

## **A brief description of the ADS, and a disclaimer**

This User's Guide is designed to enable users to get a grasp quickly of what the ADS can do, and to explain the basics of how to use it. Complete information about the many features of the ADS is given in the ADS **Help** pages ([http://doc.adsabs.harvard.edu/abs\\_doc/help\\_pages/](http://doc.adsabs.harvard.edu/abs_doc/help_pages/) on the Web (over 80 pages long, also available in PDF format for printing). This Guide is designed to be an introduction, not a complete explanation of all of the ADS features.

### **What is the ADS? What's in it?**

The NASA Astrophysics Data System Abstract Service provides a powerful search engine for each of its three bibliographic databases:

#### **Astronomy and Astrophysics**

(including abstracts from Planetary Sciences and Solar Physics journals)

#### **Physics and Geophysics**

(including abstracts from APS journals and SPIE conference proceedings)

#### **ArXiv e-prints** (all the papers published in the ArXiv e-print archive)

Each database contains abstracts from articles and monographs published in the different disciplines. The databases cover all the major journals, many minor journals, conference proceedings, many Observatory reports and newsletters, many NASA reports, and PhD theses.

Users can query the database by author, astronomical object name (astronomy database only), words in the title, and words in the abstract text. The "results list" is ranked by how closely the paper matches the query (unless otherwise requested by the user). From the results list one can view the full record available for each of the returned articles, including scans, HTML, and PDF versions of the articles, when available.

The ArXiv e-print database contains preprints submitted to the arXiv e-print archive. ADS maintains this database to allow searches on the latest literature being published, with links to the full text available from the ArXiv.

We provide access to scanned images of articles from most of the major and most smaller astronomical journals, as well as many conference proceedings series. All scanned articles are linked to the corresponding references in the ADS.

We provide references and citations whenever possible. The references and citations database is excellent, but, as is the case with all such databases, it is not complete.

The ADS is on the Web at <http://adswww.harvard.edu/>

This is our 'front door' page. It gives users many links: to the abstract query form, to our mirror sites, FAQ page, Help pages, and to a Site Map, among others. Important links are repeated on any pages from which a user might want access to them.

The two main links on this page are to the **Abstract Search** page and to the **Browse Interface**. If you click on the Browse Interface page, you will find links to the following ADS services:

**Journal/Volume/Page Service**

to find a record in the ADS when you know partial information about the journal, volume and/or page.

**Table of Contents Service**

to view the latest tables of contents from the major journals.

**Article Service**

to view and print scanned pages of publications digitized by ADS.

**Scanned Historical Literature Service**

to view and print scanned pages of Historical Observatory Publications digitized by the ADS.

**Scanned Books Service**

to view and print selected books digitized by the ADS.

Although users can get to most of these services from the abstract search page, it is sometimes useful to access some of our scanned literature directly.

**Search References**, the link to the left of the Browse Library link, leads to a set of links to the ADS databases: **Astronomy and Astrophysics**, **Instrumentation**, **Physics and Geophysics**, and **arXiv e-prints**. Click on your choice. Each link leads to a query form, which is set up to query whichever database was selected. Users can change or add to the databases they wish to search just by clicking the checkbox(es) at the top of any query form to add the database(s) they need.

The main focus of this Guide will be on the Abstract Query page. Most users begin their ADS work with the Search References page, which lets them click-set the database they want to search:

**[http://adsabs.harvard.edu/ads\\_abstracts.html](http://adsabs.harvard.edu/ads_abstracts.html)**

Or they go directly to the generic query form:

**[http://adsabs.harvard.edu/abstract\\_service.html](http://adsabs.harvard.edu/abstract_service.html)**

and set the databases to search by clicking the box next to each database. The **Astronomy/Astrophysics** database is selected by default. The **Astronomy/Astrophysics** and the **Physics/Geophysics** databases were used for this example.

The following explanation of the abstract query form will acquaint users with the main features of the ADS search process. The sample search following this section demonstrates and explains some of the features described.

**Explanation of the link options at the top of the query form**

**Sitemap** -- This link is self-explanatory. There is a link from this page to a complete set of help pages which can be viewed and/or printed (PDF format).

**What's New** -- List of developments in the ADS, the newest chapter at the top.

**Feedback** -- Here are found links to several forms:

**User Feedback** -- Form for praise, blame, suggestions.

**Sign up to be on the Mailing List** -- If you would like to be kept informed via e-mail of new ADS features, please use this sign-up form.

**Submit Author Abstracts** -- Authors may submit their abstracts directly to the ADS using this form.

**Submit Corrections** -- Form to fill out if you find a minor error or errors in the ADS (typos, truncated lines, etc.). Please use the Author Comment form (see below) to correct substantive errors.

**Submit Associated References** -- Let us know about series or related papers. We will create **O** links to them to make them easy to find.

**Author Comments** -- Authors may append a comment to their abstracts. The **Comment I** link will appear with the author's abstract. The comment may point to errata, amplify or make corrections to the original paper, point to other people's papers, etcetera. Comments may include URLs.

**Missing Publications** -- Links to a list of publications currently missing from the ADS. We appreciate help to complete our collection.

**Preferences** -- This links to a form with which users may customize the ADS. The ADS uses cookies to tie a user's preferences to his or her browser and computer. In order to take advantage of this feature, please make sure that cookies are enabled in your browser's settings.

**FAQ** -- Check here for answers to frequently asked questions.

**Help** -- View or print (PDF format) the **Help** pages. A quick way to get an idea of some of the more complex features of the ADS is to look at the **Help** section table of contents.

Under these links is a line of text which changes: a "hint". Here we tell users about services they may not have noticed. Below the hint line are options to send your query, store an HTML-format query form you've created, or clear the form.

**Databases to query** Click your selection. You can query any or all.

**Author searches, most basic version:**

Enter each author's last name followed by a comma and first name or just first initial. Names must be listed, each on a separate line. Capitalization is ignored, as is the period after the first initial.

Publishers publish author names various ways. Russian authors' names are transliterated several ways. Names get misspelled, changed or hyphenated when people marry. For complete information (help pages) about author searches, click on the **Exact name matching** link above the author name entry box.

You can query for specific spellings of an author name by using the **Exact name matching** clickbox. Clicking this box returns matches of the exact spelling you entered of an author's name (including any middle names and/or initials) as found in the ADS databases. This is useful for cases in which two or more authors share the same last name and first initial, which is what the ADS system normally uses to perform author searches. Enter all versions of author names which apply to your search.

To find author names with different spellings, click on the **Exact name matching** link, and from there click the **Exact Author search** link. Another way to search for author names is by using the **List Query** form, via the **Authors** link found above the author name box on the query page. If you only know how a name sounds, you can try to find it using the **Soundex** feature on the **List Query** form.

**Object searches** You can search the ADS by celestial object name or position. You can select **SIMBAD**, **NED**, **LPI** or **IAUC** data by clicking the adjacent box. Your results page will contain links to the data in the database you selected.

**Title and Abstract keyword searches** Enter keywords into the **Title Words** and **Abstract Words** boxes. To search for a phrase, use double quotes around it. "Stop" words like "and", "but" and "the" will be discarded. If "And" is entered in mixed case, the ADS returns everything about Andromeda. Some other "stop" words also have shared meanings.

Keywords entered into the **Abstract Words** textbox will be searched for in the **Title Words** field automatically. Click on the Title Words link to find additional options, including Soundex.

### **Some ways to narrow your search**

You may select a date range to limit your search results. The default returns everything in the ADS that matches your search names/words.

To help give astronomers inclusive results, we have grouped words which are related. We call these grouped words "synonyms". For example, a search for "star" will return the paper "Spektrographische Beobachtungen von Be- und Ae-Sternen. III" among a great many others (Sternen -- German for stars). This feature is set on by default. It can deliver confusing results. A search for "galaxy" will find "galaxy", "non-galactic", "intergalactic", "proto-galactic", etcetera, because those words are related to the word "galaxy". The synonym feature can be turned off if it isn't useful.

Author names are also sometimes synonymed. We synonym foreign authors whose names are published more than one way. We synonym a person's original name with their married name (if we know it). We group misspelled names with the correct versions.

The query form default is set to return 100 matches. You can change that setting to get up to 3000 items to be returned at a time.

To search for only abstracts by the authors you list which contain the text keywords you selected, click the checkboxes **Require author for selection** and **Require text for selection**. (If you don't do this, you'll get the articles you are looking for at the top of a much larger set of returns.)

Scroll down below the part of the query form which is visible to find three options:

**Full Text Search** -- Links to forms for searching the scanned pages.

**myADS** -- Personal notification service that allows users to set up two areas of interest (using keywords and author names). When the ADS is updated (weekly), an e-mail list of everything that is new in the ADS

which corresponds to the user's interests will be sent. Some "new" entries will be old material, though newly available on the ADS.

**myADS** now includes the capability to have separate notifications for the **Astronomy/Astrophysics** and **Physics/Geophysics** databases. In addition, it provides for daily and/or weekly notification for the **arXiv e-print** database in collaboration with the arXiv e-print server.

**Private Library** and **Recently read articles** -- Two ways to keep track of material you're interested in without having to look it up again. They both require that cookies be turned on. Users may maintain more than one Private Library.

Following these are **Journal/Volume/Page**, **Current Journals** and **Unread Journals**

**Journal/Volume/Page** allows users to enter whatever they know about a paper. The ADS will return everything that matches the criteria they enter.

**Current Journals** This is like the magazine rack at a library. The ADS has the tables of contents and (for most of them) the abstracts for the current month issue of these journals. Users can select the journals they want to see here by editing the **Preferences** form.

**Unread Journals** Users can make their selected **Current Journals** disappear once they have looked at them by setting up this section.

Below these options are many filters which users can set. They are generally self-explanatory. The ADS provides the maximum number of returns possible for the keywords entered unless the user restricts the search by using logic in the entry boxes, or by turning on some filters.

The initial search can be sorted from the initial query form. Options which are not obvious are linked to the help pages, where they are explained.

Under **Settings** near the bottom of the query form are four settings that advanced users can change. (Most users will never need to change the weighting options.)

**Require field for Selection** allows users to do an "and" across fields (these are the same as the **Require ... for Selection** clickboxes by each data entry field, mentioned above).

**Synonym Replacement** As mentioned, **Synonym Replacement** makes it possible (by default) for those searching the **Astronomy/Astrophysics** database to retrieve abstracts which mention words or terms which are related to the keywords entered. This feature can be turned off if you want to match keywords exactly.

**Relative Weights** This allows users to emphasize one field or another.

**Use for Weighting** This determines if the field should be used in calculating the scores.

## Sample ADS search

Let's say that you want to **find all papers by Michael J. Kurtz and Guenther Eichhorn**, and **all papers about URANIA**. Unless you are sure all the papers you want are in the Astronomy database, click on the Physics/Geophysics and/or arXive e-prints databases. It is sometimes difficult to categorize papers, and authors sometimes write papers which straddle fields, so selecting multiple databases may be wise. **Astronomy/Astrophysics** and **Physics/Geophysics** were selected for this illustration.

In the Author field enter: **kurtz, m  
eichhorn, g**

In the Abstract Words/Keywords field enter: **urania**

and click **Send Query** to bring up the **Results page**.

Capitalization is ignored. "urania", "Urania" and "URANIA" will all be returned, if they exist.

Note that Michael Kurtz's middle initial was not used. If you want to search for papers by "Michael J. Kurtz", you must search for them in both the databases, using the **Exact name matching** option.

As of this writing, a search for Kurtz with the **Authors/Exact Author Query Form** (in both databases) showed 18 papers by M. Kurtz. Any of them could be by Michael J. Kurtz. 135 papers were by M. J. Kurtz -- likely to be by the author in question. 65 were by Michael J. Kurtz explicitly. There were two papers by Michael Kurtz. If there is more than one Michael Kurtz, you would have to know what Michael J. Kurtz is writing about to find the Michael Kurtz papers which belong to him. These numbers will change, of course. Michael J. Kurtz will doubtless have written new papers by the time the reader checks the **Exact Author search** list.

To find papers for which M(...) Kurtz is the **first author**, enter  
**^kurtz, m** in the **Author** field.

To find papers for which M(...) Kurtz is the **last author**, enter  
**kurtz, m\$** in the **Author** field.

To find papers for which M(...) Kurtz is the **only author**, enter  
**^kurtz, m\$** in the **Author** field.

You can set the number of items to be returned at one time on the query form to as much as 3000 entries. Doing so is helpful if you think you might want to re-sort your results. As mentioned above, you can limit the date range to restrict or focus your search.

Query Results pages return more or less quickly, depending on the complexity of your search and the speed of your connection. Results are usually returned within a few seconds.

To demonstrate some features of the ADS, let's look at one of the papers returned after the above search, "The NASA Astrophysics Data System: Overview", by Michael J. Kurtz, Guenther Eichhorn, Alberto Accomazzi, Carolyn S. Grant, Stephen S. Murray, and Joyce M. Watson, published in 2000, in volume 143 of the Astronomy and Astrophysics Supplement.

Unique identifiers called **bibcodes** lead each entry on the Query Results page. Bibcodes are 19 character strings used by the ADS to locate and manage the data in the ADS. Clickboxes to the left of each bibcode allow users to select articles that interest them. Much of the information about this paper is contained in the **bibcode**, in compressed form:

**2000A&AS..143...41K** is the whole ADS bibcode for this paper.

<b>2000</b>	-- publication year ( <b>4</b> characters reserved)
<b>A&amp;AS.</b>	-- publication name abbreviation ( <b>5</b> characters reserved)
<b>.143</b>	-- volume number ( <b>4</b> characters reserved)
<b>.</b>	-- 14th space ( <b>1</b> is reserved for special characteristics) for special cases (unneeded in this example).
<b>..41</b>	-- page number space ( <b>4</b> characters reserved)
<b>K</b>	-- first author's last name initial ( <b>1</b> space reserved)

Note that "." is used as a space marker in our system. Bibcodes must be 19 characters in length. If an author's last name begins with an accented character, the accent is removed. If an author's last name begins with a lower-case character (von Braun, for instance), the initial is changed to upper case.

Click the bibcode or the **A** link for this paper to bring up the abstract and other information about the paper. The ADS serves users all the material we have about each entry. Sometimes fields such as the Affiliation field are missing because the ADS was not given those data. Click on any of the letter links beside the bibcode to see the available related material.

**If you want to get similar abstracts easily**, go to the bottom of the page displaying this (or any) abstract, to the **Find Similar Abstracts** section. Click **Send Query**. All the words except "stop" words are automatically sent to the database as a query. The keywords are weighted and scored according to how frequently they appear in the database. Infrequent words such as "URANIA" weigh more than frequent words like "research".

When this search was done, 685544 abstracts matched at least one word in this abstract. Users would likely only be interested in the top 100 or so at most. This feature works best when the submitted abstract contains specific vocabulary.

At the top of the results page is the original paper; "The NASA Astrophysics Data System: Overview". It gets a score of 1.0 (it matched all the criteria submitted). The papers which follow are scored and listed in descending order of relevance (unless you requested otherwise).

Instead of submitting an entire abstract, users can put abstracts into a query form and edit that form. To do that, click the **query form** option before you send the query. You will get back a Query Form with the abstract loaded into it. You can edit that form and apply filters, if you choose.

Another way to get related material easily is to click on the **U** link, if there is one. The **U** link displays papers that were also read by users who read this paper during the past three months. The **U** link results will vary, of course. The moving three month time period allows a dynamic view of current readership. This feature works best for more recent papers which were published in major journals.

As an example, clicking on the **U** link for 2001SPIE.4477..186K: "Evolution of Urania into the AVO", by Michael J. Kurtz and Guenther Eichhorn, on January 4th, 2005, showed eight readers of this paper (the displayed number in the **Score Title** column). Seven of those readers also read the next paper on the query results page, six read the next two, five read the next several, etcetera. The **U** link gives users a view into what others who are interested in the subject are reading: a "hot trail" to follow. Eventually some of those readers will cite "Evolution of Urania into the AVO", but those citations may take years to appear.

**Citations** and **References** are also useful in finding related material. Users can click next to all items of interest on a Query Results page, and go to the bottom of the page to return references or citations for those items.

### **Formatting**

Near the bottom of the Query Results page is an area which allows users to format their results in various ways.

Click on the box next to **Return Short List Format** (the default) to see the available formatting options. Users may also design their own formats.

Click on the box next to **Display on Screen** to view ways to return results, including saving results to a file or sending results to a printer.

Click on the box next to **Sort by Date (most recent first)** to view the list of sorting options.

When you have selected the options you want, click **Retrieve Selected Records**. Users may also click on **Select all Records**, which automatically clicks all the boxes next to the abstracts on the Query Results page. Then click **Retrieve Selected Records** to return all of them.

At the bottom of the Query Results page are several options:

**Find papers similar to selected articles**

allows users to submit multiple abstracts (**A** links) as a query.

**Get reference lists for selected articles** is self-explanatory.

**Get citation lists for selected articles** is also self-explanatory.

**Get also-read lists for selected articles** allows users to submit a **U** link query which combines the readership of multiple articles.

The number of abstracts in the databases increases each time the ADS is updated. At the time of this writing, the sample search for "kurtz, m", "eichhorn, g" and "urania" returned 379 matches. Matches are scored (see the **Score Title** column), and ordered with the entry which matched the most keyword entries at the top. If the number of key words matched is the same for a subset of abstracts, the subset is sorted chronologically. If you click on either the bibcode link or the **A** link for any matched abstract, you will see highlighted words which show what the ADS matched.

When the **Require author for selection** and **Require text for selection** options were selected, the ADS found seven matches. Selecting the **Require author for selection** field returned 261 matches. Selecting **Require text for selection** alone yielded 89 matches.

The **List of Links** at the top right of the Query Results page link yields a description of all of the letter links which follow the listed titles.

Below that is a link to **Access Control Help**. Publishers restrict access to their recent issues. If you come to a page asking for your user ID, you have been taken to the publisher's site. The content provider requires proof of your subscription to the publication before you will be allowed to enter. The Access Control Help section describes how to access some on-line documents which are linked through the ADS, but which are maintained at other sites.

**If you get an error message**, or if the system finds no matches and you think it made an error, check to be sure your search criteria are entered correctly. If so, and if the error persists, please copy the error message into the **User Feedback** form or send us e-mail to let us know what happened so we can fix the problem.

If you are working from another country, or if you work late at night, using an ADS mirror site might prove more efficient.

An up-to-date list of mirror sites is available at:

**<http://adsabs.harvard.edu/mirrors.html>**

We hope that this Guide will help get you started using the ADS. The **Help** pages fill in many details left out here. There you can find descriptions and explanations of the ADS' many other features.

The ADS staff is always happy to answer questions. You can reach us via the User Feedback form, or by sending us e-mail at:

**[ads@cfa.harvard.edu](mailto:ads@cfa.harvard.edu)**