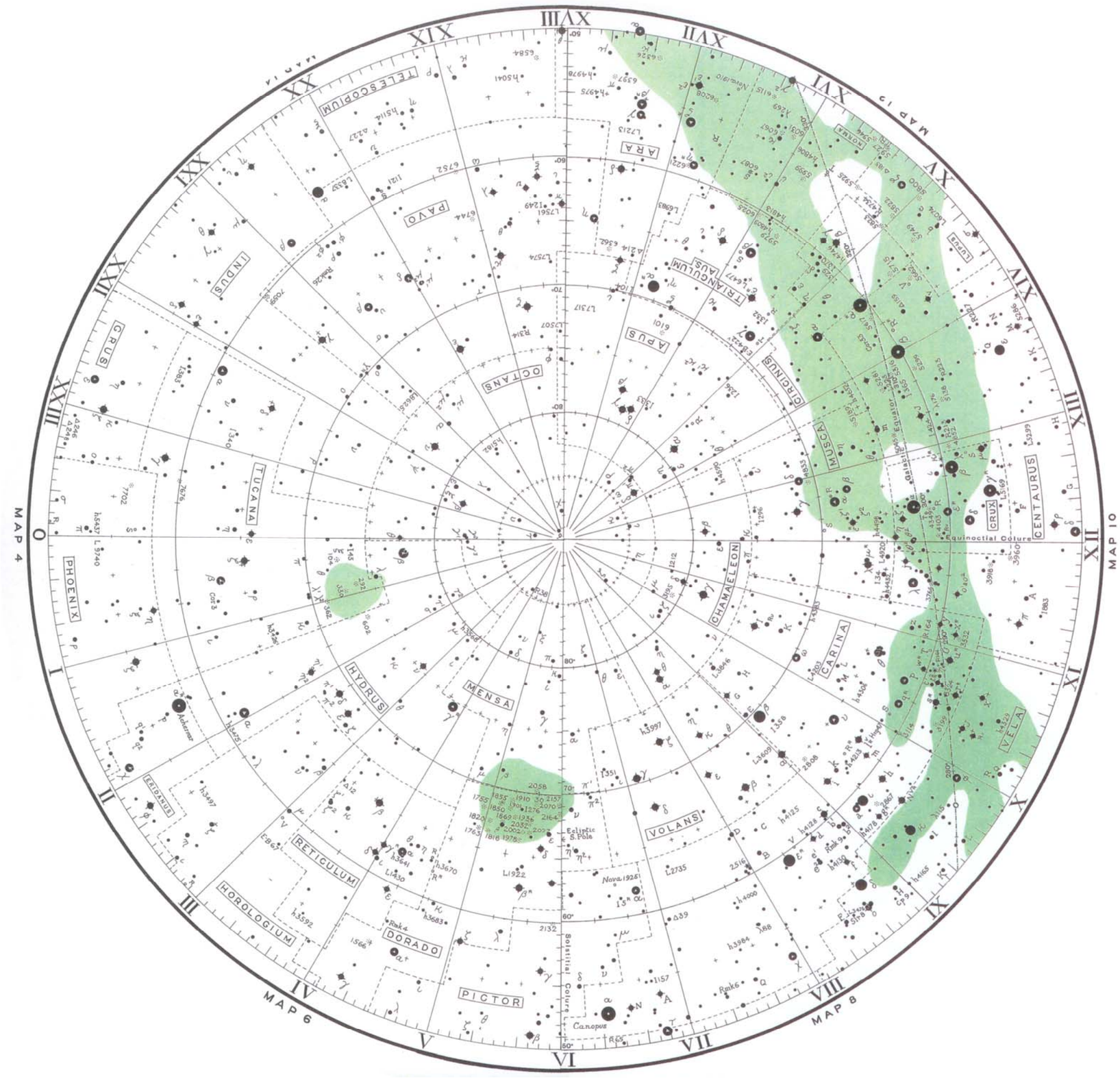
Finding the South Celestial Pole (SCP)



It is useful to be able to find the south celestial pole, and hence geographic south, at night using only the stars.

For each of the methods below, measure the distance (in millimeters) from the actual SCP to your SCP solution to find the most accurate method. Draw a table for your answers.

Method one: The Southern Cross

Draw an imaginary line from Gamma Crux through to Alpha Crucis (Acrux) (these are the two stars at the extreme ends of the long axis of the cross), and extend this line four and a half times the distance of the long axis in the direction from the narrow end of the cross. The end of the line is the method one SCP.

Method two: The Southern Cross and Pointers

Use the line in method one, and extend the line a few cm by drawing short dashes past the method 1 end point. Draw a line between the two pointers Alpha and Beta Centauri. Divide this line in half and draw in the perpendicular bisector line and extend this line to intersect the (dashed) line from the Southern Cross in method A. The intersection point is the method two SCP.

Method three: Canopus and Achernar

The third method uses Canopus (α Carinae, the second brightest star in the sky) and Achernar (α Eridani, the ninth brightest star in the sky). Make a large equilateral triangle using these stars for two of the corners (the line between the stars is considered the standard length for the other 2 sides). The third corner will be the method three SCP.

Method four: The Magellanic Clouds

The fourth method is best for a moonless and cloudless night as it uses two faint 'clouds' in the southern sky. These are marked on star charts as Large and Small Magellanic Clouds. They look like clouds in an otherwise clear sky, and have been thought of as Brolgas by Aboriginals. These 'clouds' are actually galaxies close to our own Milky Way galaxy. Make an equilateral triangle, using the distance between the approximate centers of the clouds as the standard length for the other 2 sides. The third corner will be the method four SCP.

Method five: Beta Centauri and Achernar

Draw a straight line between Beta Centauri and Achernar. Bisect the line. This is the method five SCP.

Method six: Acrux and Achernar

Draw a straight line between Acrux and Achernar. Bisect the line. This is the method six SCP.

Questions

What is the most accurate method for finding the SCP from the above methods?

How many mm from the SCP on this star chart?

What is the celestial coordinate of the SCP for the most accurate method?

What is the celestial coordinate of the SCP

Which star lies closest to the SCP? (note, this can be used as a seventh method for finding the SCP).