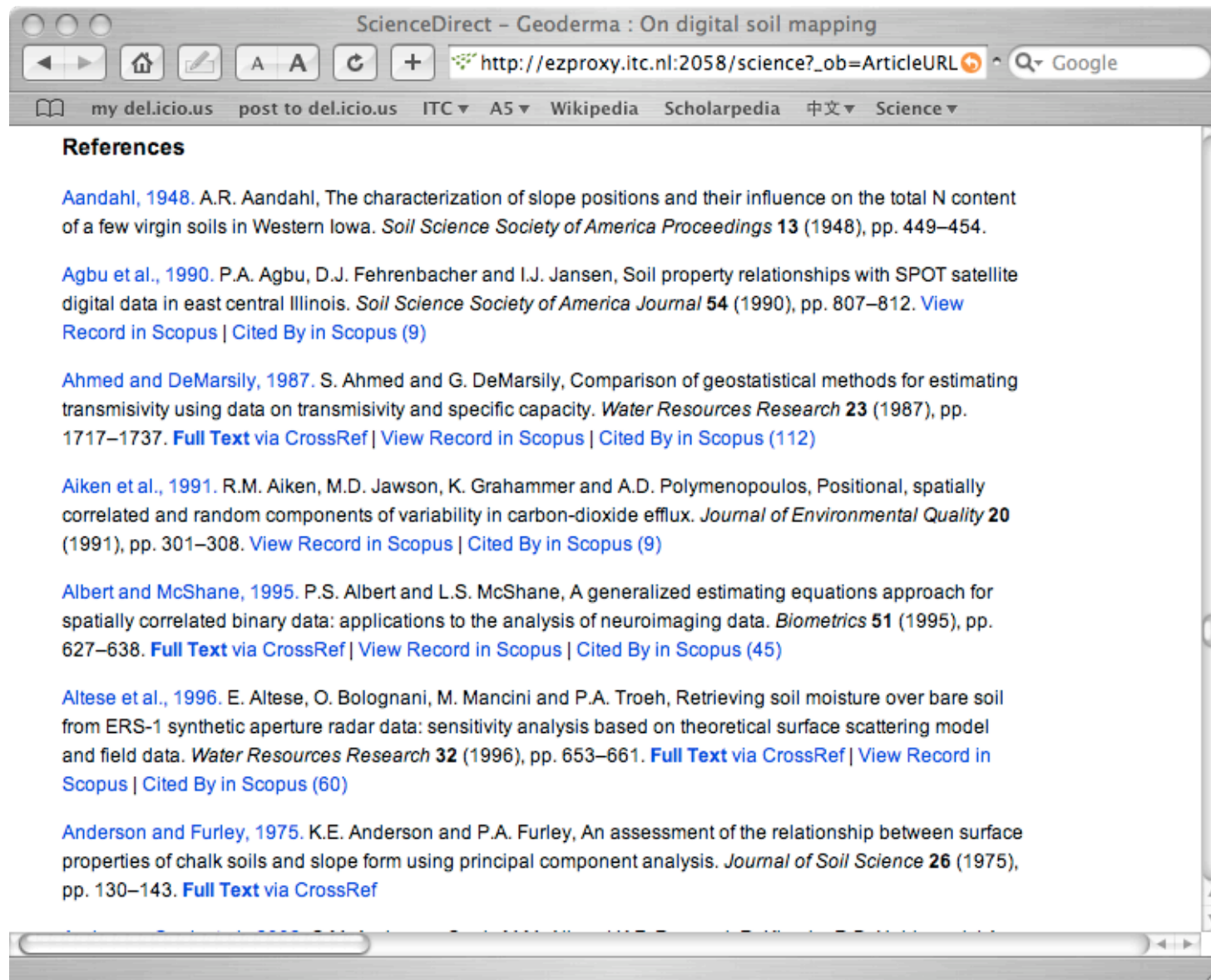
Once you have found some relevant literature, look for:

- Works that are cited in the papers you have found (“**backwards spider**”); note these have been put into **context** for you by the paper’s authors
- Works that cite the papers you have found (“**forwards spider**”)
 - * use the **forward search** of an electronic resource such as **Web of Science**
- Works by the **same author(s)**
- **Related articles** links in the search results (“**sideways spider**”)
- Papers in the **same journal**

Web of Science record

The screenshot shows a web browser window displaying a record from the ISI Web of Knowledge. The browser's address bar shows the URL: <http://ezproxy.itc.nl:2336/CitedFullRecord.do?product=WOS&>. The page header includes navigation links like 'Signed In', 'My EndNote Web', 'My ResearcherID', 'My Citation Alerts', 'My Saved Searches', 'Log Out', and 'Help'. The main title of the record is 'On digital soil mapping'. Below the title, there are buttons for 'Full Text', 'Print', 'E-mail', 'Add to Marked List', 'Save to EndNote Web', and 'more options'. The author(s) listed are 'McBratney AB, Santos MLM, Minasny B'. The source information is 'GEODERMA Volume: 117 Issue: 1-2 Pages: 3-52 Published: NOV 2003'. The record shows 'Times Cited: 71' and 'References: 318'. The abstract text is: 'We review various recent approaches to making digital soil maps based on geographic information systems (GIS) data layers, note some commonalities and propose a generic framework for the future. We discuss the various methods that have been, or could be, used for fitting quantitative relationships between soil properties or classes and their 'environment'. These include generalised linear models, classification and regression trees, neural networks, fuzzy systems and geostatistics. We also review the data layers that have been, or could be, used to describe the 'environment'. Terrain attributes derived from digital elevation models, and spectral reflectance bands from satellite imagery, have been the most commonly used, but there is a large potential for new data layers. The generic framework, which we call the scorpan-SSPFe (soil spatial prediction function with spatially autocorrelated errors) method, is particularly relevant for those places where soil resource information is limited. It is based on the seven predictive scorpan factors, a generalisation of Jenny's five factors, namely: (1) s: soil, other or previously measured attributes of the soil at a point; (2) c: climate, climatic properties of the environment at a point; (3) o: organisms, including land cover and natural vegetation; (4) r: topography, including terrain attributes and classes; (5) p: parent material, including lithology; (6) a: age, the time factor; (7) n: space, spatial or geographic position. Interactions (*) between these factors are also considered. The scorpan-SSPFe method essentially involves the following steps:'. On the right side, there is a section titled 'Cited by: 71' which lists two citing articles: 'Liu JG, Pattey E, Nolin MC, et al. Mapping within-field soil drainage using remote sensing, DEM and apparent soil electrical conductivity GEODERMA 3-4 261-272 FEB 15' and 'Grinand C, Arrouays D, Laroche B, et al. Extrapolating regional soil landscapes from an existing soil map: Sampling intensity, validation procedures, and integration of spatial context GEODERMA 1-2 180-190 JAN 15'. Below these, another article is partially visible: 'Mourier B, Walter C, Merot P Soil distribution in valleys according to stream order CATENA 3 395-404 JAN 31'.

References in the paper (“backwards spider”)



“Related articles” links (“sideways spider”)

ScienceDirect – Geoderma : On digital soil mapping

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On digital soil mapping

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Abstract

We review various recent approaches to making digital soil maps based on geographic information systems (GIS) data layers, note some commonalities and propose a generic framework for the future. We discuss the various methods that have been, or could be, used for fitting quantitative relationships between soil properties or classes and their 'environment'. These

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Web of Science “cited reference search”

- Purpose: discover how a known idea or innovation has been **confirmed, applied, improved, extended, or corrected**
- A feature of Web of Science (WoS)
- Search for articles that have cited a **previously published** work
- So, you don't re-do something already known

Finding works that cite a known reference

The screenshot shows the ISI Web of Knowledge [v.4.1] - Web of Science Cited Reference Search interface. The browser address bar shows the URL `05%402B6hG8&search_mode=CitedReferenceSearch` with a Google search button. The page has a green header with the ISI Web of Knowledge logo and the tagline "Take the next step". Below the header, there are navigation tabs: "Web of Science" (selected) and "Additional Resources". Under "Web of Science", there are sub-tabs: "Search", "Cited Reference Search" (selected), "Advanced Search", "Search History", and "Marked List (0)". The main content area is titled "Web of Science®" and "Cited Reference Search. Find the articles that cite a person's work". A link "View our Cited Reference Search tutorial." is provided. The interface guides the user through "Step 1: Enter the author's name, the work's source, and/or publication year." with three input fields: "Cited Author:" (containing "mcbratney"), "Cited Work:" (containing "Geoderma"), and "Cited Year(s):" (containing "2003"). Each field has a search icon and an example. Below the fields are "Search" and "Clear" buttons.

ISI Web of Knowledge [v.4.1] - Web of Science Cited Reference Search

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Cited Reference Search. Find the articles that cite a person's work [View our Cited Reference Search tutorial.](#)

Step 1: Enter the author's name, the work's source, and/or publication year.

Cited Author: Example: O'Brian C* OR OBrian C*

Cited Work: Example: J Comput Appl Math* [journal abbreviation list](#)

Cited Year(s): Example: 1943 or 1943-1945

Search Clear

Web of Science: recent articles by the same author

The screenshot shows the ISI Web of Knowledge [v.4.1] - Web of Science interface. The browser address bar displays the URL: <http://ezproxy.itc.nl:2336/DaisyOneClickSearch.do?product=WO>. The page features a green header with the ISI Web of Knowledge logo and a navigation bar with links like "Signed In", "My EndNote Web", "My ResearcherID", "My Citation Alerts", "My Saved Searches", "Log Out", and "Help".

The main content area is titled "Web of Science" and includes a "Web of Science®" section. It displays a search result for "Distinct Author Set: McBratney AB" with a timespan of "All Years" and databases "SCI-EXPANDED, SSCI, A&HCI". A description explains the Distinct Author Set feature as a discovery tool for papers likely written by the same person. Below this, it states "Shown below are papers by McBratney AB" and provides links to "View all Author Sets for this author name" and "Perform a search for this author name".

The results section shows "Results: (Why 109?) 109" and "Page 1 of 11". The "Sort by" dropdown is set to "Latest Date". A "Refine Results" sidebar on the left allows searching within results for "Subject Areas" (Soil Science, Agronomy, Environmental Sciences, Plant Sciences, Agriculture, Multidisciplinary) and "Document Types".

The main results list includes two entries:

- Title:** Visible, near infrared, mid infrared or combined diffuse reflectance spectroscopy for simultaneous assessment of various soil properties
Author(s): Rossel RAV, Walvoort DJJ, McBratney AB, et al.
Source: GEODERMA Volume: 131 Issue: 1-2 Pages: 59-75 Published: MAR 2006
Times Cited: 24
[Full Text](#)
- Title:** Uncertainty analysis for soil-terrain models
Author(s): Bishop TFA, Minasny B, McBratney AB
Source: INTERNATIONAL JOURNAL OF GEOGRAPHICAL INFORMATION SCIENCE
Volume: 20 **Issue:** 2 **Pages:** 117-134 **Published:** FEB 2006
Times Cited: 1
[Full Text](#)

Web of Science “Cited by” links (“forwards spider”)

ISI Web of Knowledge [v.4.1] – Web of Science Citing Articles

http://ezproxy.itc.nl:2336/CitingArticles.do?product=WOS&search Google

my del.icio.us post to del.icio.us ITC A5 Wikipedia Scholarpedia 中文 Science

Signed In | My EndNote Web | My ResearcherID | My Citation Alerts | My Saved Searches | Log Out | Help

ISI Web of KnowledgeSM Take the next step

Web of Science Additional Resources

Search | Cited Reference Search | Advanced Search | Search History | Marked List (0)

Web of Science®

<< Back to previous

Citing Articles

Title: [On digital soil mapping](#)
Author(s): McBratney, AB
Source: **GEODERMA** Volume: 117 Issue: 1-2 Pages: 3-52 Published: NOV 2003

The above article has been cited by the articles listed below.

Results: 71 Page 1 of 8 Go Sort by: Latest Date

Print E-mail Add to Marked List Save to EndNote Web Analyze Results
more options

Refine Results

Search within results for

Hide Refine

▼ Subject Areas Refine

- ☐ SOIL SCIENCE (43)
- ☐ GEOSCIENCES, MULTIDISCIPLINARY (8)
- ☐ AGRONOMY (7)
- ☐ ENVIRONMENTAL SCIENCES (6)
- ☐ WATER RESOURCES (5)
- [more...](#)

▼ Document Types Refine

- ☐ ARTICLE (64)
- ☐ REVIEW (7)

1. Title: [Mapping within-field soil drainage using remote sensing, DEM and apparent soil electrical conductivity](#)
Author(s): Liu JG, Pattey E, Nolin MC, et al.
Source: **GEODERMA** Volume: 143 Issue: 3-4 Pages: 261-272 Published: FEB 15 2008
Times Cited: 0
[Full Text](#)
2. Title: [Extrapolating regional soil landscapes from an existing soil map: Sampling intensity, validation procedures, and integration of spatial context](#)
Author(s): Grinand C, Arrouays D, Laroche B, et al.
Source: **GEODERMA** Volume: 143 Issue: 1-2 Pages: 180-190 Published: JAN 15 2008
Times Cited: 0
[Full Text](#)

Web of Science: sort results by number of times cited

The screenshot displays the ISI Web of Knowledge [v.4.1] - Web of Science Results page. The browser address bar shows <http://ezproxy.itc.nl:2336/summary.do>. The page features a green header with the ISI Web of Knowledge logo and navigation links like "Signed In", "My EndNote Web", "My ResearcherID", "My Citation Alerts", "My Saved Searches", "Log Out", and "Help". Below the header, there are tabs for "Web of Science" and "Additional Resources". The "Web of Science" tab is active, showing search options: "Search", "Cited Reference Search", "Advanced Search", "Search History", and "Marked List (0)".

The main content area displays the search results for the query: "Topic=('terrain analysis' and 'soil mapping') AND Year Published=(2000-2008) Timespan=All Years. Databases=SCI-EXPANDED, SSCI, A&HCI." The results are sorted by "Times Cited" and show 7 results on page 1 of 1. The first two results are listed:

- Title:** Use of combined digital elevation model and satellite radiometric data for regional soil mapping
Author(s): Dobos E, Micheli E, Baumgardner MF, et al.
Source: GEODERMA Volume: 97 Issue: 3-4 Pages: 367-391 Published: SEP ~2000
Times Cited: 10
[Full Text](#)
- Title:** Soil-landscape resource assessment for plantations - a conceptual framework towards an explicit multi-scale approach
Author(s): Thwaites RN, Slater BK
Source: FOREST ECOLOGY AND MANAGEMENT Volume: 138 Issue: 1-3 Pages: 123-138 Published: NOV 1 ~2000
Times Cited: 6
[Full Text](#)

On the left side, there is a "Refine Results" panel with a search box and filters for "Subject Areas" (SOIL SCIENCE (4), AGRICULTURE, MULTIDISCIPLINARY (1), AGRONOMY (1), ECOLOGY (1), FORESTRY (1), more...) and "Document Types" (ARTICLE (7)).

Evaluating the search results

Recommended: ITC library's **Information Literacy Course**⁵ module 6 "*Evaluating the search results*"

Don't just take the first search results you get! Ask: are there:

- Not **enough** references?: broaden the search, or use a spider approach to find more from the few good references you have
- Too **many** references?: narrow the search by adding search terms with 'and'
- Too **specific** references?: use some general terms, or use a spider approach to look for general references cited in these specific references
- Too **general** references?: use more specific terms, or look at the references cited in the general reference; these may be specific studies supporting the general ones.

⁵<http://www.itc.nl/Pub/Home/library/Library-Guides/LiteracyCourse>

Using Journal Citation Reports to evaluate journals

- At the level of MSc research, the student is advised to concentrate on the most **important** journals in the field.
- How to decide which are most important?
- Thomson Reuters (ISI) took the lead invented a journal **impact factor**: a **ratio** between the number of citations and recent citable items published in that journal.
 - * There are also an “immediacy index” (measures how quickly articles are cited) and “half-life” (measures how long articles are cited)
- Used in an annual **Journal Citation Report**, available via Web of Science⁶

⁶http://www.itc.nl/Pub/Home/library/Search-for-information/Web_of_Science_link.html,
“Additional Resources”

Journal Citation Report

Example: 2011, subject area “Remote sensing”, sorted by impact factor.

Rank	Abbreviated Journal Title	2011 Cites	Impact Factor	Immediacy Index	2011 Items	Cited Half-life
1	REMOTE SENS ENVIRON	18449	4.574	0.654	312	7.6
2	IEEE T GEOSCI REMOTE	16126	2.895	0.490	420	7.8
3	ISPRS J PHOTOGRAMM	1879	2.885	0.323	93	6.2
4	J GEODESY	1413	2.414	0.662	68	5.1
5	INT J APPL EARTH OBS	866	1.744	0.267	90	4.9
...						
10	INT J REMOTE SENS	10865	1.117	0.164	535	8.9
...						
14	PHOTOGRAMM ENG REM S	4056	1.048	0.098	82	>10.0

RSE many papers, very high impact and immediacy, medium duration

IJRS very many papers, long duration, but low impact and immediacy

PE&RS few papers, low impact and immediacy, but used for a long time

Using citation counts to evaluate papers

- What makes a given paper ‘important’? One obvious answer: if the paper is **cited by many others**, it helped science progress.
 - * For the MSc students, this indicates that the paper probably contains valuable information, and should be used by preference.
- A **newly-published paper** will not yet have any citations; the citation count isn’t meaningful until about three years after a paper is published.
 - * But this may be a very good paper, at the “cutting edge” of the field.
- **ScienceDirect**: citation count with the “Cited in” link; only finds citations to other Elsevier journal articles
- **ISI Web of Science**: citation count with each paper’s record. **Search results** can be **sorted by citation count**.

Example Web of Science result

TI=("remote sensing") AND TI=(soil) NOT TI=(moisture or hydrology or water); executed on 05-April-2013

- 1 Title: EXPLORING A V-I-S (VEGETATION-IMPERVIOUS SURFACE-SOIL) MODEL FOR URBAN ECOSYSTEM ANALYSIS THROUGH REMOTE-SENSING - COMPARATIVE ANATOMY FOR CITIES
Author(s): RIDD MK
Source: INTERNATIONAL JOURNAL OF REMOTE SENSING Volume: 16 Issue: 12 Pages: 2165-2185 Published: **AUG 1995**; **Times Cited: 273**
- 3 Title: Remote sensing of soil salinity: potentials and constraints
Author(s): Metternicht GI, Zinck JA
Source: REMOTE SENSING OF ENVIRONMENT Volume: 85 Issue: 1 Pages: 1-20
Published: **APR 25 2003**; **Times Cited: 110**
- 52 Title: Mapping within-field soil drainage using remote sensing, DEM and apparent soil electrical conductivity
Author(s): Liu JG, Pattey E, Nolin MC, et al.
Source: GEODERMA Volume: 143 Issue: 3-4 Pages: 261-272
Published: **FEB 15 2008**; **Times Cited: 12**
- 181 Title: Assessing land cover and soil quality by remote sensing and geographical information systems (GIS)
Author(s): Obade, Vincent de Paul; Lal, Rattan
Source: CATENA Volume: 104 Pages: 77-92 DOI: 10.1016/j.catena.2012.10.014
Published: **MAY 2013**; **Times Cited: 0**
- 308 Title: USING REMOTE-SENSING TECHNIQUE TO STUDY SOIL SEDIMENTATION FLOW
Author(s): KOLAWOLE MO
Source: ENVIRONMENTAL MANAGEMENT Volume: 17 Issue: 1 Pages: 73-81
Published: **JAN-FEB 1993**; **Times Cited: 0**

Evaluation of results by citations and publication date

- 1 classic paper (18 yr), highly cited → major contribution to science
- 3 newer paper (10 yr), relatively almost as highly cited
- 52 typical recent paper (5 yr) with few citations → modest contribution to science
- 181 new paper, no time to be cited
- 308 old paper (20 yr), never cited → has not further contributed to science

Next steps

1. Follow library tutorials
2. Try search strategy for your own research problem
3. Develop personal information infrastructure