

## **What is the Size of the Isoplanatic Patch in the Human Eye?**

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High-resolution images are the final goal of adaptive optics (AO) systems. Performance of the AO depends on the aberration information we have about the object. For deformable mirrors to compensate and generate clear images over a reasonably large field, aberrations of different locations on the retina have to remain a constant. The goal of this project is to determine the size of the isoplanatic patch, i.e. the size of the region on the retina where the aberrations remain constant. The size of the isoplanatic patch defines the extents of an image that can be taken with an adaptive optics system without loss of image quality. To measure it, we use the Shack-Hartmann Wavefront Sensor, an instrument that measures aberrations in the eye. Aberrations were measured at forty retinal locations, spanning five degrees on either side of the fovea. Aberration changes from the central location were computed. The wave aberrations of two subjects, measured over a 6 mm pupil, showed progressive changes from the foveal fixation location. Results showed an Isoplanatic size of ~2 degrees.