How Do I…

Get an image and spectrum for my favorite object?

1. If you know the coordinates of your object, skip to #2. If not, go to the SIMBAD name resolver (http://simbad.u-strasbg.fr/simbad/sim-fid). Enter the name in the **Identifier** field. Click **Submit ID**.

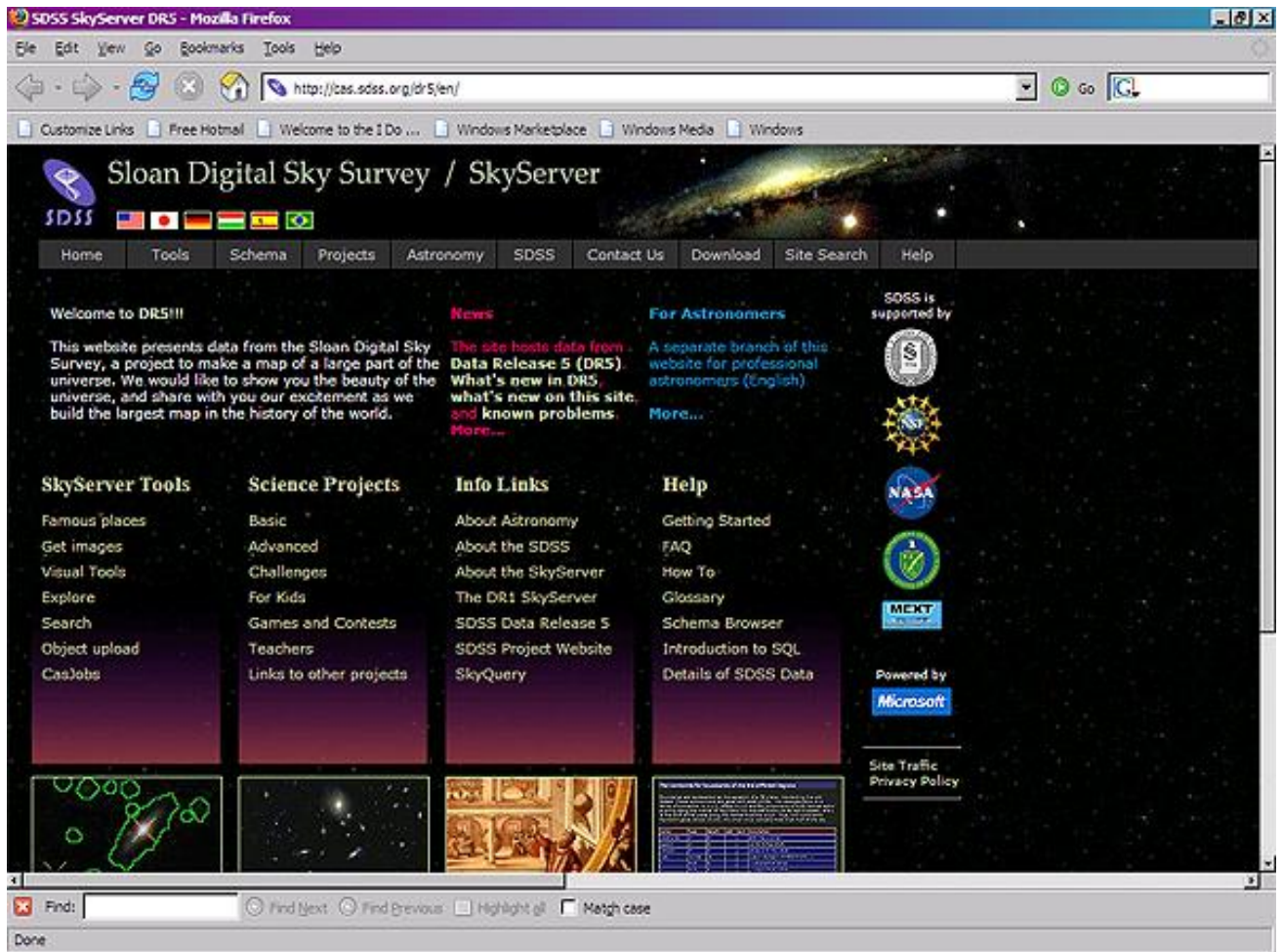## Query an identifier

Identifier :

you can choose to query :

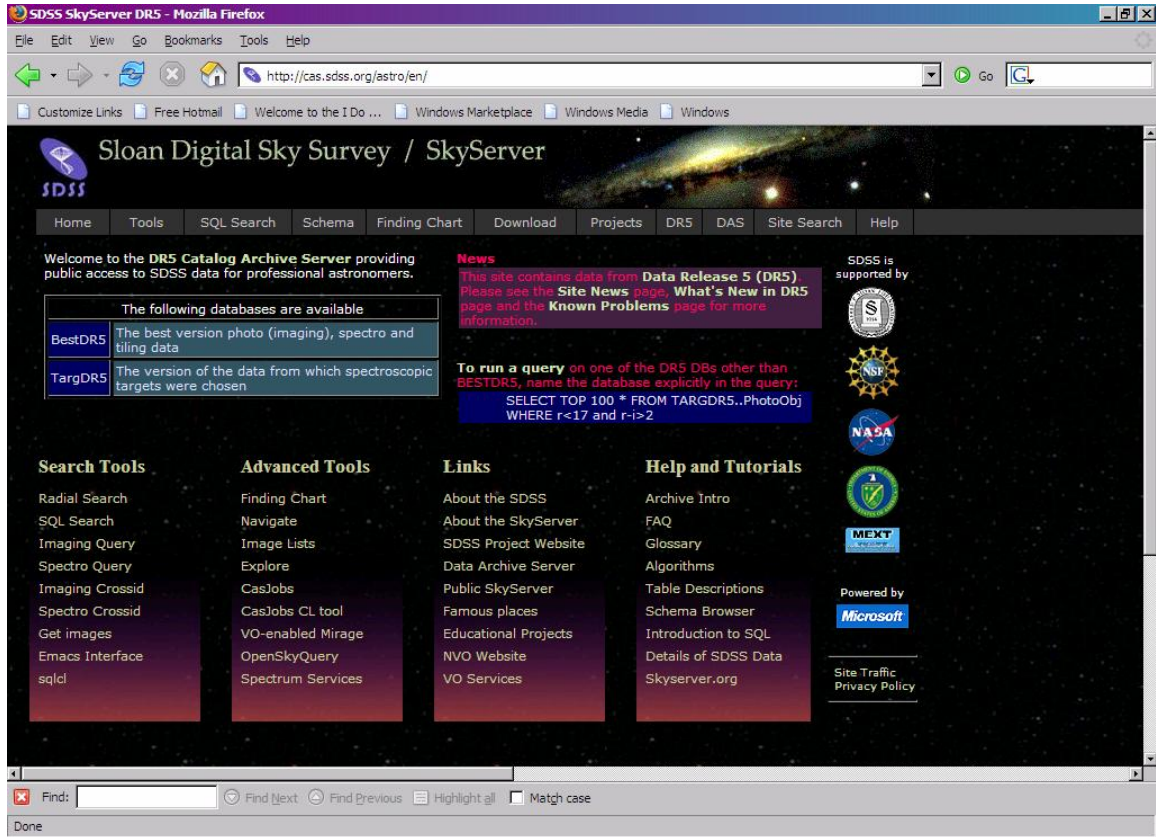around the object, define a radius :

submit id   clear

You will see the RA and Dec displayed in HMS format.

2. Go to the SDSS SkyServer website (http://cas.sdss.org/).

3. Click on **For Astronomers** (the blue text link near the top right of the page, under the menu bar). You will go to a new page. The site will now be optimized for you, astronomy researchers.

4. Look at the *Advanced Tools* column – the second column from the left in the main part of the page. Click on **Navigate**, the second link below the topic header. The page will change to show the Navigate tool:
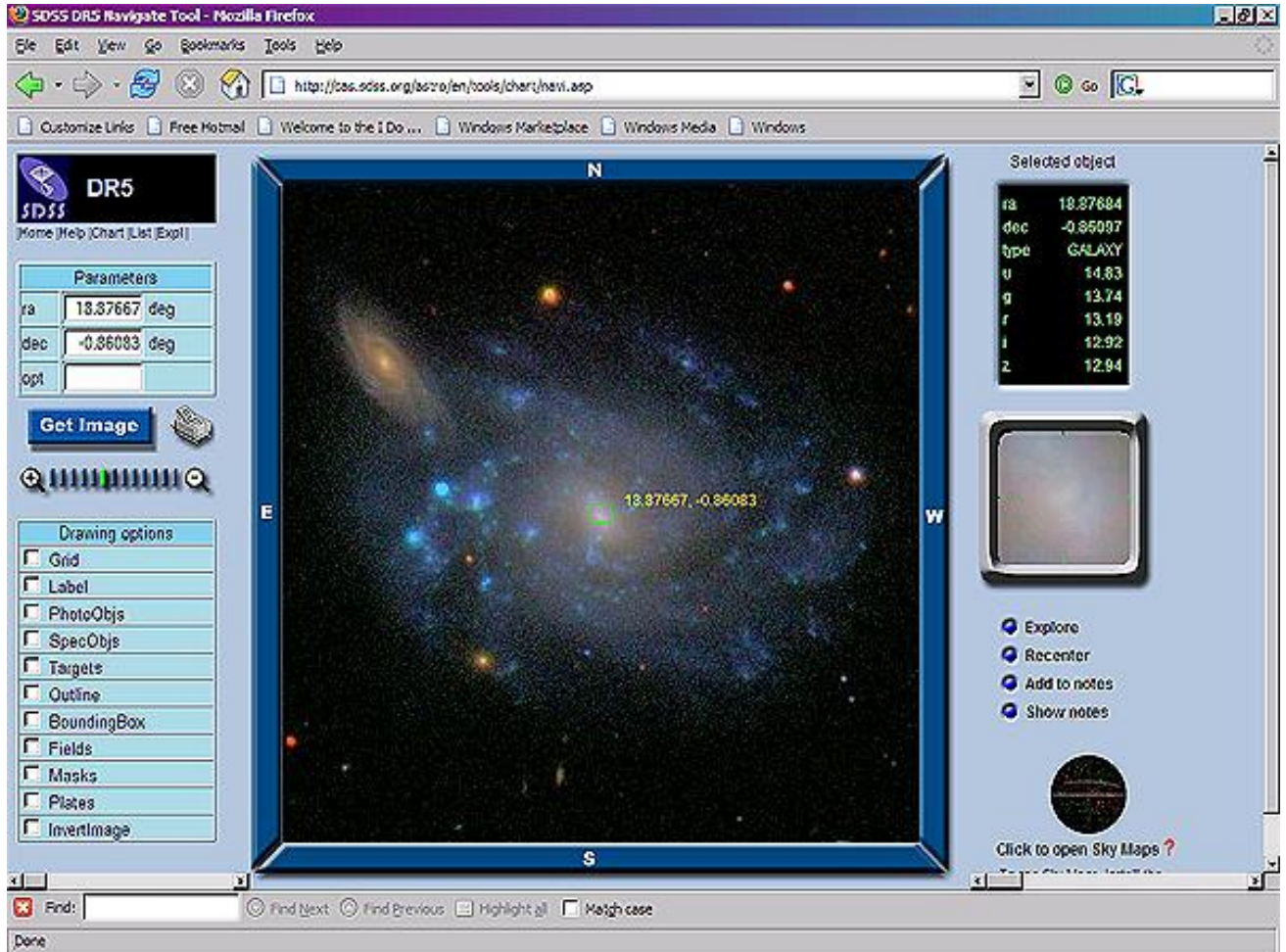
5. Look at the *ra* and *dec* input boxes near the top left of the tool. Enter the coordinates of your object. You may enter them either as decimal degrees or as HMS/DMS. If you enter them as HMS/DMS, use the format "hh:mm:ss ±dd:mm:ss". Click **Get Image**.

6. The image in the center panel will reset to an image of the area surrounding the object you selected. Click the directional buttons (NWSE) to pan the image, and click on the + or – magnifying glasses to zoom in our out.

7. Click on one or more of the *Drawing Options* checkboxes in the left-hand panel to redraw the image with various features selected. Of particular interest is the **SpecObjs** checkbox. When it is selected, the tool displays a red square around all objects for which the SDSS has obtained a spectrum.

8. Click on any object in the image. You will see the object's data in the right-hand panel. The data displayed are the object's ra and dec, and the object's magnitudes in the SDSS's five filters (u, g, r, i, z). You will also see a close-up image of the object.

9. Click **Add to Notes** to add the selected object to your online notebook. Click **Show Notes** to show the notebook:

SkyServer NoteBook

objId	type	ra	dec	u	g	r	i	z			
587731511532060697	GALAXY	18.87684	-0.860973	14.835	13.74	13.193	12.918	12.94	Explore	Navigate	Delete
587731511532060849	STAR	18.88136	-0.841994	19.883	17.024	15.635	15.003	14.646	Explore	Navigate	Delete
587731511532060859	STAR	18.904231	-0.880214	25.947	20.405	18.943	17.583	16.831	Explore	Navigate	Delete
587731511532061072	GALAXY	18.880418	-0.883155	26.697	21.258	19.874	19.349	19.061	Explore	Navigate	Delete

[Clear]　　　　[Upload to ImgList]　　　　[Export]　⦿ HTML　○ XML　○ CSV

From your notebook, you can click **Navigate** to return to the Navigate tool. You can also **Export** the notebook to your computer.

10. Click **Explore** to learn more about the object. A new window will open containing the Explore tool:

11. You will see the object's identifier, ra and dec, and SDSS 18-digit object ID at the top of the page.

12. Below the name and position data, you will see a close-up image of the object, with a scale. The object's photometric data is to the right of the image. The magnitudes are the second row.

13. If the SDSS did not measure a spectrum for this object, the tool will say, "No scienceprimary SpecObj linked to this PhotoObj." If the object does have an SDSS spectrum, the tool will show the spectrum below the photometric data.

14. Click on the picture of the spectrum to see a larger view. Spectral lines are marked on the spectrum by green and pink dotted lines, as well as labels. The redshfit and error are shown at the bottom of the spectrum.

15. To see FITS images of the object, click on the **FITS** link below the *PhotoObj* heading in the left-hand menu. *Corrected Frames* are the final step of processing for SDSS images. There is one image for each filter. *Right-click* on the label for the filter you want to download the image.

16. To see the spectrum as a FITS file, click on the **FITS** link below the *SpecObj* heading in the left-hand menu. *Right-click* on the **Download** link to download the spectrum. It will be a fits file with 4 rows and about 4,000 columns. See the guide to reading individual spectrum files (http://www.sdss.org/dr5/products/spectra/read_spSpec.html) for more information.

17. You can view and analyze the spectrum using the **SpecView** applet developed by the Space Telescope Science Institute. The applet is available at http://www.stsci.edu/resources/software_hardware/specview/ .