With the official start of the operations of the three 1.6 m KMTNet telescope systems from 2015 October, we have initiated a program named KMTNet Supernova Program (KSP) from 2015 to 2019 aiming at searching for supernovae (SNe), other optical transients and related sources. Taking advantage of the 24-hour coverage, high cadence and multi-color monitoring observations, this is optimal for discovering early SNe and peculiar ones. From the start of the previous test observing runs of ∼half a year, we have performed observations on several nearby galaxy groups and nearby galaxies with short separations on the sky. We have developed data reduction/variable object search pipelines, meanwhile we have discovered some interesting transient objects. We also stacked all the images for given fields, searched for new objects/galaxies, and discovered several new dwarf galaxies, e.g., in the NGC 2784 galaxy group field (H. S. Park et al.’s talk). We will report the current project status and the results obtained.

We present surface photometry results of the dwarf galaxies in the nearby NGC 2784 galaxy group. We newly detected about 30 dwarf galaxy candidates at about 30 square degree area around the nearby NGC 2784 galaxy (D~10 Mpc and MV~–20.5) applying a visual inspection technique on the wide-field optical images taken by the KMTNet Supernova Program (KSP). Surface brightnesses of the objects estimated from the stacked-images with total exposure time of about 6 hours reach approximately μV~28.5 mag/arcsec2 around 3σ above sky background. The central surface brightness and the total absolute magnitude for the faintest candidate dwarf galaxy among about 40 galaxies including the previously known ones is μ0,V~26.1 mag/arcsec2 and MV~–9.5 mag, respectively. The effective radii of the candidates are larger than ~200 pc. The radial number density of the dwarf galaxy candidates from the center of NGC 2784 is decreasing. The mean color (<(B-V)0>~0.7) and Sérsic structure parameters of the dwarfs, assuming them to be located in the NGC 2784 group, are well consistent with those of the dwarf galaxies in other groups (e.g. M83 group and the Local Group (LG)). The faint-end slope of the cumulative luminosity function (CLF) of the galaxies in NGC 2784 group is about α~–1.2, which is steeper than that of the LG galaxies, but is much flatter than that of the CLF expected by a ΛCDM model.

We present a preliminary result of the Fornax cluster survey as a part of the KMTNet Intensive Nearby Southern Galaxy Group Survey (KINGS). We discovered about 200 new dwarf galaxy candidates from the survey of the 8° × 6° area around the Fornax cluster. They have magnitudes ranging from V=17.5 to 22 mag (MV = –13.8 to –9.3), and they are almost complete to V = 20 mag. Surface