In the talk, I would like to show the result from multi-wavelength observations of sub-arcsecond small-scale activities in the solar atmosphere. Penumbra brightening events, whose width is as small as 101 km, occurs two times in 20 minutes and each lasts for about 3 min. The line profiles of Hα lines are reversed during the penumbra brightening events, which is similar to the spectral profiles during solar flares. Regarding the jets activities on the light bridge, two mini jets appear upon the bright fronts of the fan shape jets visible in the AIA 171 Å and 193 Å channels, with a time interval as short as 1 minute. Two kinds of small scale convective motions are identified in the photospheric images, along with the Hα line wing enhancements. The finding of three lobes Stokes V profiles and their inversion with NICOLE code indicates that there is magnetic field lines with opposite polarities in the light bridge. From the Hα -0.8 Å images, we found ribbon like brightenings propagating along the LBs, possibly indicating slipping reconnection.