

Citizen Science Training Modules

The Radio JOVE Project



radiojove.gsfc.nasa.gov

A Partnership Between



Welcome to The Radio JOVE Project Citizen Science Training Modules. I am Professor Chuck Higgins from Middle Tennessee State University and one of the leaders of The Radio JOVE Project.

Partnerships and Acknowledgements



sunrise.umich.edu



radiojove.gsfc.nasa.gov

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These training modules are a partnership between the SunRISE mission team and The Radio JOVE Project. We acknowledge contributors to these modules as well as our funding sources of support.

Training Module 2.4

Archiving Your Data



This is Training Module 2.4 – Archiving your Radio JOVE data

Prerequisites for Training Modules

1. High School Reading Comprehension and General Science
2. Scientific Notation
3. Electromagnetic Spectrum
4. Speed, Wavelength, and Frequency of Waves
5. Graphical Interpretation of Data
6. Training Modules 2.0, 2.1, 2.2, and 2.3



This is a list of prerequisites needed to be able to understand the material in this module.

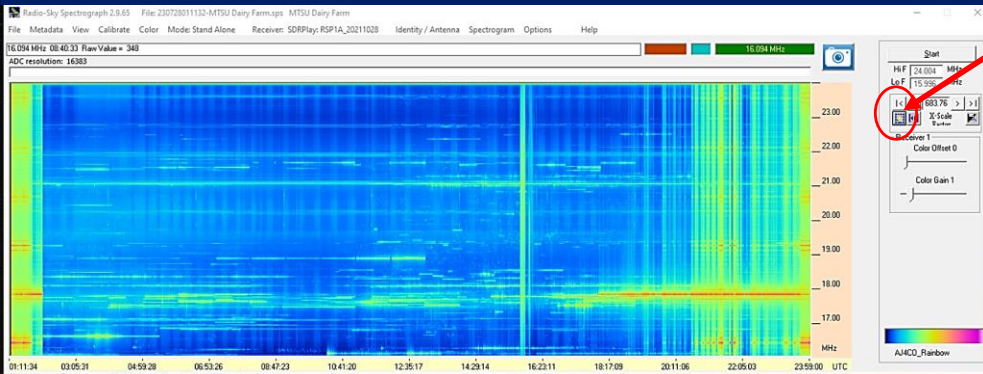
Learning Objectives

1. Saving a Spectrograph data file
2. Overview the Radio JOVE Data Archive
3. Search the Data Archive
4. Upload data to the Data Archive



This is a list of the learning objectives for this presentation. We first show how to save a part of a Radio-Sky Spectrograph (RSS) data file, give a brief overview of the data archive, show you how to search it, and then guide you through the steps to upload data to the archive.

Radio-Sky Spectrograph (RSS)



Click here to manually enter the Start/End times.

Start			End		
Day	Month	Year	Day	Month	Year
01	11	2023	23	09	2023
Hour	Minute	Seconds	Hour	Minute	Seconds
01	11	34	23	59	00

Double click entry to set

01:11:34 - 23:59:00

A near 24-hour data file from July 28, 2023 (C. Higgins, Murfreesboro, TN)
Note: I'm getting a lot of interference at the beginning and end of each day.



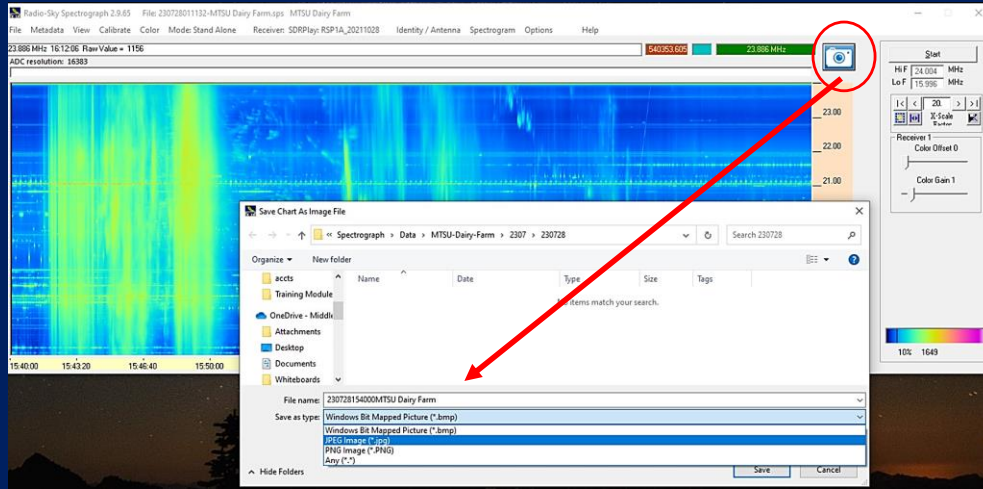
This is a Radio-Sky Spectrograph data file, a near 24-hour data file from July 28, 2023 (C. Higgins, Murfreesboro, TN). Note that I'm getting a lot of interference at the beginning and end of each day. Learning from other observers that there was a solar event near 16:00 UT, I want to zoom in on that time. Clicking the "pencil" icon box in the upper right opens the Start/End box so you can manually enter the start/end times.

Radio-Sky Spectrograph (RSS)

The screenshot displays the Radio-Sky Spectrograph (RSS) software interface. The main window shows a spectrogram with a color scale from blue to red, representing signal intensity. The x-axis is labeled 'UTC' and ranges from 15:40:00 to 16:20:00. The y-axis is labeled 'MHz' and ranges from 17.00 to 23.00. A settings dialog box is open in the top right corner, titled '15:40:00 - 16:20:00'. It has 'Start' and 'End' sections, each with fields for Day, Month, Year, Hour, Minute, and Seconds. The 'Apply' button is circled in red. A red arrow points from the 'Apply' button to a text box that says 'Click here to manually enter the Start/End times. Click Apply'. Below the spectrogram, there is a caption: 'Data file from 15:40:00 – 16:20:00 UTC showing some very impressive solar bursts.' In the bottom right corner, there is a circular inset photo of a man with glasses and a blue shirt.

This is the same data file, but now zoomed into the time from 15:40:00 – 16:20:00 UTC. I manually entered the Start/End times and then clicked Apply. These are some very impressive solar bursts.

Radio-Sky Spectrograph (RSS)

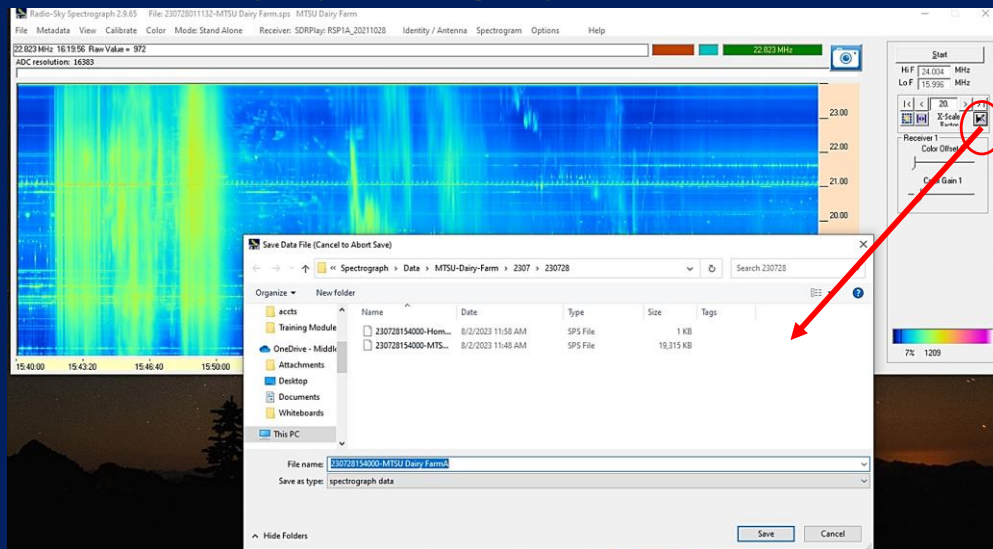


Click the Camera Icon to Save an image of your data.



Click the Camera Icon to Save an image file of your data. This is basically a screenshot of what you see, and you can save to the image file of your choice. I prefer JPEG files, and this one is only 91 kilobytes. The file saves to the default folder for RSS, in this case the 'YearMonth' folder, 2307, and folder date, 230728.

Radio-Sky Spectrograph (RSS)



Click the File Icon to Save the visible portion of the spectrogram



Click the File Icon to Save the visible portion of the spectrogram. The Spectrograph folder is the default place to save the file but change this as needed. Notice the filename is “230728154000-MTSU Dairy FarmA” showing the date, 230728, and the start time of the file, 15:40:00, and the observatory name. This 40-minute spectrograph data file with a .sps file extension saved to a file size of 19.3 MB. You can save larger timespans, but I am having some trouble saving files longer than 45-minutes.

Radio JOVE Data Archive

<https://radiojove.net/archive.html>

Welcome to the Radio JOVE Data Archive



About our Archive: You will find here data submitted by Citizen Scientists and general participants in the [Radio JOVE Project](#). This archive contains almost two decades of radio observations of the Sun, Jupiter, the Milky Way Galaxy and Earth ionospheric phenomena. The records held here include images, sounds, text descriptions, as well as data produced using the [Radio Sky-Pipe](#) and [Radio Spectrograph](#) software. An article providing more details on the archive holdings appeared in the [December 2015 issue](#) of the Bulletin.

How to View these Files: In addition to the Radio Sky-Pipe and Radio Spectrograph software, other tools are available to read these data files. An article discussing these other tools can be found in the [July 2018 issue of the Radio JOVE Bulletin newsletter](#).

Data Use Policy: If you are making use of the data on this site for your own research please acknowledge the data's submitters and the Radio JOVE Project. Data submitted to this archive may be used as examples for training in the use of the Radio JOVE system.

Enter the Archive here:

[Radio JOVE Archive](#)

Note: Archive search and data download is available to anyone.
Uploading data to the archive requires a Data Submitter Account. Follow the steps listed below.

To Request a Data Submitter Account:

1. Please [register](#) as a Radio JOVE participant (if you haven't done so already).
2. Register to receive Radio JOVE emails by joining our [groups.io email distribution list](#), creating a username and password (if you haven't already done so).
3. Send a data submitter account request to our archive manager [Leonard Garcia](#).

* Submissions to the archive are limited to a maximum upload size of 64 MB. *



The Radio JOVE Data Archive is found on the Radio JOVE website. Anyone can freely search and download data, and our Data Use Policy is such that if you are making use of the data on this site for your own research, please acknowledge the data's submitters name and the Radio JOVE Project.

To upload data to the archive requires a Data Submitter Account.

To Request a Data Submitter Account:

1. Please register as a Radio JOVE participant if you haven't done so already. Register here: https://radiojove.net/sign_up_form.php
2. Register to receive Radio JOVE emails by joining our groups.io email distribution list, creating a username and password (if you haven't already done so).
3. Send a data submitter account request to our archive manager Leonard Garcia: Leonard.N.Garcia@nasa.gov

*Submissions to the archive are limited to a maximum upload size of 64 MB.

Search the Radio JOVE Data Archive

Radio JOVE Archive Search

Radio JOVE Home Radio JOVE Inventory Log In to Upload | Sign Up

Enter filtering criteria in the following input fields and click "Search" to see the results in the table below.

Observer Name Submitter group -- all groups --

Observing Location

Receiver system (observing equipment used) Calibrated All Records

Object -- select object (optional) --
Galactic Background
Interference
Jupiter

Storm Type -- Not Identified (optional) --
Jupiter Io-A
Jupiter Io-B
Jupiter Io-C

Spectral Output Type -- select file type (optional) --

Start Date (mm/dd/yyyy) Stop Date (mm/dd/yyyy)

 Inventory entries matching search criteria are displayed below.

Click on a column header to sort entries by that field. Subsequent clicks reverse the sort order.

Scroll down to see the latest files.

Start Date (mm/dd/yyyy) Stop Date (mm/dd/yyyy)

 Inventory entries matching search criteria are displayed below.

Click on a column header to sort entries by that field. Subsequent clicks reverse the sort order.

Showing rows 1 to 26 of 9091 total.

Observer Name	Observing Location	Receiver system	Record Start/Stop	Object	Data Files
Agua, Salvador	Location: Hermosillo, Sonora, Mexico Lat/Lon: 28 11-118 36 Station: PMS	SDisplay model ESPFA Waves 21 Haters Freq: 28.1 MHz Calibrated: No	0728/0223T194540 - 0728/0223T195540	Sun Solar Type #	imagefile
Agua, Salvador	Location: Hermosillo, Sonora, Mexico Lat/Lon: 28 11-118 36 Station: PMS	SDisplay model ESPFA Waves 21 Haters Freq: 28.1 MHz Calibrated: No	0728/0223T194540 - 0728/0223T195540	Sun Solar Type #	imagefile
Agua, Salvador	Location: Hermosillo, Sonora, Mexico Lat/Lon: 28 11-118 36 Station: PMS	SDisplay model ESPFA Waves 21 Haters Freq: 28.1 MHz	0716/0223T150143 - 0716/0223T151133	Sun Solar Type #	imagefile



To search the archive, simply enter an observer's name, location, or object, storm type, or output type. You can also use other filters like Submitter Group or Calibrated data. Otherwise, you can simply scroll down to see the latest data records.

Search the Radio JOVE Data Archive

Jupiter Object search results

Observer	Location	Instrument	Time Range	Object	Files
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A Moxon 21 Meters Freq: 20 MHz Calibrated: No	02/14/2022T044536 - 02/14/2022T044910	Jupiter Jupiter Io-B	imagefile
Pajak, Carl	Vassilla, AK, USA Lat/Lon: 61.55379/-149.34889 School: None	SDRPlay1A Dual Di-pole 15#x39; 135dbg Freq: 21.1 Calibrated: No	01/13/2022T035537 - 01/13/2022T040520	Jupiter Jupiter Io-B	imagefile datafile
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A Moxon 15 meters Freq: 20 MHz Calibrated: No	01/12/2022T013626 - 01/12/2022T013656	Jupiter Jupiter Io-A	imagefile
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A Dipole Single 25 MHz Freq: 25 MHz Calibrated: No	01/12/2022T013956 - 01/12/2022T014126	Jupiter Jupiter Io-A	imagefile
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A Moxon 15 meters Freq: 25.1 MHz Calibrated: No	12/19/2022T043200 - 12/19/2022T043647	Jupiter Jupiter Io-A	imagefile
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A r Moxon 15 meters Freq: 25.1 Calibrated: No	12/12/2022T012041 - 12/12/2022T012210	Jupiter Jupiter non-Io-A	imagefile
Pajak, Carl	Vassilla, AK, USA Lat/Lon: 61.55379/-149.34889 School: None	SDRPlay1A Dual Dipole 15#x39; 135dbg Freq: 20.0 Calibrated: No	12/12/2022T072626 - 12/12/2022T073526	Jupiter Jupiter Io-B	imagefile datafile textfile
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A r Moxon 15 meters Freq: 25 MHz Calibrated: No	11/26/2022T071122 - 11/26/2022T071313	Jupiter	imagefile
Aguirre, Salvador	Hermosillo, Sonora, Mexico Lat/Lon: 29.15-110.96 School: PKGS	SDRplay model RSP1A r Moxon 15 meters Freq: 25 MHz Calibrated: No	11/18/2022T044051 - 11/18/2022T040804	Jupiter Jupiter Io-C	imagefile

Some records have multiple files:
Image file
Data file
Txt file



To search the archive, simply enter an observer's name, location, or object, storm type, or output type. For example, to search for only Jupiter events, click the Jupiter Object then the search button, and you will see an output like this. Notice that some records have multiple files, and image of the event, the data file, and/or a text file with important comments or metadata. Click any file to download it.

Uploading Data

A screenshot of the Radio JOVE Archive Search website, showing the search form. The page has a dark header with the title "Radio JOVE Archive Search". Below the header, there are four navigation links: "Add new record", "Radio JOVE Home", "Radio JOVE Inventory", and "Logged in as Chuck Higgins | View Profile | Log out". The "Add new record" link is highlighted in blue. Below the navigation links, there is a text box that says "Enter filtering criteria in the following input fields and click 'Search' to see the results in the table below." The search form contains several input fields and dropdown menus: "Observer Name" (text input), "Submitting group" (dropdown menu with "-- all groups --"), "Observing Location" (text input), "Receiver system (observing equipment used)" (text input), "Calibrated" (dropdown menu with "All Records"), "Object" (dropdown menu with "-- select object (optional) --", "Galactic Background", "Interference", "Jupiter"), "Storm Type" (dropdown menu with "-- Not Identified (optional) --", "Jupiter Io-A", "Jupiter Io-B", "Jupiter Io-C"), "Spectral Output Type" (dropdown menu with "-- select file type (optional) --"), "Start Date (mm/dd/yyyy)" (text input), and "Stop Date (mm/dd/yyyy)" (text input). At the bottom left of the form, there is a blue "Search" button. Below the "Search" button, there is a small text box that says "Inventory entries matching search criteria are displayed below."

Chuck Higgins is logged in.

Notice the "Add new record" link in the upper left corner.



Once you have your account and password, you can log in by clicking the "Log in to Upload" button in the upper right corner. After I have logged in, notice the "Add new record" link in the top left corner. Click it to add a new record.

Uploading Data

Radio JOVE Archive Search

[Add new record](#) [Radio JOVE Home](#) [Radio JOVE Inventory](#) Logged in as Chuck Higgins [View Profile](#) | [Log out](#)

Add product record

<input type="text" value="Chuck"/>	<input type="text" value="Higgins"/>	<input type="text" value="Citizen Science"/>	
<small>First Name</small>	<small>Last Name</small>	<small>Submitter Group</small>	
<input type="text" value="Murfreesboro, TN"/>	<input type="text" value="35.8"/>	<input type="text" value="-86.4"/>	<input type="text" value="MTSU"/>
<small>Observing Location</small>	<small>Latitude (South - negative)</small>	<small>Longitude (West - negative)</small>	<small>School/Observatory</small>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="No"/>
<small>Receiver</small>	<small>Antenna</small>	<small>Antenna Config</small>	<small>Frequency (MHz)</small>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<small>Record Start Date</small>	<small>Record Start Time</small>	<small>Record Stop Date</small>	<small>Record Stop Time</small>
<input type="text" value="-- select object (optional) --"/>	<input type="text"/>	<input type="text" value="-- Not Identified (optional) --"/>	<input type="text"/>
<small>Object</small>	<small>Storm Type (for example: lo-A, Type III, TP, etc.)</small>	<small>Text/Annotation File (.txt, csv)</small>	
<input type="button" value="Browse..."/> No file selected.	<input type="button" value="Browse..."/> No file selected.	<input type="button" value="Browse..."/> No file selected.	<input type="button" value="Browse..."/> No file selected.
<small>Image File (.jpg, jpeg, .png, .gif)</small>	<small>Data File (.spd, .sps)</small>	<small>Sound File (.wav, .mp3)</small>	
Max. file size: 64MB			
<input type="button" value="Submit this record"/>	<input type="button" value="Clear form"/>	<input type="button" value="Archive Search Home"/>	

Complete the fields necessary for the new record.



Complete the fields necessary for the new record. Note that not all fields are required. If you do not know, leave it blank, and just put the Object, the Sun in this case. The more information you can enter the better it is for the data archive search capabilities.

Uploading Data

The top screenshot shows the 'Add product record' form with the following details: First Name: Chuck, Last Name: Higgins, Submitter Group: Citizen Science, Observing Location: Murfreesboro, TN, Latitude: 35.8, Longitude: -86.4, School/Observatory: MTSU, Receiver: SDRplay RSP1A, Antenna: Dual Dipole, Antenna Config: 10 ft EW no phasing, Frequency: 16.24 MHz, Record Start Date: 07/28/2023, Record Start Time: 15:40:00, Record Stop Date: 07/28/2023, Record Stop Time: 16:20:00, Object: Sun, Storm Type: Solar Type III. Red circles highlight the 'Browse...' buttons for Image File, Data File, Text/Annotation File, and Sound File. A yellow box contains the text 'Browse to select your file(s)'. A modal window from radiojove.net is open, stating: 'You may add up to three more data files, one for each data type (image, skype data, text, sound). When you're done uploading, click 'Submit this record' below to submit the full record to the inventory.' An 'OK' button is visible.

The middle screenshot shows the file selection step. The 'Image File (.jpg, .jpeg, .png, .gif)' field contains the filename '230728154000-higgins_Home.JPG'. The 'Data File (.spd, .sps)' field contains the filename '230728154000-MTSU_Dairy_Farm.sps'. Red circles highlight the 'Browse...' buttons and the listed filenames. A yellow box contains the text 'Filenames listed after scanning'.

The bottom screenshot shows the successful record entry confirmation message: 'Record for capture date 202307280000 successfully entered.' A yellow box contains the text 'Record successfully entered'.

Several screenshots of the process of uploading a data file.

This is the information for this record. Note that not all fields are required, especially the Storm Type. If you do not know, leave it blank, and just put the Object, the Sun in this case. The more information you can enter the better it is for the data archive search capabilities. The maximum file size is 64 MB. *** NOTICE *** the four browse buttons at the bottom of the page. You can enter one or more items before you submit the record. For example, I will add an image file and a data file for this record. After I select the image file it scans the image and then I receive a message that I can add up to three more items. I then add the .sps spectrograph data file. *** NOTICE *** that it will tell you that **the files are accepted**, and the filenames will be seen below the browse button(s). Then click Submit this record. Finally, notice that it tells you that your Record successfully entered.

Uploading Data

Click on a column header to sort entries by that field. Subsequent clicks reverse the sort order.

Showing rows 1 to 25 of 9592 total. [← prev](#) [next →](#)

Observer Name	Observing Location	Receiver system	Record Start/Stop	Object	Data Files
Aguirre, Salvador	Location: Hermosillo, Sonora, Mexico Lat/Lon: 29.1/-110.96 School: PKIS	SDRplay model RSP1A Moxon 21 Meters Freq: 20.1 MHz Calibrated: No	07/28/2023T154540 - 07/28/2023T155540	Sun Solar Type II	image file
Aguirre, Salvador	Location: Hermosillo, Sonora, Mexico Lat/Lon: 29.1/-110.96 School: PKIS	SDRplay model RSP1A Moxon 21 Meters Freq: 20.1 MHz	07/28/2023T154540 - 07/28/2023T155540	Sun Solar Type II	image file
Higgins, Chuck	Location: Murfreesboro, TN Lat/Lon: 35.8/-86.4 School: MTSU	SDRplay RSP1A Dual Dipole 10 ft EW no phasing Freq: 16-24 Calibrated: No	07/28/2023T154000 - 07/28/2023T162000	Sun Solar Type II	image file data file

New record uploaded



And there it is. The new record is near the top of the list for the most recent uploads. Notice there is an image file and a .sps data file.

Resources

Radio JOVE homepage

<https://radiojove.gsfc.nasa.gov/>

Radio JOVE Data Archive

<https://radiojove.net/archive.html>

<https://radiojove.net/query/inventory.php>

Radio-Sky Spectrograph Software

<https://www.radiosky.com/specdownload.html>



This is a short list of Radio JOVE resources.

Thanks for watching!

Good luck uploading your data files and thank you for your contributions to Radio JOVE Citizen Science.



Thanks for watching. Good luck uploading your data files and thank you for your contributions to Radio JOVE Citizen Science.