

Name: _____

Date: _____

Distance Across Lunar Features

Introduction

It is difficult to grasp the scale of features on the surface when observing the Moon through a telescope. Is a feature 10 or 100 kilometers across? The diameter of craters and the linear distance between features can be approximated using a photograph of the Earth-facing portion of the Moon. All that is needed is a ruler and the actual diameter of the Moon. The method you'll use yields only approximations because the curvature of the Moon is not taken into account. However, your measurements should be close. In this lab, you will approximate the diameter and the distance between several lunar features.

Procedures

Inches to Millimeters = Multiply Inches by 25.4

Kilometers to Miles = Multiply Kilometers by 0.621371

Centimeters to Inches = Multiply Centimeters by 0.393701

Distances between features should be measured from the center of one feature to the center of the other. Distances across features, like a crater, should be averaged from multiple measurements from the edges of the crater rim. Use the lunar atlas charts in the Peterson Field Guide to aid in identifying features. It is recommended to make measurements in millimeters for accuracy.

1. First, calculate the scale of the image. Measure the distance from the left limb (edge) of the Moon in the photograph to the right limb. This will be Diameter1. Then, measure the distance from the top limb to the bottom limb. This will be Diameter2. Average the two measurements. Don't forget to note the units you are using i.e.(mm, in).

Diameter1 = _____ Diameter2 = _____ D_{AVG} = _____

2. The physical diameter of the Moon is 3,476 Kilometers. Determine the linear image scale.

Scale = 1 mm = _____ km or Scale = 1 _____ = _____ km

Find the Following

3. What is the distance, between the crater Ptolemaeus and the crater Tycho? _____ miles
4. Locate the crater Ptolemaeus in the photograph. Measure the distance across the crater Ptolemaeus and note its actual diameter.

Measured Diameter = _____ Actual Diameter = _____ km

5. What is the distance across Mare Nectaris? _____ miles

6. Find the diameters of 5 additional craters:

Feature Name: _____ Diameter: _____ km _____ miles

Feature Name: _____ Diameter: _____ km _____ miles

Feature Name: _____ Diameter: _____ km _____ miles

Feature Name: _____ Diameter: _____ km _____ miles

Feature Name: _____ Diameter: _____ km _____ miles

