Expected Final UCAC Positional Accuracy

8 mag	40 mas
9 mag	30 mas
10-14 mag	20 mas
15 mag	40 mas
16 mag	70 mas

How?

Excellent optics, flat field, & small distortions
(uniform point spread function)
0.01-0.02 pixel Asymptotic Fit Precision (bright stars)
(with 0.9"/pixel scale gives 9 to 18 mas positions)
Two-fold overlap (two long and two short exposures)
average 10 to 50 reference stars per frame
(some frames with none and some with over 130)
Few random degrading factors
(mainly atmospheric turbulence)
Few systematic degrading factors (mainly CTE effect)
(hopefully controlled down to 10 mas level)