

Smiley Users Manual

Welcome to Smiley's User Manual. Smiley is a 4.6-meter radio telescope located at the [Pisgah Astronomical Research Institute](#) in Western North Carolina. Smiley can be accessed remotely from any computer in the world. All you need is a User name and Password, to get this simply attend a [Smiley workshop](#). To get to the Smiley Login Page please direct your web browser to the link mentioned earlier, and click on the link labeled [GO DIRECTION TO THE OBSERVATION CONTROL ROOM](#).

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Smiley 4.6-Meter Radio Telescope

Observation Room Login



Observation Session Monitor

PARI system date/time (ET):

Mar 11, 2004 1:15 PM

TELESCOPE RESERVED

Current user session ends at 13:30

User Authentication Required

Username:

Password:

To login to Smiley enter your user name and password and click on **Login**. Now you will be sent to the [Smiley Observation Room](#).

Observation Room

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Smiley 4.6-Meter Radio Telescope

Observation Room

Welcome! You have successfully logged into the **Observation Room** for the Smiley 4.6-Meter Radio telescope at PARI. You can now use the button control panel below to reserve future observation sessions, and manipulate the telescope directly from your web browser during those sessions. Note that you will be allowed to access the telescope controller *only* during sessions that you have reserved in advance.

In case you have questions about reserving sessions or using the telescope controller, the panel below also includes **Help for Smiley Users** and **Contact Smiley Administrator** buttons.



Observation Session Monitor

PARI system datetime (ET):

Mar 11, 2004 1:14 PM

TELESCOPE RESERVED

Current user session ends at 13:30

Schedule Observing Time

Start Observing Session

Exit Observation Room

Change Your Password

Contact Smiley Administrator

Help for Smiley Users

Before you can begin your session you must schedule an observing time by clicking on the **Schedule Observing Time** and you will be sent to the [Smiley Reservation Calendar](#). After you have scheduled your time you can start your session.

Reservation Calendar

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Smiley Reservation Calendar - March 2004						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	1 08:00-09:00 Khapp 12:00-15:00 Fey	2 08:00-09:00 Khapp	3 08:00-09:00 Khapp	4 08:00-09:00 Khapp	5 08:00-09:00 Khapp 12:00-14:30 Alford 20:15-21:00 Merik 21:00-21:30 Merik	6 ALL DAY: Merik
7	8 08:00-09:00 Khapp 12:50-12:00 Daugherty 15:40-15:50 Daugherty	9 07:30-08:30 Khapp 09:20-09:25 Daugherty 11:00-11:05 Daugherty	10 07:30-08:30 Khapp	11 07:30-08:30 Khapp 13:12-12:30 Carolee	12 07:30-08:30 Khapp	13 11:30-12:45 Fey
14	15 07:30-08:30 Khapp	16 07:30-08:30 Khapp	17 07:30-08:30 Khapp	18 07:30-08:30 Khapp	19 07:30-08:30 Khapp	20
21	22 07:30-08:30 Khapp	23 07:30-08:30 Khapp	24 07:30-08:30 Khapp	25 07:30-08:30 Khapp	26 07:30-08:30 Khapp	27
28	29 07:30-08:30 Khapp	30 07:30-08:30 Khapp	31 07:30-08:30 Khapp	1 07:30-08:30 Khapp	2 07:30-08:30 Khapp	3

Adapted from [WebCalendar](#), copyright © 2001, Chuck Wight. [WebCalendar](#) is distributed as a free download under the terms of the GNU General Public License.

To schedule your session click on today's date (click on the number like the one circled above).

Request for Session

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Pisgah Astronomical Research Institute

Smiley 4.6-Meter Radio Telescope

Request for Observing Session

 Date:

 Username:

For normal observation sessions, please specify the session start/end times as **24-hour Eastern Time values (00:00-24:00)**.

 Normal session

 Begin:

 End:
 All day (00:00-23:59)

Description

(can only be viewed in this window)

Enter when you wish to start and end your session. You must enter the times in military time. For example, if you wish to start your session at 1:00pm and end at 3:00pm you must enter 13:00 and 15:00 in the appropriate boxes. Now click on **Create This Event**. Return to the observing room and click on [Start Observing Session](#) to begin

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Telescope Control

Smiley Internet Telescope Control

1. Webcam stream of the telescope.

2. Current Session Status
 PARI system datetime (ET):
Mar 11, 2004 1:13 PM
 Session expires at 13:30

3. Coordinates

CURRENT			NEW				
AZ	106	44	23	AZ	0	0	0
ALT	35	57	36	ALT	0	0	0
CURRENT			NEW				
RA	3	27	47	RA			
DEC	8	30	48	DEC			

4. Local Sidereal Time
00:01:21

5. HandPaddle
 LP
 QW COW
 DOWN

6. Sources: Crab Nebula | Map | Spectrum | Continuum | Status: Telescope ready [spectrometer connection established]

The main display shows a galactic map with various nebulae labeled: W3, Cas A, Cyg A, Her A, Vir A, Galactic North Pole, Galactic Center, Galactic South Pole, Orion Nebula, and Crab Nebula.

1. This is a web cam stream of Smiley. As Smiley moves you will see it move
2. This Current Session Status box shows today's date and the time at PARI as well as when the session expires.
3. The Coordinates box deals with the movement of Smiley.
 - a. This shows Smiley's current coordinates in the Horizon Coordinate System (Azimuth and Altitude).
 - b. This shows Smiley's current coordinates in the Equatorial Coordinate System (Right Ascension and Declination).
 - c. These data tables are where you can enter your new coordinates in the Horizon Coordinate System.
 - d. This is where you can enter your new coordinates in the Equatorial Coordinate System. You can go between each coordinate system by simply clicking on the option button beside each coordinate system's entry tables. After you can

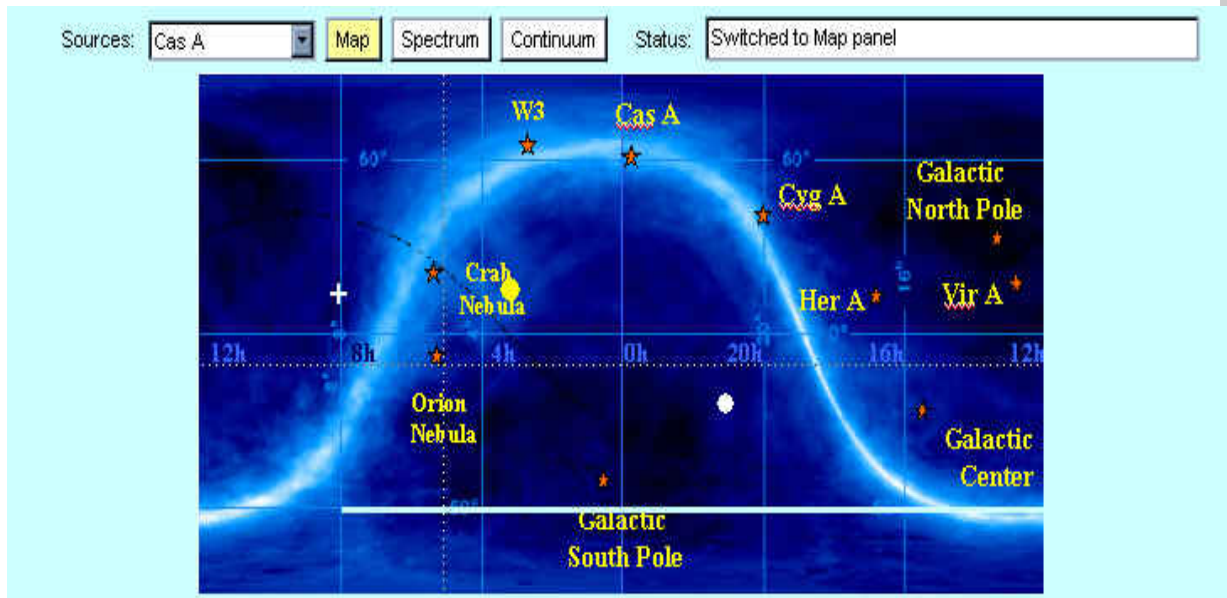
entered in the desired coordinates just click on the green **GO** button. If at any time you wish to stop Smiley click on the **STOP** button.

4. Local Sidereal Time is measured by the hour angle of the vernal equinox. The vernal equinox is the point where the celestial equator and the ecliptic (the path of the revolution of the Sun) cross. for example, when the hour angle of the vernal equinox is 0^h , so is the local sidereal time.
5. HandPaddle gives the user greater control of Smiley's position. By clicking on **UP**, **DOWN**, **CW**, **CCW**, the user can fine-tune the direction in which Smiley is pointing.
6. This box gives the user three different viewing options:
 - a. Map
 - b. Spectrum
 - c. Continuum.

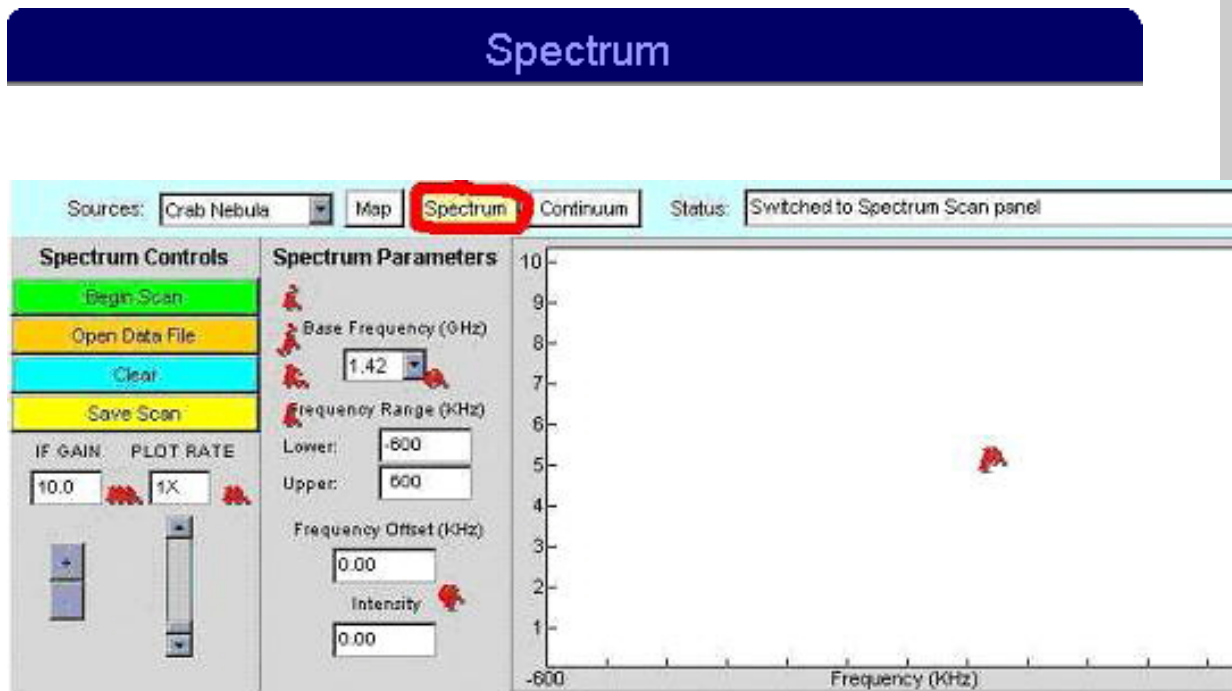
[\[Map\]](#) [\[Spectrum\]](#) [\[Continuum\]](#)

Map

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Map is the default setting and shows the user a map of our view of the sky. By clicking on the Sources tab, users can quickly receive coordinates of different celestial objects such as the Orion Nebula and the Crab Nebula.



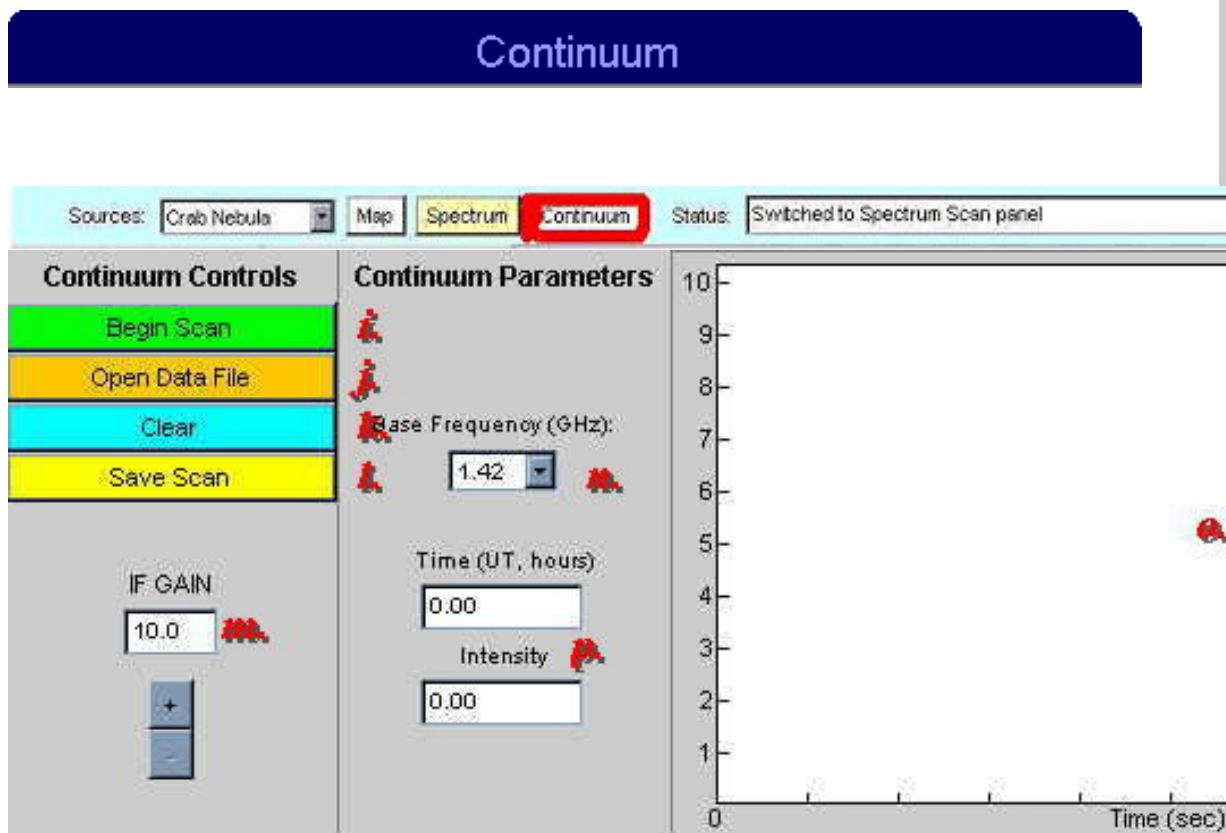
One way of collecting data is by clicking on **Spectrum**. In **Spectrum** mode Smiley separates the incoming radio waves into a spectrum, like a prism, and takes data on a single part of the spectrum

- i. By clicking on **Begin Scan**, Smiley will begin taking data.
- j. By clicking on **Open Data File**, you can open previous scans.

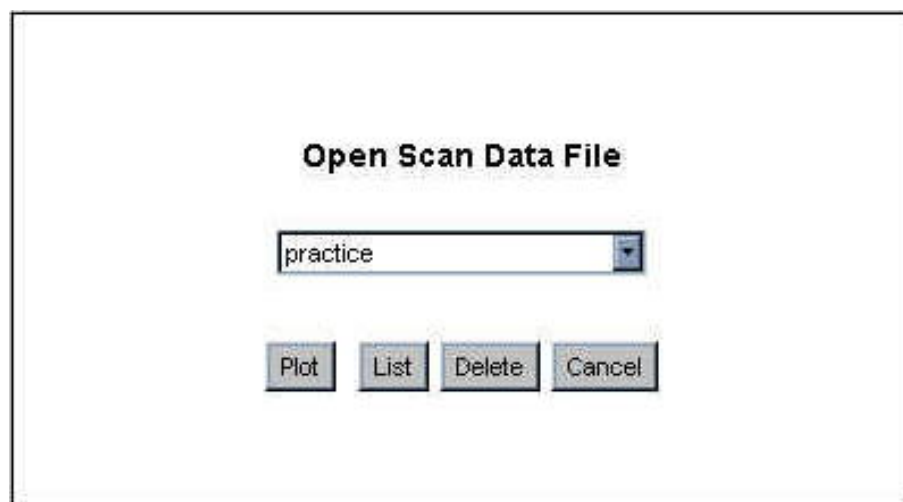


By clicking on **Plot**, Smiley will plot the data again. By clicking on **List**, Smiley will list all data points. **List** is useful for copying and pasting the data points to a spreadsheet. **Delete** deletes the saved file. Click on **Cancel** to return to the graph.

- k. By clicking on **Clear** you clear the data Smiley has collected.
- l. **Save Scan** saves the data you have just taken.
- m. Changing the **IF GAIN** magnifies the amplitude of the incoming radio waves. Increasing **IF GAIN** is analogous to raising the volume of a radio.
- n. You can change the **PLOT RATE** by moving the slider up and down. By increasing the **PLOT RATE** Smiley complete plotting the data more quickly, but less data is collected.
- o. The **Base Frequency** is the frequency that Smiley is tuned to. Smiley then plots intensity vs. the frequencies determined by the **Frequency Range**. For example, by having your **Frequency Range** at -600 to 600 KHz and your **Base Frequency** at 1.42 GHz, Smiley will plot intensity vs. the frequencies between 0.82 GHz to 2.02 GHz.
- p. Here is where your plot will show up. By right clicking on the graph you get many different options such as showing a grid of the graph, zoom in, zoom out, etc.
- q. While Smiley is plotting, the current data Smiley is receiving will be shown in the data entry tables labeled **Frequency Offset** and **Intensity**.



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- n. The **Base Frequency**, is the frequency that Smiley is tuned to.
- o. Here is where your plot will show up. By right clicking on the graph you get many different options such as showing a gride of the graph, zoom in, zoom out, etc.
- p. While Smiley is plotting, data will be shown in the entry tables labeled **Time** and **Intensity**.