

Deep Space Exploration Society

Science Update 6-6-16

RADIO-SKYPIPE

Radio-Skypipe is the workhorse data capture software for DSES. It provides a data capture and recording function that can be used for any audio input from the radio telescope receivers.

Radio-Skypipe can be downloaded at: www.radiosky.com. The free version is adequate for most applications, but you may want the professional version when you get more advanced.

Figure 1 shows the output chart. The vertical scale is the amplitude of the signal, while the horizontal scale is time in Universal Time. The amplitude is based on the volume of the signal source.

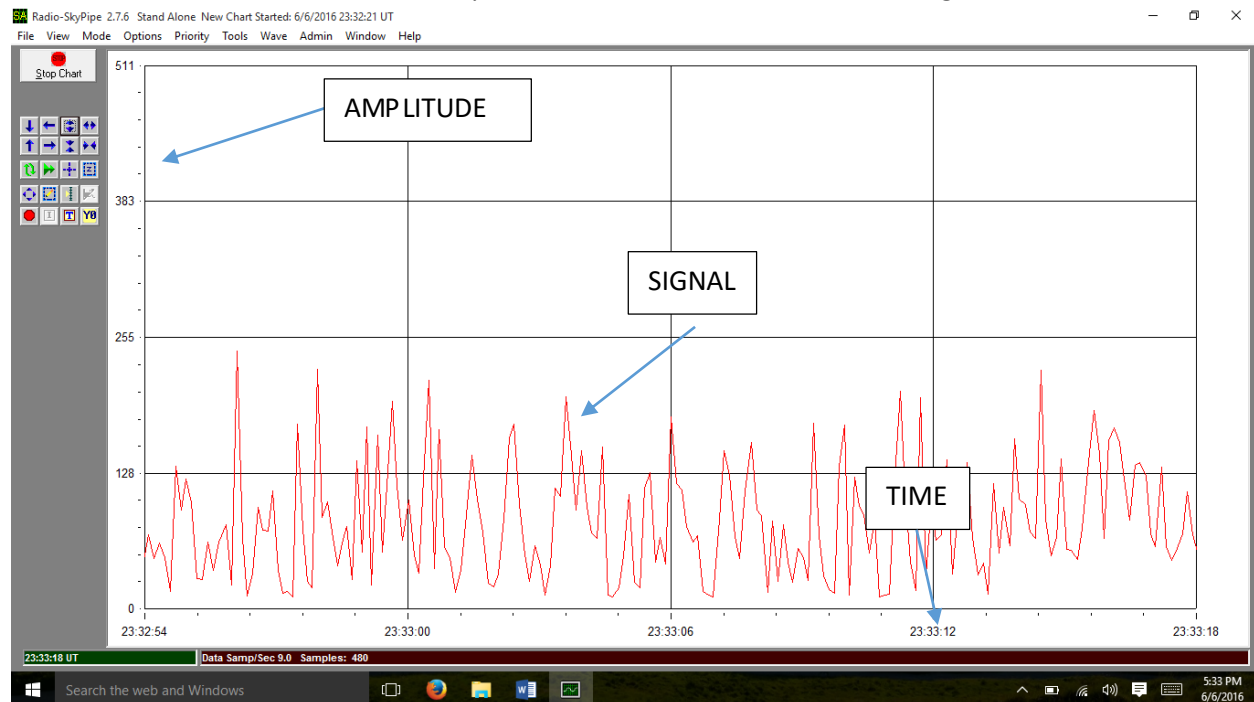


Figure 1: Radio-Skypipe Chart

The basic setup of the Radio-Skypipe is as follows:

- 1) Go to the Options tab and fill out your identity and location. Example is shown in Figure 2.

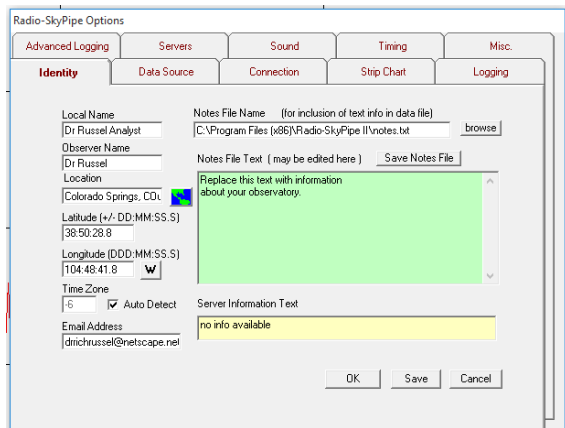


Figure 2: Options: Identity Tab

2. Go to the Options: Logging Tab and setup the strip Chart to start a new file at 0000 UTC daily. Example is shown in Figure 3.

- a) Select Restart Chart at: 00:00:00 and Start New Run When Max Samples or Max Duration Exceeded 24 00 Max Duration HH:MM.
- b) Select Data File Path to store the output files. Note that the Organize by Month and Organize by Day selections will setup a separate folder for each day. Example is in Figure 3.

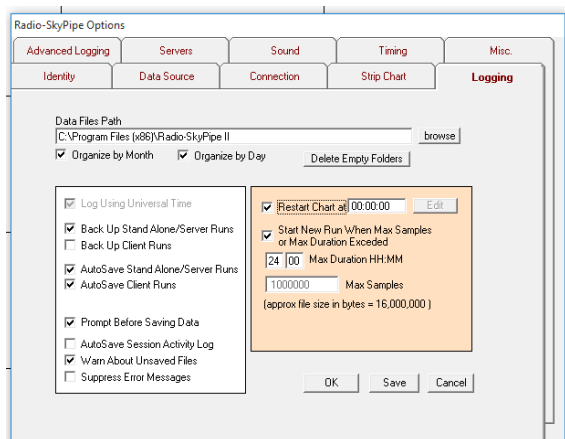


Figure 3: Logging Setup

3. Setup the Input Source:

- a) Go to Options: Sound Tab. Select the appropriate sound source. To verify that you selected the correct input source, run the chart and vary the volume of the receiver and observe that you get the corresponding change on the chart. Figure 4 shows an example.
- b) Some computers have a split between Right and Left channels. Figure 5 shows where to select the channels for the input.

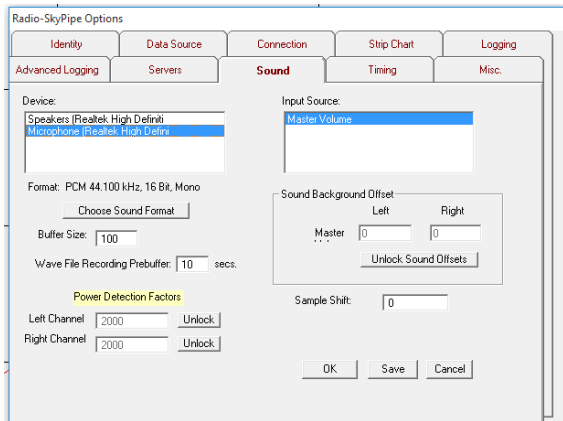


Figure 4 Options: Sound Tab

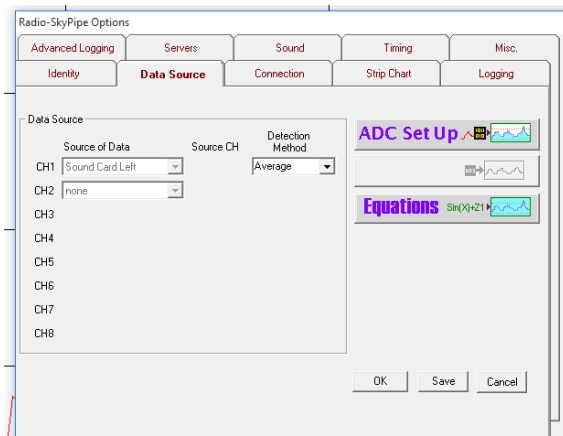


Figure 5: Options; Data Source Tab

4. Select Stand Alone mode using the Options: Connections Tab. Radio-SkyPipe allows for remote viewing of the real-time data by other users unless the Stand Alone Mode is selected. An example is shown in Figure 6.

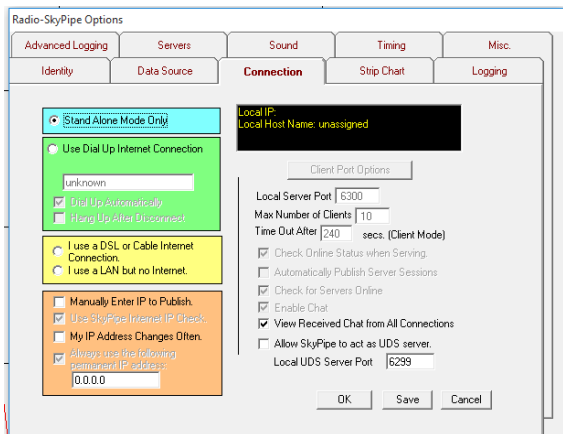


Figure 6: Options: Connection Tab

Receiver Audio Output to the Computer

- 1) Use an audio patch cable between the radio audio out and the microphone input to the computer.
- 2) Alternate inputs include an audio box system that takes in audio from the receiver and outputs a USB input into the computer
- 3) The Signalink box also provides the capability to take audio from the receiver and input USB into the computer

Chart Control Basics (Figure 7)

- 1) Start Recording by selecting the Start Chart Icon
- 2) Watch for data to start plotting, select Auto Scroll Enabled and Auto Scales in order to see the data coming in.
- 3) In order to see the entire file – select the Entire File on Screen
- 4) Manual scaling of the chart can be achieved using the arrows.

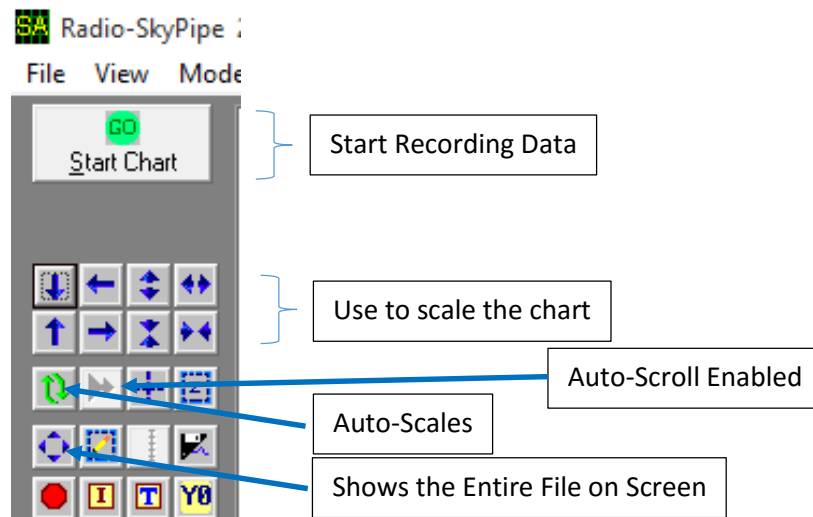


Figure 7: Chart Controls

Setup of Radio Telescope System

- 1) Setup your receiver to the frequency that you are observing.
- 2) Click Start Chart on Radio-SkyPipe
- 3) Vary the receiver volume and watch for the change on the chart. This verifies that you are properly listening to the correct input on the computer.
- 4) Set the volume to midrange on receiver – set the volume so the chart average output is on a known level. This is so you can tell the relative volume amplitude of your signals.

Reviewing and Sharing Data Files

1) After you have recorded data, a file is saved in your designated location. In order to review the file, go to the File Menu and select Load Data File. The Chart Loading Options will come up. Select OK. See Figure 8.

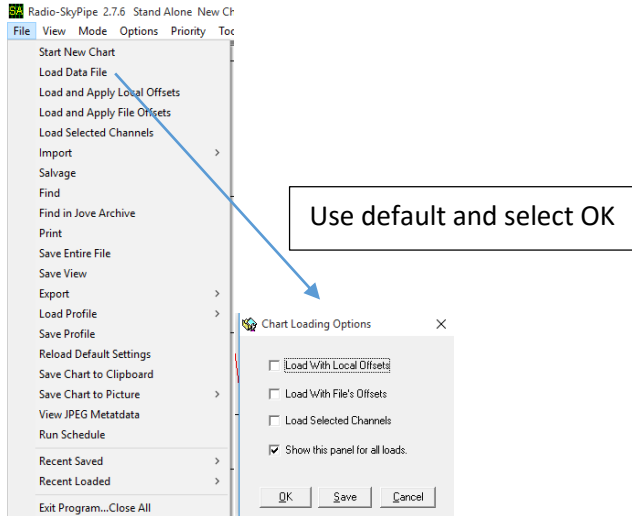


Figure 8: Load Data File

2. Select the appropriate Data File. See Example in Figure 9.

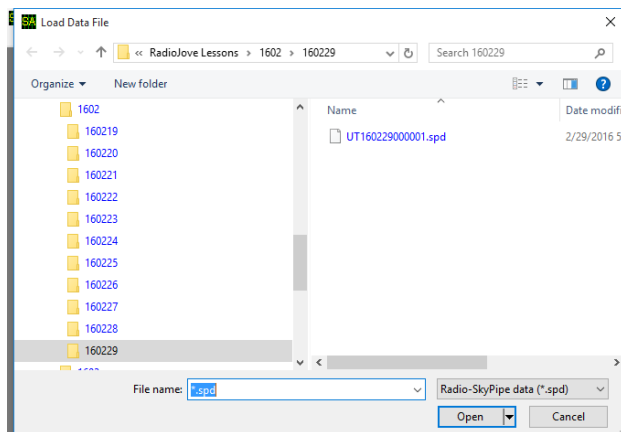


Figure 9: Load Data File - File Locations

The naming convention for the files is as follows:

File Name: UT1602290001.spd

UT – Universal Time

16 – Year (2016)

02 – Month (February)

29 – Day (29)

0001 (Time) 24 Hour Clock

Spd. File extension for Radio-Skypipe

3. Share files by attaching the file and sending in email or copy to thumb drive and share with another observer.

Feel free to contact me if you need more help on setting up your radio telescope.

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