Observing the Giant Planets

Objectives:
The goal of this lab is for students to gain a better physical understanding for the properties of the giant planets and the physical sizes of planetary features and identification of some of the largest satellites of these giant planets.

Checklist:

- Complete the pre-lab quiz with your team (if required).
- Compile a list of resources you expect to use in the lab.
- Work with your team to complete the lab exercises and activities.
- Record your results and mark which resources you used.
- Share and discuss your results with the rest of the class.
- Determine if your team’s answers are reasonable.
- Submit an observation request for next week (if required).
Pre-Lab Quiz

Record your group's answers to each question, along with your reasoning. These concepts will be relevant later in this lab exercise.

1.

2.

3.

4.
Part 1: Identifying Moons

1. Draw a diagram showing the configuration of the moons of Jupiter and Saturn during your observation, as viewed from above. Indicate the direction to Earth.

Jupiter and Moons:

Saturn and Moons:
Part 2: Measuring the Scale of Planetary Features

*Jupiter’s Red Spot:*

1. Measure the angular size of Jupiter’s Red Spot in your image and determine its size.

<table>
<thead>
<tr>
<th>Average Diameter (pixels):</th>
<th>Average Diameter (arcseconds):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to Jupiter (km):</td>
<td>Area of Red Spot (km²):</td>
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</table>

2. Is the spot larger or smaller than Earth? The largest cyclonic storms on Earth cover an area roughly the size of the Gulf of Mexico. How many times larger than this is the Great Red Spot?

*Cloud Bands on Jupiter:*

3. How many cloud bands are you able to distinguish on Jupiter? Determine their widths in kilometers.
Saturn’s Rings:

4. Determine the extent and width of Saturn’s rings in your images.

<table>
<thead>
<tr>
<th>Width (km):</th>
<th>Width (Saturn radii):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer Diameter (km):</td>
<td>Outer Diameter (Saturn radii):</td>
</tr>
</tbody>
</table>

5. Which rings of Saturn are visible in your image?