



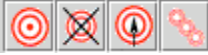

# Spot - Spitzer Planning Observations Tool



Spot is a client-server multi-platform software tool designed to be the only tool you need to plan your Spitzer observations, submit observing proposals, and modify approved observing programs, if necessary. In Spot, you can select one of the eight observing modes by choosing an Astronomical Observing Template (AOT). By filling out the template with the desired observing parameters (target position, exposure time, dithers, etc.) you create Astronomical Observing Requests (AORs). You can use Spot to estimate the infrared background around your target. You can overlay an AOR to visualize just how Spitzer will execute your observation. After completing your planning you will use Spot to submit your observing proposal to the Spitzer Science Center.



## Basic Components of Spot:

1. **Help** Full 'online' help packaged with Spot.
2.  File I/O. Read/write AOR files to local disk. AOR files in plain ASCII format. Also can read in formatted fixed single target list.
3.  AOR Management. Delete, copy, and modify AORs.
4.  Target Information. Various coordinate systems available. SIMBAD /NED and NAIF Name/ID name resolution.
5.  AOTs. Fill in Templates to create AORs.
6. **Tools** Tools. Replicate targets and AORs. Add observing constraints to your AORs. Recalculate resource estimates (total durations) for AORs.
7. Proposal Tool (under Tools). Fill out the necessary coversheet information, load the AORs into Spot and submit your Spitzer Observing Proposal using this Tool.
8. **Images Overlays** Visualization. Download and display images to estimate the infrared background and then overlay an AOR. See how Spitzer will execute the observation. Check that your AOR covers your target the way you expect it to.
9. **Options** Options. Auto-update Spot (get new versions automatically when selected). Sum only selected AORs - have Spot add up the total duration for a subset of the AORs you are working with. Disk cache preferences are selectable too.

# Spot - Spitzer Planning Observations Tool



Click on column header to sort column contents

Turn on or off column headers

**Astronomical Observation Requests (AORs)**

Instrument	Label	Target	Type	Position	T	G	F	Duration	Stat	On
IRS Staring	Jupiter IRS Staring	Jupiter	Moving Single	599	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1003	new	<input checked="" type="checkbox"/>
MIPS Scan Map	M31 MIPS Scan	m31	Fixed Single	0h42m44.31...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1955	new	<input checked="" type="checkbox"/>
MIPS Photometr...	ngc1365 MIPS Phot...	ngc 1365	Fixed Single	3h33m36.31...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1400	new	<input checked="" type="checkbox"/>
IRAC Mapping	M31 IRAC	m31 cluster	Fixed Cluster-Of...	0h42m44.31...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	864	new	<input checked="" type="checkbox"/>

Observation Mode

Unique AOR Label

Target Name

Target type - can choose fixed/moving single, fixed/moving cluster

Target Position

Total duration of observation in seconds

Status of observation

Indicates constraints on AORs  
T=Timing, G=Grouping Constraints  
F=Follow-on/Shadow

Total time of selected AORs ('On' box checked)

AOR window tab

Current selected target and target type

AOR/Proposal Filename (if loaded from local disk)

Connection to SSC servers via Internet

Target: Jupiter Type: Moving Single

Proposal - <No File>

Net Up

Total Duration (hrs): 1.5

Total AORs: 4 / Active: 4

# Spot - Spitzer Planning Observations Tool

## Visualizing Your Observations



**File Edit Targets Observation Tools Images Overlays Options Window Help**

**Spot -- Spitzer Planning Observations Tool**

Flux: 2.845 MJY/SR      Eq-J2000 RA: 3h33m30.19s      X: 101.000  
 1 Pixel: 90.000"      Eq-J2000 Dec: +10d42m21.5s      Y: 101.000

**Mouse Control**  
 Mouse: 4 Vesta

*Left Mouse Button: Select a point on the Image*  
*Shift-Left Button: Center the Image at point*

**Images to download & display:**  
 ISSA  
 2MASS  
 MSX  
 DSS  
 SkyView  
 NED  
 ISO Archive  
 FITS image file  
 All Sky (DIRBE, ISSA)

**Overlays:**  
 Catalogs (IPAC, HEASARC, VizieR, user)  
 PCRS Catalog  
 Crop Tool, Coordinate Grid, Area Statistics  
 Distance Tool, Slice Tool, Add Marks  
 Current Fixed Target  
 Add a Moving Target  
 Other Images  
 All Known Moving Objects at a date  
 Spitzer Focal Plane, Generic Focal Plane  
 AORs  
 Spitzer OPZ  
 Spitzer Bright Objects for an AOR  
 Depth of Coverage Maps

**ISSA- 25 micron, 4 Vesta**

IRAC-0000  
 4 Vesta  
 Base Image

**Observations**      **ISSA- 25 micron, 4 Vesta**

**Target: 4 Vesta Type: Moving Single**      **Total Duration (hrs): 0.2**

**Proposal - <No File>**      **Net Up**      **Total AORs: 1 / Active: 1**

**Annotations:**

- Click to zoom in image in active frame
- Click to zoom in on all frames (not active if only one frame is displayed)
- Click to zoom out
- Click on crosshairs to center current frame to current target's position (for fixed targets).
- Click to show current fixed target.
- Click to show coordinate grid.
- Click to create a slice from an image.
- Click to compute statistics in an area on an image.
- Click to crop image.
- Click to use distance tool.
- Click to add marks to image and create your own catalog.
- Pull down to overlay other images.
- Image thumbnail with box outline showing zoomed field in frame below. Click on thumbnail to move position of zoomed image.
- "Magnifier" view of image.
- Display of image flux and pixel scales. Coordinates and x,y position of cursor on image. Change coordinate system display under Options on Toolbar.
- Delete frame
- Iconify frame
- Expand frame to full size
- Click to view Spitzer's pointing positions.
- Click to change AOR overlay date.
- Click to view Vesta's positions.
- Click on layer box to move a layer up or down between other layers.
- Click to view image header.
- Click to change image color table.
- Click to change image opacity.
- Window Tabs (click to bring forward)
- Overlay of IRAC Map AOR (5x5 grid). The two IRAC apertures are shown (blue and magenta). Note that the map 'follows' the motion of the target during the observation, giving the grid a slightly distorted shape.
- Track of moving target (Asteroid 4 Vesta)