How to use the SOFIA Science Data Archive at IRSA

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15 Apr 20

A YouTube screen capture version of this talk is available at
https://youtu.be/iEnarA02U08

Outline

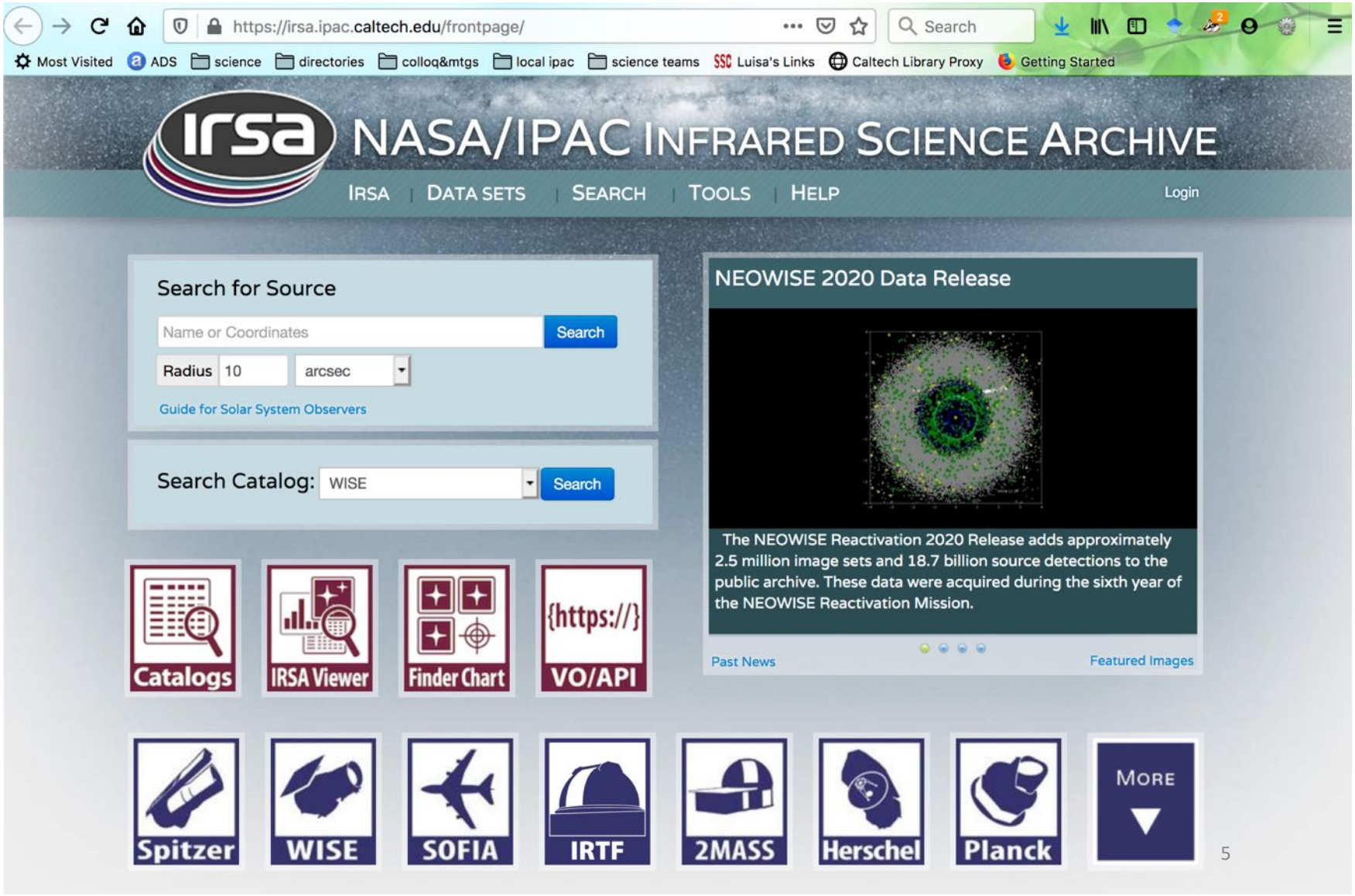
- https://irsa.ipac.caltech.edu/applications/sofia/
- I just want my data! **Quick start guide**.
- I want to find data on my favorite (inertial or moving) target.
- Highlights from other IRSA tools with a similar look-and-feel, including ways to plan future observations.
- Pointers to where to get more help:
  - Online help.
  - IRSA Helpdesk.
  - IRSA YouTube feed.

Quick Start Guide

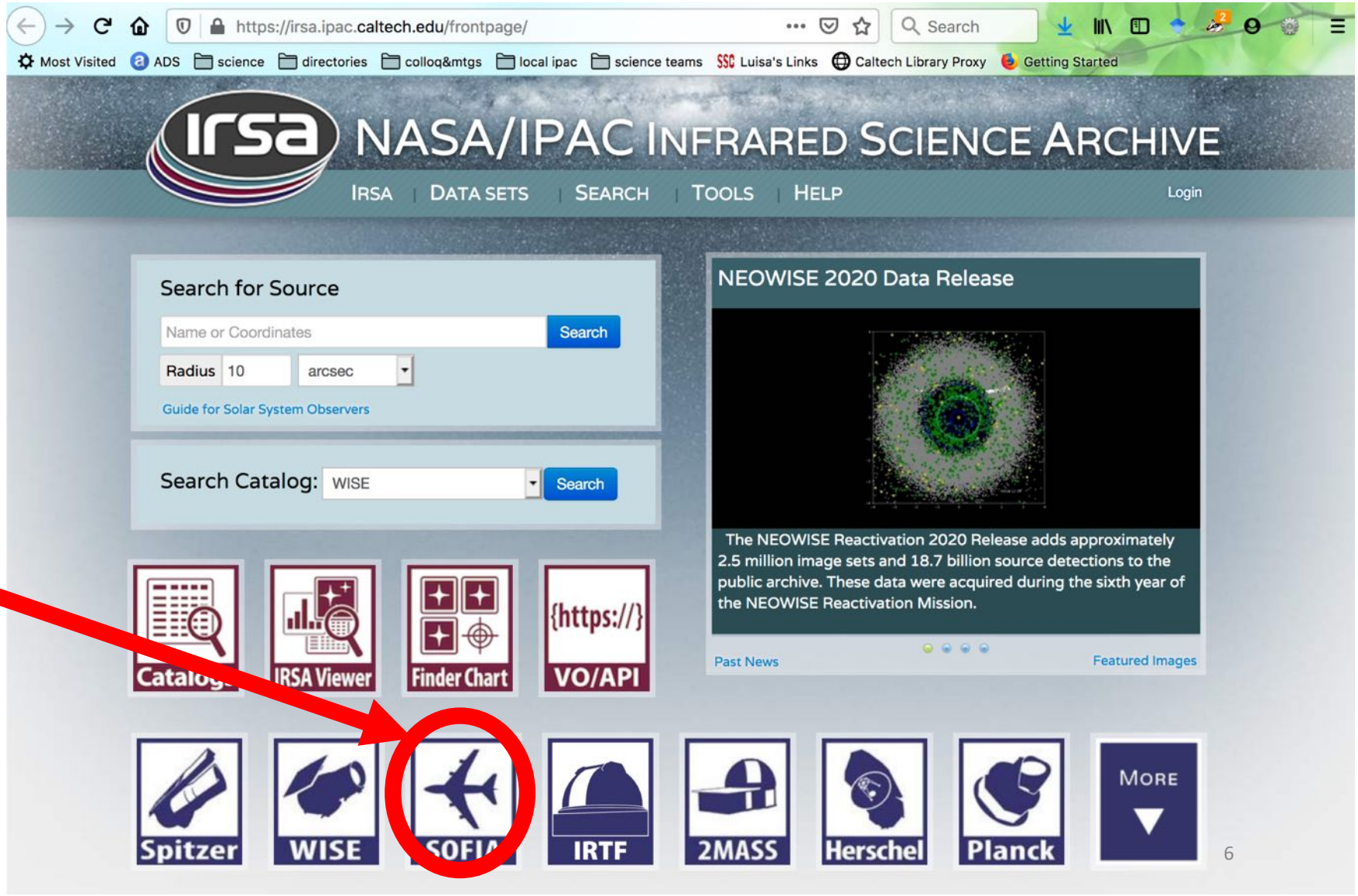
I just want my data!

- Log in. (If data proprietary!)
  - Contact SOFIA Science Center helpdesk to request access. (Or, for existing PIs, look for email from IRSA's helpdesk with your account information.)
- Load the tool.
- Search on your PI name.
- Select all data.
- Download.

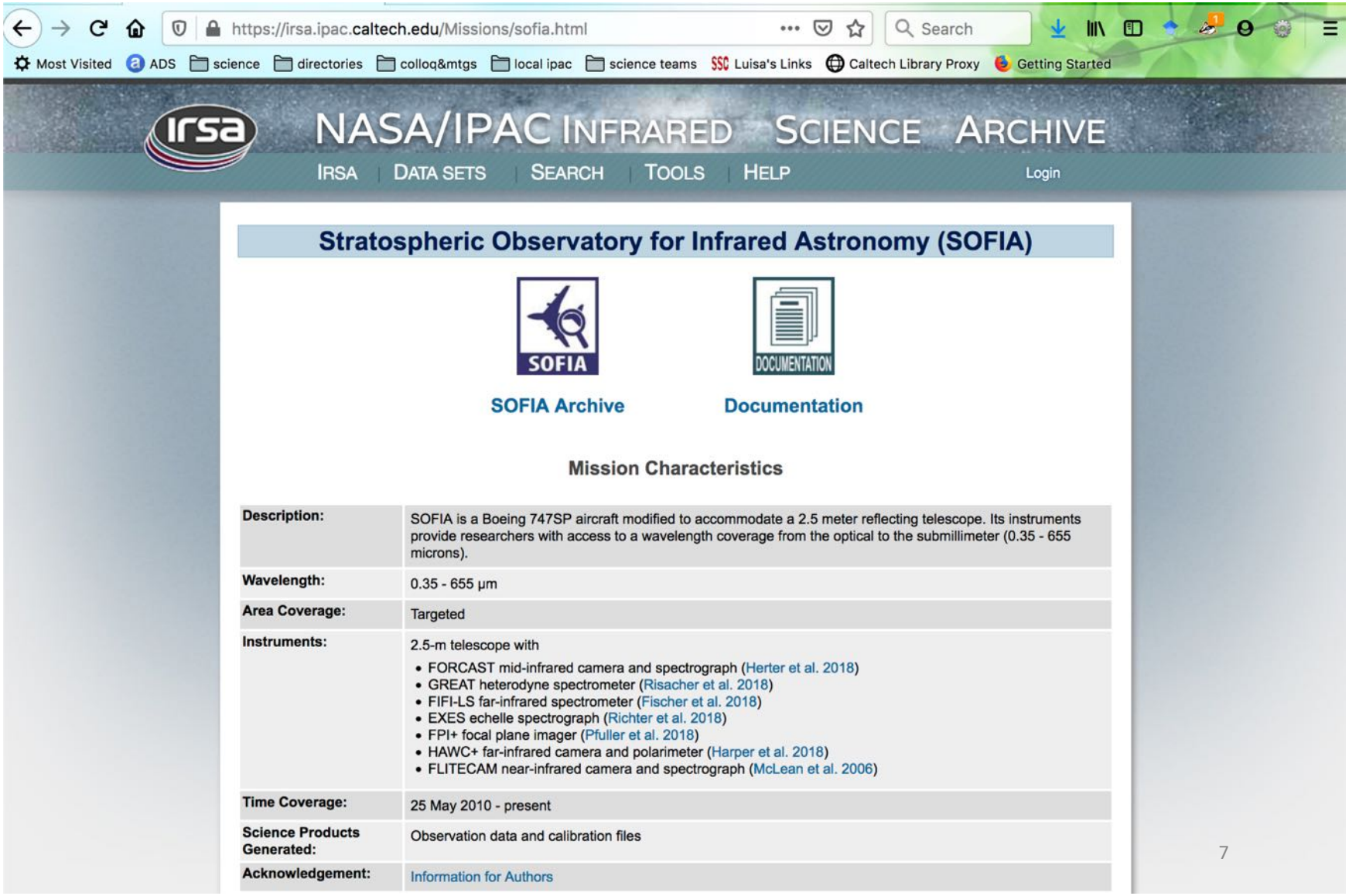
IRSA Home Page



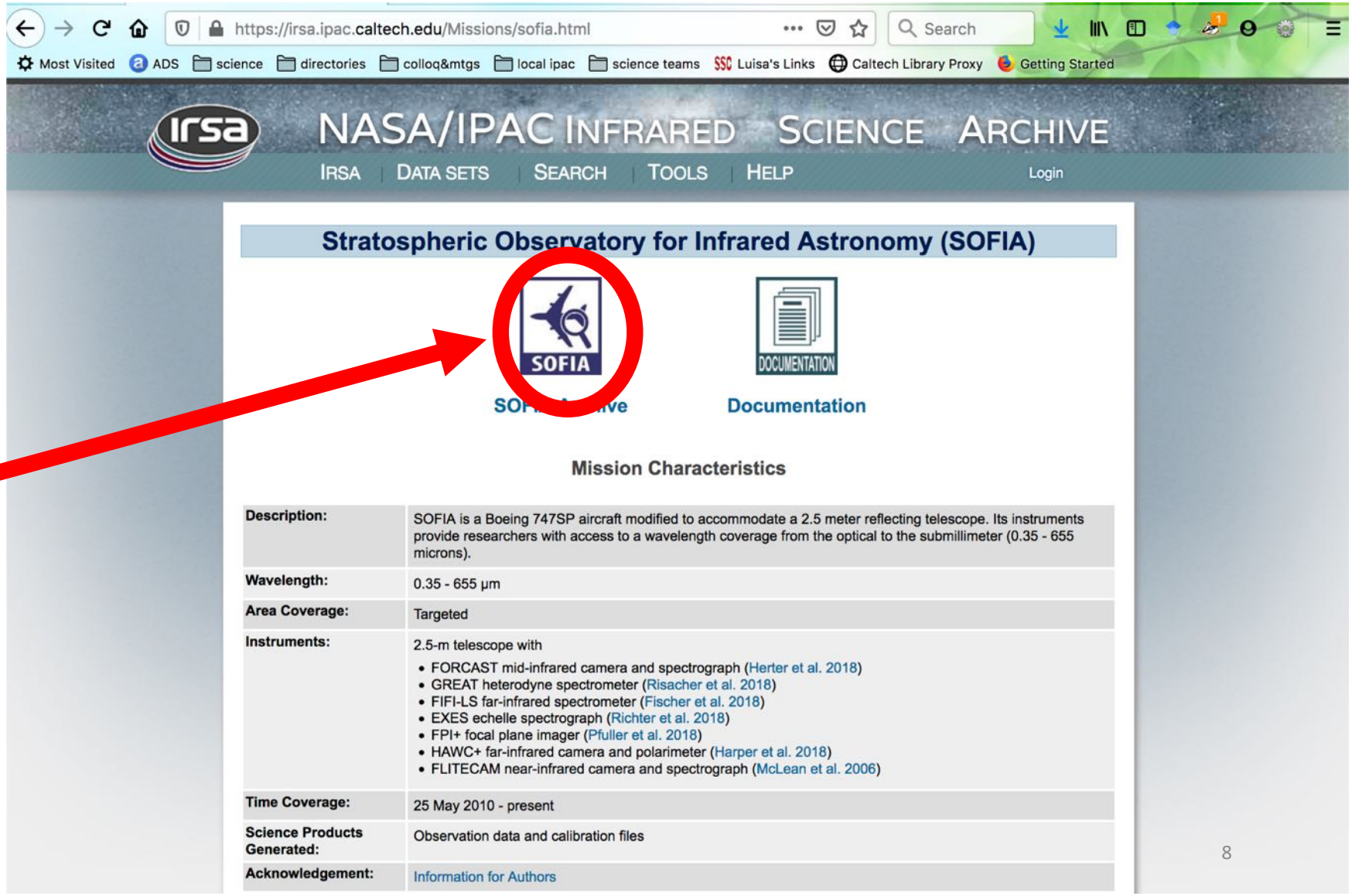
IRSA Home Page



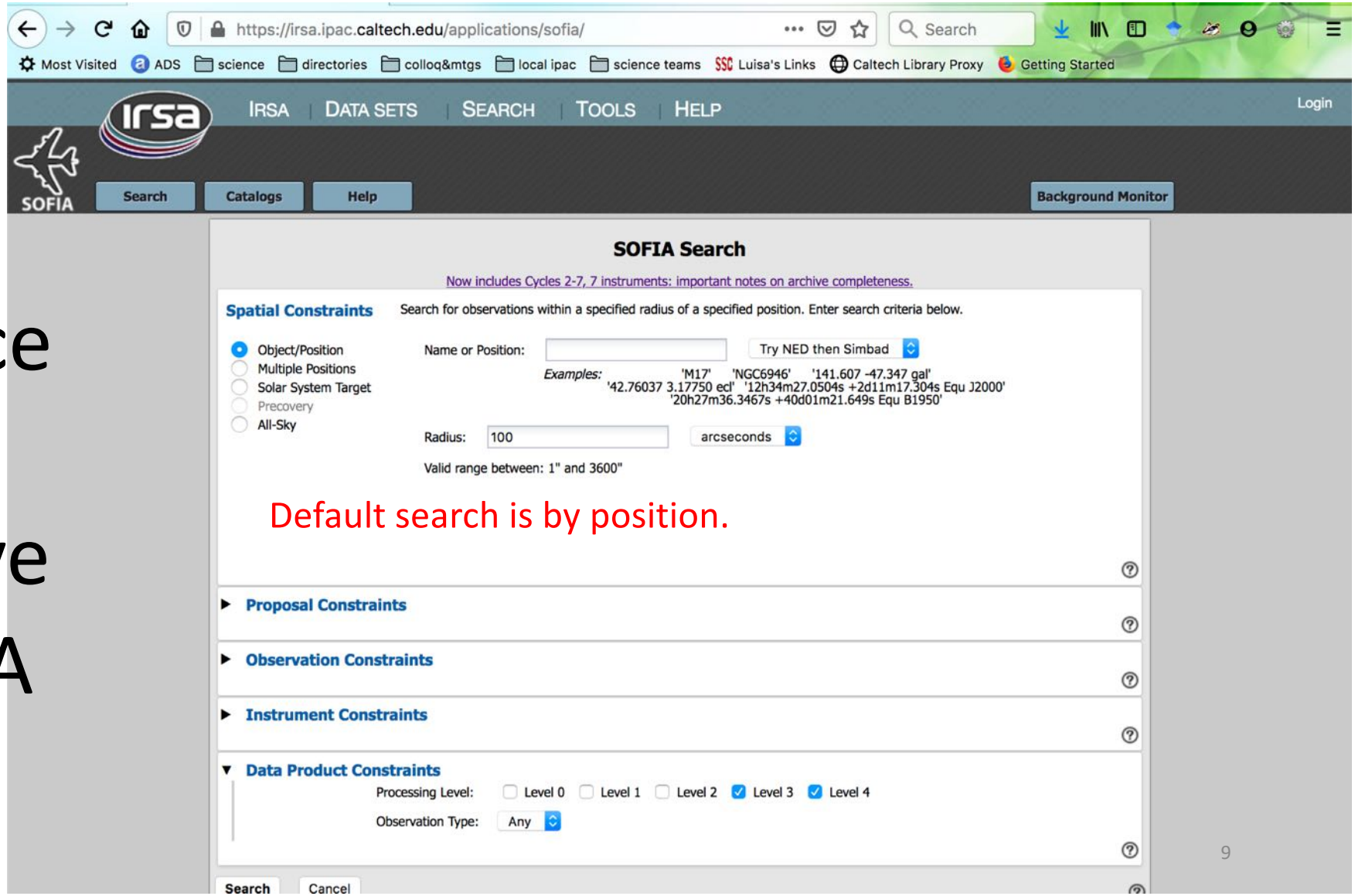
SOFIA page at IRSA

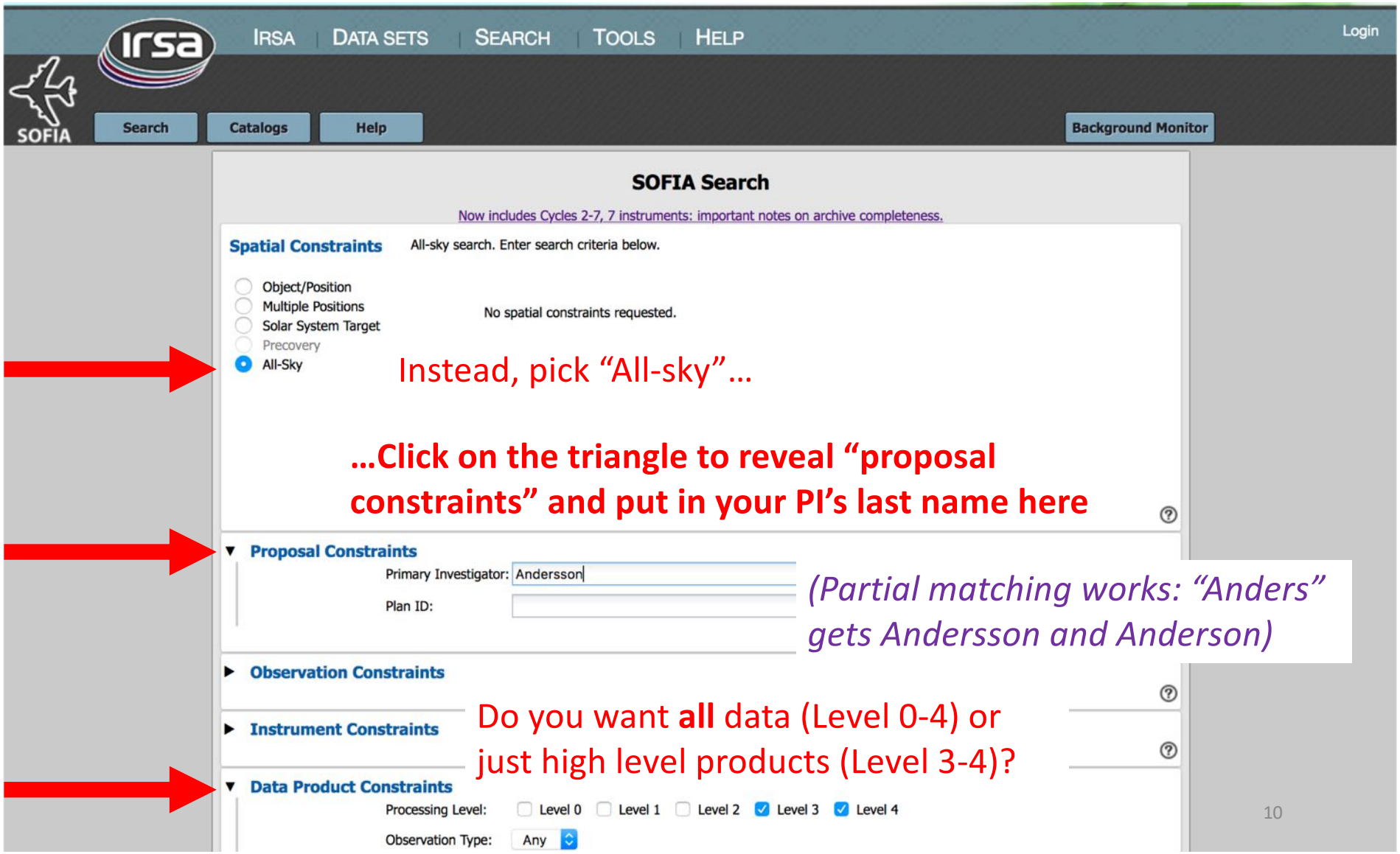


SOFIA page at IRSA



SOFIA Science Data Archive at IRSA




IRSA | DATA SETS | SEARCH | TOOLS | HELP
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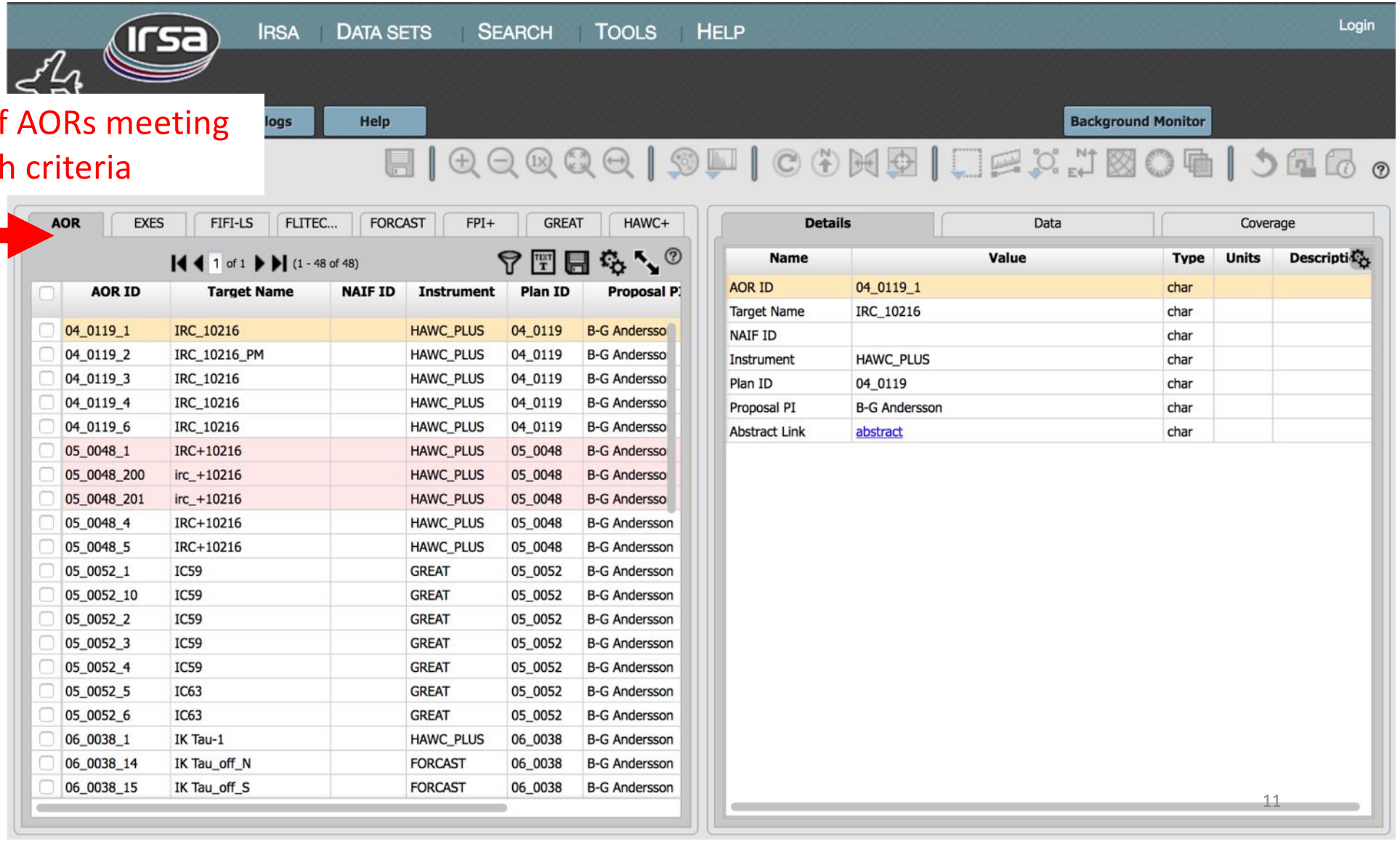
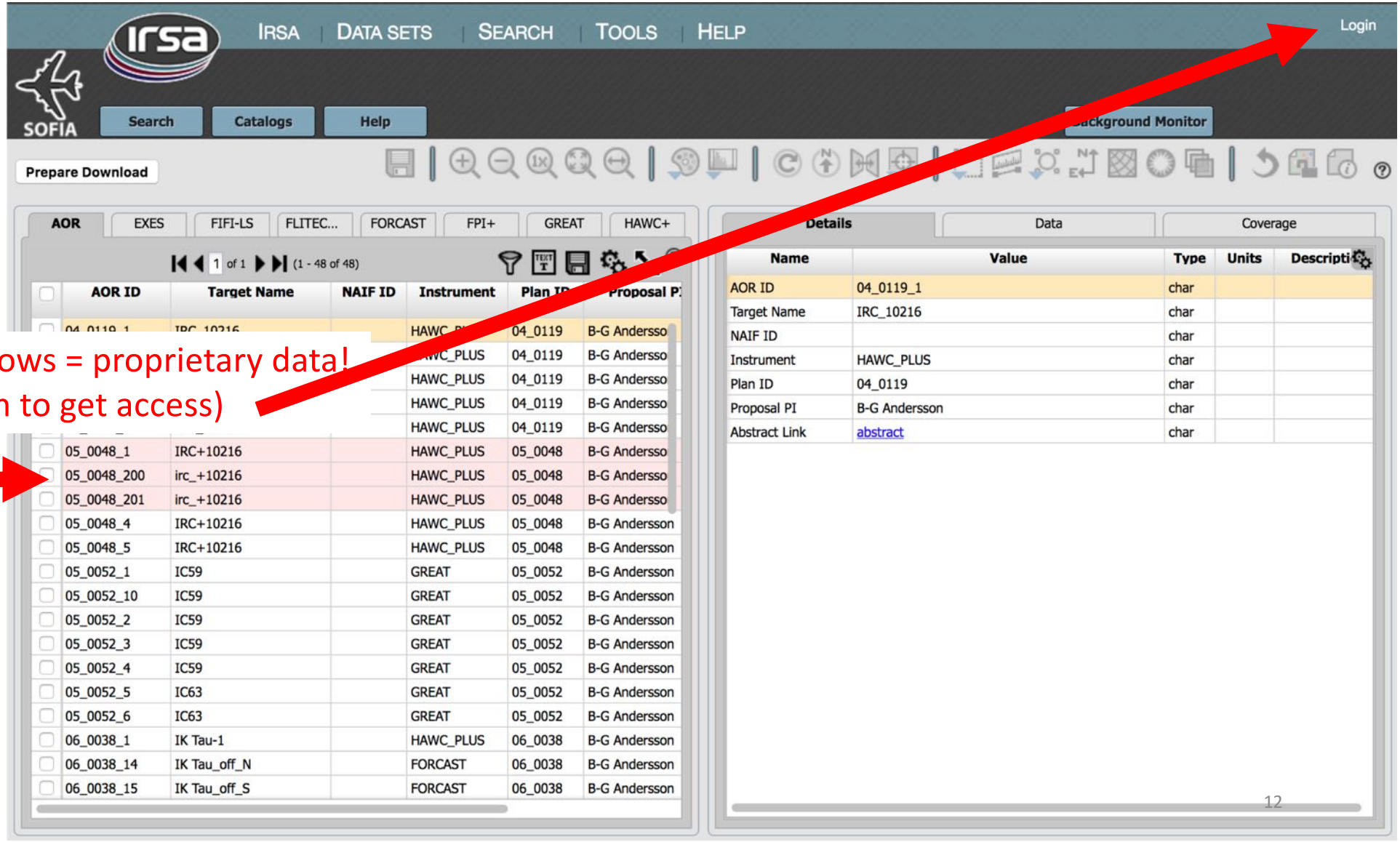
SOFIA Search
Now includes Cycles 2-7, 7 instruments: important notes on archive completeness.
Spatial Constraints
All-sky search. Enter search criteria below.
Object/Position
Multiple Positions
Solar System Target
Precovery
All-Sky
No spatial constraints requested.
Instead, pick "All-sky"…
…Click on the triangle to reveal "proposal constraints" and put in your PI's last name here
Proposal Constraints
Primary Investigator: Andersson
Plan ID:
(Partial matching works: "Anders" gets Andersson and Anderson)
Observation Constraints
Instrument Constraints
Do you want all data (Level 0-4) or just high level products (Level 3-4)?
Data Product Constraints
Processing Level: Level 0 Level 1 Level 2 Level 3 Level 4
Observation Type: Any

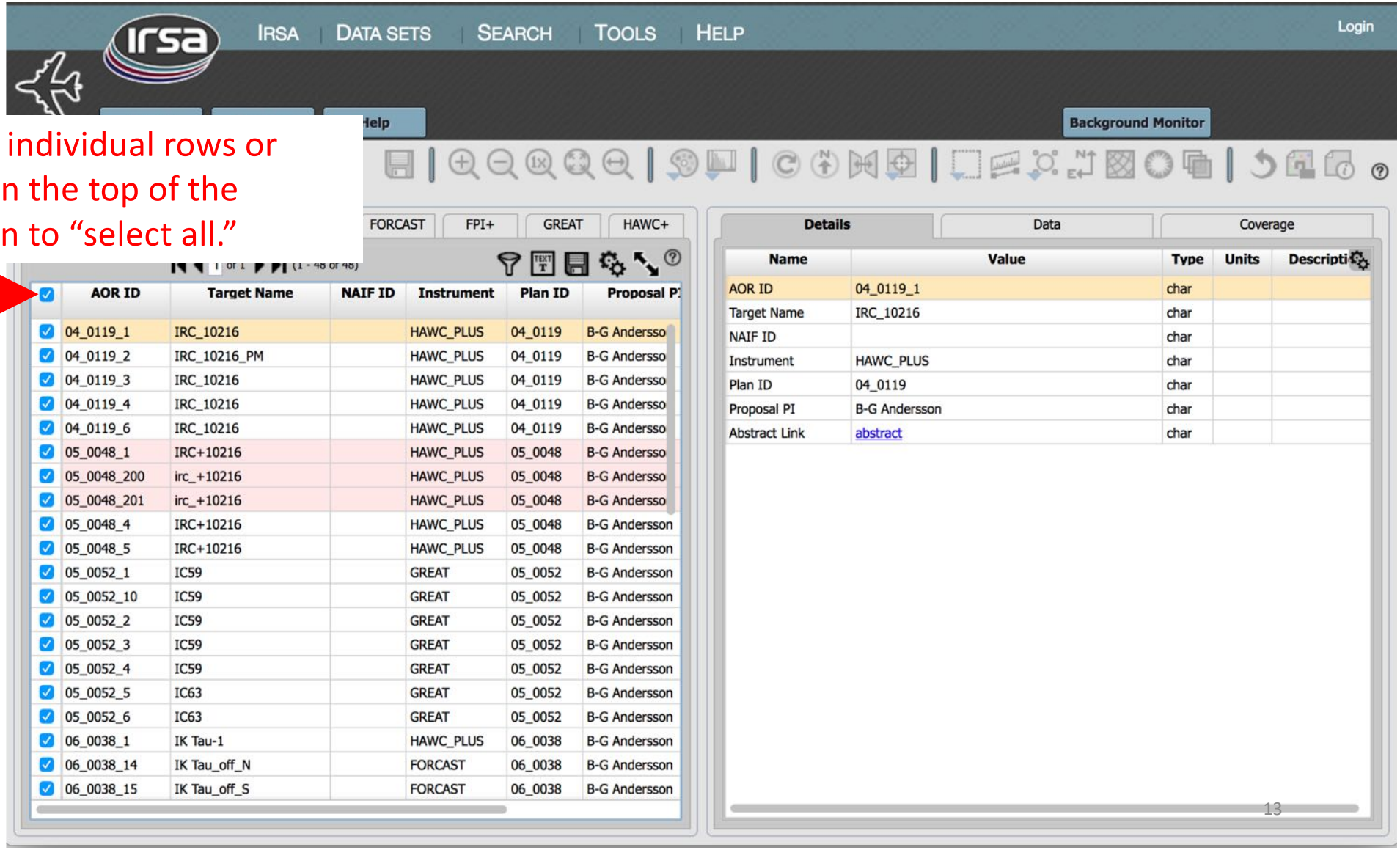
List of AORs meeting search criteria

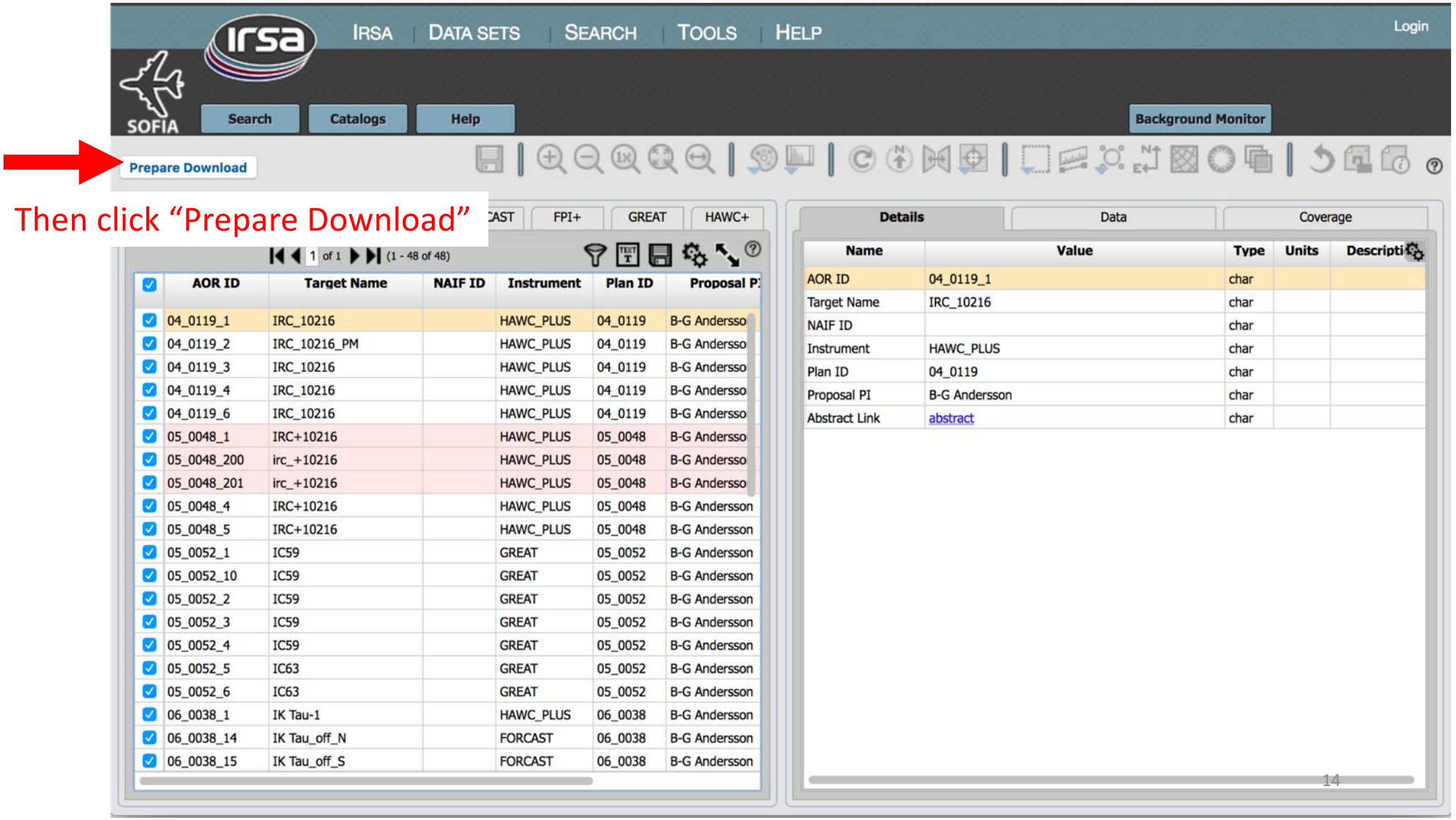




Red rows = proprietary data!
(log in to get access)

Select individual rows or click on the top of the column to “select all.”

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Prepare Download
Then click “Prepare Download”
FPI+
GREAT
HAWC+
1 of 1
(1 - 48 of 48)
AOR ID
Target Name
NAIF ID
Instrument
Plan ID
Proposal PI
04_0119_1 IRC_10216 HAWC_PLUS 04_0119 B-G Andersso
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04_0119_3 IRC_10216 HAWC_PLUS 04_0119 B-G Andersso
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Target Name IRC_10216 char
NAIF ID char
Instrument HAWC_PLUS char
Plan ID 04_0119 char
Proposal PI B-G Andersson char
Abstract Link abstract char

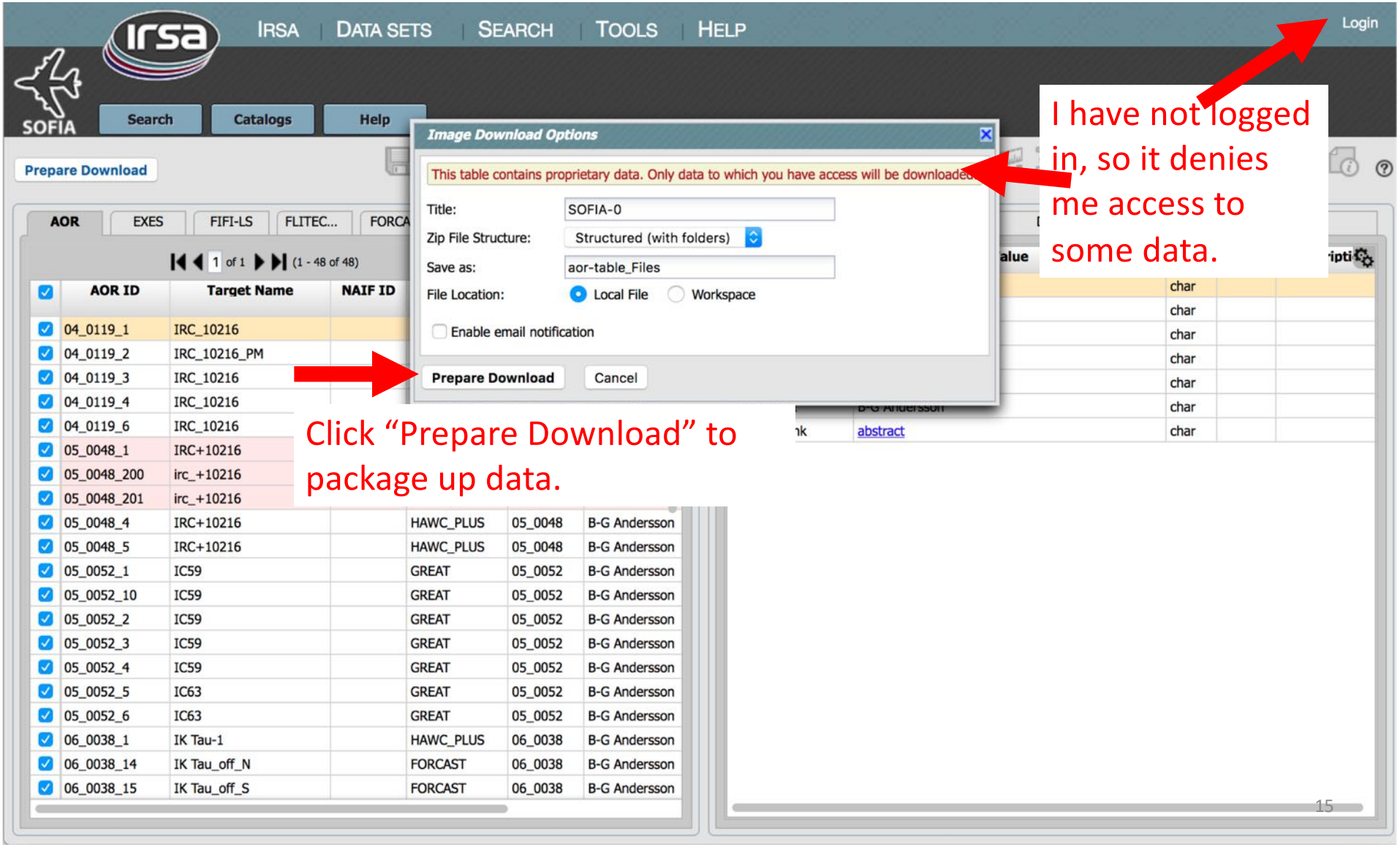
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Image Download Options
This table contains proprietary data. Only data to which you have access will be downloaded.
Title: SOFIA-0
Zip File Structure: Structured (with folders)
Save as: aor-table_Files
File Location: Local File Workspace
Enable email notification
Prepare Download
Cancel
I have not logged in, so it denies me access to some data.
Click “Prepare Download” to package up data.
AOR ID | Target Name | NAIF ID
04_0119_1 IRC_10216
04_0119_2 IRC_10216_PM
04_0119_3 IRC_10216
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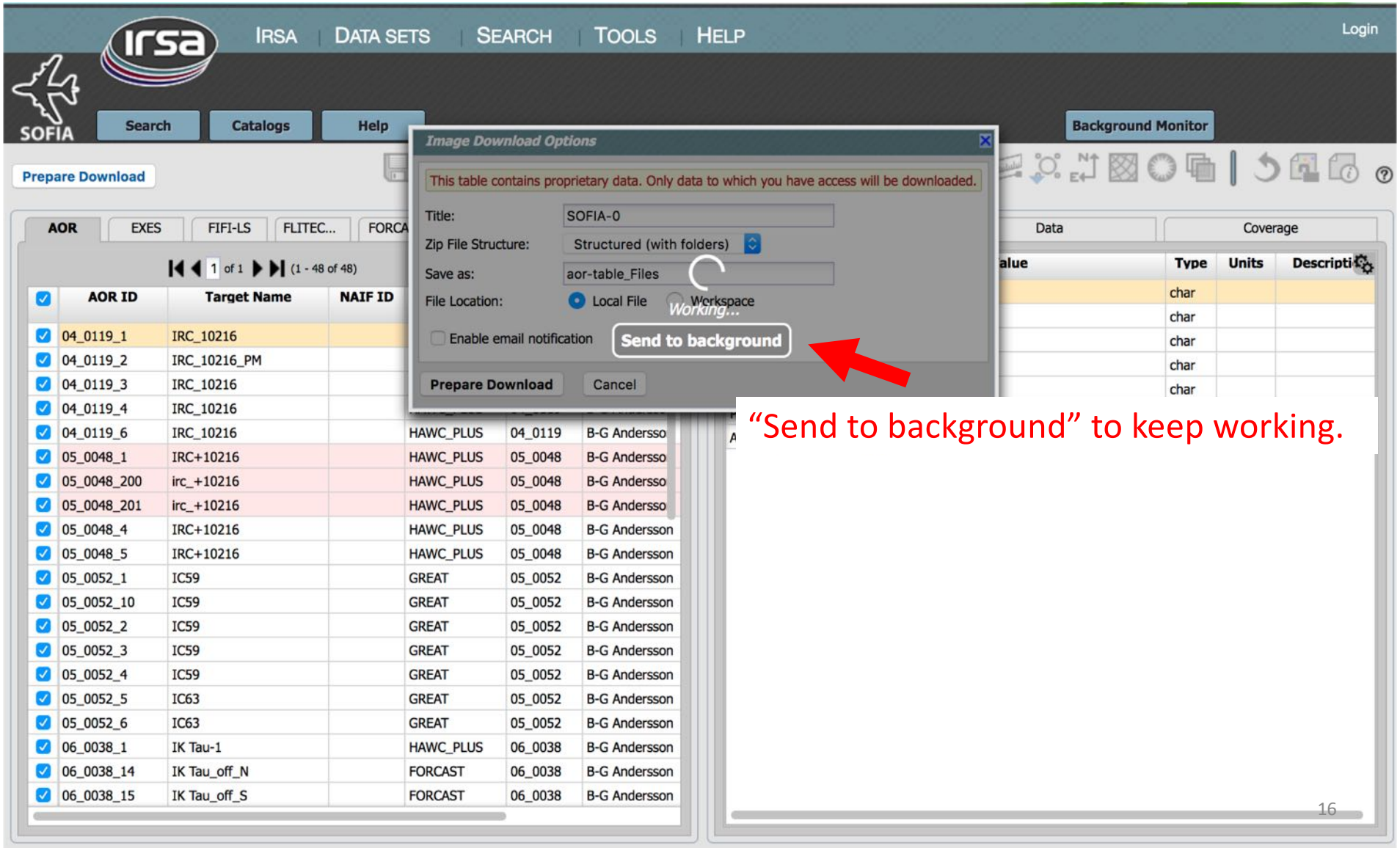
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Title: SOFIA-0
Zip File Structure: Structured (with folders)
Save as: aor-table_Files
File Location: Local File Workspace
Working...
Enable email notification
Send to background
Prepare Download
Cancel
AOR
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FLITEC...
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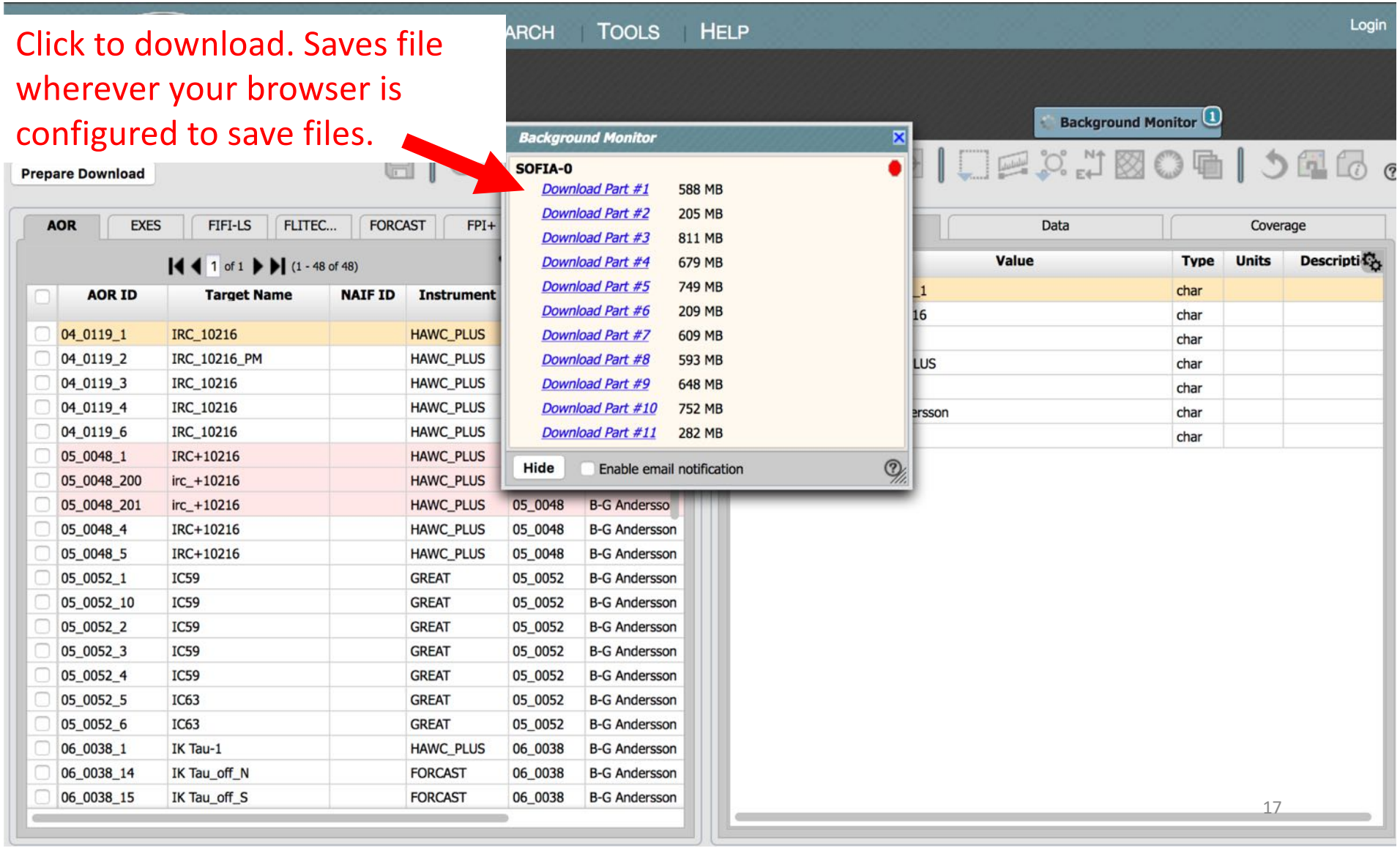
06_0038_15 | IK Tau_off_S | FORCAST | 06_0038 | B-G Andersson
"Send to background" to keep working.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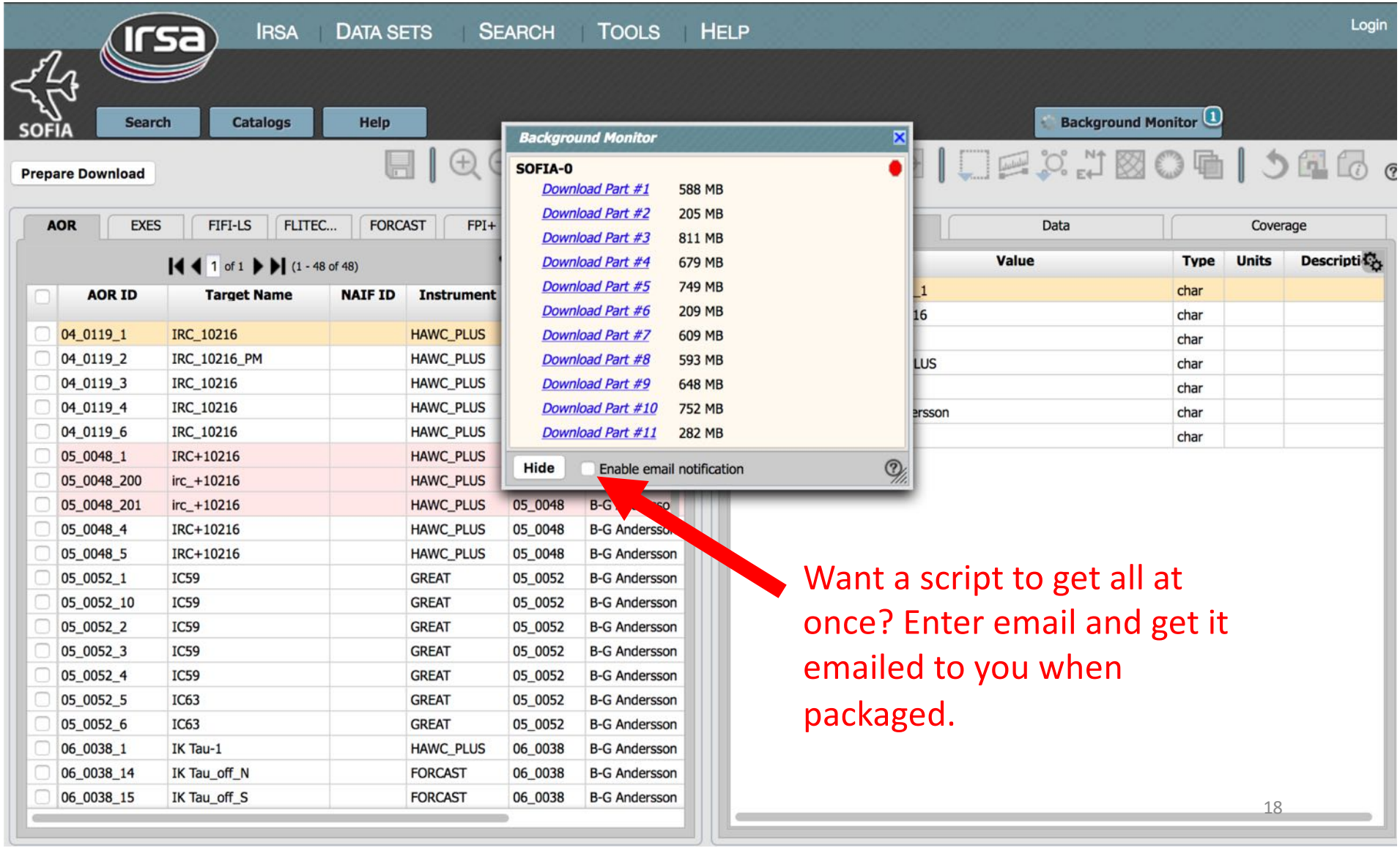
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1 of 1 (1 - 48 of 48)
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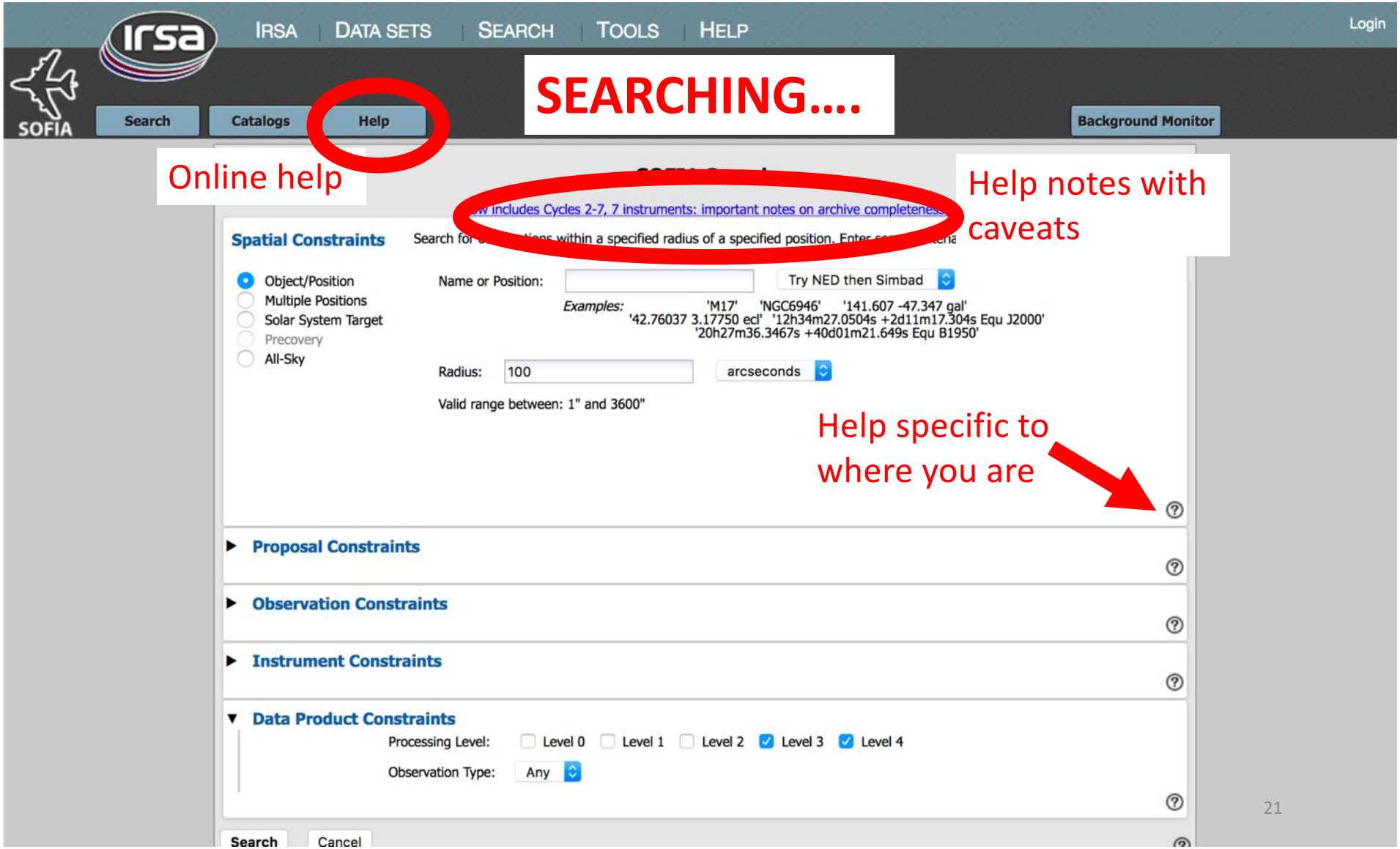
06_0038_14 IK Tau_off_N FORCAST 06_0038 B-G Andersson
06_0038_15 IK Tau_off_S FORCAST 06_0038 B-G Andersson
Want a script to get all at once? Enter email and get it emailed to you when packaged.

I want to find data on target X.
(Now slower, with more choices!)

Finding & getting data

- **Searching**: Many ways to search.
- **Results**: Many ways to explore results of search, including previewing data.
- **Downloading**: Can change how files are packaged.

- Important points given in red.
- Hints and tips given in *purple italics*.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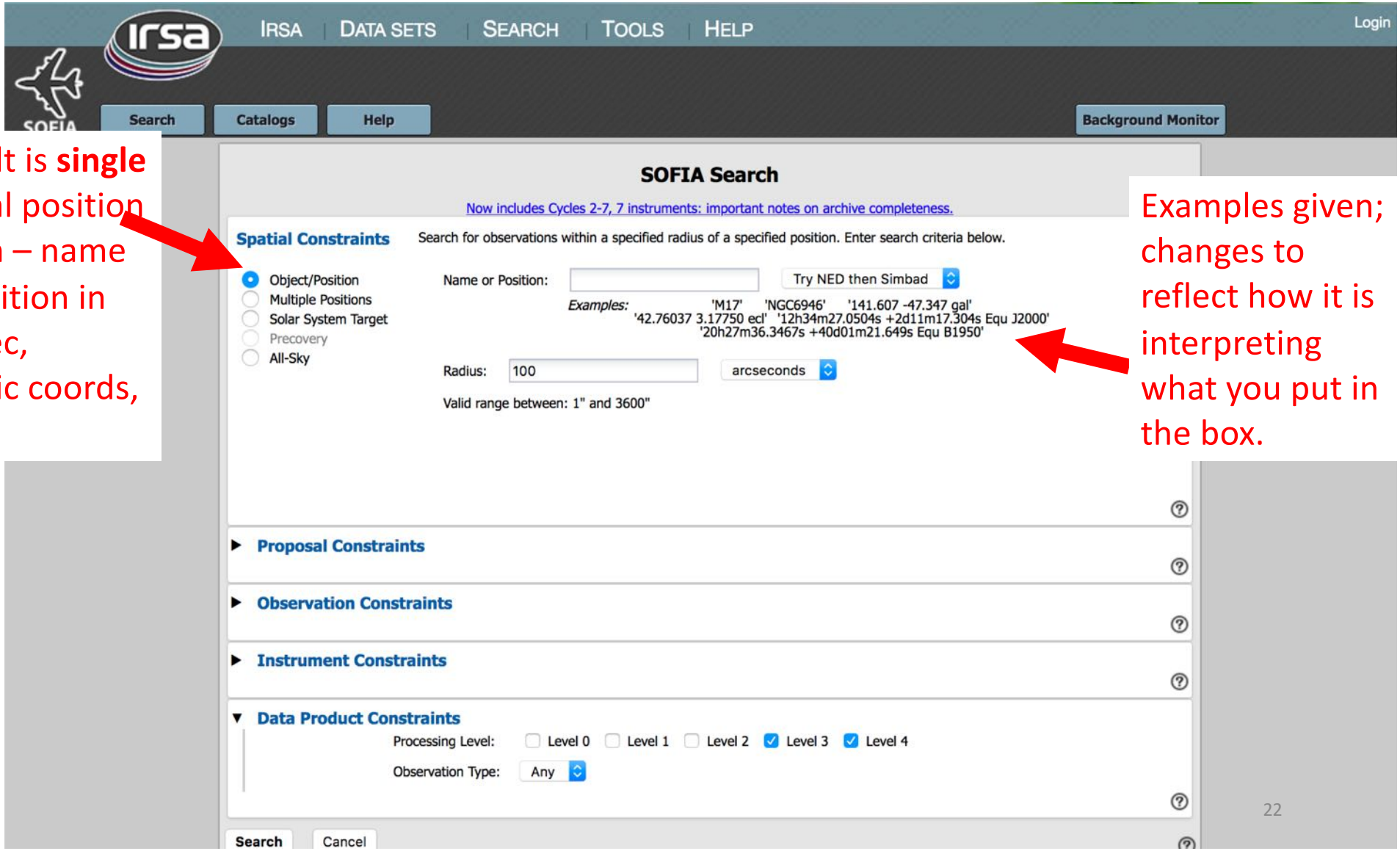
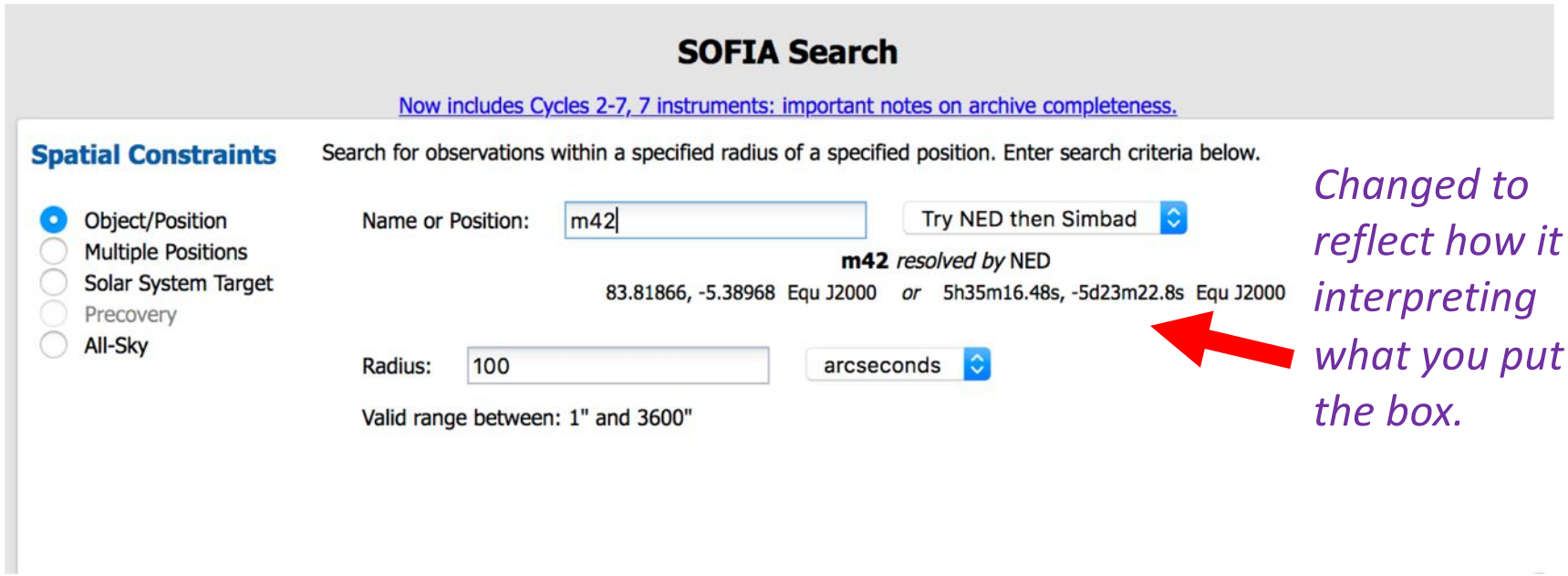
Background Monitor
SEARCHING....
Online help
Help notes with caveats
includes Cycles 2-7, 7 instruments: important notes on archive completeness
Spatial Constraints
Search for ... within a specified radius of a specified position. Enter ...
Object/Position
Multiple Positions
Solar System Target
Precovery
All-Sky
Name or Position:
Try NED then Simbad
Examples: 'M17' 'NGC6946' '141.607 -47.347 gal'
'42.76037 3.17750 ecl' '12h34m27.0504s +2d11m17.304s Equ J2000'
'20h27m36.3467s +40d01m21.649s Equ B1950'
Radius: 100
arcseconds
Valid range between: 1" and 3600"
Help specific to where you are
Proposal Constraints
Observation Constraints
Instrument Constraints
Data Product Constraints
Processing Level: Level 0 Level 1 Level 2 Level 3 Level 4
Observation Type: Any
Search
Cancel

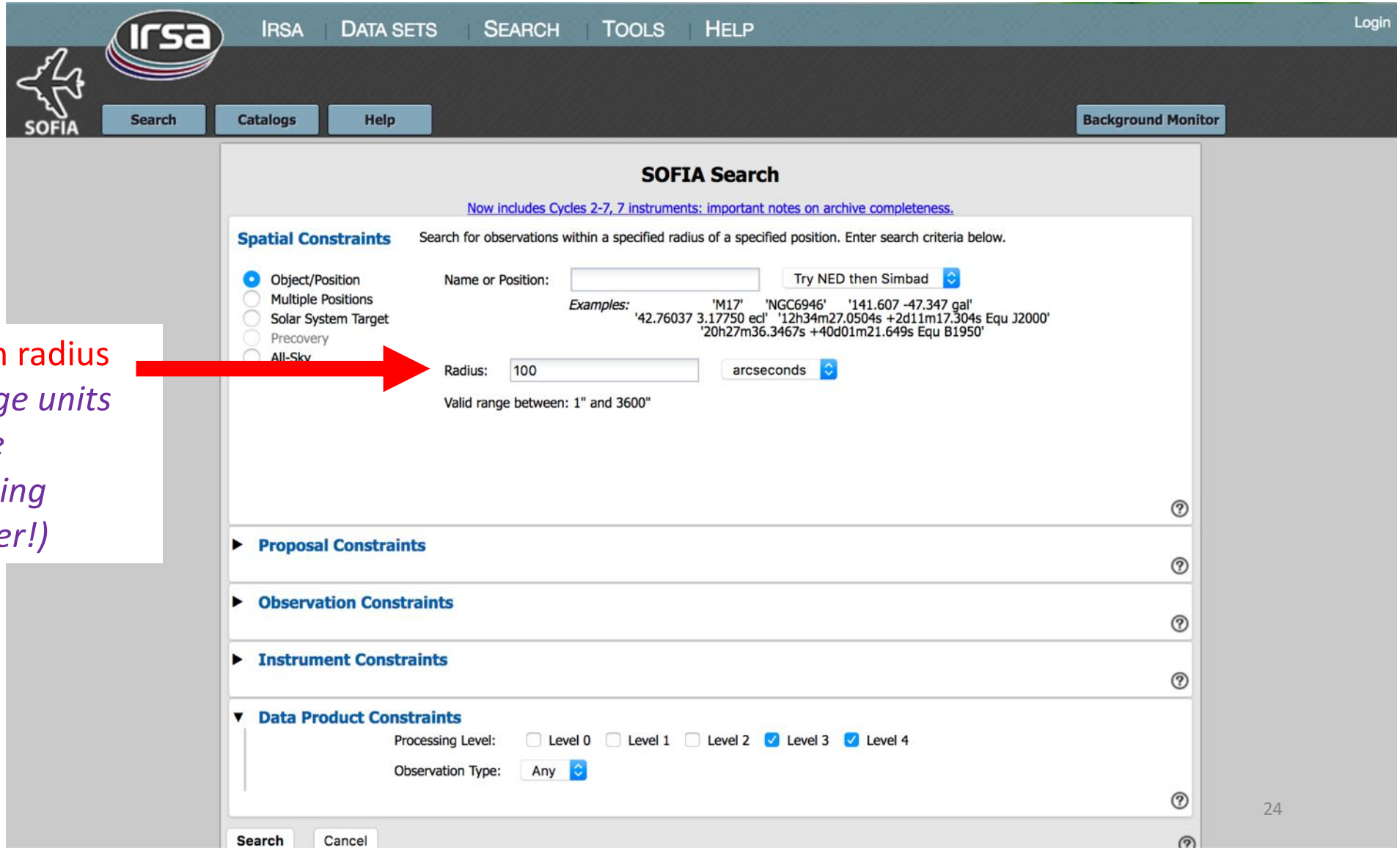


Default is **single** inertial position search – name or position in RA/Dec, galactic coords, etc.

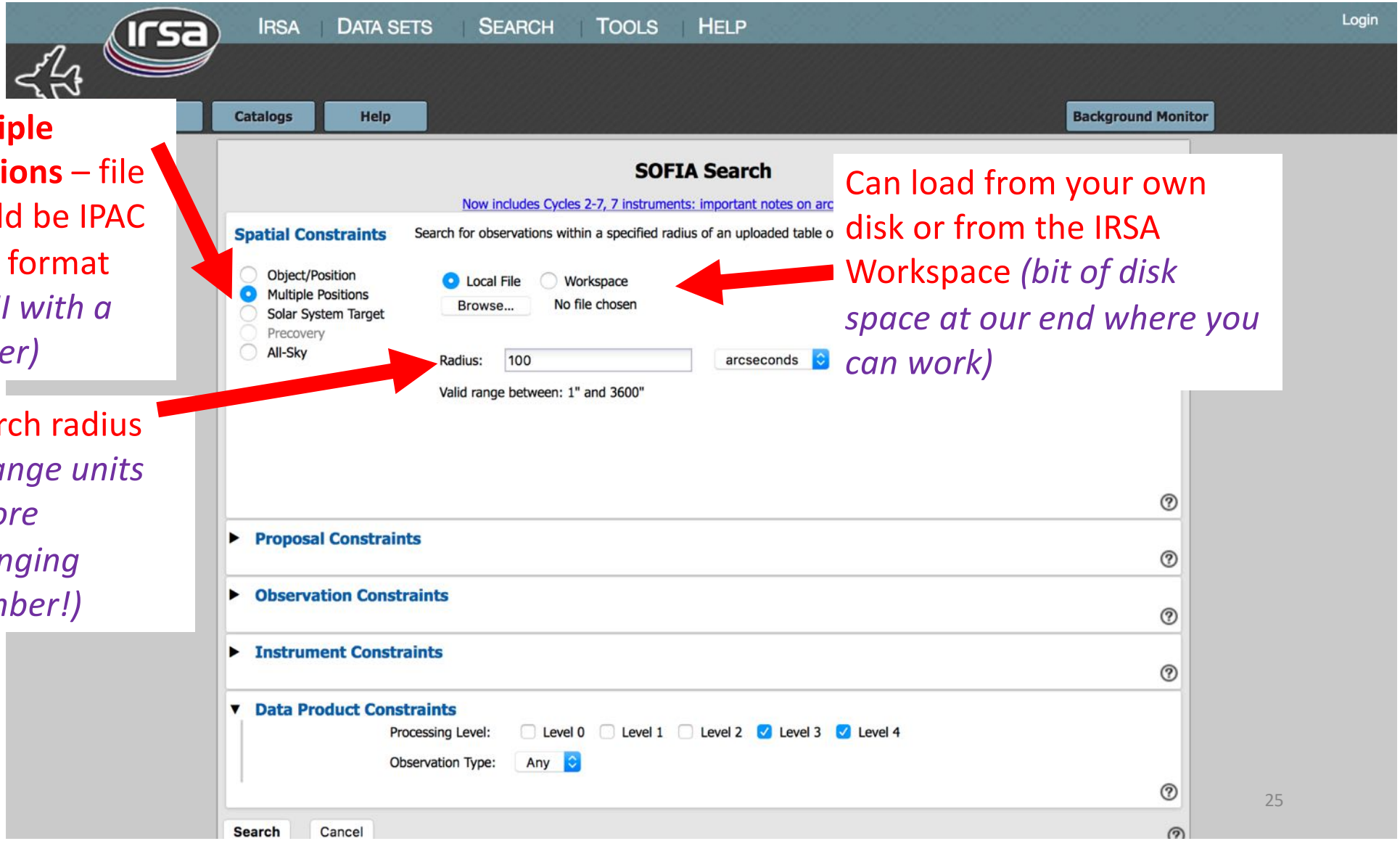
Examples given; changes to reflect how it is interpreting what you put in the box.



Changed to reflect how it is interpreting what you put in the box.



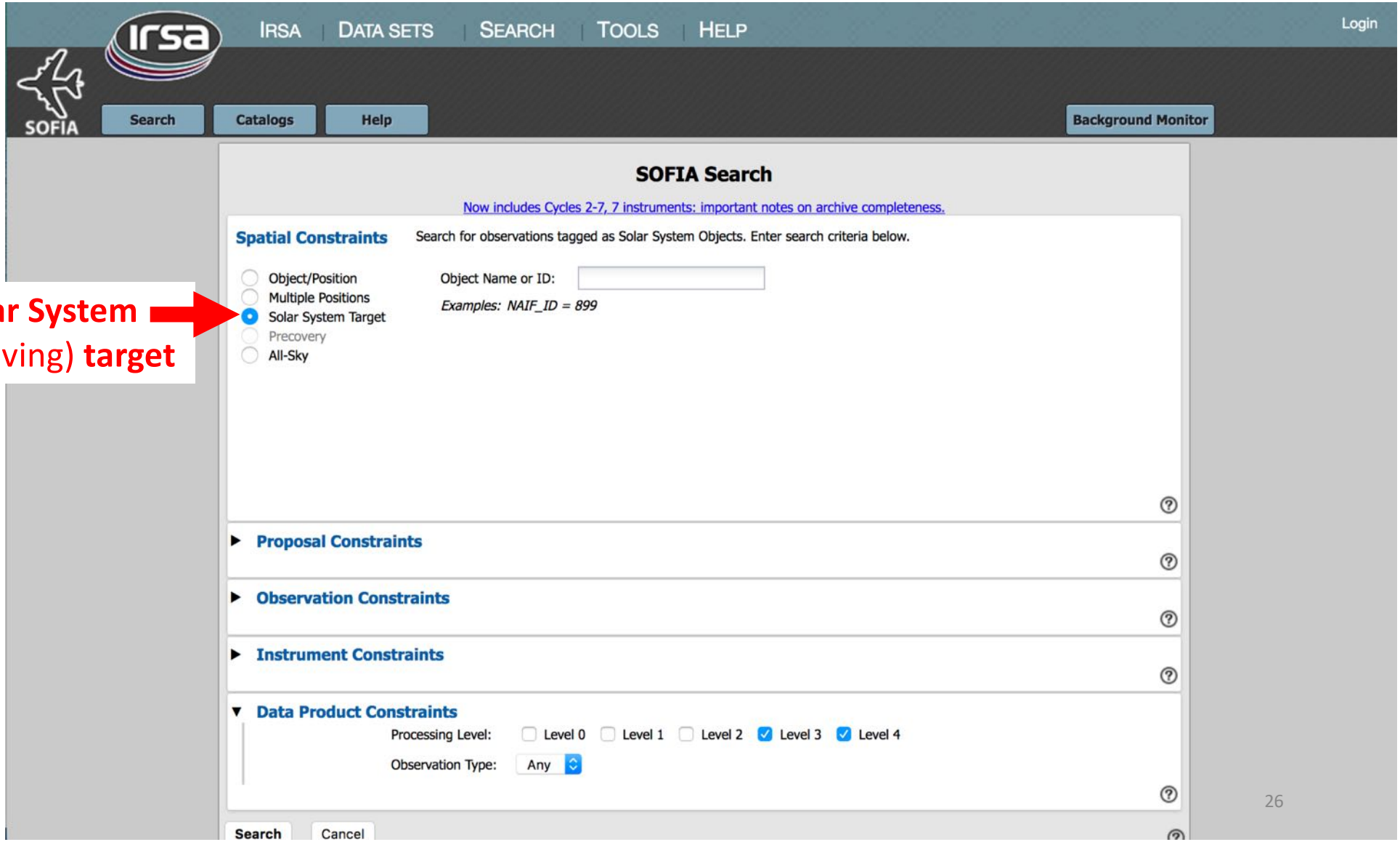
Search radius *(change units before changing number!)*



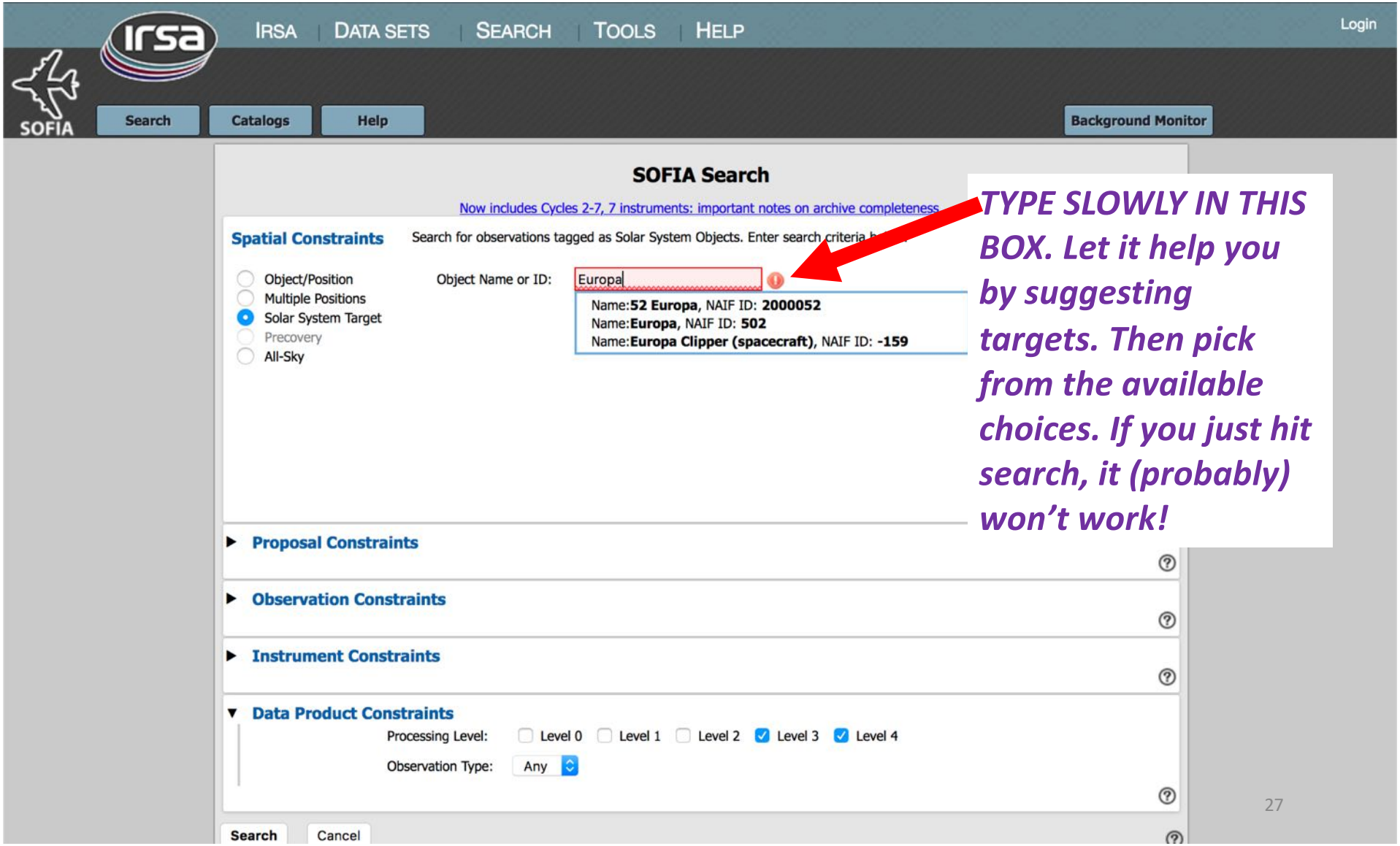
Multiple positions – file should be IPAC table format *(ASCII with a header)*

Search radius *(change units before changing number!)*

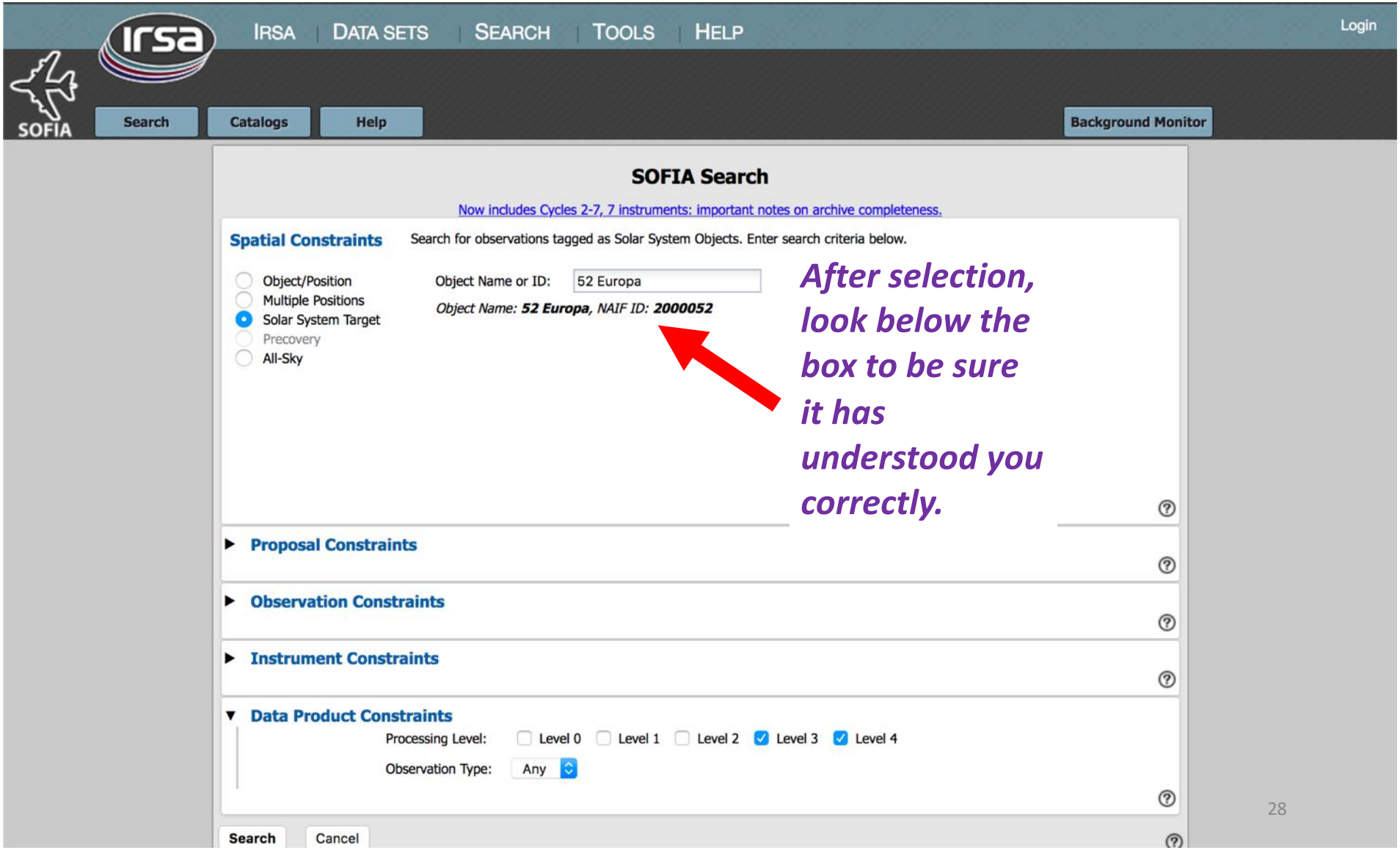
Can load from your own disk or from the IRSA Workspace *(bit of disk space at our end where you can work)*



Solar System
(moving) **target**



TYPE SLOWLY IN THIS BOX. Let it help you by suggesting targets. Then pick from the available choices. If you just hit search, it (probably) won't work!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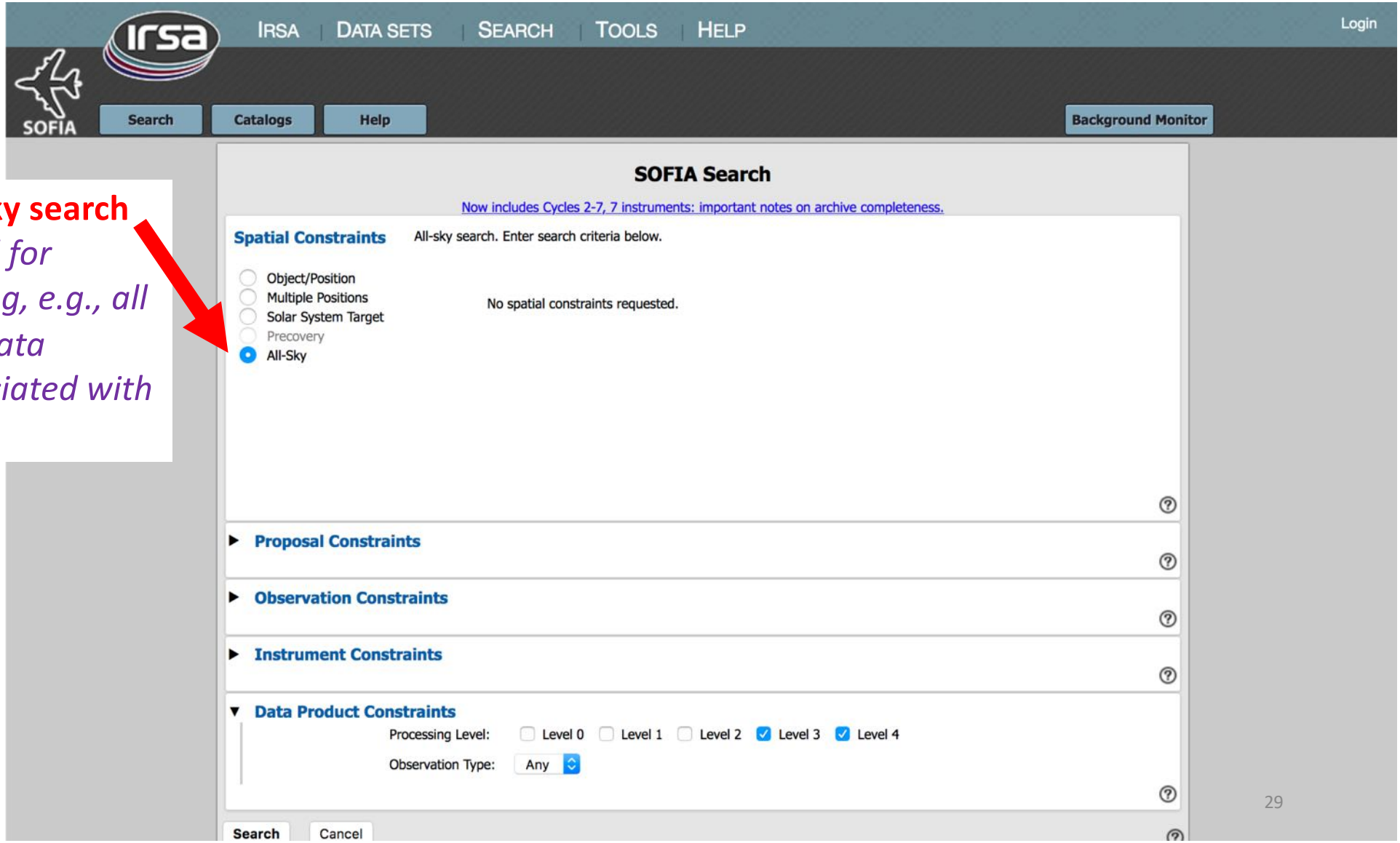
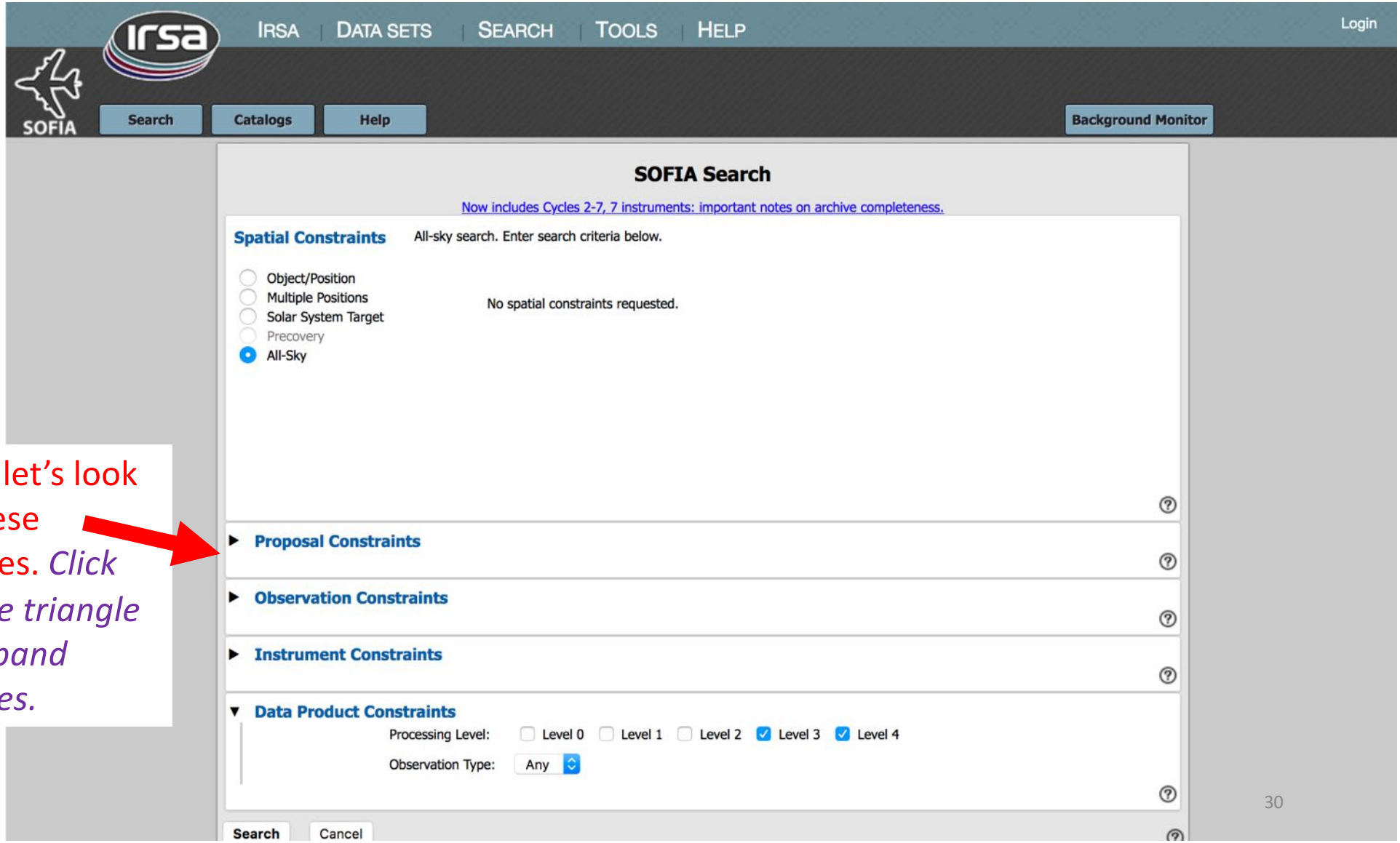
SOFIA Search
Now includes Cycles 2-7, 7 instruments: important notes on archive completeness.
Spatial Constraints
Search for observations tagged as Solar System Objects. Enter search criteria below.
Object/Position
Multiple Positions
Solar System Target
Precovery
All-Sky
Object Name or ID:
52 Europa
Object Name: 52 Europa, NAIF ID: 2000052
After selection, look below the box to be sure it has understood you correctly.
Proposal Constraints
Observation Constraints
Instrument Constraints
Data Product Constraints
Processing Level:
Level 0
Level 1
Level 2
Level 3
Level 4
Observation Type:
Any
Search
Cancel

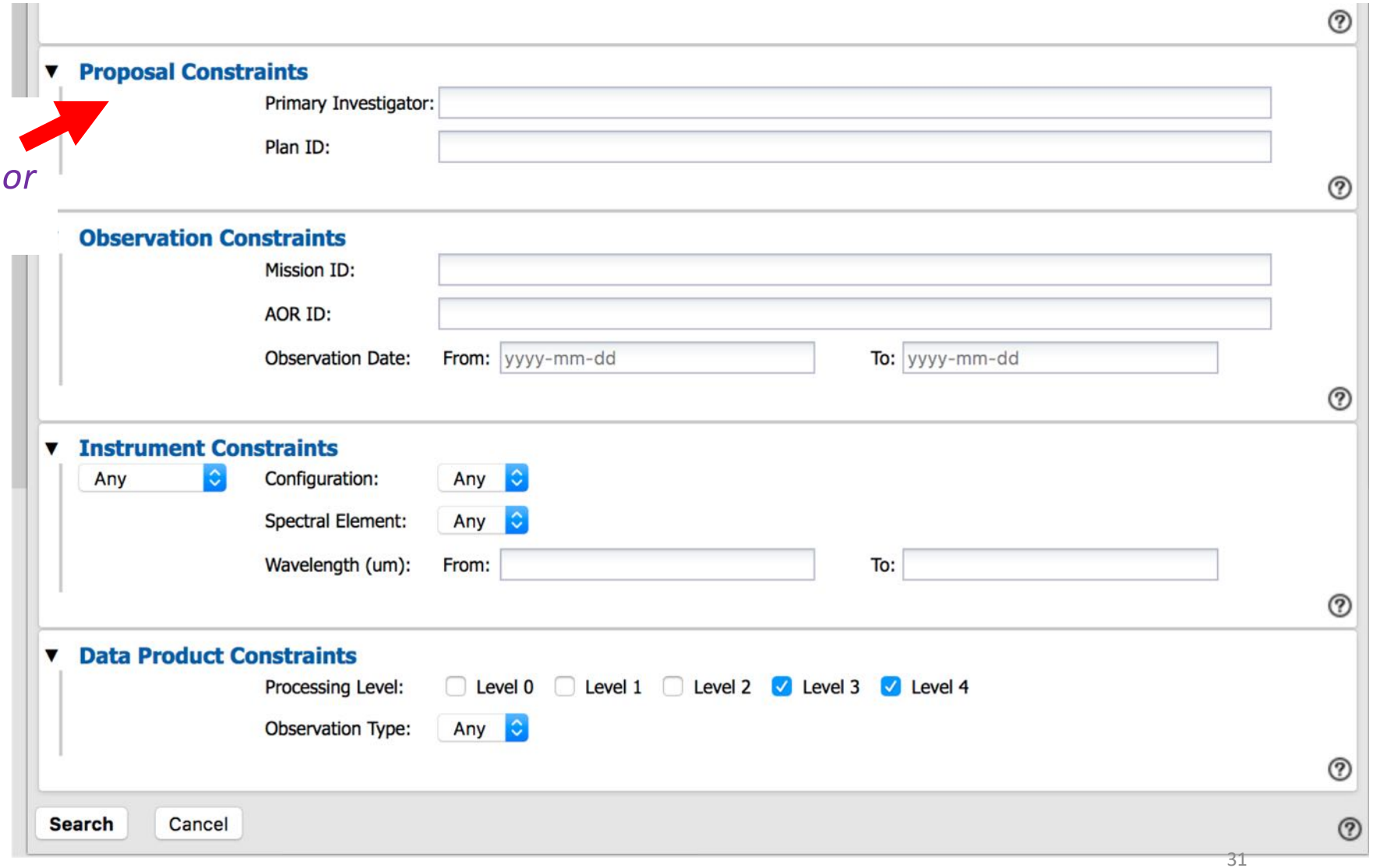
All-sky search
(used for pulling, e.g., all the data associated with a PI)



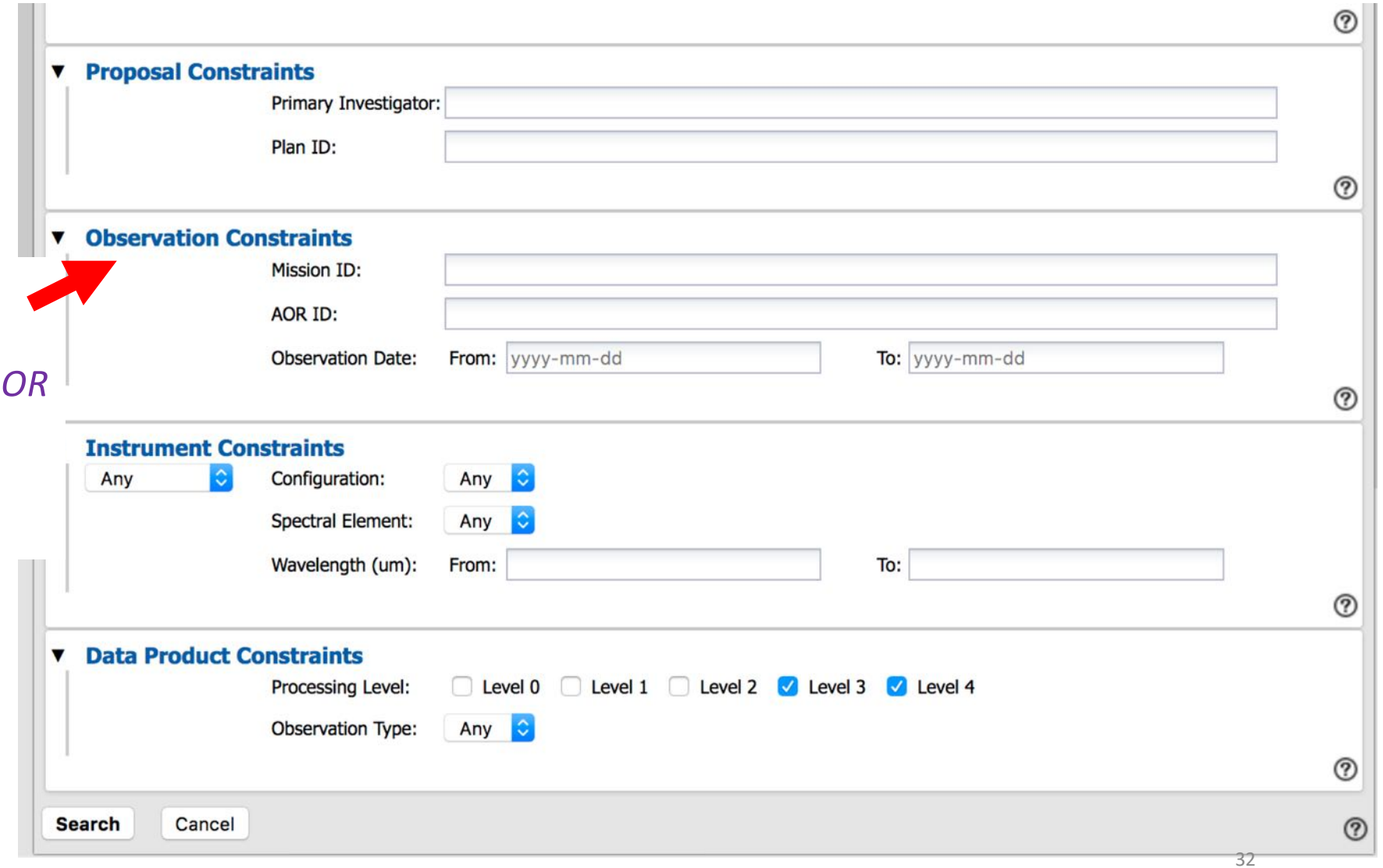


Now, let's look at these choices. *Click on the triangle to expand choices.*

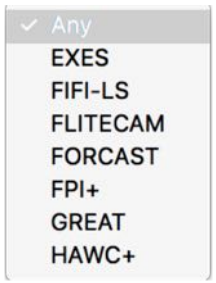
Proposal
(search on PI or Plan ID)

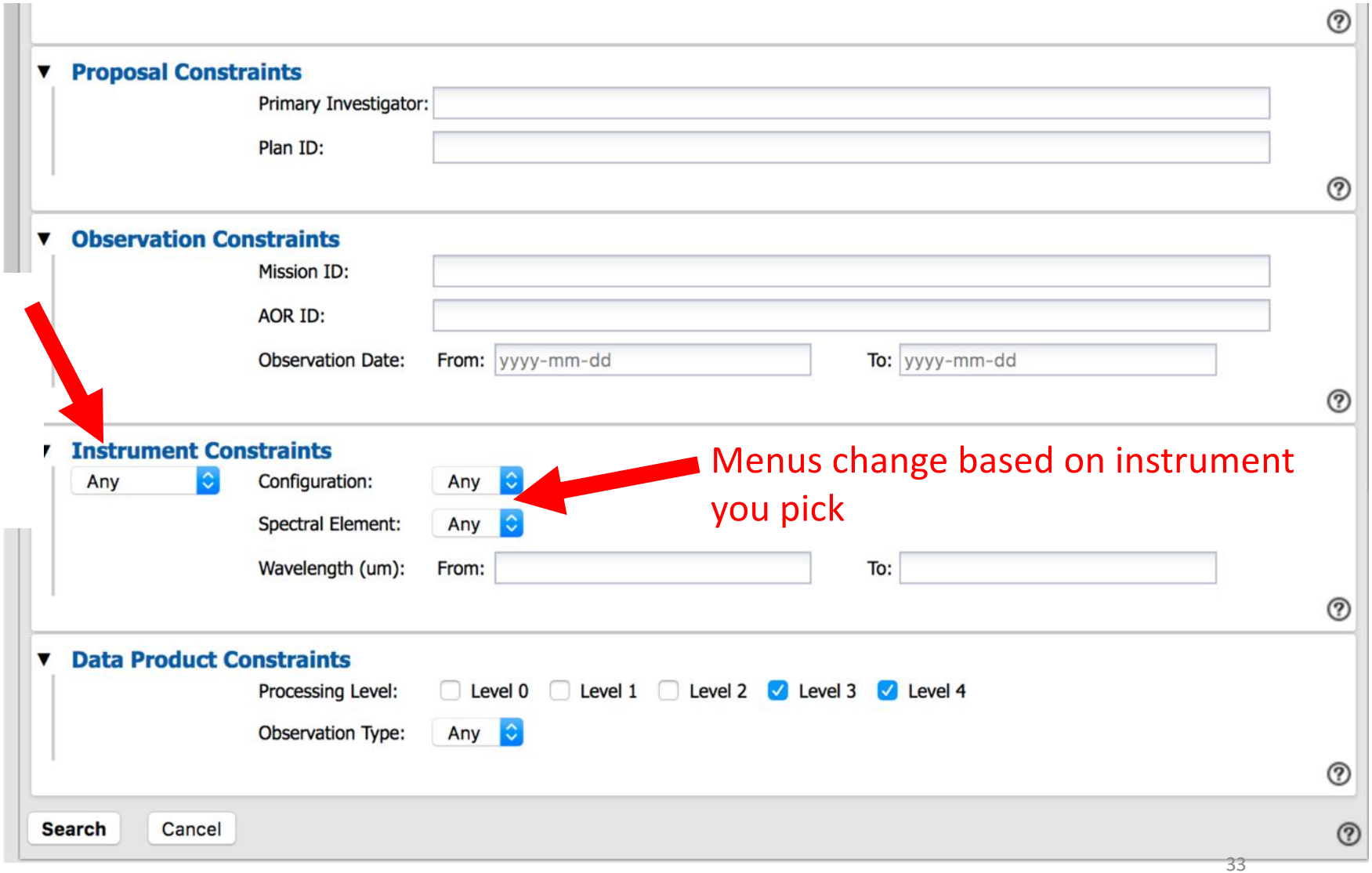


Observation
(search on Mission ID, AOR ID, or observation date)



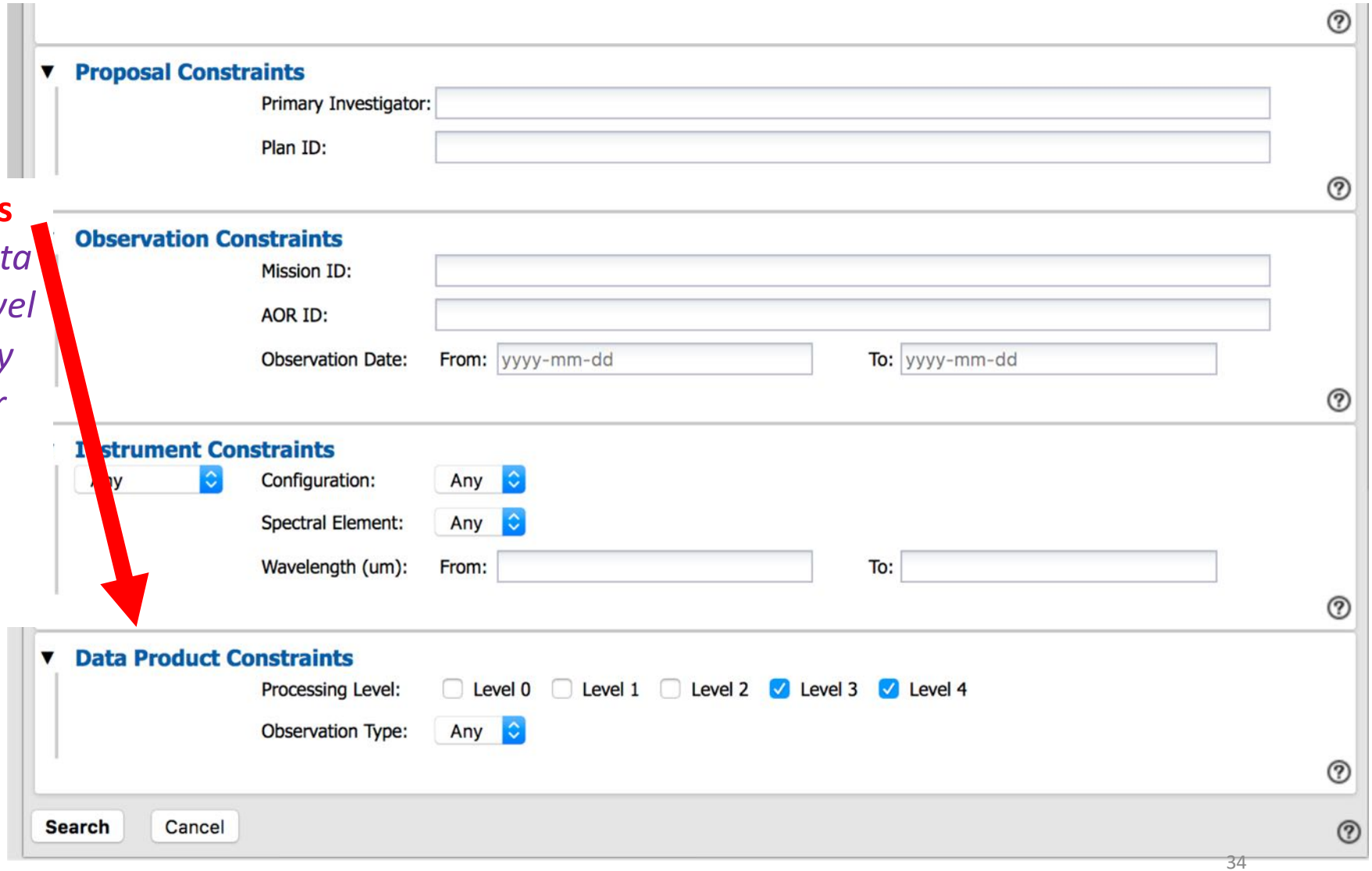
Instrument
(search on instrument, configuration, wavelength)

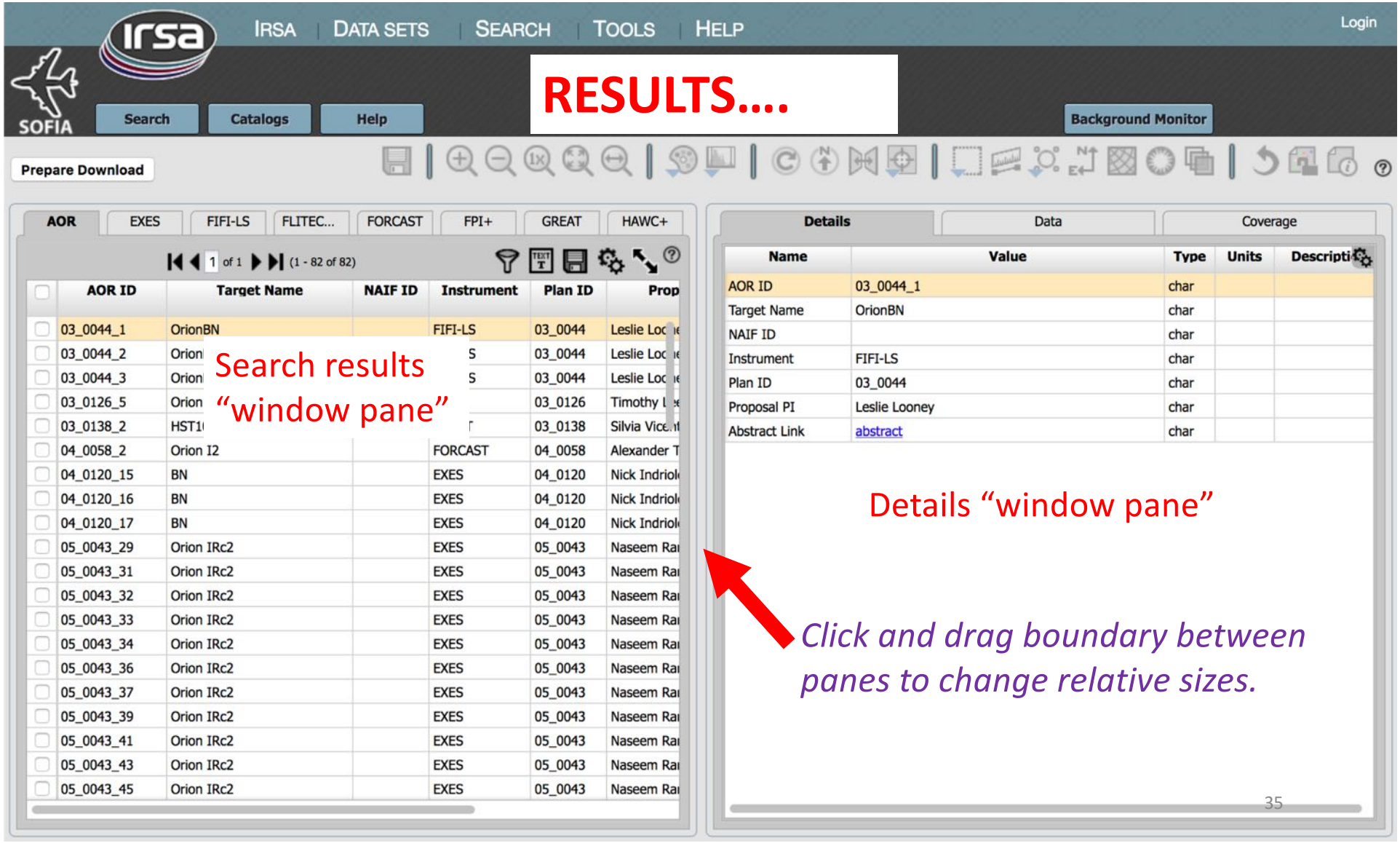


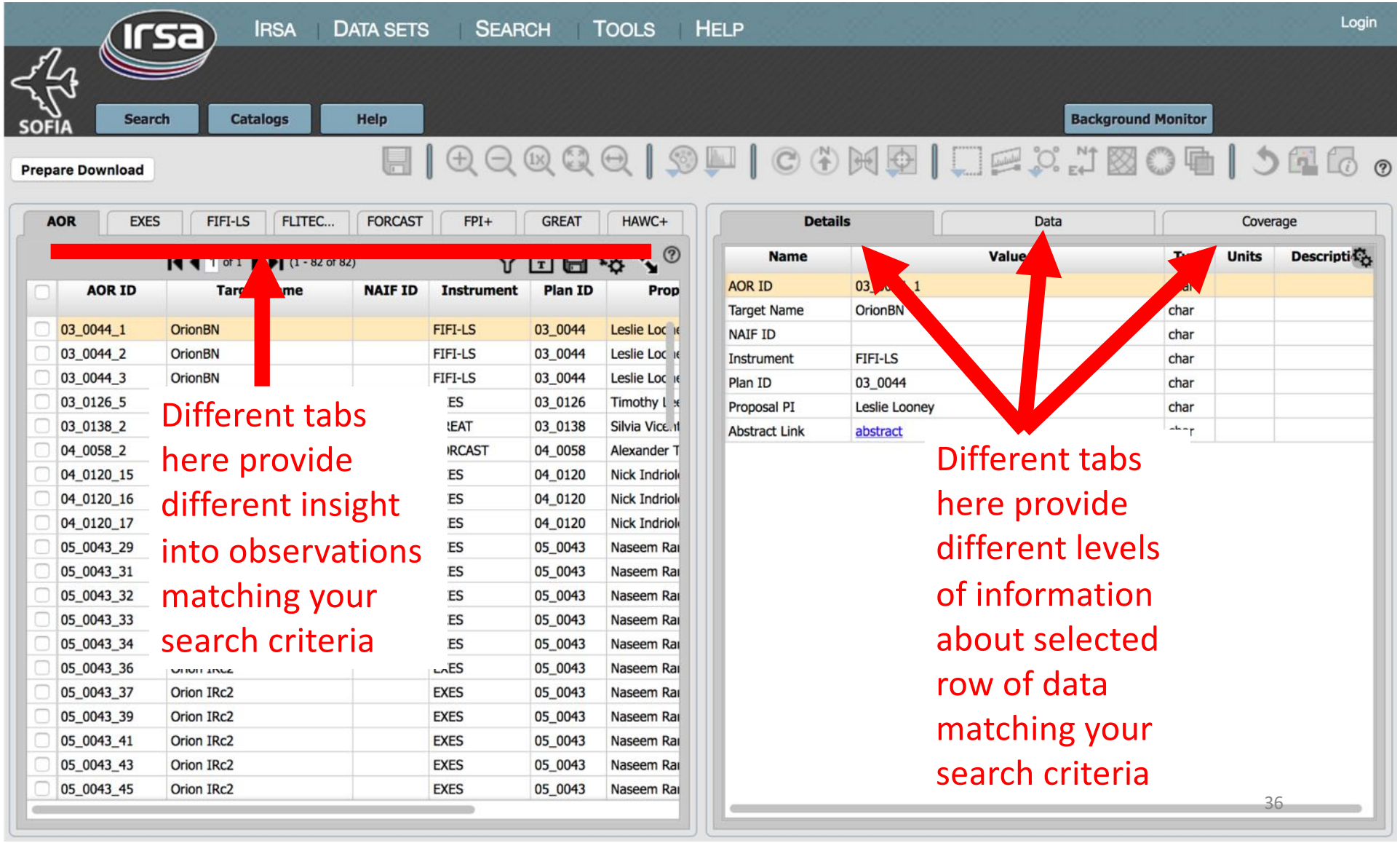


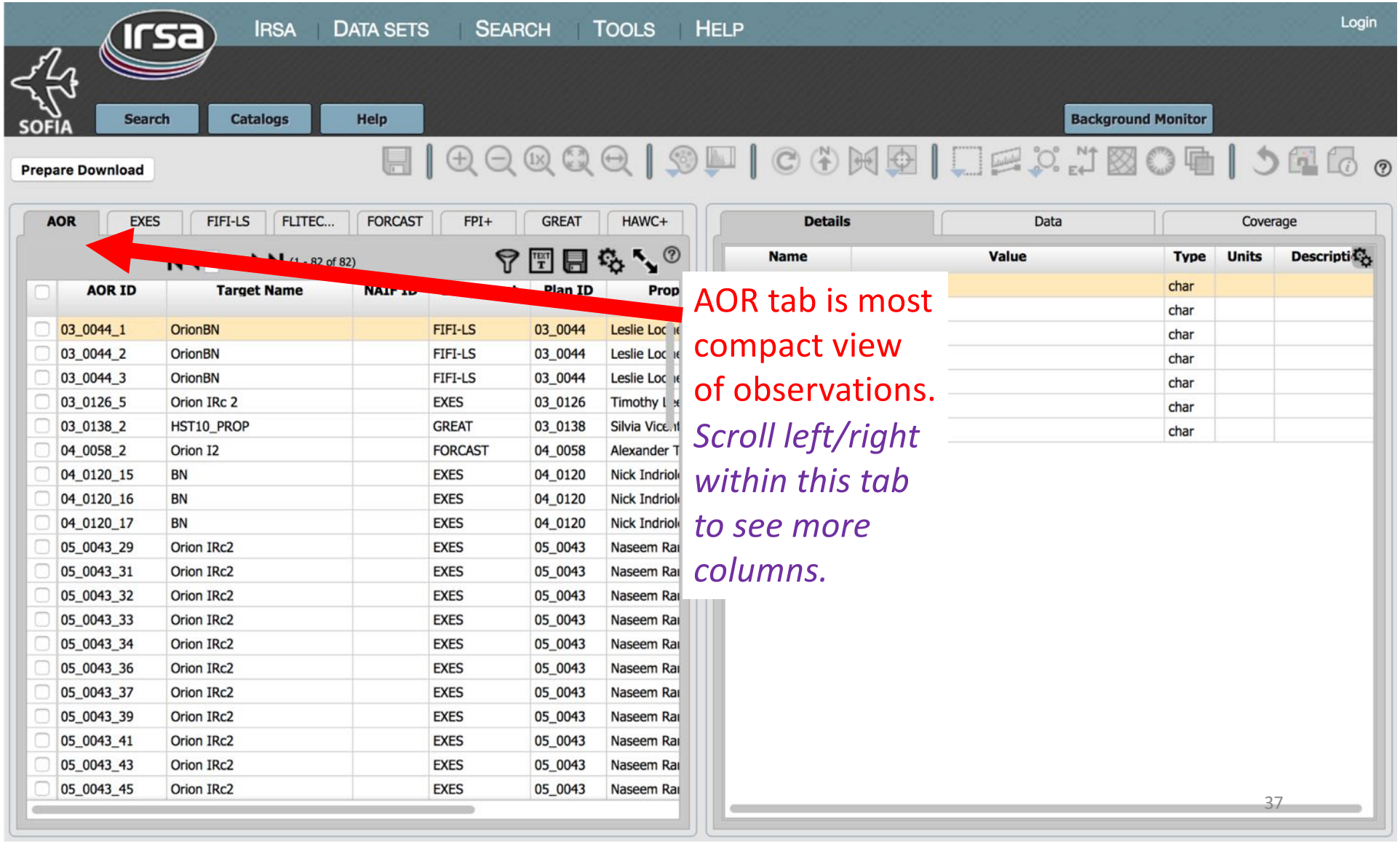
Menus change based on instrument you pick

Data products
(search on data processing level - raw to highly processed - or type of observation - object, sky, dark, flat)




IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Search
Catalogs
Help
RESULTS....
Background Monitor
Prepare Download
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
1 of 1
(1 - 82 of 82)
AOR ID
Target Name
NAIF ID
Instrument
Plan ID
Prop
03_0044_1 OrionBN FIFI-LS 03_0044
03_0044_2 Orion S 03_0044
03_0044_3 Orion S 03_0044
03_0126_5 Orion 03_0126
03_0138_2 HST1 03_0138
04_0058_2 Orion I2 FORCAST 04_0058
04_0120_15 BN EXES 04_0120
04_0120_16 BN EXES 04_0120
04_0120_17 BN EXES 04_0120
05_0043_29 Orion IRc2 EXES 05_0043
05_0043_31 Orion IRc2 EXES 05_0043
05_0043_32 Orion IRc2 EXES 05_0043
05_0043_33 Orion IRc2 EXES 05_0043
05_0043_34 Orion IRc2 EXES 05_0043
05_0043_36 Orion IRc2 EXES 05_0043
05_0043_37 Orion IRc2 EXES 05_0043
05_0043_39 Orion IRc2 EXES 05_0043
05_0043_41 Orion IRc2 EXES 05_0043
05_0043_43 Orion IRc2 EXES 05_0043
05_0043_45 Orion IRc2 EXES 05_0043
Search results "window pane"
Details
Data
Coverage
Name
Value
Type
Units
Descripti
AOR ID 03_0044_1 char
Target Name OrionBN char
NAIF ID char
Instrument FIFI-LS char
Plan ID 03_0044 char
Proposal PI Leslie Looney char
Abstract Link abstract char
Details "window pane"
Click and drag boundary between panes to change relative sizes.


IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Search
Catalogs
Help
Background Monitor
Prepare Download
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
Details
Data
Coverage
AOR ID
NAIF ID
Instrument
Plan ID
Name
Value
Units
Target Name
OrionBN
Proposal PI
Leslie Looney
Abstract Link
abstract
char
Different tabs here provide different insight into observations matching your search criteria
Different tabs here provide different levels of information about selected row of data matching your search criteria


IRSA | DATA SETS | SEARCH | TOOLS | HELP
Login
SOFIA
Search
Catalogs
Help
Background Monitor
Prepare Download
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
(1 - 82 of 82)
AOR ID
Target Name
Plan ID
Prop
03_0044_1 OrionBN FIFI-LS 03_0044
03_0044_2 OrionBN FIFI-LS 03_0044
03_0044_3 OrionBN FIFI-LS 03_0044
03_0126_5 Orion IRc 2 EXES 03_0126
03_0138_2 HST10_PROP GREAT 03_0138
04_0058_2 Orion I2 FORCAST 04_0058
04_0120_15 BN EXES 04_0120
04_0120_16 BN EXES 04_0120
04_0120_17 BN EXES 04_0120
05_0043_29 Orion IRc2 EXES 05_0043
05_0043_31 Orion IRc2 EXES 05_0043
05_0043_32 Orion IRc2 EXES 05_0043
05_0043_33 Orion IRc2 EXES 05_0043
05_0043_34 Orion IRc2 EXES 05_0043
05_0043_36 Orion IRc2 EXES 05_0043
05_0043_37 Orion IRc2 EXES 05_0043
05_0043_39 Orion IRc2 EXES 05_0043
05_0043_41 Orion IRc2 EXES 05_0043
05_0043_43 Orion IRc2 EXES 05_0043
05_0043_45 Orion IRc2 EXES 05_0043
Details
Data
Coverage
Name
Value
Type
Units
Descripti
char
AOR tab is most compact view of observations. Scroll left/right within this tab to see more columns.

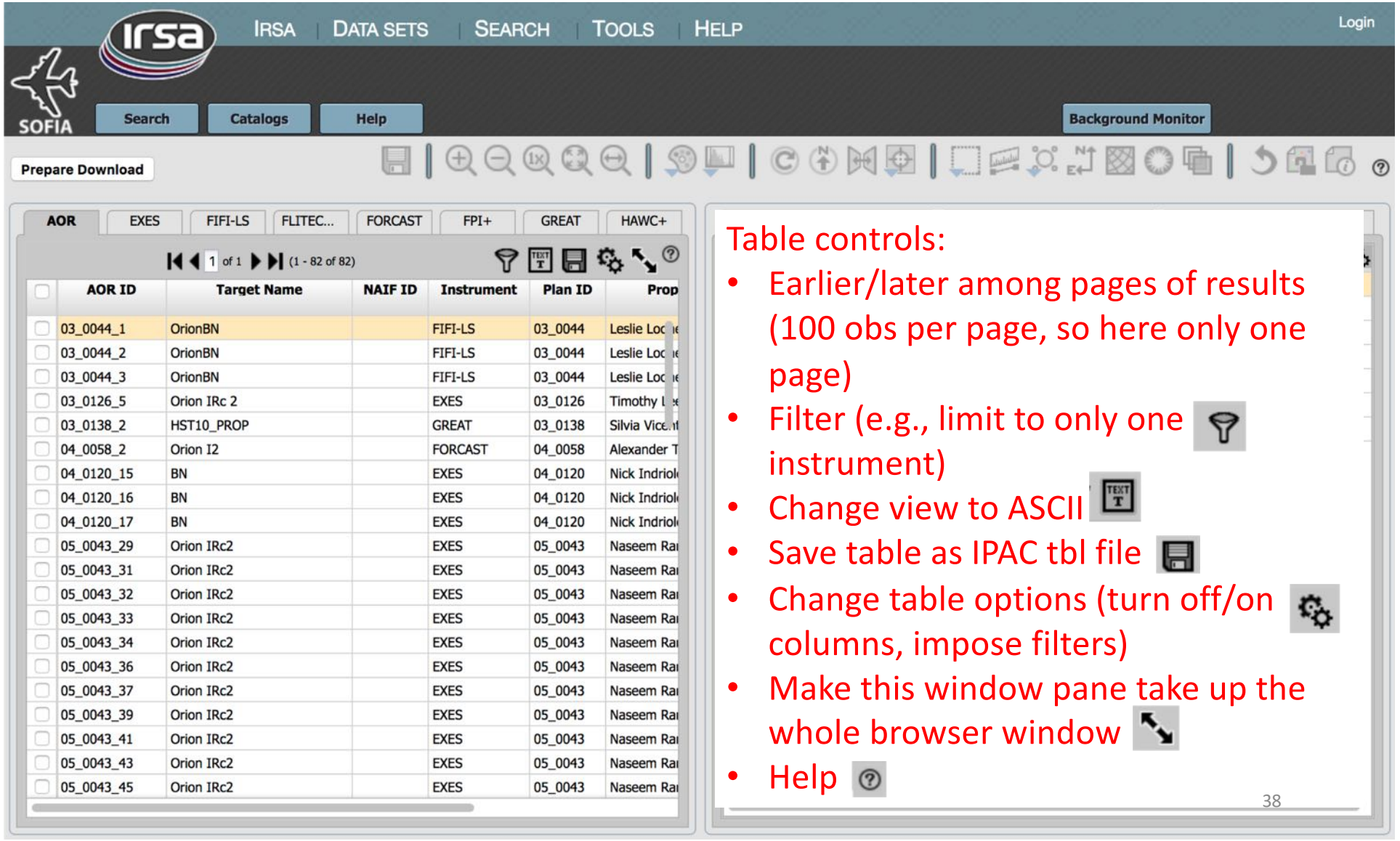
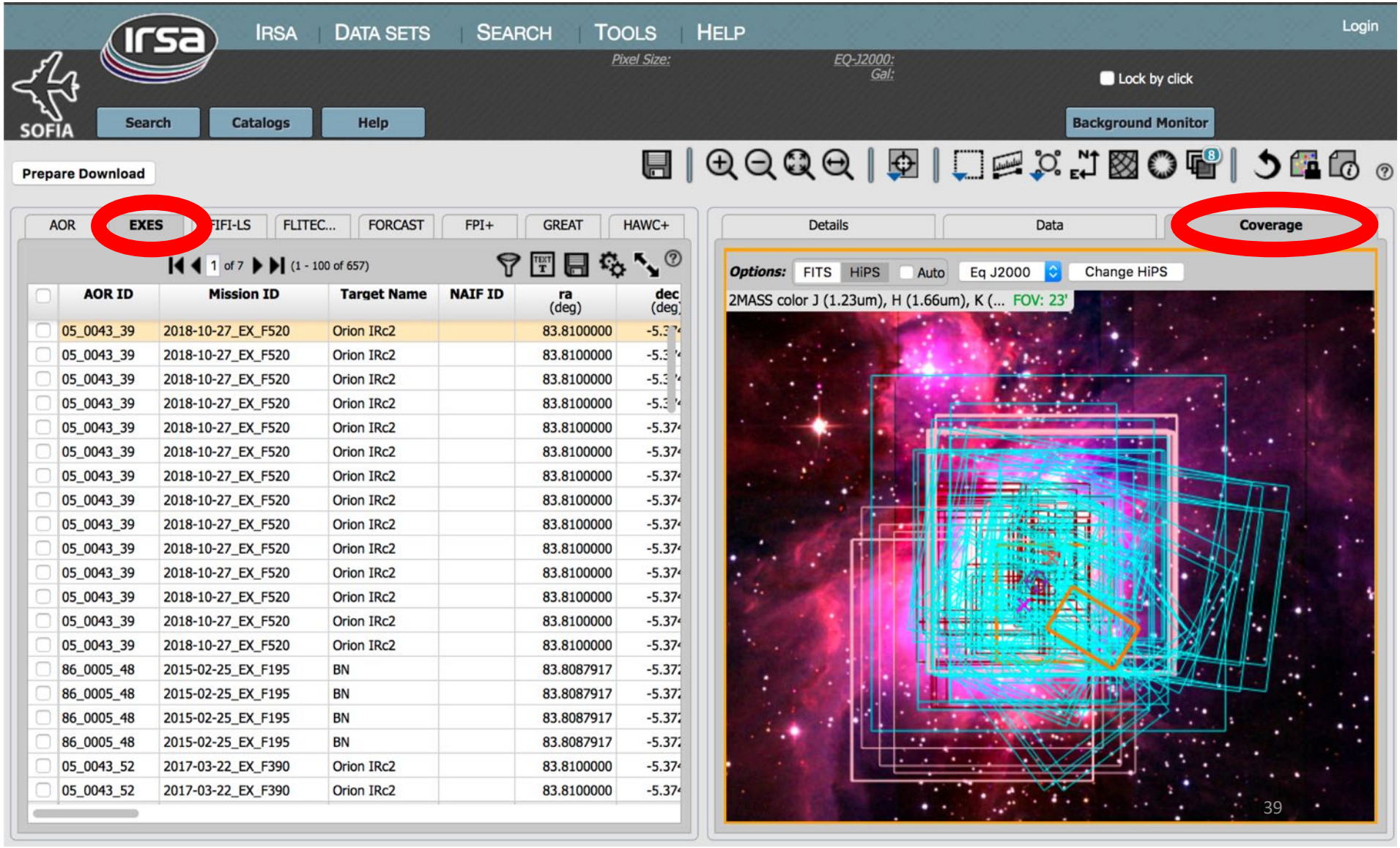
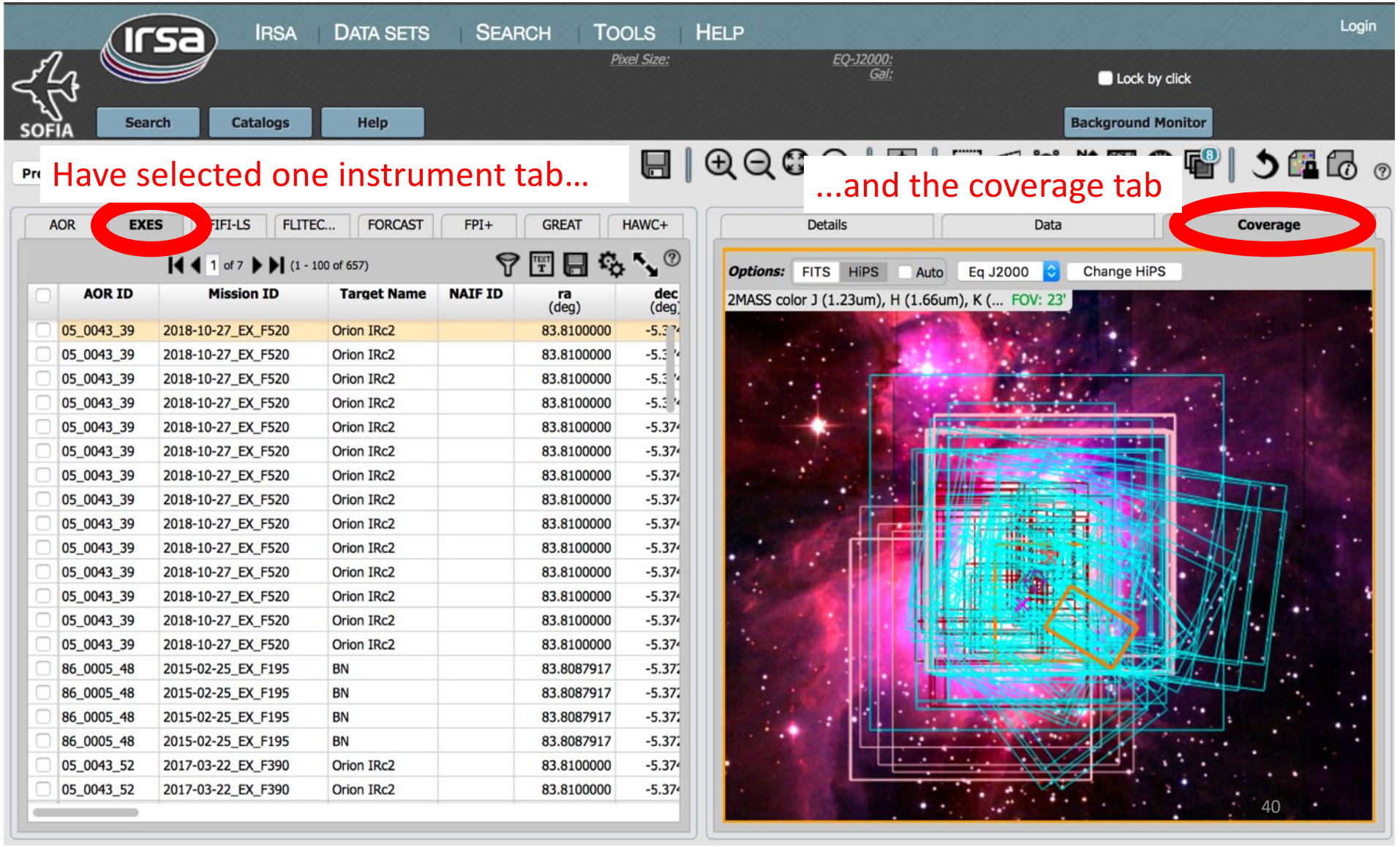
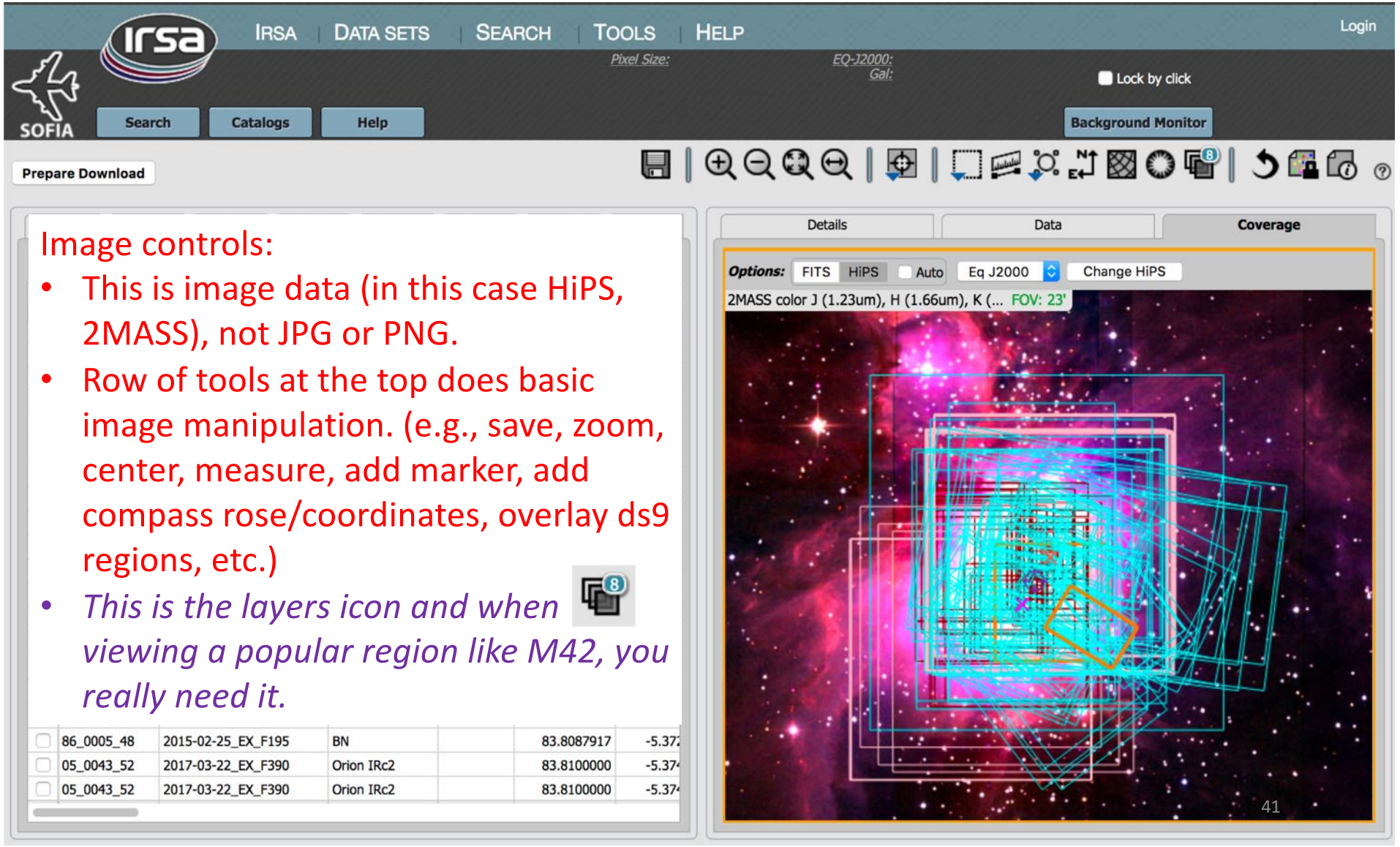


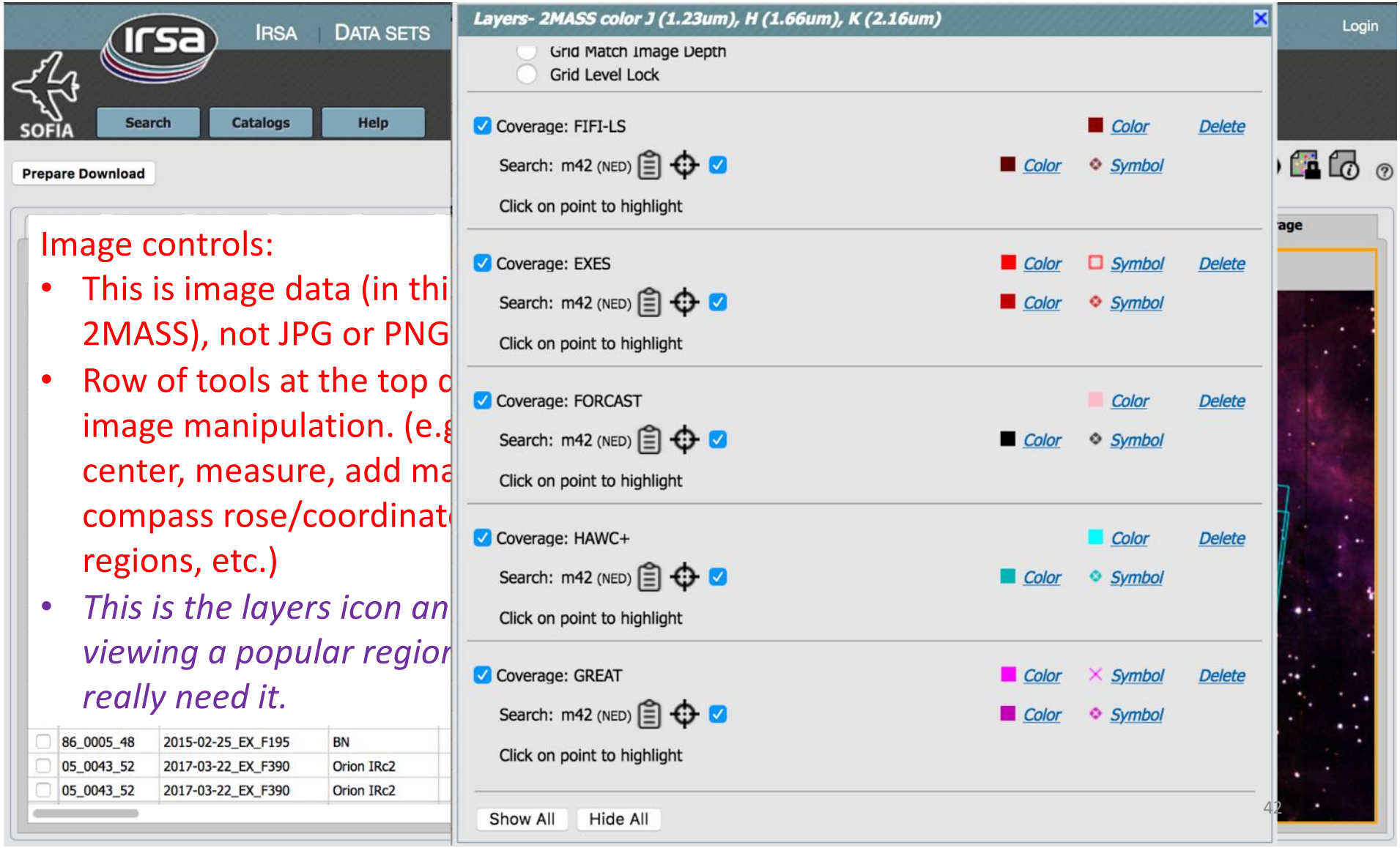
Table controls:

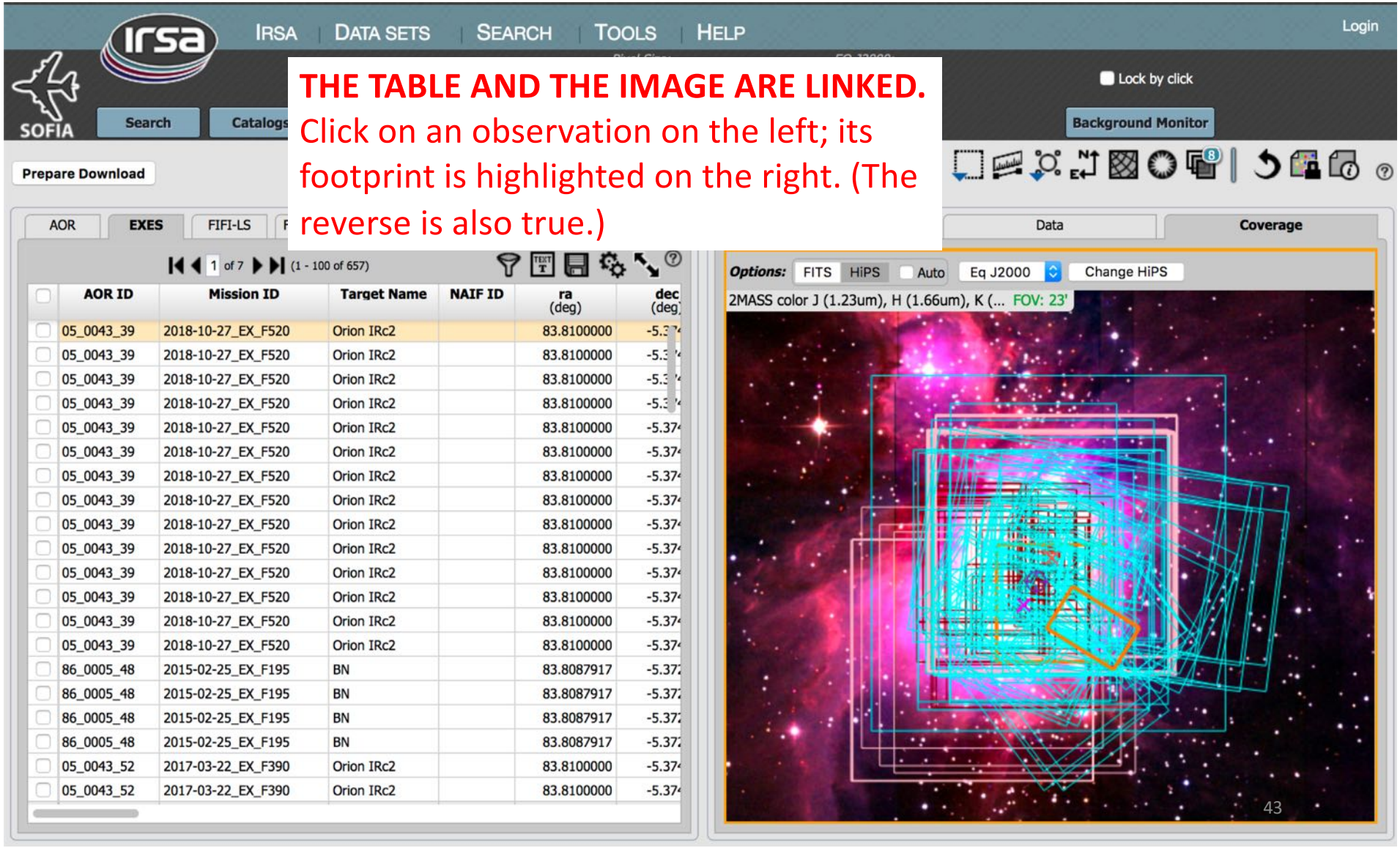
- Earlier/later among pages of results (100 obs per page, so here only one page)
- Filter (e.g., limit to only one instrument)
- Change view to ASCII
- Save table as IPAC tbl file
- Change table options (turn off/on columns, impose filters)
- Make this window pane take up the whole browser window
- Help


IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Pixel Size:
EQ-J2000:
Gal:
Lock by click
Search
Catalogs
Help
Background Monitor
Prepare Download
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
1 of 7
(1 - 100 of 657)
AOR ID
Mission ID
Target Name
NAIF ID
ra (deg)
dec (deg)
05_0043_39 2018-10-27_EX_F520 Orion IRc2 83.8100000 -5.37
86_0005_48 2015-02-25_EX_F195 BN 83.8087917 -5.37
05_0043_52 2017-03-22_EX_F390 Orion IRc2 83.8100000 -5.37
05_0043_52 2017-03-22_EX_F390 Orion IRc2 83.8100000 -5.37
Details
Data
Coverage
Options:
FITS
HiPS
Auto
Eq J2000
Change HiPS
2MASS color J (1.23um), H (1.66um), K (...
FOV: 23'


IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
Pixel Size:
EQ-J2000:
Gal:
Lock by click
SOFIA
Search
Catalogs
Help
Background Monitor
Have selected one instrument tab…
...and the coverage tab
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
1 of 7
(1 - 100 of 657)
AOR ID
Mission ID
Target Name
NAIF ID
ra (deg)
dec (deg)
05_0043_39 2018-10-27_EX_F520 Orion IRc2 83.8100000
86_0005_48 2015-02-25_EX_F195 BN 83.8087917
05_0043_52 2017-03-22_EX_F390 Orion IRc2 83.8100000
Details
Data
Coverage
Options:
FITS
HiPS
Auto
Eq J2000
Change HiPS
2MASS color J (1.23um), H (1.66um), K (...
FOV: 23'
40

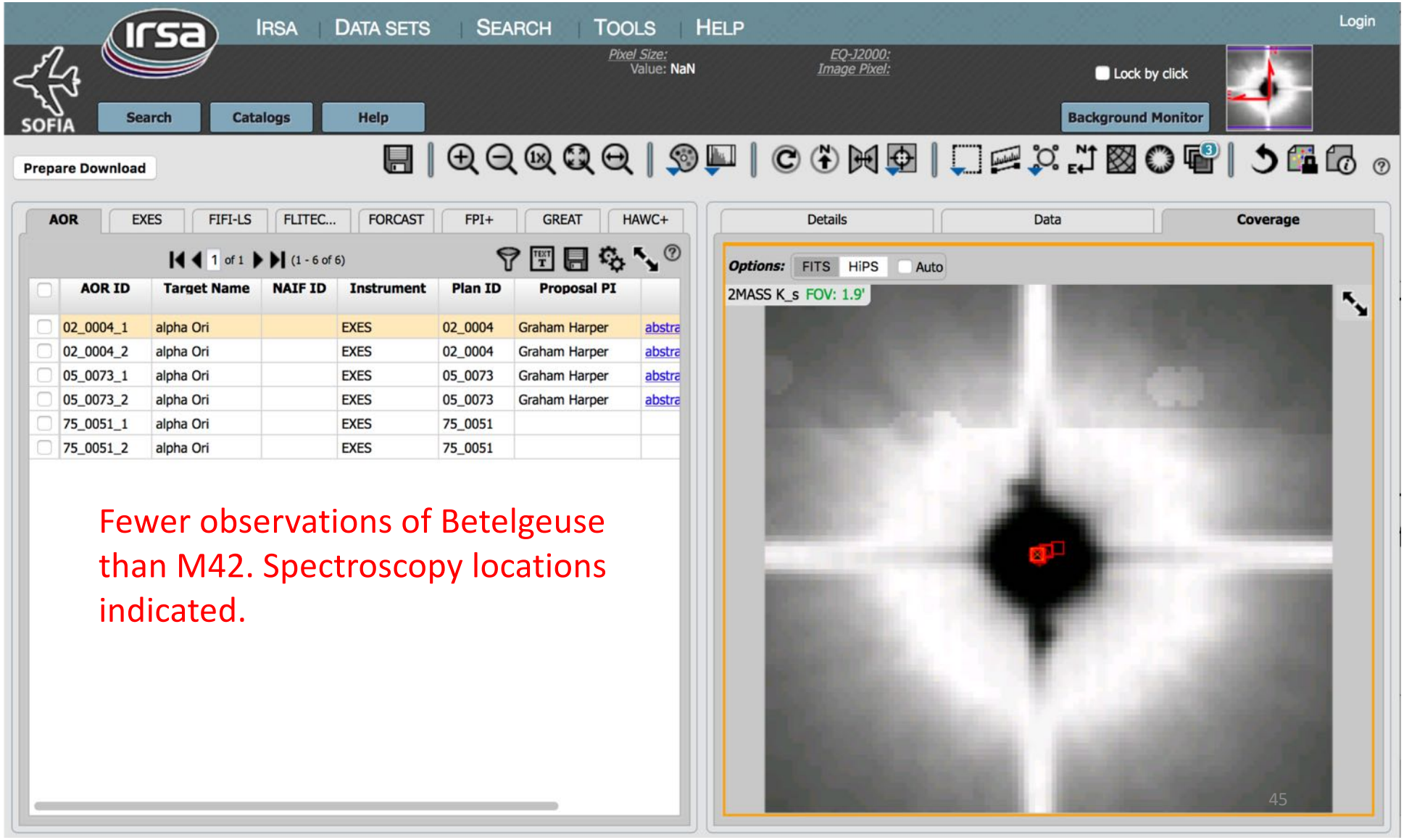

IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
Pixel Size:
EQ-J2000:
Gal:
Lock by click
SOFIA
Search
Catalogs
Help
Background Monitor
Prepare Download
Image controls:
• This is image data (in this case HiPS, 2MASS), not JPG or PNG.
• Row of tools at the top does basic image manipulation. (e.g., save, zoom, center, measure, add marker, add compass rose/coordinates, overlay ds9 regions, etc.)
• This is the layers icon and when viewing a popular region like M42, you really need it.
86_0005_48 2015-02-25_EX_F195 BN 83.8087917
05_0043_52 2017-03-22_EX_F390 Orion IRc2 83.8100000
05_0043_52 2017-03-22_EX_F390 Orion IRc2 83.8100000
Details
Data
Coverage
Options:
FITS
HiPS
Auto
Eq J2000
Change HiPS
2MASS color J (1.23um), H (1.66um), K (...
FOV: 23'

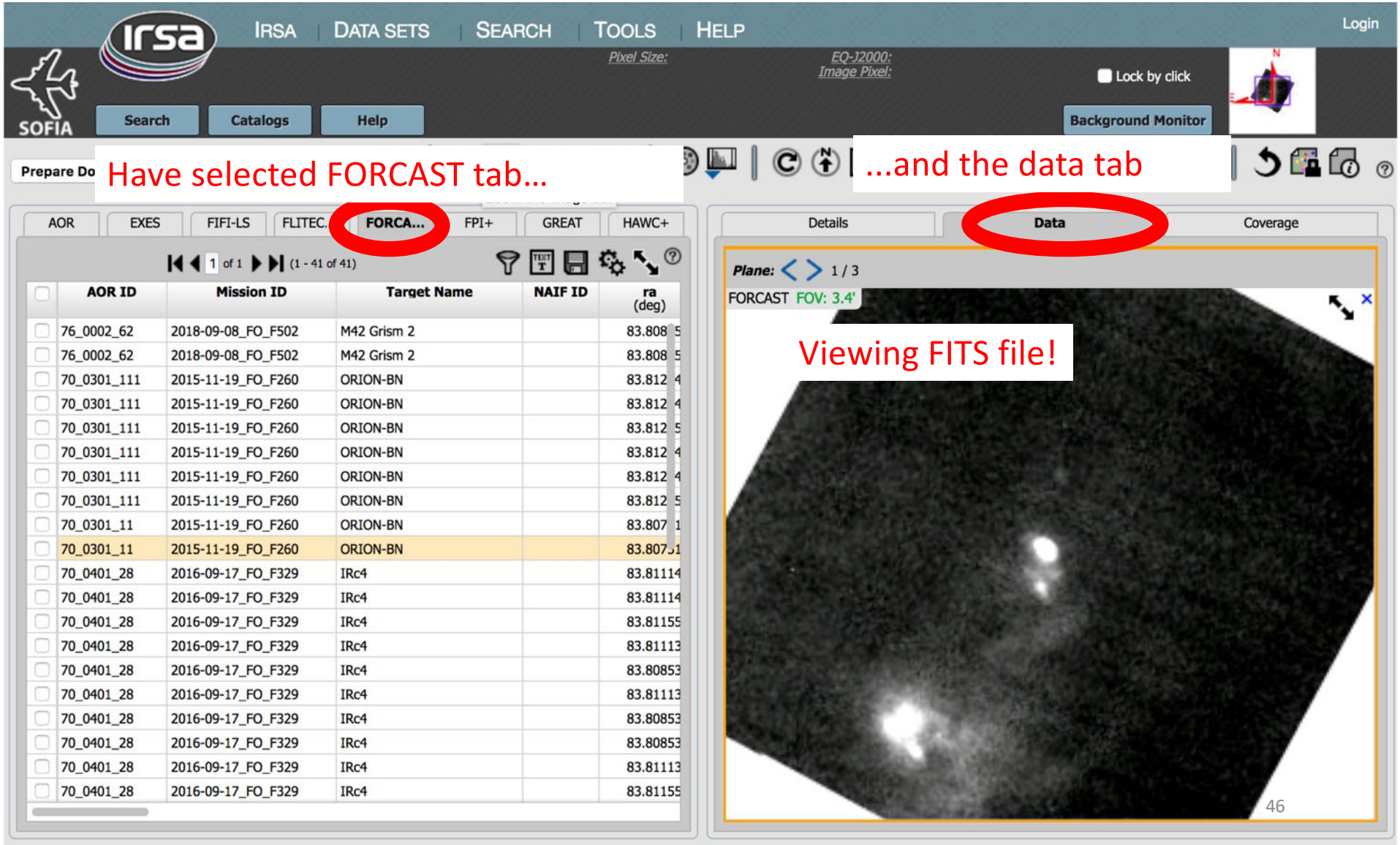

IRSA | DATA SETS
SOFIA
Search
Catalogs
Help
Prepare Download
Image controls:
• This is image data (in thi
2MASS), not JPG or PNG
• Row of tools at the top c
image manipulation. (e.g
center, measure, add ma
compass rose/coordinat
regions, etc.)
• This is the layers icon an
viewing a popular regior
really need it.
86_0005_48 2015-02-25_EX_F195 BN
05_0043_52 2017-03-22_EX_F390 Orion IRc2
05_0043_52 2017-03-22_EX_F390 Orion IRc2
Layers- 2MASS color J (1.23um), H (1.66um), K (2.16um)
Grid Match Image Depth
Grid Level Lock
Coverage: FIFI-LS
Color
Delete
Search: m42 (NED)
Color
Symbol
Click on point to highlight
Coverage: EXES
Color
Symbol
Delete
Search: m42 (NED)
Color
Symbol
Click on point to highlight
Coverage: FORCAST
Color
Delete
Search: m42 (NED)
Color
Symbol
Click on point to highlight
Coverage: HAWC+
Color
Delete
Search: m42 (NED)
Color
Symbol
Click on point to highlight
Coverage: GREAT
Color
Symbol
Delete
Search: m42 (NED)
Color
Symbol
Click on point to highlight
Show All
Hide All
Login

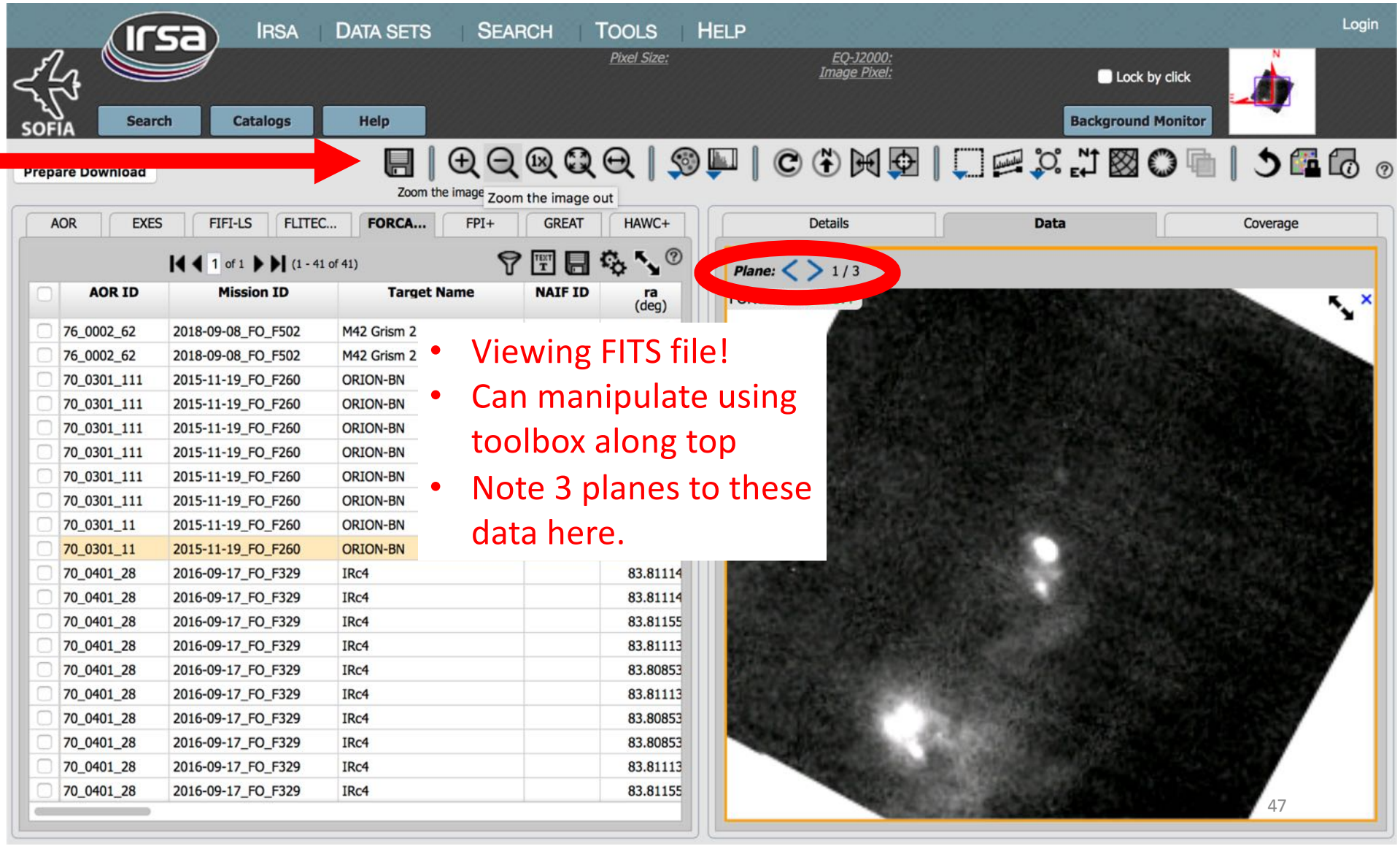

IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Search
Catalogs
Lock by click
Background Monitor
Prepare Download
THE TABLE AND THE IMAGE ARE LINKED.
Click on an observation on the left; its footprint is highlighted on the right. (The reverse is also true.)
AOR
EXES
FIFI-LS
Data
Coverage
1 of 7
(1 - 100 of 657)
AOR ID
Mission ID
Target Name
NAIF ID
ra (deg)
dec (deg)
05_0043_39 2018-10-27_EX_F520 Orion IRc2 83.8100000
86_0005_48 2015-02-25_EX_F195 BN 83.8087917
05_0043_52 2017-03-22_EX_F390 Orion IRc2 83.8100000
Options:
FITS
HiPS
Auto
Eq J2000
Change HiPS
2MASS color J (1.23um), H (1.66um), K (...
FOV: 23'
43

Taking advantage of this

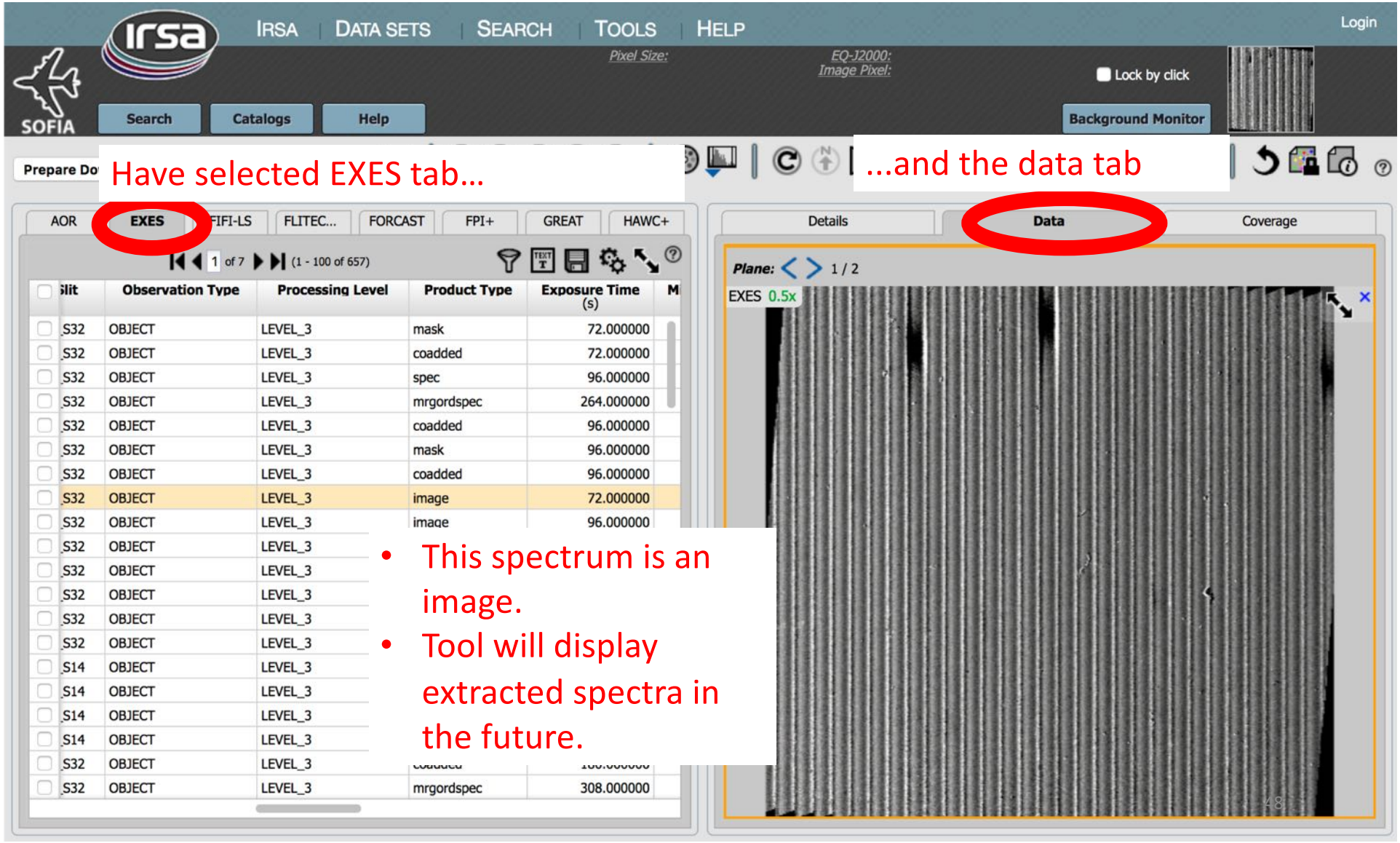
- The whole point is to give you ability to investigate observations that you may want.
  - Did it really cover the region you care about?
  - Are there other observations nearby?
- In a region where there are this many observations, it's overwhelming. May want to use layers pop-up to turn off footprints for all instruments other than the one you have selected on the left (in this case, EXES).
- Next slide has search results from a target with fewer observations: Betelgeuse.

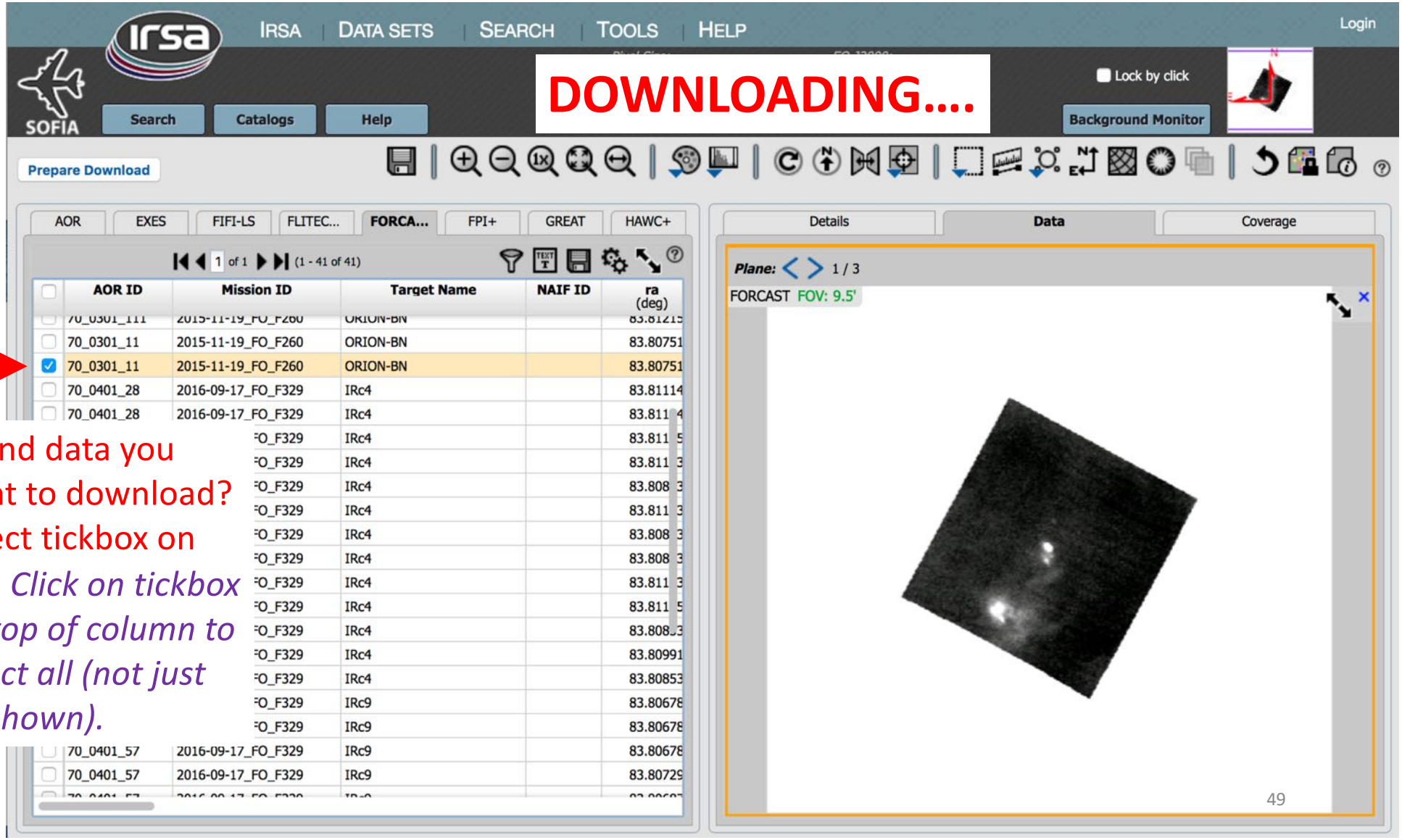

IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Search
Catalogs
Help
Pixel Size:
Value: NaN
EQ-J2000:
Image Pixel:
Lock by click
Background Monitor
Prepare Download
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
1 of 1
(1 - 6 of 6)
AOR ID
Target Name
NAIF ID
Instrument
Plan ID
Proposal PI
02_0004_1 alpha Ori EXES 02_0004 Graham Harper
02_0004_2 alpha Ori EXES 02_0004 Graham Harper
05_0073_1 alpha Ori EXES 05_0073 Graham Harper
05_0073_2 alpha Ori EXES 05_0073 Graham Harper
75_0051_1 alpha Ori EXES 75_0051
75_0051_2 alpha Ori EXES 75_0051
Fewer observations of Betelgeuse than M42. Spectroscopy locations indicated.
Details
Data
Coverage
Options:
FITS
HiPS
Auto
2MASS K_s FOV: 1.9'
45


IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
Pixel Size:
EQ-J2000:
Image Pixel:
Lock by click
SOFIA
Search
Catalogs
Help
Background Monitor
Prepare Do
Have selected FORCAST tab…
...and the data tab
AOR
EXES
FIFI-LS
FLITEC.
FORCA...
FPI+
GREAT
HAWC+
1 of 1
(1 - 41 of 41)
AOR ID
Mission ID
Target Name
NAIF ID
ra (deg)
76_0002_62 2018-09-08_FO_F502 M42 Grism 2 83.808
76_0002_62 2018-09-08_FO_F502 M42 Grism 2 83.808
70_0301_111 2015-11-19_FO_F260 ORION-BN 83.812
70_0301_111 2015-11-19_FO_F260 ORION-BN 83.812
70_0301_111 2015-11-19_FO_F260 ORION-BN 83.812
70_0301_111 2015-11-19_FO_F260 ORION-BN 83.812
70_0301_111 2015-11-19_FO_F260 ORION-BN 83.812
70_0301_111 2015-11-19_FO_F260 ORION-BN 83.812
70_0301_11 2015-11-19_FO_F260 ORION-BN 83.807
70_0301_11 2015-11-19_FO_F260 ORION-BN 83.807
70_0401_28 2016-09-17_FO_F329 IRc4 83.81114
70_0401_28 2016-09-17_FO_F329 IRc4 83.81114
70_0401_28 2016-09-17_FO_F329 IRc4 83.81155
70_0401_28 2016-09-17_FO_F329 IRc4 83.81113
70_0401_28 2016-09-17_FO_F329 IRc4 83.80853
70_0401_28 2016-09-17_FO_F329 IRc4 83.81113
70_0401_28 2016-09-17_FO_F329 IRc4 83.80853
70_0401_28 2016-09-17_FO_F329 IRc4 83.80853
70_0401_28 2016-09-17_FO_F329 IRc4 83.81113
70_0401_28 2016-09-17_FO_F329 IRc4 83.81155
Details
Data
Coverage
Plane: 1 / 3
FORCAST FOV: 3.4'
Viewing FITS file!



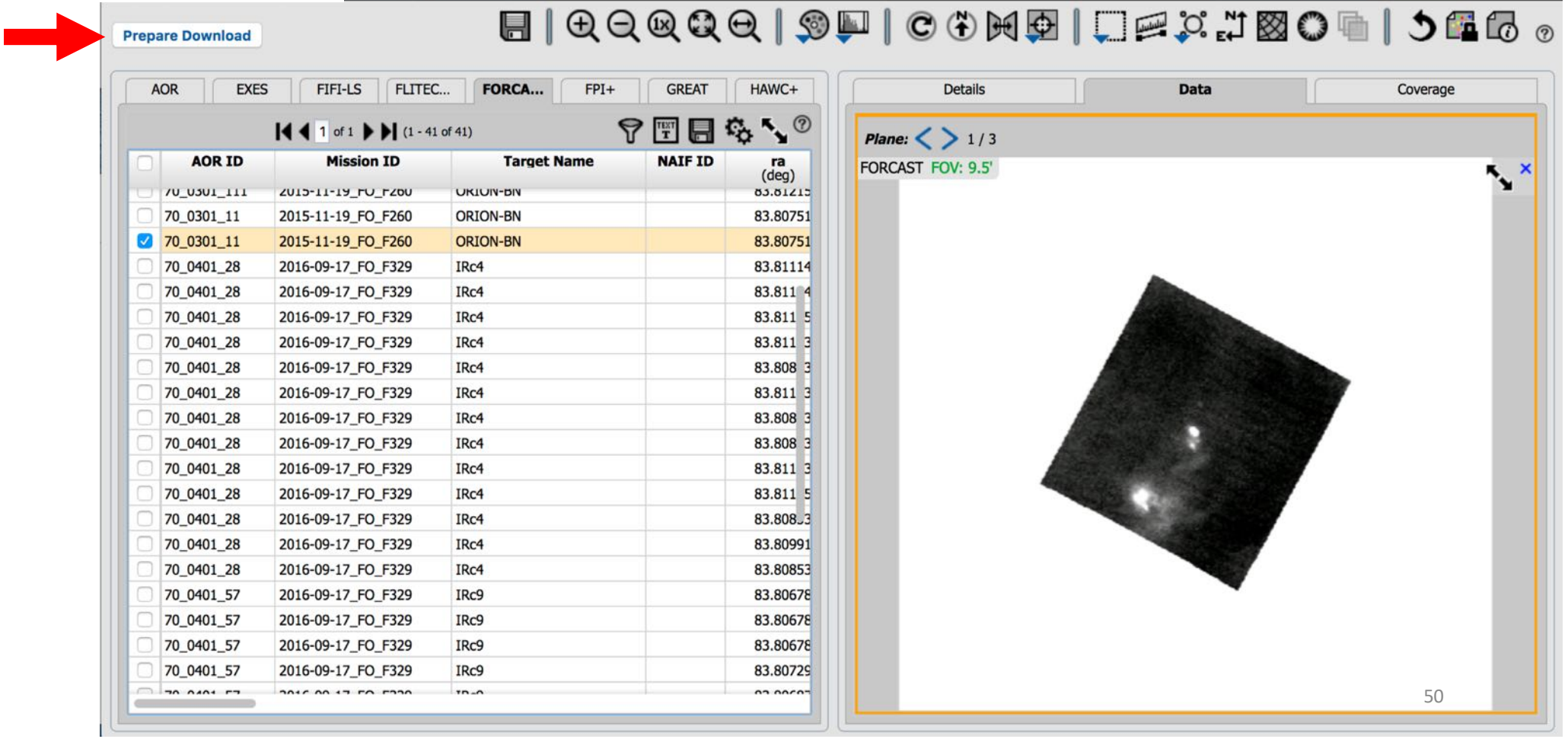
- Viewing FITS file!
- Can manipulate using toolbox along top
- Note 3 planes to these data here.

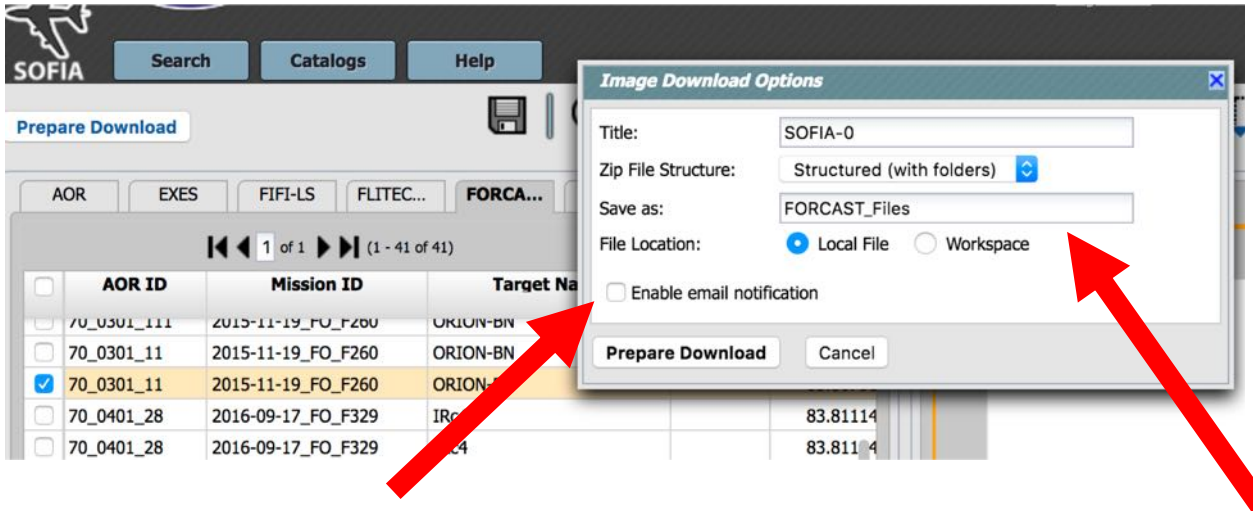

IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
Pixel Size:
EQ-J2000:
Image Pixel:
Lock by click
SOFIA
Search
Catalogs
Help
Background Monitor
Prepare Do
Have selected EXES tab…
...and the data tab
AOR
EXES
FIFI-LS
FLITEC...
FORCAST
FPI+
GREAT
HAWC+
1 of 7
(1 - 100 of 657)
Details
Data
Coverage
Plane:
1 / 2
EXES 0.5x
Observation Type
Processing Level
Product Type
Exposure Time (s)
S32 OBJECT LEVEL_3 mask 72.000000
S32 OBJECT LEVEL_3 coadded 72.000000
S32 OBJECT LEVEL_3 spec 96.000000
S32 OBJECT LEVEL_3 mrgordspec 264.000000
S32 OBJECT LEVEL_3 coadded 96.000000
S32 OBJECT LEVEL_3 mask 96.000000
S32 OBJECT LEVEL_3 coadded 96.000000
S32 OBJECT LEVEL_3 image 72.000000
S32 OBJECT LEVEL_3 image 96.000000
S32 OBJECT LEVEL_3
S32 OBJECT LEVEL_3
S32 OBJECT LEVEL_3
S32 OBJECT LEVEL_3
S32 OBJECT LEVEL_3
S14 OBJECT LEVEL_3
S14 OBJECT LEVEL_3
S14 OBJECT LEVEL_3
S14 OBJECT LEVEL_3
S32 OBJECT LEVEL_3
S32 OBJECT LEVEL_3 mrgordspec 308.000000
• This spectrum is an image.
• Tool will display extracted spectra in the future.



Found data you want to download? Select tickbox on left. *Click on tickbox on top of column to select all (not just all shown).*

Click on ‘Prepare Download’





If you turn on email notification, it will:

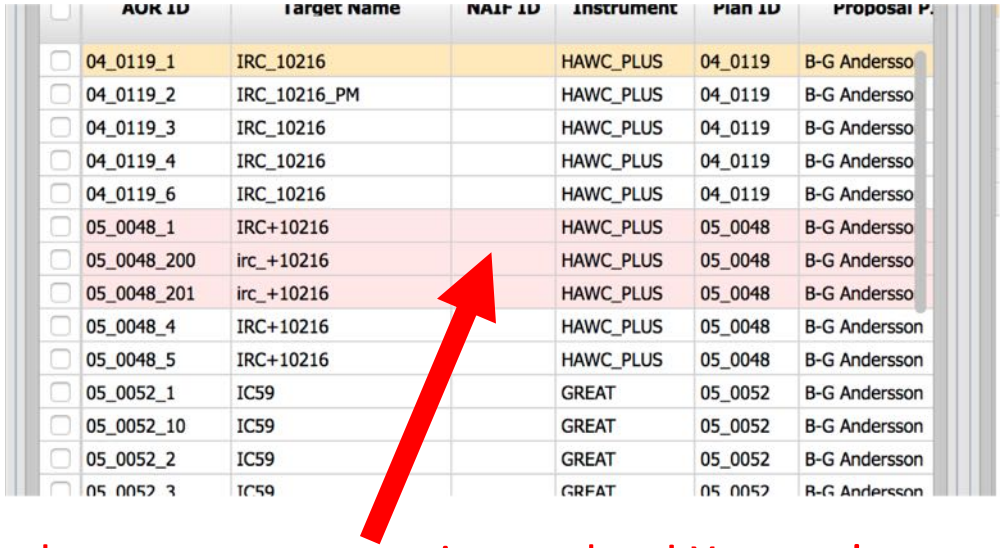
- Let you know when it is done.
- Send you an email that also has a script to use to download all the pieces.

This matters more when you have huge downloads.

Your computer should know what to do with zip files; if working from the command line, it needs to have the wild card escaped: `unzip \*.zip`

- "Title" just refers to how it is tracked through the background monitor. Doesn't matter so much for small downloads.
- Zip file structure means bundled into subdirectories (folders) by observation or a flat file structure.
- "Save as" is the filename it uses.
- Save to your disk or the IRSA Workspace (you need to be logged in).

It saves the files wherever your browser is configured to save files!



AOR ID	Target Name	NAIF ID	Instrument	Plan ID	Proposal P.
04_0119_1	IRC_10216		HAWC_PLUS	04_0119	B-G Andersso
04_0119_2	IRC_10216_PM		HAWC_PLUS	04_0119	B-G Andersso
04_0119_3	IRC_10216		HAWC_PLUS	04_0119	B-G Andersso
04_0119_4	IRC_10216		HAWC_PLUS	04_0119	B-G Andersso
04_0119_6	IRC_10216		HAWC_PLUS	04_0119	B-G Andersso
05_0048_1	IRC+10216		HAWC_PLUS	05_0048	B-G Andersso
05_0048_200	irc_+10216		HAWC_PLUS	05_0048	B-G Andersso
05_0048_201	irc_+10216		HAWC_PLUS	05_0048	B-G Andersso
05_0048_4	IRC+10216		HAWC_PLUS	05_0048	B-G Andersson
05_0048_5	IRC+10216		HAWC_PLUS	05_0048	B-G Andersson
05_0052_1	IC59		GREAT	05_0052	B-G Andersson
05_0052_10	IC59		GREAT	05_0052	B-G Andersson
05_0052_2	IC59		GREAT	05_0052	B-G Andersson
05_0052_3	IC59		GREAT	05_0052	B-G Andersson

Red rows means proprietary data! You can't even preview those data unless you are logged in and have legitimate access to those observations.

More advanced tips and tricks

- Many important caveats in the online help. Highlights:
  - Some columns aren't populated:
    - Things that aren't moving targets don't have a NAIF(*) id.
    - Calibration observations or products of many combined observations often don't have a PI.
  - Some files won't appear or visualize:
    - All data levels not found in all instruments.
    - Extracted spectra can be rendered as images.
    - GREAT Level 3 or 4 are tar files and cannot be visualized.
- Doing lots of subsequent searches? Everything on the search page is 'AND'ed together. Be sure you don't accidently leave a parameter set.

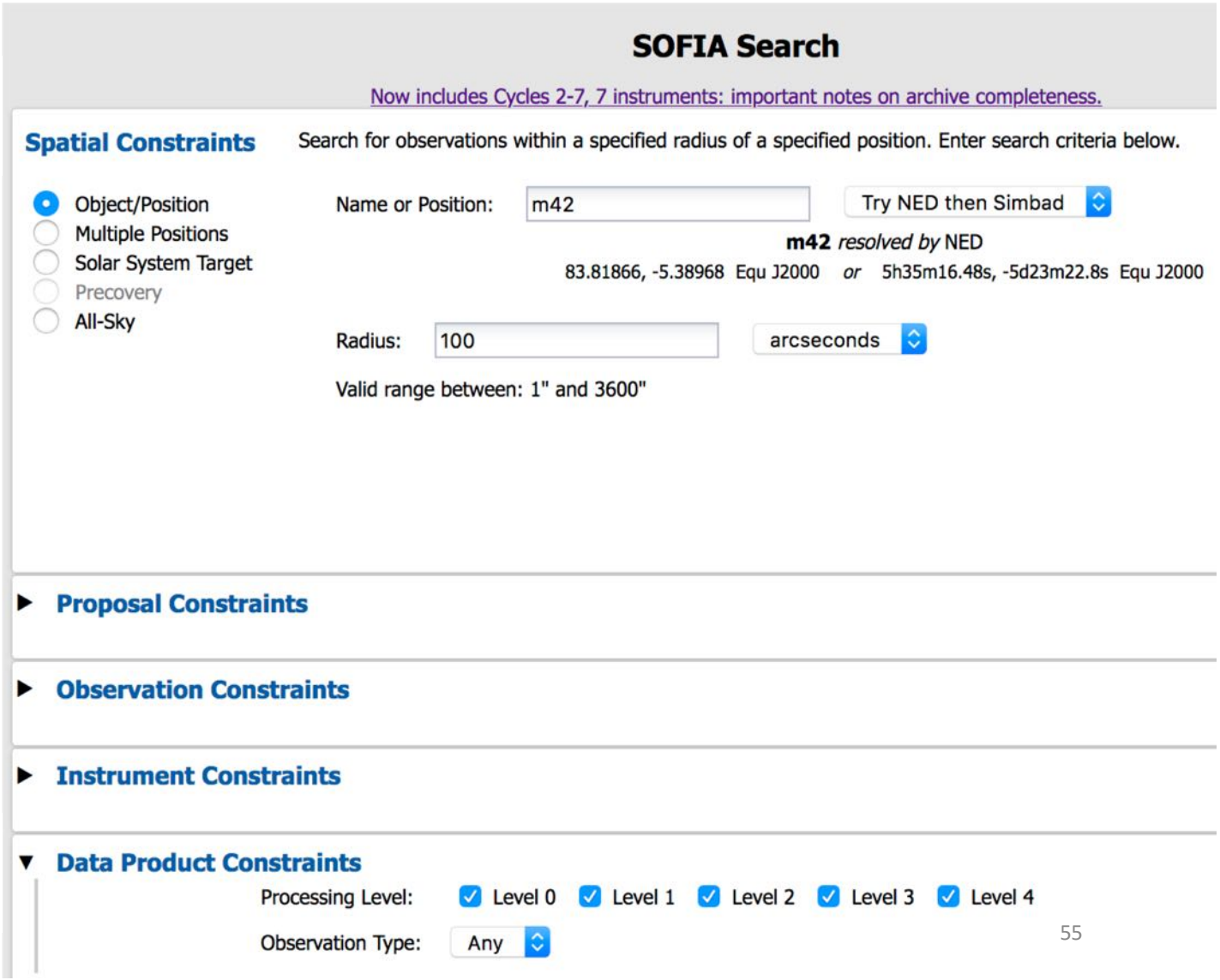
(*) NAIF = NASA's Navigation and Ancillary Information Facility

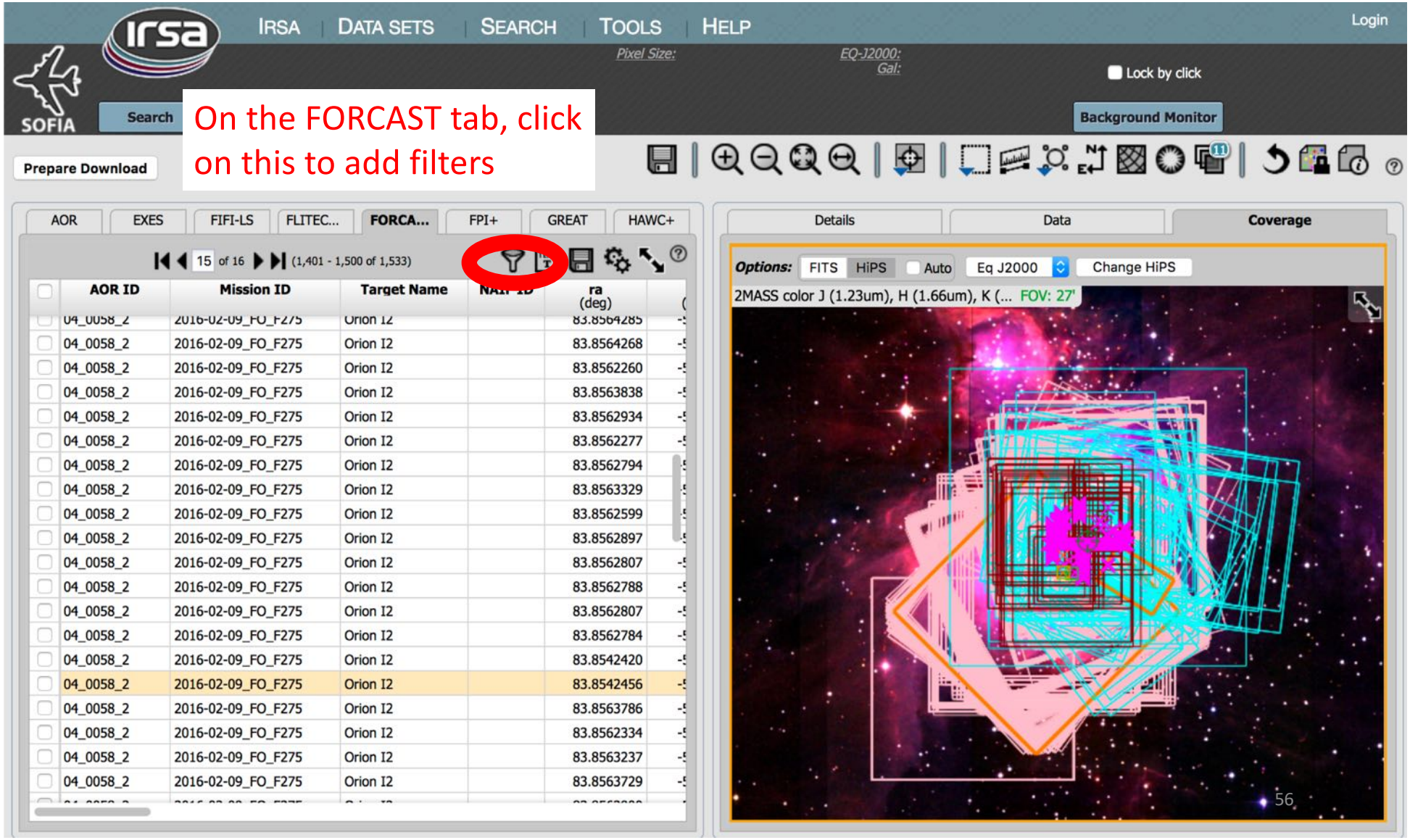
More advanced tips and tricks

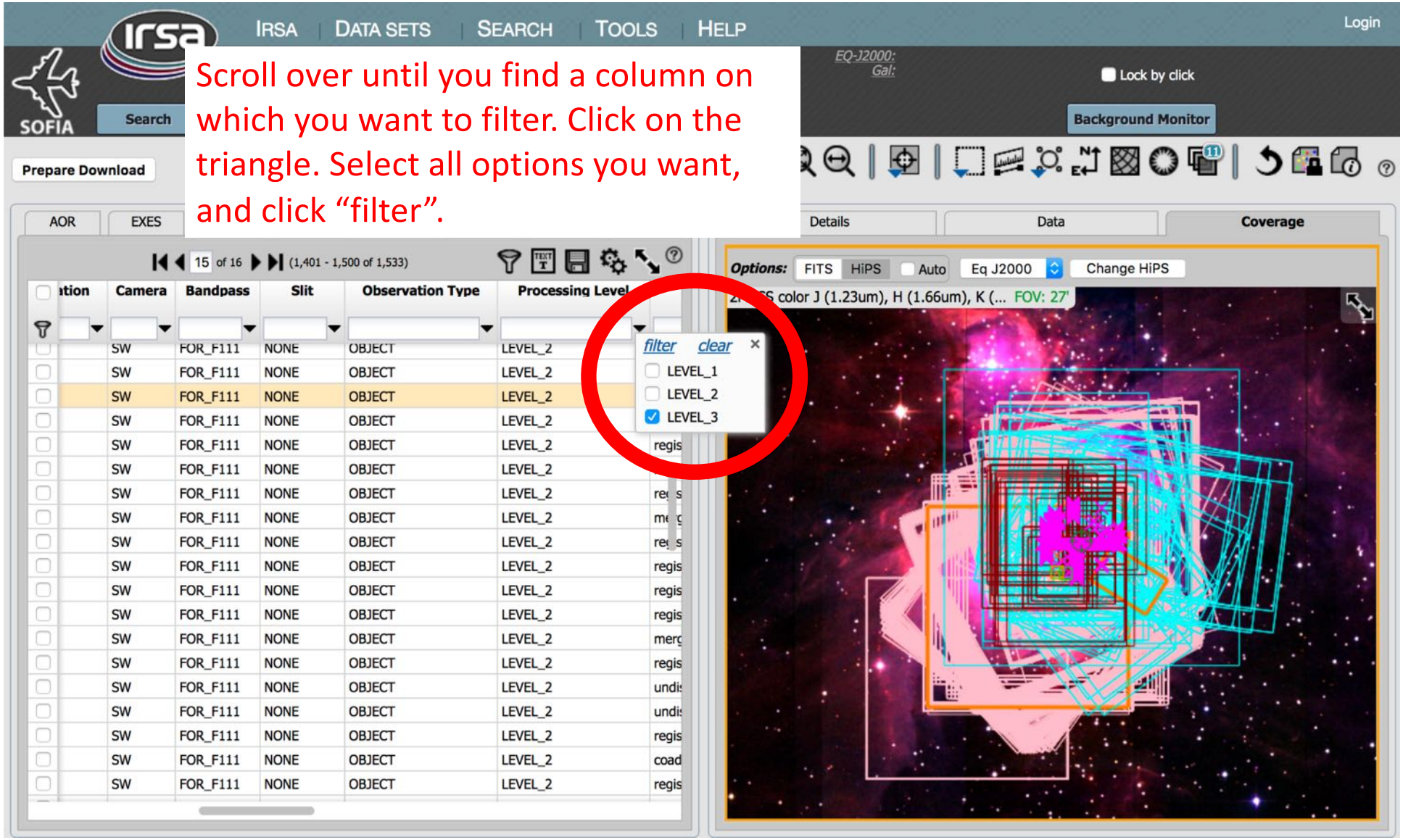
- Filtering columns
  - Powerful for weeding down long lists.
  - Can filter on free-form text or from set of options.

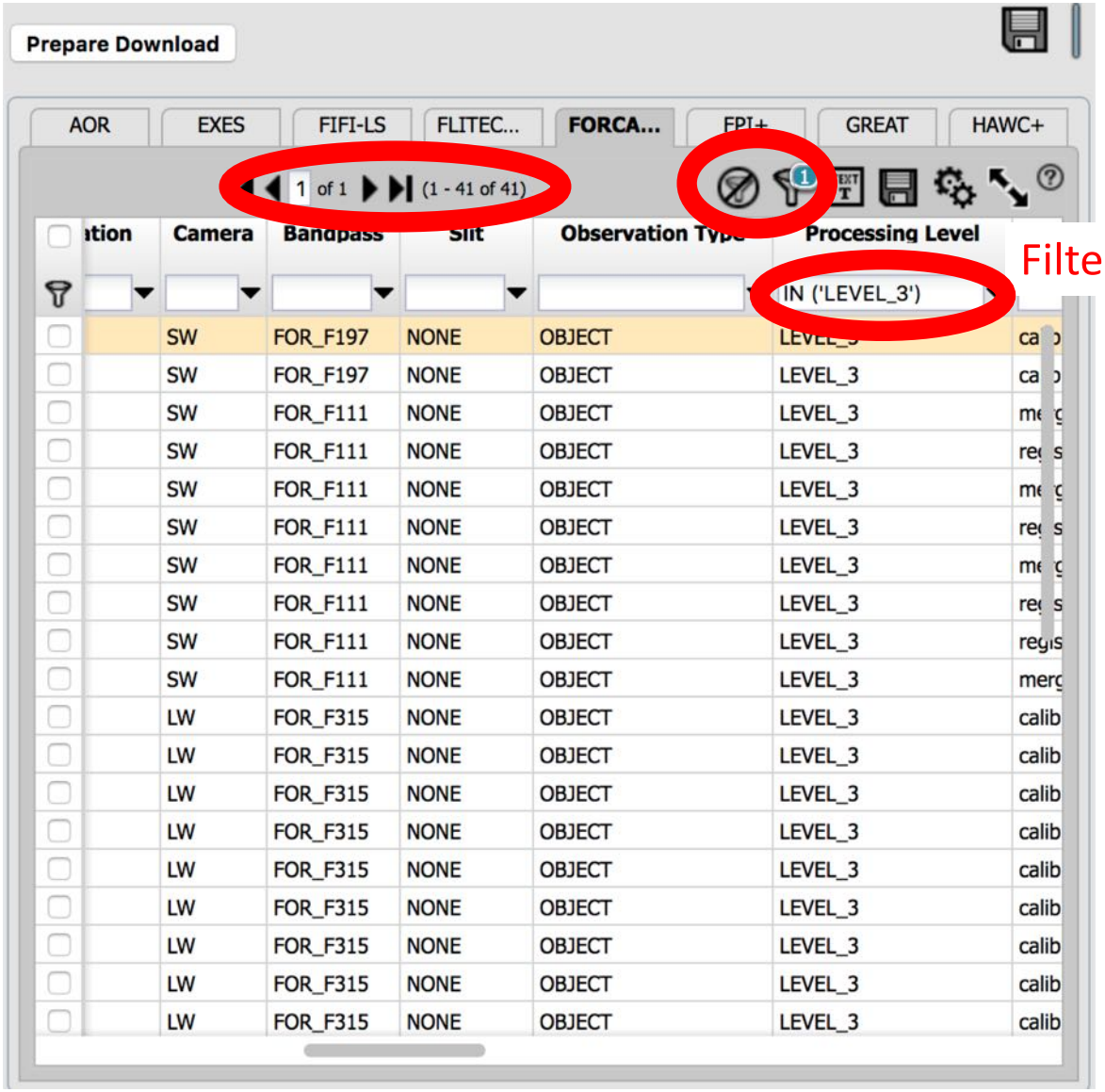
Starting from another search on M42…

…this time asking for **all** data.



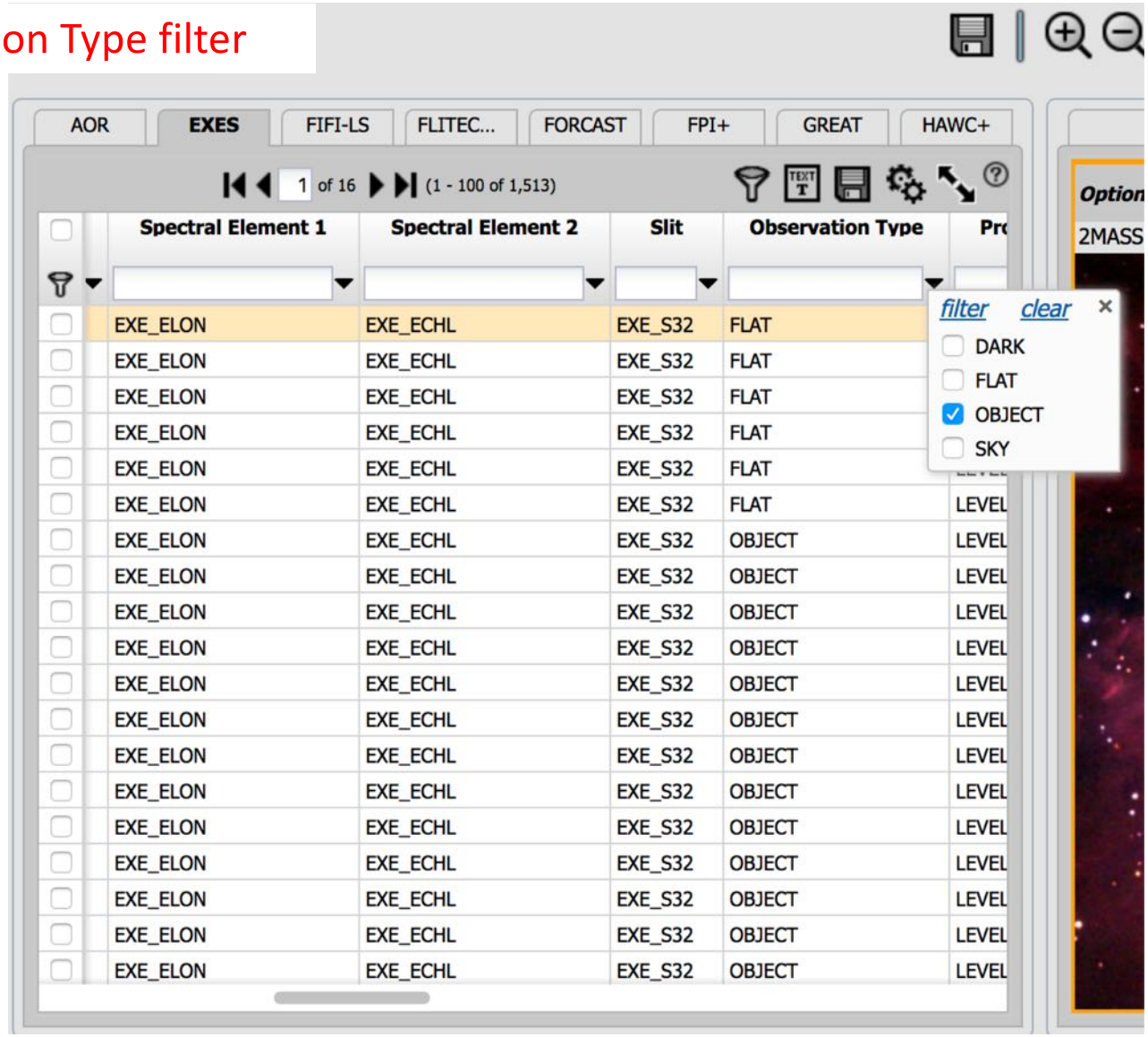

IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Search
Pixel Size:
EQ-J2000:
Gal:
Lock by click
Background Monitor
Prepare Download
On the FORCAST tab, click on this to add filters
AOR
EXES
FIFI-LS
FLITEC...
FORCA...
FPI+
GREAT
HAWC+
15 of 16
(1,401 - 1,500 of 1,533)
AOR ID
Mission ID
Target Name
ra (deg)
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8564268
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562260
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8563838
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562934
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562277
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562794
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8563329
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562599
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562897
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562807
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562788
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562807
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562784
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8542420
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8542456
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8563786
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8562334
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8563237
04_0058_2 2016-02-09_FO_F275 Orion I2 83.8563729
Details
Data
Coverage
Options:
FITS
HiPS
Auto
Eq J2000
Change HiPS
2MASS color J (1.23um), H (1.66um), K (...
FOV: 27'

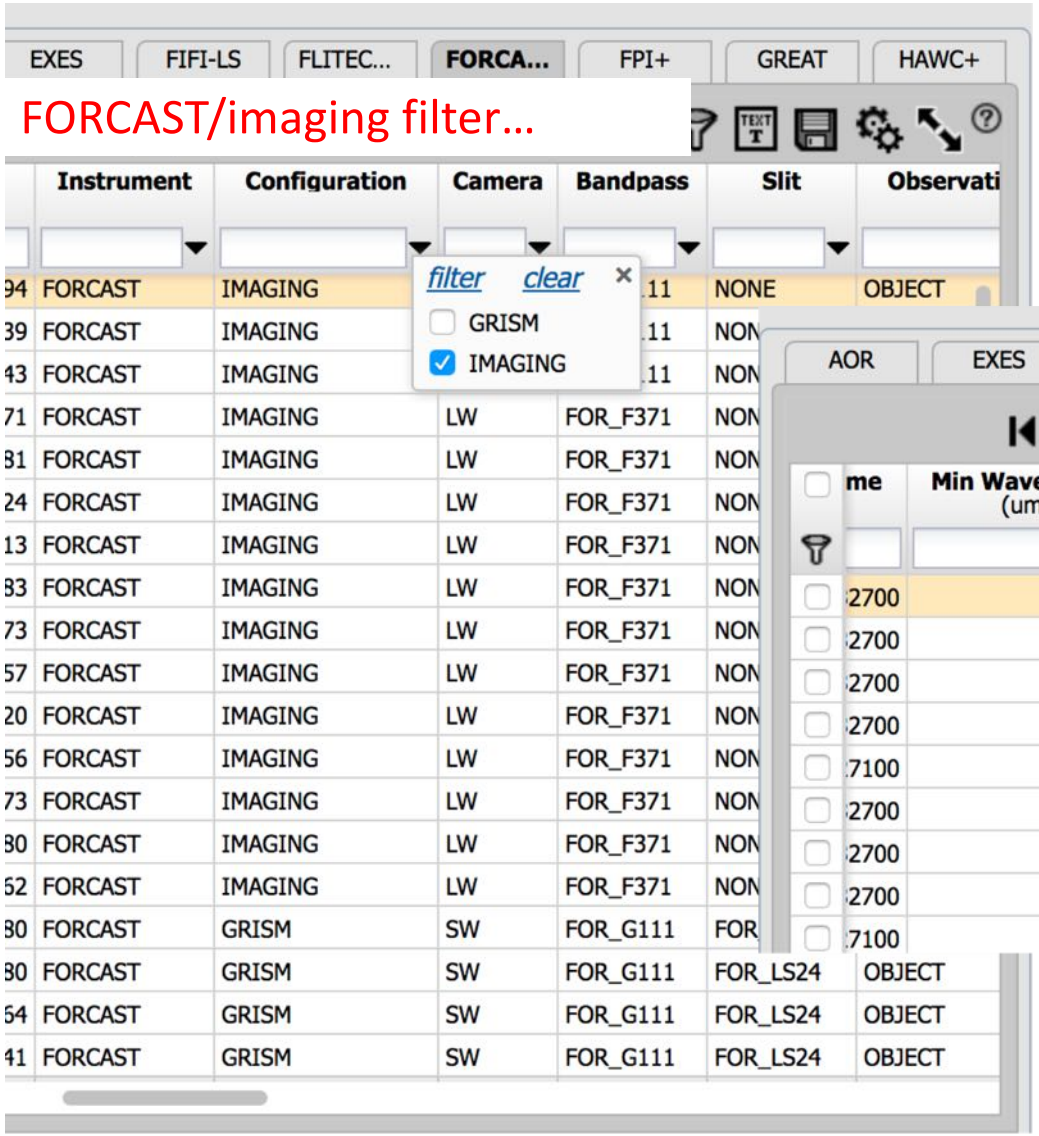

IRSA
DATA SETS
SEARCH
TOOLS
HELP
Login
SOFIA
Search
EQ-J2000:
Gal:
Lock by click
Background Monitor
Prepare Download
Scroll over until you find a column on which you want to filter. Click on the triangle. Select all options you want, and click “filter”.
AOR
EXES
Details
Data
Coverage
15 of 16
(1,401 - 1,500 of 1,533)
Camera
Bandpass
Slit
Observation Type
Processing Level
filter
clear
LEVEL_1
LEVEL_2
LEVEL_3
Options:
FITS
HiPS
Auto
Eq J2000
Change HiPS
FOV: 27'



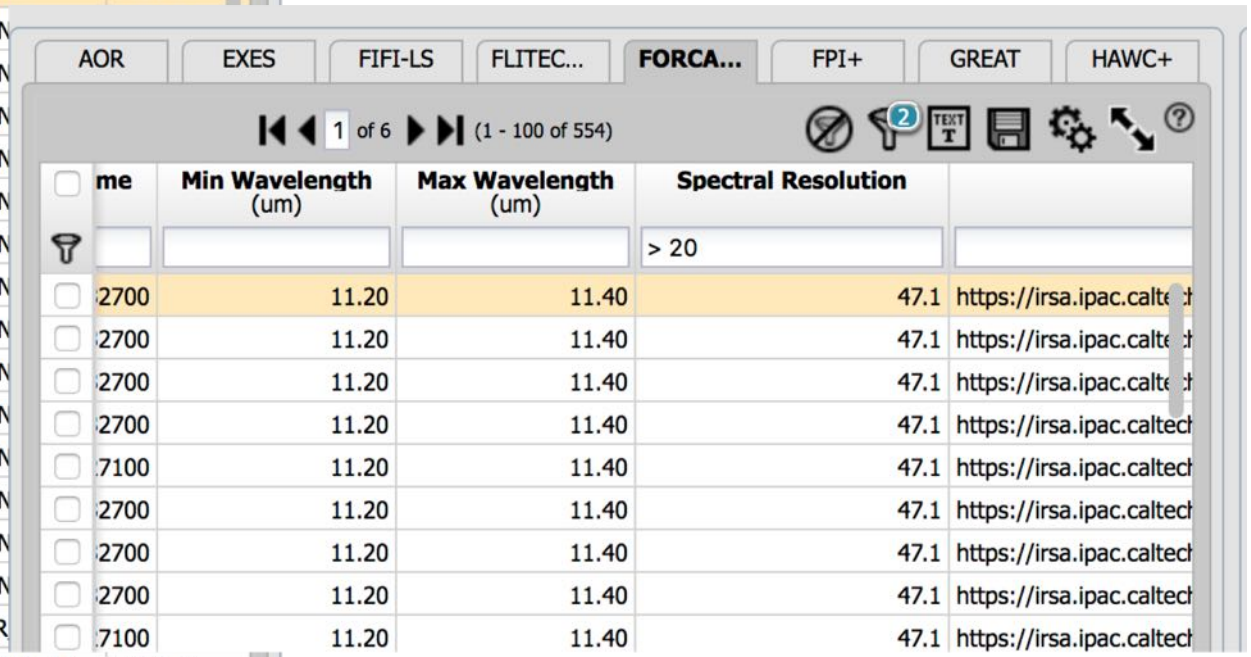
Filter shown

EXES/Observation Type filter





… plus resolution >20…



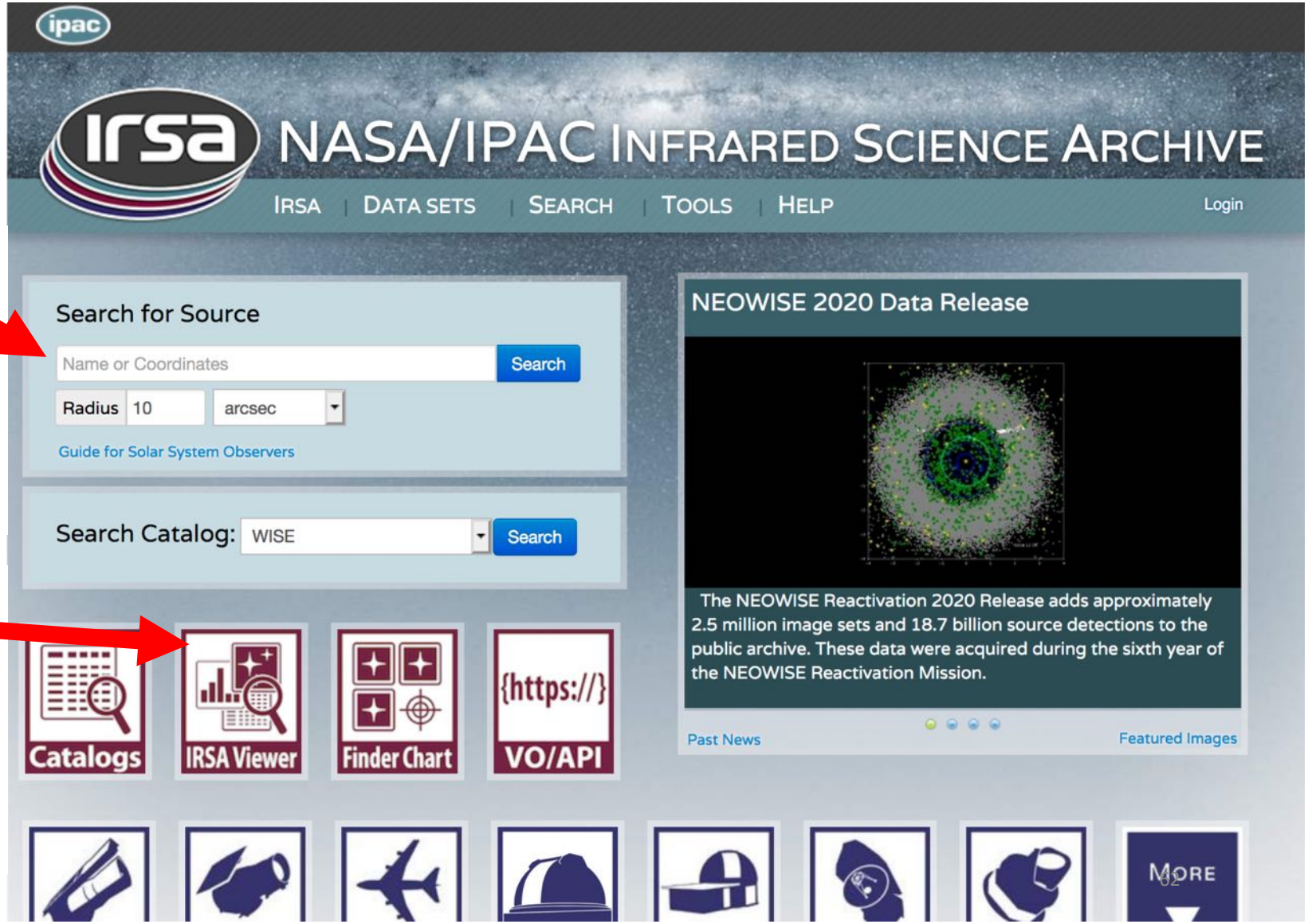
… yields just narrow-band images.

SOFIA in context at IRSA

- One of the main advantages to having the SOFIA archive at IRSA is that it allows you to use IRSA tools and SOFIA data together in context.
- Access other images, catalogs at IRSA.
- Access other images, catalogs worldwide in tools with this look-and-feel.

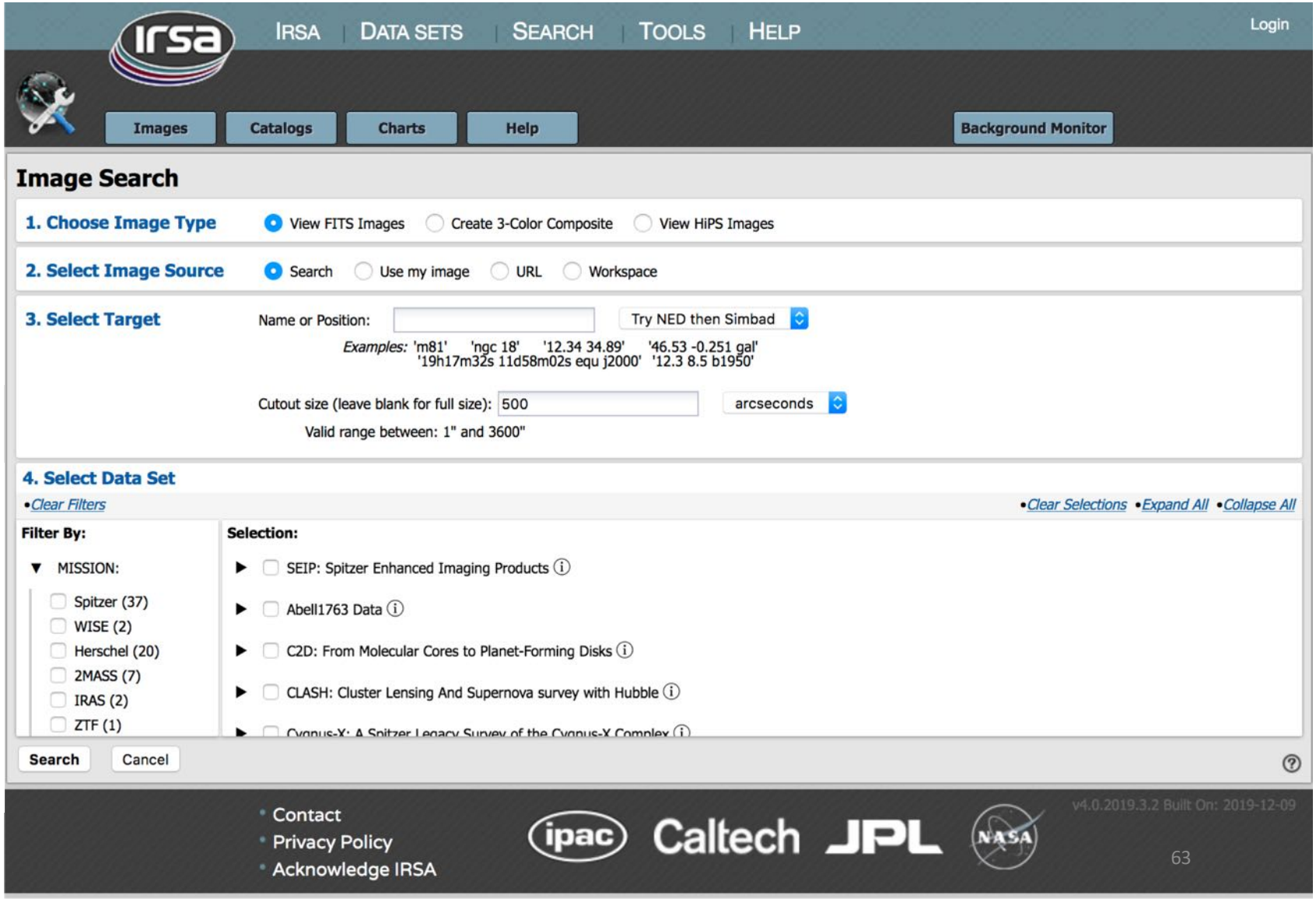
Data Discovery: Tell me everything you can find at IRSA overlapping this position

IRSA Viewer: Tool for comparing data from multiple observatories.

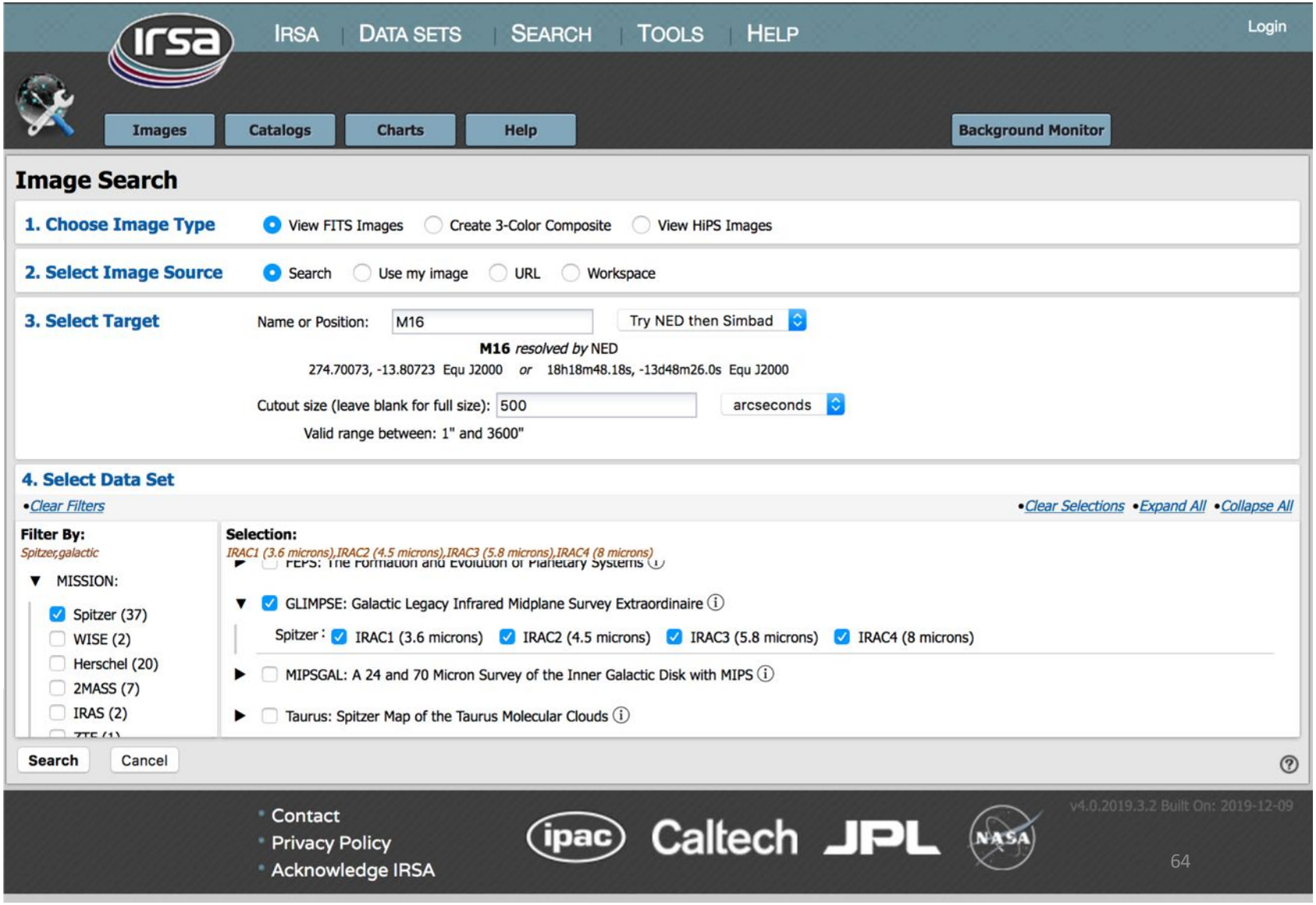


Pick an image type, origin of data, & target.

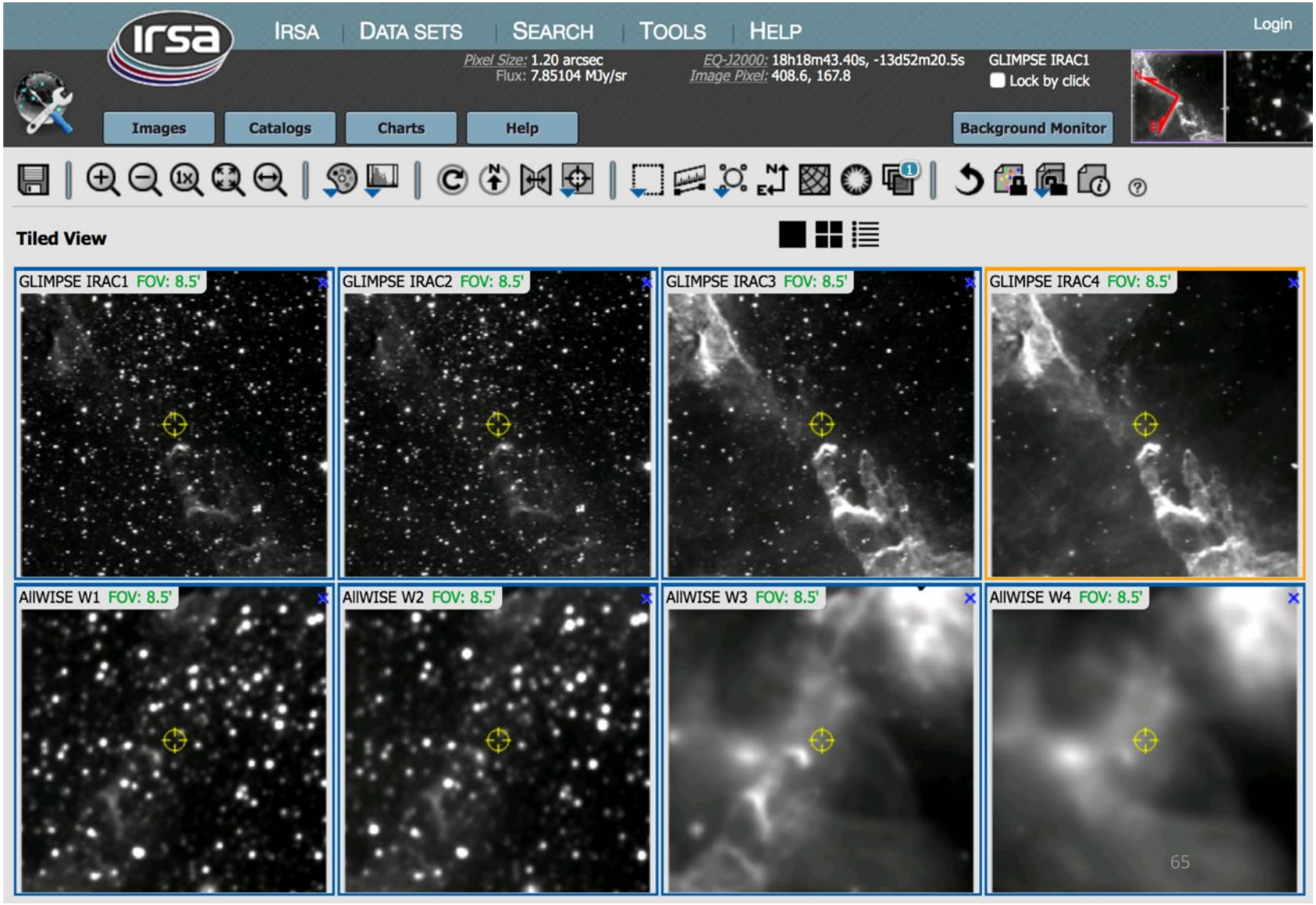
*This list is **long**. Use filters on left to weed down sheer number of programs on right.*



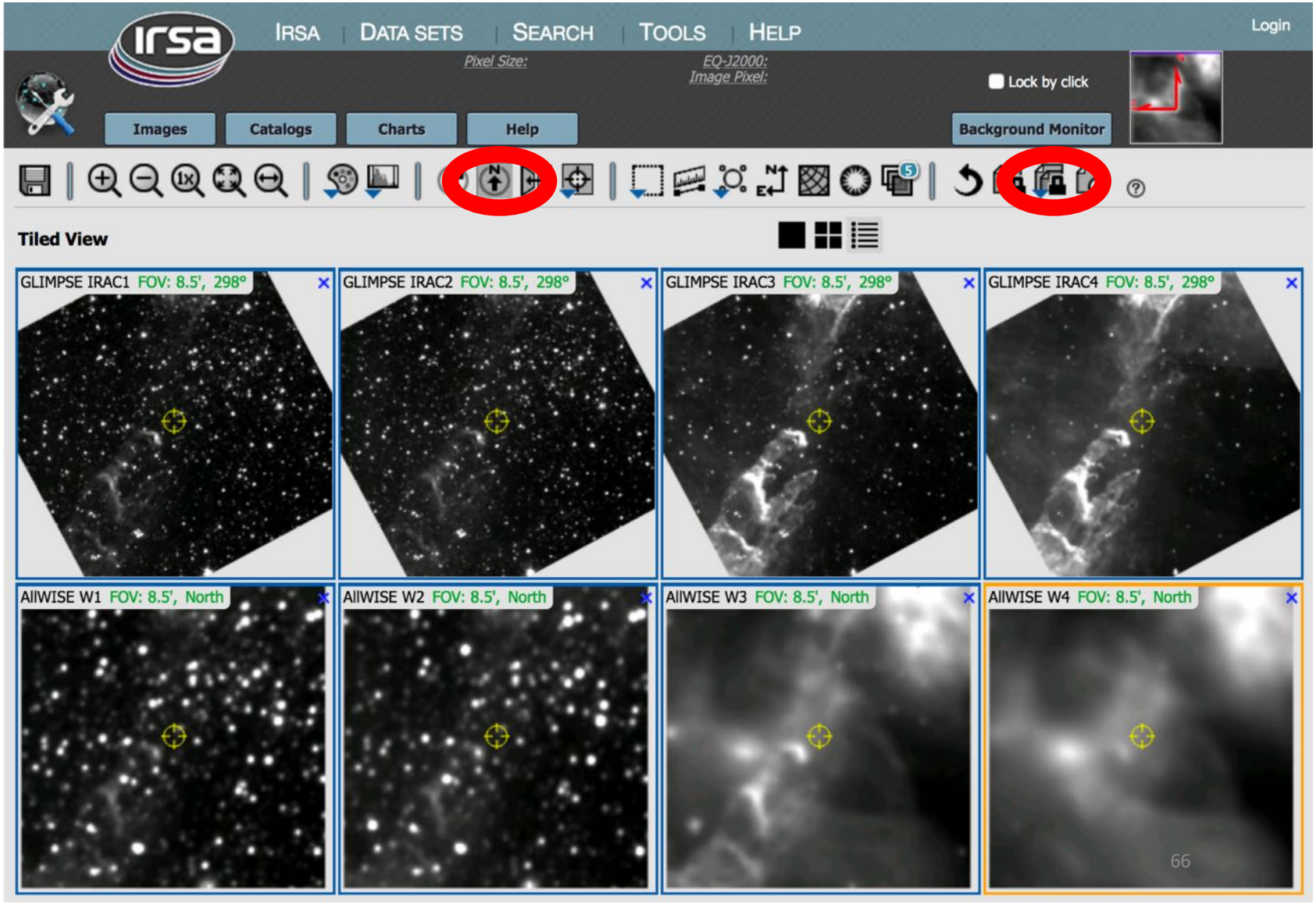
Load FITS images of M16, 500 arcsec across, from Spitzer/IRAC (GLIMPSE) and WISE (not shown)



Initial results from search. Same size patch of sky.. But not oriented the same way.

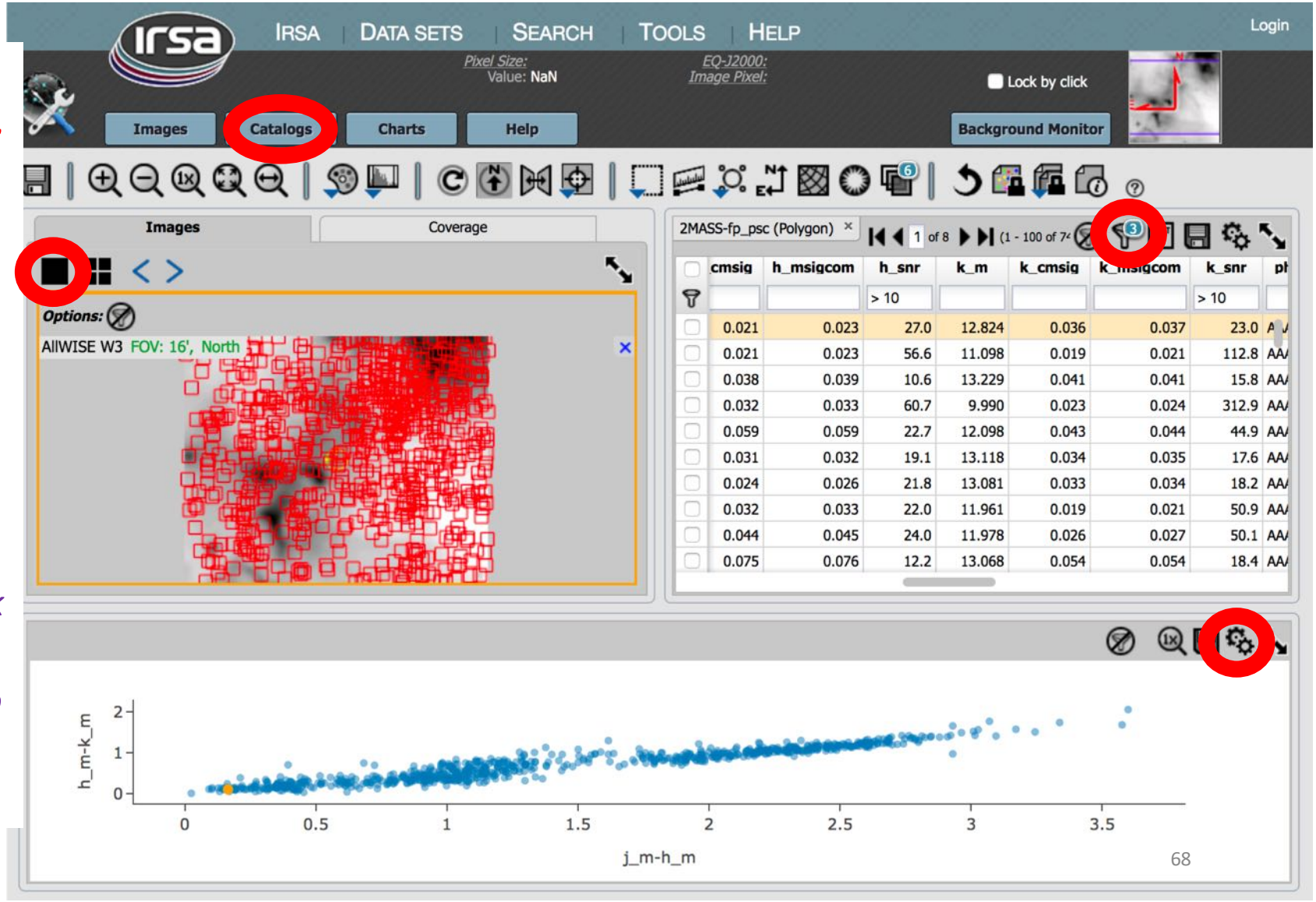


Lock images together by WCS, north up.



Reverse grey scale (change all at once); overlay SOFIA FIFI-LS and HAWC footprints.

Show only one image at a time, overlay 2MASS catalog (filtered to only have SNR>10 at all three bands), overlaid on image, make color-color plot. *All are interactive; click on source in image or plot to find in table, etc.*



Getting more help

- Help button at top gets online help. (Also available as pdf, which is searchable!)
- Context-sensitive help should drop you in relevant portion of online help.
- IRSA helpdesk (linked on IRSA main page).
- IRSA YouTube channel https://www.youtube.com/channel/UCIysJbamhNnlu0Bgdrwxn_w
- Playlist collects all the SOFIA videos in one place https://www.youtube.com/playlist?list=PL3UuvF_s8KWJQWu7bjlXMWZ7QRwL4DPRl though also see other tutorials for, e.g., overview of image toolbar, etc.