

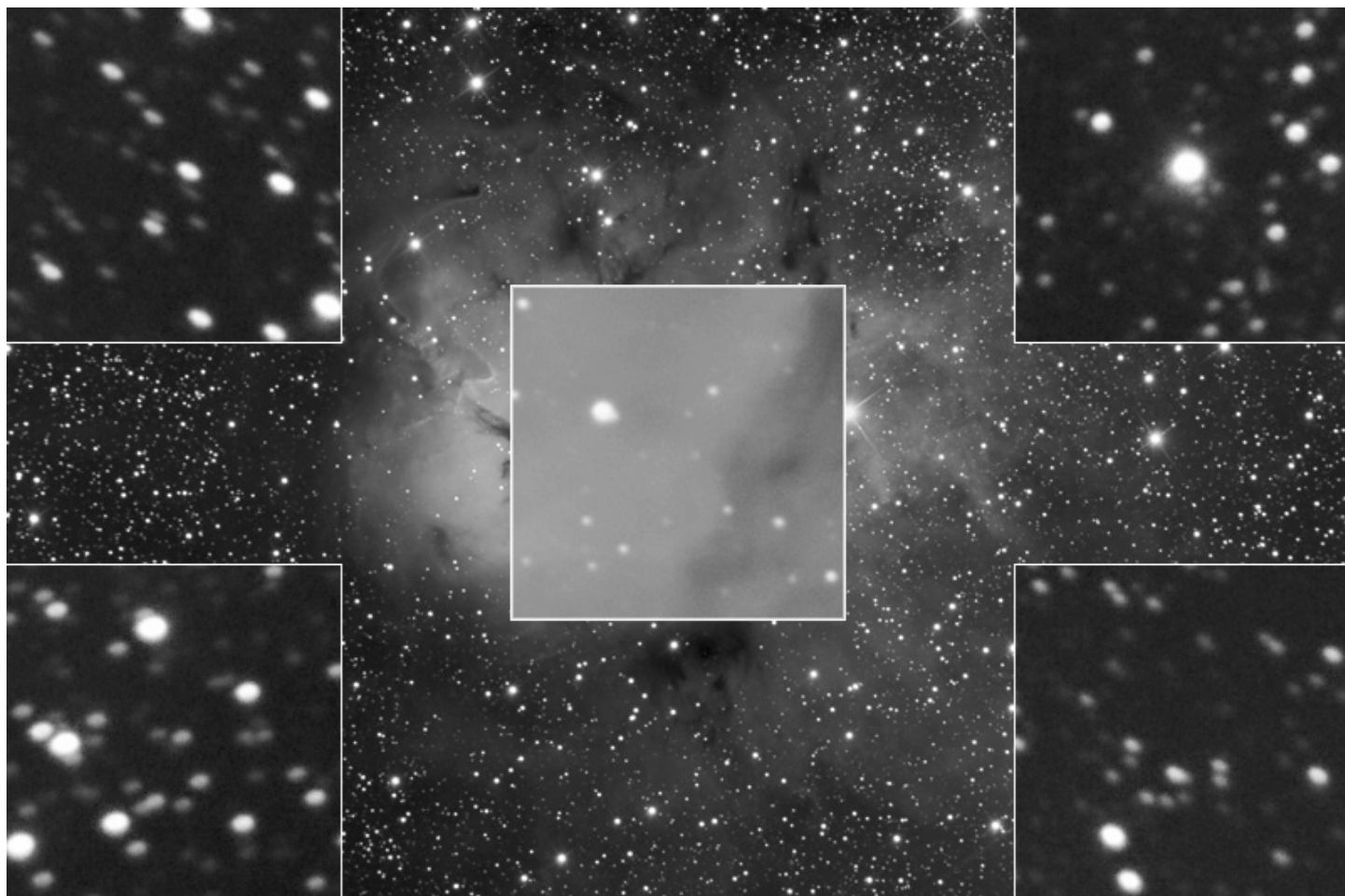
Field Corrector/Flattener

A few words about the RCOS Field Corrector/Flattener from Russell Croman...

Recently I was given the opportunity to try out the new RCOS Field Corrector. This is a two-element lens system that corrects the field of the Ritchey-Chrétien optical design. Although our beloved RCs are coma-free, they still exhibit field curvature and off-axis astigmatism. The corrector was designed to tackle both, and is primarily for use on RCOS 12.5" and 14.5" telescopes; I used it on my older 14" f/10 design. Each scope requires the corrector to be placed in a different position in the optical path to realize the correction.

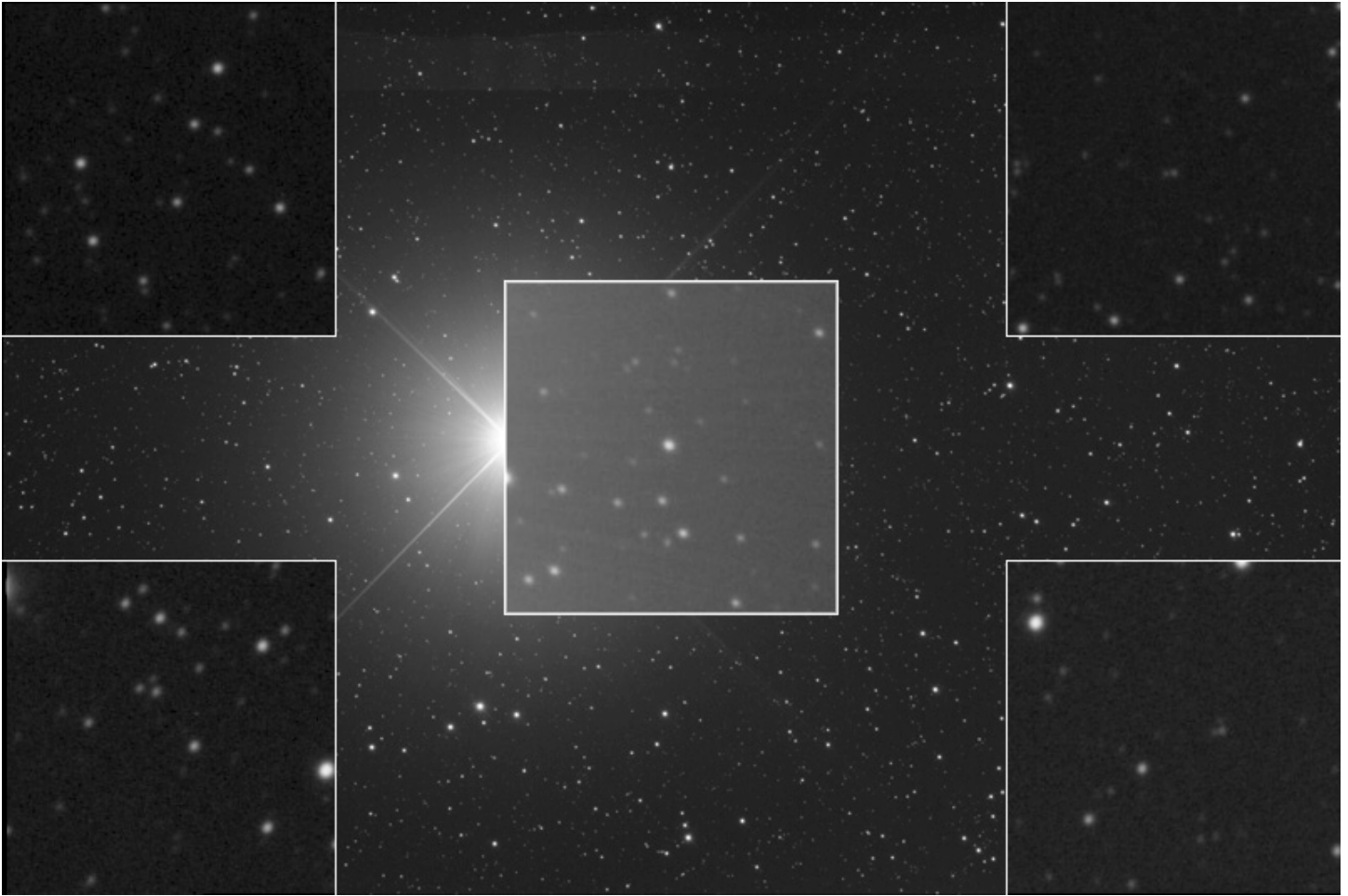
Both images were taken with the SBIG STL-11000XM camera. The large chip exacerbates the impact of field curvature and astigmatism.

First, here's a photo of the Trifid nebula, taken without the corrector.



Notice the very obvious off-axis astigmatism in the corners of the image, shown here at full size. Also note the large increase in the size of the star images between the center of the image and the corners.

Here is an image with the corrector in place. This is a photo of Altair, taken slightly off-axis to check for any ghost images that might be caused by the corrector.



First of all, notice the dramatic improvement in the corner stars. The astigmatism is all but gone, and the spot size variation is greatly reduced. There is a slight amount of residual astigmatism in the lower-left corner, but I believe this is due to a bit of collimation error in my scope. I've suspected for a while that the mirrors may be collimated to each other just fine, but not to the axis of the scope.

There is a ghost artifact that can be seen at the top of the frame, above Altair. However, this is probably due to a reflection off of an edge in the camera somewhere. Any ghost that might have been caused by the corrector could be expected to be circular or arc-shaped.

— Russell Croman

P.S. I'd be happy to answer any questions about the above images. Please contact RC Optical Systems for any other information (e.g., pricing, availability) about the corrector.