NEW RECORD IN 2018 FOR NOCTILUCENT CLOUD DETECTION WITH COMBINATION OF DIGITAL PHOTOGRAPHY AND MOBILITY. M.S. Zalcik[1] and M.P. Noble[2], [1] NLC CAN AM, 7 – 14130-80 Street, Edmonton, AB, T5C 1L6, bgg_skymerchant@hotmail.com, [2] 18619-62A Avenue, Edmonton, AB, T5T 2T4, michaelpnoble@gmail.com.

Introduction: In 2015 a new record was established by one of us (MN) for ground-based detection of noctilucent clouds (NLC, also known as polar mesospheric clouds or PMC) during a season [1]. Using a digital camera to aid detection, and travelling to various sites to escape weather clouds, MN established a total of 43 NLC-active nights, the total revised downward from the 44 nights reported in the above reference. During the 2018 season this record was broken by MN again, with the seasonal total being 49 active nights.

Included in this final tally were 25 consecutive nights of NLC starting on Jun 22/23, 2018 up to and including Jul 16/17, 2018. The previous record was set by MN during the 2017 season, with 10 consecutive nights from various sites. Also in 2017 we believe a record was set, this time by MZ, for consecutive NLC-active nights from a single site, 9 nights, from Namao, Alberta (53.7N 113.5 W).

In 2018, the first of MN's sightings occurred on May 30/31, and the last, Aug 7/8. Thus, the record sighting total was not necessarily attributable to heightened NLC during the "shoulder seasons" of late May and early August. The end result simply appeared to be the bulk of sightings more tightly-compacted during the core NLC season of mid June until the end of July. We believe the record number could have been even higher if smoke from forest fires in British Columbia would not have filled the nocturnal skies of Alberta in August, thereby preventing any observations of NLC. There was evidence of heightened NLC activity in August from other observations as part of the NLC CAN AM surveillance network; images from meteorological cameras at a number of Canadian airports, interspersed with a few visual sightings, indicated that there was NLC activity on the continent nearly every night during the first half of August 2018.

MN's observations since 2012 have consistently resulted in seasonal NLC-active night totals in the 20s to 40s. Many of the sightings were of faint NLC and/or NLC situated very low in the sky. Nonetheless, it appears that NLC may be a phenomenon not nearly as rare as previously thought. Indeed, during the core of the season, the phenomenon may very well be a *nightly* one from sites in the upper 50s of latitude, provided the tropospheric conditions are favourable and digital photography is utilized to detect the faintest of NLC displays. Perhaps the equatorward edge of the polar zone of NLC/PMC is not an uneven one as indicated by satellite observations [2]. Rather, the very edge may be a more uniform one consisting of faint NLC which can only be detected by sensitive cameras.

References: [1] Zalcik M.S., Noble M.N., Mardon A.A. (2016) LPS XLVII, Abstract #1045. [2] Russell J.M. III, Bailey S.M, Gordley L.L., Rusch D.W., Horanyi M., Hervig M.E., Thomas G.E., Randall C.E., Siskind D.E., Stevens M.S., Summers M.E., Taylor M.J., Englert C.R., Espy P.J., McClintock W.E., Merkel A.W. (2009) *Journal of Atmospheric and Solar-Terrestrial Physics* 60, 1163.