

Filaments are elongated structures of plasma in solar atmosphere held by solar magnetic field. The aim of this thesis is to study the photosphere near the eruptive filament. An eruptive filament is a filament that erupts in the final stage of its life. The studied filament was located at 10° of heliographic longitude close to the central meridian on October 21 2010. The measurements of the vector velocity fields with a cadence of 6 hours were analysed, as well as the observations in the $H\alpha$ line with a cadence of 1 min and the maps of the line-of-sight component of the magnetic field with a cadence of 45 s. From the $H\alpha$ measurements first the evolution of the filament was studied, including the phase of its activation and eruption. Then the 6-hour averages were studied and mutually compared. The velocity field was used to study the flows in the vicinity of the filament. It was found that before the phase of activation convergent flows towards the spine of the filament was enhanced, which disappeared after the filament eruption. From the magnetograms the potential-approximation magnetic field in the region of the filament was also computed and its evolution was studied.