This web-based homework assignment deals with multi-wavelength measurement of the Sun. You can find the URL at:

http://vistools.at.northwestern.edu/vistools/ast130/

and select “The Sun”

You need to answer the following questions:

1) Describe the main difference between optical and X-ray images of the Sun when using the blender.

2) Using the blender, find the most dissimilar images in different wavelengths bands? Why?

3) Using the pixel mode button, find the number of pixel elements along the diameter of the image. What is the actual size of a single pixel element that you measure considering that the Sun’s radius $7 \times 10^5$ km.

4) Measure the diameter of the Sun in arcseconds, arcminutes and degrees using the ruler button. Now that you know how many pixels there are across the diameter of the image (from question 3), what is the angular size of an individual pixel in arcsecond?

5) Find the angular size of the brightest cluster of sunspots in the optical image arcsecond by arcsecond (two dimensions).
6) A question from your textbook. Which two of the following statements about the solar wind are true?

A The fast component of the solar wind originates from coronal holes.
B The speed of the fast component of the solar wind is close to the speed of light.
C The solar wind occurs because material is being spun-off from the equatorial regions of the Sun.
D The fast component of the solar wind originates from solar flares.
E Over its main sequence lifetime, mass loss due to the solar wind will cause the Sun to lose over 90
F In the vicinity of the Earth, the solar wind is deflected by the Earth's magnetic field.
G The analysis of the spectral lines of aurorae reveal that the solar wind is comprised mainly of ions of oxygen and nitrogen.