

Data & literature archives

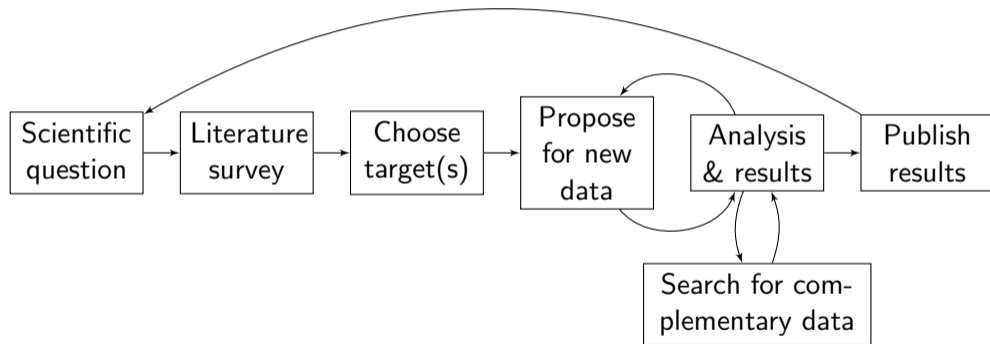
Sarvesh S. Sridhar

ASTRON

June 27, 2018

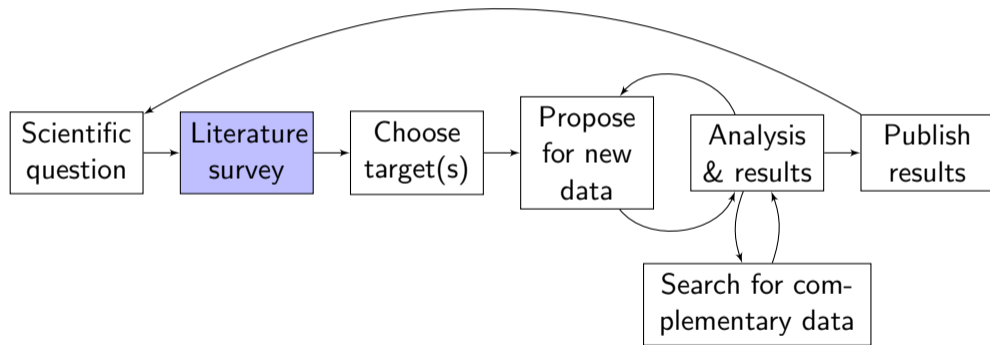
Life-cycle of a project

- Progress of a typical scientific project



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- Progress of a typical scientific project



Literature search

- Look around to understand what has been done before.
- Many journals publish astronomy articles
 - ▶ Astrophysical Journal (ApJ)
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 - ▶ Monthly Notices of Royal Astronomical Society (MNRAS)
 - ▶ there are many more ...

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(http://adsabs.harvard.edu/abstract_service.html)
- Many other databases exist.

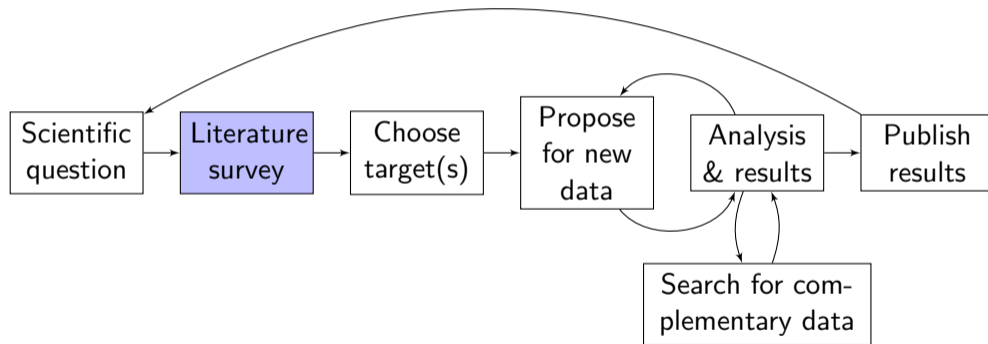
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See demonstration

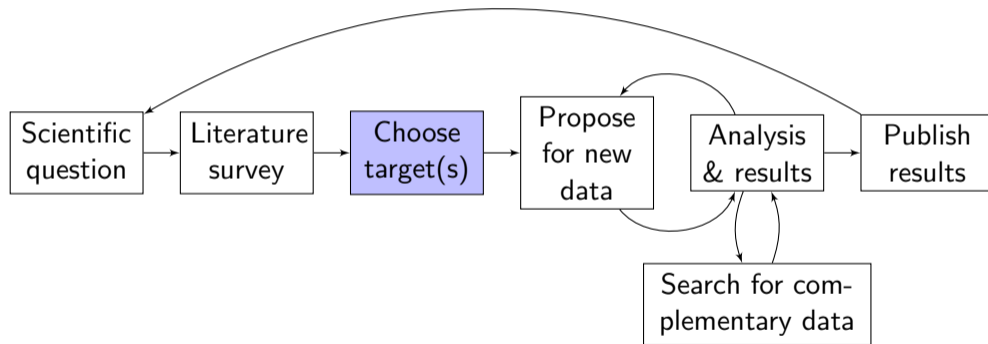
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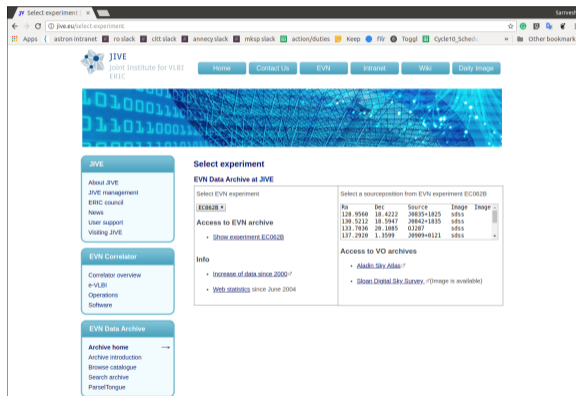
- From the literature survey, you probably know what type of source you want to observe.
- Why do new observations when you can reuse existing data?
- Public astronomy archives have both
 - ▶ **Raw, uncalibrated data** – You can process them using your favourite software.
 - ▶ **Science-ready images/cubes**

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 - ▶ **Science-ready images/cubes**
- Next few slides, we will see some examples.

Data archive 1: EVN data archive

- Hosted at <http://jive.eu/select-experiment>



The screenshot shows a web browser window displaying the JIVE website. The page title is "Select experiment" and the URL is "http://jive.eu/select-experiment". The JIVE logo (Joint Institute for VLBI ERIC) is at the top left, with navigation buttons for Home, Contact Us, EVN, Intranet, Wiki, and Daily Image. A large blue banner with binary code and network connections is below the header. The main content area is titled "Select experiment" and "EVN Data Archive at JIVE". It features a dropdown menu for "Select EVN experiment" currently set to "EC062B". Below this is a table of source positions for experiment EC062B. To the right of the table is a section for "Access to VO archives" listing "Alaska Sky Atlas" and "Sloan Digital Sky Survey". On the left side, there are three vertical panels: "JIVE" (About JIVE, JIVE management, ERIC council, News, User support, Visiting JIVE), "EVN Correlator" (Correlator overview, e-VLBI, Operations, Software), and "EVN Data Archive" (Archive home, Archive introduction, Browse catalogue, Search archive, Parse/Torque).

JIVE
Joint Institute for VLBI
ERIC

Home Contact Us EVN Intranet Wiki Daily Image

Select experiment

EVN Data Archive at JIVE

Select EVN experiment

EC062B

Select a sourceposition from EVN experiment EC062B

Ra	Dec	Source	Image	Image
128.9560	18.4222	38835+1825	s6ss	
139.5212	18.5947	38842+1835	s6ss	
133.7836	20.1885	01287	s6ss	
137.2920	1.3599	38969+0121	s6ss	

Access to EVN archive

- Show experiment EC062B

Info

- Increase of data since 2000
- Web statistics since June 2004

Access to VO archives

- Alaska Sky Atlas
- Sloan Digital Sky Survey (Image is available)

JIVE

- About JIVE
- JIVE management
- ERIC council
- News
- User support
- Visiting JIVE

EVN Correlator

- Correlator overview
- e-VLBI
- Operations
- Software

EVN Data Archive

- Archive home
- Archive introduction
- Browse catalogue
- Search archive
- Parse/Torque

Data archive 2: NRAO data archive

- Hosted at <https://archive.nrao.edu/>

The screenshot shows the 'NRAO Science Data Archive : Advanced Search Tool' web interface. At the top, there is a navigation bar with links for Home, Search, and various data products. A red warning message states: 'In order to unlock your proprietary data and have access to other archive tools, you must log in to your MyNRAO account.' Below this, the title 'NRAO Science Data Archive : Advanced Search Tool' and subtitle 'Historical VLA, Jansky VLA, VLBA and GBT Data Products' are displayed. The interface includes several sections: 'Output Control Parameters' with radio buttons for 'Download Archive Data Files', 'VLA Observations Summary', 'List of Observation Scans', and 'List of Projects'; 'General Search Parameters' with fields for Project Code, Project Session, Dates From, Observer Name, and Archive File ID; 'Position Search' with fields for Target Name, Search Type, Min. Exposure, RA, Longitude, DEC, Latitude, Equinox, and Search Radius; and 'Observing Configurations Search' with checkboxes for Telescope, Config, and Sub array, and dropdowns for Observing Band and Frequency Range.

Data archive 3: LOFAR data archive

- Hosted at <https://lta.lofar.eu/>

Welcome to the Lofar Long Term Archive (LTA) web service.

On the top are links to: help pages, user login, project overview, search form and most recently added data.

Before you can query and stage proprietary data make sure that:

1. you are logged in, see **username** below login box
2. selected the correct project, see the **project name** below project box

From March 1 2015 onwards, cycle data which have passed the proprietary period will be publicly available. All metadata in the Archive can be queried anonymously at anytime, but downloading public data can only be done by registered users (follow the "Create account" link). Non-public data can only be downloaded by project members.

Note: for the first cycles of LOFAR operations, part of the data were ingested in the archive without metadata. These data cannot be found using the standard search parameters, except for the appropriate Observation ID. When unspecified data are present in a project, this is listed in the "Unspecified" column on the Projects page. Data can still be requested using the "Project" pulldown in the various Search options.

A list of all LOFAR observing cycles and approved projects can be found [here](#).

For more information on this web service see the [Lofar wiki](#).

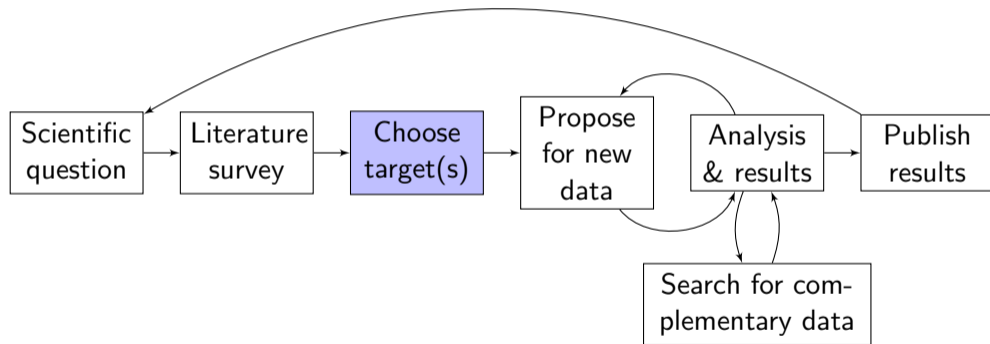
This system was developed as part of the Target project. Target was supported by Samenwerkingsverband Noord-Nederland (SNN) and the Groningen Municipality. The project was financially supported by the European Fund for Regional Development and the Dutch Ministry of Economic Affairs, Agriculture and Innovation (Ministerie van de Oorlog, the Province of Groningen and the Province of Overijssel).

Image archives

- Sometimes, you just want science-ready images.
- A number of radio image archives exist:
 - ▶ **MOJAVE** project: Jets and AGN with VLBA at 15 GHz (<https://www.physics.purdue.edu/MOJAVE/>)
 - ▶ VLBA observations of all FIRST sources: <https://safe.nrao.edu/vlba/mjivs/>
 - ▶ Bordeaux VLBI Image database: <http://www.astrophy.u-bordeaux.fr/BVID/>
 - ▶ **NRAO VLA Sky Survey** (1.4 GHz): <https://www.cv.nrao.edu/nvss/postage.shtml>
 - ▶ **FIRST** image archive (1.4 GHz): <http://sundog.stsci.edu/>
 - ▶ **VLA Low-frequency Sky Survey** (74 MHz):
<https://www.cv.nrao.edu/vlss/VLSSpostage.shtml>
 - ▶ **TIFR GMRT Sky Survey** – Alternate Data Release (150 MHz):
<http://tgssadr.strw.leidenuniv.nl/doku.php>

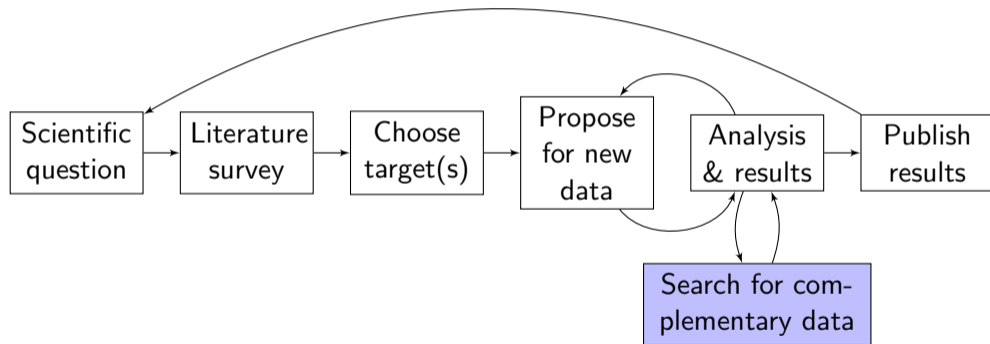
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Search for complementary data

- For some science cases, just radio data is not sufficient – Combine radio + other wavelength data.
- Ex: Predict thermal contribution in spiral galaxies.
- Here are a few examples:
 - ▶ Ultra violet – *GALEX* – <http://galex.stsci.edu/galexview/>
 - ▶ Digitized Sky Survey (DSS) – <http://archive.eso.org/dss/dss>
 - ▶ Spitzer archive – <http://sha.ipac.caltech.edu/applications/Spitzer/SHA/>
 - ▶ *Chandra* X-ray archive – <http://cda.harvard.edu/chaser/>

NASA Extragalactic Database (NED)

- Hosted at <http://ned.ipac.caltech.edu/>

News & Featured Updates - November 2017

- 150 million 2MASS PSC sources (32% of the entire catalog) integrated
- 157,289 redshift-independent distances for 119,261 galaxies added

OBJECTS	DATA	LITERATURE	TOOLS	INFO
By Name	Images by Object Name Region	References by Object Name	Coordinate Transformation & Extinction Calculator	Introduction Latest News/Updates
Near Name	Photometry & SEDs	References by Author Name	Velocity Calculator	Features FAQ
Near Position	Spectra	Text Search	Cosmology Calculators	Brochure (pdf) Best Practices (pdf)
IAU Format	Redshifts	Knowledgebase	Extinction-Law Calculators	Source Nomenclature
By Parameters	Redshift-Independent Distances	Galaxy Distance Tabulations (NED-D)	Galaxy Environment by Precomputed Parameters Radial Velocity Constraint	Web Links New Interface
By Classifications <i>Types, Attributes</i>	Classifications by Object Name	Abstracts	X,Y offset to RA/DEC	Glossary & Lexicon
By Refcode	Positions		Batch Help	Team Users Committee
Object Notes	Diameters		Build Data Table from Input List By Name Near Name/Position (Cross-Matching)	Contact Us

If your research benefits from the use of NED, we would appreciate the following acknowledgement in your paper: *This research has made use of the NASA/IPAC Extragalactic Database (NED) which is operated by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.*

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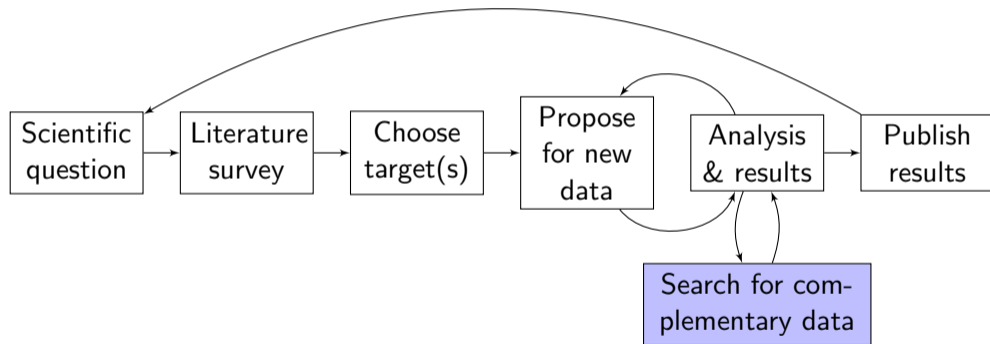


See demonstration

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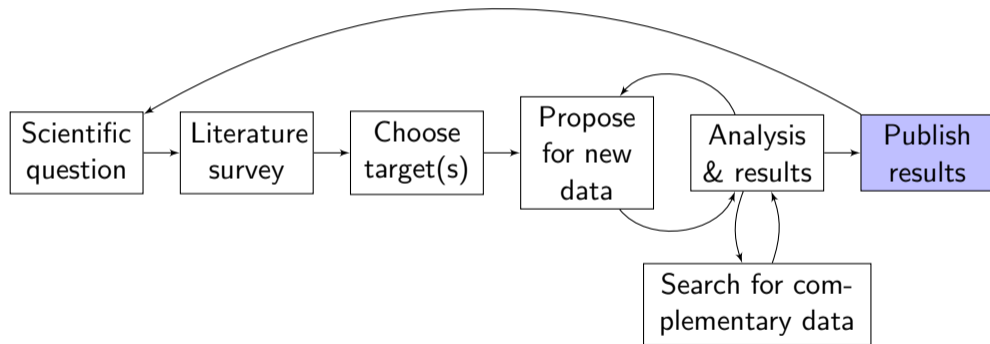
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