



Association of Lunar & Planetary Observers

Lunar Topographical Studies Section

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Selected Areas Program: Banded Craters Objectives and Observations

Objectives of the Banded Craters Program are as follows:

1. Detect and catalog craters that exhibit dark and/or bright bands under various lighting conditions throughout a given lunation and from one lunation to another.
2. Determine whether or not there is a relationship between crater brightness at local noon and the visibility of dark or light bands, central peaks, or both.
3. For craters exhibiting banding, determine the relative positions, orientation, and intensities (albedos) of the bands throughout a lunation and from one lunation to another.
4. Investigate what correlations may or may not exist between crater size, the presence of central peaks, and the occurrence of light and/or dark bands.
5. Observe the radial bands, either visually or photographically, through different colored filters to determine any changes in appearance.
6. Establish whether the banding is related to physical or albedo features, both within and surrounding the crater.
7. Monitor the visibility and morphology of bright and/or banded craters during umbral and penumbral lunar eclipses.

Observational data should always be recorded on the BCP Observing Form.
Consider the following when completing the forms:

1. Use only one form for each banded crater observed.
2. A number of lunar maps and atlases of differing vintage exist. Positional data for banded craters may be expressed using *xi* and *eta* coordinates, as well as *Selenographic Longitude* and *Selenographic Latitude*. Either or both coordinates are useful. Enter descriptive data about the "Environ" in which the feature is located [e.g., "crater is located approximately 4 km E (IAU) of Gassendi"] should always be included. Always enter the *colongitude*, *C*, for the date and time of the observation.

One of the easiest ways to determine the position of a newly confirmed banded crater, or to check the positional accuracy of an existing feature, is to make a copy of the region containing the crater from a lunar atlas depicting coordinates. Using the copy, sketch in the position of the crater, paying attention to its correct relative dimensions, and measure the coordinates of the feature later. Some observers draw features directly on copies of lunar maps, attaching them to the observing forms.

3. Using lunar features of known dimensions, estimate the diameter of crater, as well as the length and width of bands, in kilometers whenever possible (careful use of kilometer scales on lunar maps will add precision to this process).
4. Estimates of albedo (intensity) should be made by reference to *Elger's Albedo Scale*, and albedo data should be linked to specific indices on the crater (set up in the same manner as for other SAP features). Utilization of the *Albedo and Supporting Data* form is essential for recording intensity data, and it should be attached to the *BCP Observing Form*. Data that is duplicated on the two forms need not be entered twice.
5. Drawings of craters should be made on the *BCP Observing Form*. Make certain that the direction of North (N) is clearly indicated on the drawing (attention should be given to the proper field orientation of the eyepiece). Also, supplement drawings with good photographic, CCD, or video images of banded craters in an effort to capture their overall characteristics during different solar illumination conditions. It would be useful to record the appearance of craters in different color filters, as well as with variable-density polarizers.
6. In the "Descriptive Notes" section of the *BCP Observing Form*, include information that may not be immediately apparent on the rest of the form or drawing. Notes should be made about the morphology of the feature (e.g., visibility of dark or light bands, central peaks, or both; relative positions, orientation, and albedos of bright and/or dark bands; correlations that may or may not exist between crater size, the presence of central peaks, and the occurrence of light and/or dark bands).
7. Submit observational data, along with photographs, CCD images, or video tapes, to the A.L.P.O. Lunar Topographical Studies Section at the end of a given lunation.