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The Observations of Noctilucent Clouds over Western Syberia and Kazakhstan in 2006-2007.

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During summer months in 2006 and 2007 the regular observations of NLC were organized in terms of Kazakhstan Space Program as a continuation of similar work done in 1994 and 1998.

The expedition observations from a few sites in Northern Kazakhstan (latitudes about 55 N) were carried out by the researchers of Laboratory of Lunar and Planetary Physics of Fessenkov Astrophysical Institute jointly with the colleagues from Northern Kazakhstan University. The observations included digital photography of NLC with time interval 0.5-1 min (about 6000 frames) and regular spectrophotometry with CCD-spectrometer (in 2007). The patrol watching of the evening and morning twilights was done also from Almaty (latitude 43 N) to detect probable appearance of NLC over Kazakhstan (the rare cases of that event have been registered earlier). Special software was developed for fast transfer of the NLC fields from the original digital image as the surface projection on geographic map.

First appearances of NLC were noted in the end of May. The maximum of the appearances number lies in the first half of July. The observed southern boundary of the NLC fields reached usually the latitude about 57-55 N, but in the night 14-15 July 2006 the significant field of NLC was observed from Almaty over Eastern and Central Kazakhstan. Angular vertical extent of NLC observed from northern Kazakhstan reached 70-80 deg and azimuthal 140-150 deg. The duration of unceasing night visibility of NLC was registered to 4 hours. From basis observations the height of NLC was esti-

mated as 75-85 km and two-three layers stratification of them in the mesopause was noted by the animated series of digital photo. The movement velocity of the frontal edge of the NLC fields was measured and estimated about 320-360 km/h. Relative velocities within cloud field are about 100-125 km/h. Some details of clouds after their formation showed vertical displacement from the height 82 km to 72 km during 20 min. The obtained spectrograms of NLC, twilight and stars are now in processing. The additional analysis of the NLC appearance frequency over Western Europe during last 11 years (1996-2006) shows clear trend to increase of the NLC appearance number and southward shear of the boundary of their visibility.