Retrieving Spitzer data with Leopard

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1. **Start up Leopard.**

2. **Click on the "Q" button for "query," and search by position or program id to obtain whatever data you want.** Alternatively, choose search by "AOR id query" from the file menu and enter the AORKEY. For this example, search on a galaxy, NGC 1097, from the SINGS Legacy project. This name is resolved successfully by NED or Simbad. To find these data, you can do any of the following:
   - Type in the target name, and use NED or Simbad to Resolve the name, then "Search by position."
   - Explicitly search by position via manually entering the coordinates. It's at RA 2h46m19s, Dec -30d16m30s (J2000)
   - Search by PID. The SINGS program with this observation is pid 159, and it may take a few more seconds to search this way because there are many AORs in this program.
   - Search by AORKEY. Under the "file" menu, select "AORID Query" and enter AORKEY=5515776 and 5516032 (need to do this in two separate queries).

   To further refine your search, turn off MIPS and IRS data; search only on IRAC data. Depending on how you search, you may be presented with multiple PIDs to select from. For this example, choose PID 159.

3. **Find the AOR you want in the list of returned AORs.** For this example, the ones you want have a label (AORLABEL) of 'IRAC-N1097' and 'IRAC-1097 - A'.

4. **Select the wavelengths you want, and the kind of data you want. Click on the little diskette icon to begin the download.** It will launch something called the "Subscriber" to manage the download. For this example, select at least channel 1 (3.6 um), BCD and Post-BCD data to download. (with all four wavelengths, it totals ~700 M.)

5. **Unzip the files that Leopard puts on your disk.** For this example,

   ```
   unzip P0159-_IRAC-N1097_-_A-part-01.zip
   unzip P0159-_IRAC-N1097_-_A-part-02.zip
   unzip P0159-_IRAC-N1097-part-01.zip
   unzip P0159-_IRAC-N1097-part-02.zip
   ```

6. **What are all these files?** Check out these pages:
   - Data filenaming conventions for all Spitzer data
     - IRAC *(this example)*
     - IRS
     - MIPS-24
     - MIPS-70
     - MIPS-160
   - Data Handbooks for all Spitzer data (which files are important?)
   - IRAC *(this example)*
     - IRS
     - MIPS

Obtain AOR using Spot (optional but useful if truly new at this)

This program (pid 159) happens to be a huge program so either one of these approaches will work:

- EITHER:
  1. From Leopard's main window, double-click on the entry corresponding to this observation and select the "params tab"
  2. make a note of the AOR parameters listed in the window
  3. start up Spot
  4. create an AOR by entering those parameters.

- OR:
  1. Start up Spot
  2. From the file menu choose 'view program' and download pid 159 (all 515 AORs!)
  3. Find the AOR pertaining to this observation.
  4. (optional) Delete all the rest of the AORs (no, you cannot select more than one at a time to delete, which is why I'm suggesting the first option above)

Once you have the AOR, use Spot's visualization capability (see the Observation Planning Cookbook, nearly any chapter, for step-by-step instructions; the results are in the figure below) to visualize your AOR. Each one of the frames you see portrayed in the visualization results in a DCE, or Data Collection Event, or a set of files on your disk. For a discussion of which files are most important, see the IRAC DH.
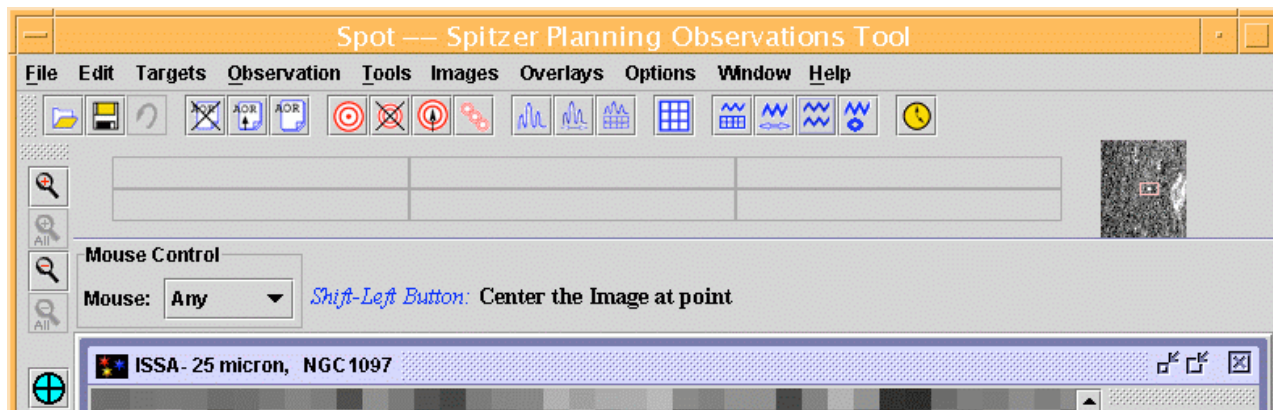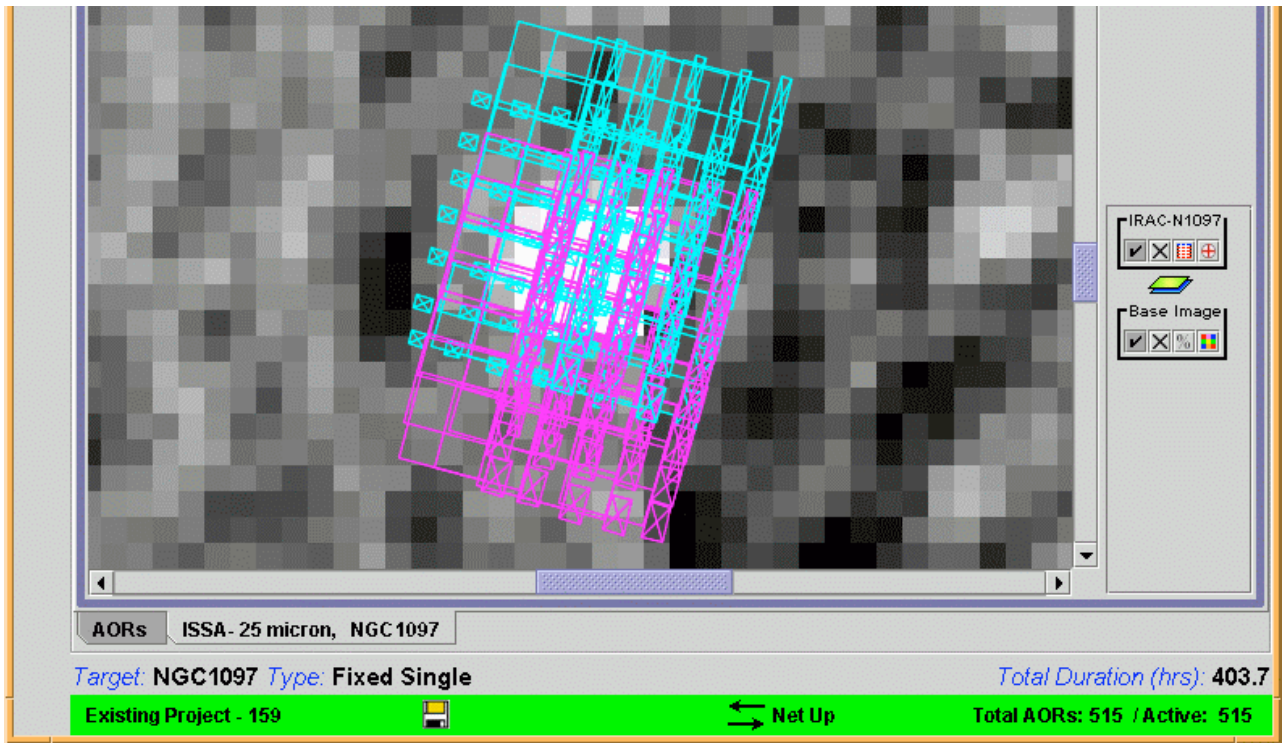
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